

**Is 8% of the GDP Enough: The Future Direction of
Australia's Health Care System**

Jeff Richardson

Paper presented to the Australian Institute of Political Science,
Melbourne, 31 August 1990

ISSN 1038-9547
ISBN 1 875677 09 7

Not for citation without permission of author

CENTRE PROFILE

The Centre for Health Program Evaluation (CHPE) is a research and teaching organisation established in 1990 to:

- undertake academic and applied research into health programs, health systems and current policy issues;
- develop appropriate evaluation methodologies; and
- promote the teaching of health economics and health program evaluation, in order to increase the supply of trained specialists and to improve the level of understanding in the health community.

The Centre comprises two independent research units, the Health Economics Unit (HEU) which is part of the Faculty of Business and Economics at Monash University, and the Program Evaluation Unit (PEU) which is part of the Department of Public Health and Community Medicine at The University of Melbourne. The two units undertake their own individual work programs as well as collaborative research and teaching activities.

PUBLICATIONS

The views expressed in Centre publications are those of the author(s) and do not necessarily reflect the views of the Centre or its sponsors. Readers of publications are encouraged to contact the author(s) with comments, criticisms and suggestions.

A list of the Centre's papers is provided inside the back cover. Further information and copies of the papers may be obtained by contacting:

The Co-ordinator
Centre for Health Program Evaluation
PO Box 477
West Heidelberg Vic 3081, Australia
Telephone + 61 3 9496 4433/4434 **Facsimile** + 61 3 9496 4424
E-mail CHPE@BusEco.monash.edu.au

ACKNOWLEDGMENTS

The Health Economics Unit of the CHPE receives core funding from the National Health and Medical Research Council and Monash University.

The Program Evaluation Unit of the CHPE is supported by The University of Melbourne.

Both units obtain supplementary funding through national competitive grants and contract research.

The research described in this paper is made possible through the support of these bodies.

Is 8% of GDP enough: The future direction of Australia's Health Care System

1 Introduction

Despite its title this paper will not be primarily concerned with the future level of health care expenditure. Prediction is hazardous at the best of times but particularly when it is about the future. Consequently I will refrain from crystal ball gazing and - to mix metaphors only very slightly - from pulling rabbits out of them. Rather the paper will review three issues. The first, in Section 2 below, is the belief that ageing and technology will combine to place extreme pressure upon even an augmented delivery system and that these factors together make a cost explosion more or less inevitable.

The major theme of the paper is that the size of the health sector is not mechanically determined and that a range of delivery options are available which are compatible with varying levels of expenditure. It is certainly possible that in the future we may choose to devote more resources to health care but within fairly broad limits this will be a response to higher incomes and to the choice of a health and health insurance system.

The remaining two issues in the paper are concerned with this choice. In Section 3 there is a review of some of the questions that are relevant to the selection of a financing and delivery system. In particular some of the characteristics of the health sector are discussed which distinguish it from other parts of the economy and place constraints upon the range of feasible options. Three of these options are discussed in Section 4. The paper does not advocate a particular scheme but it does seek to highlight the very obvious deficiencies in one particular direction of change advocated by some very influential organisations.

2. THE TECHNOLOGICAL IMPERATIVE

The commonly held view that health expenditures must rise very significantly as a percentage of GDP is based upon the perception that the size of the health care sector is determined fairly mechanistically by clearly defined needs and by a fairly clearly defined set of procedures for satisfying these. It is perceived that ageing will expand the former and technology increase the resources needed for the latter. The argument is only correct if three assumptions are made. First, the changing demographic structure must imply a quantitatively significant increase in the use of resources. Secondly, new technology must be cost increasing, not cost decreasing and, thirdly, it must not be possible to run our health system more cost effectively than at present. Each of these assumptions is questionable.

Concern is often expressed about the rate of increase of the aged population in Australia. Between 1986 and 2021 the proportion of the population aged 65-74 and above 74 will rise by 42% and 48% respectively (Mathers, et al, 1988). However, these types of statistics appear to be dramatic because the use of a *percentage* increase from a figure which is relatively small (2 represents 100% increase over 1; the absolute increase is not great).

By western standards Australia's population is still relatively young. By 2010AD the percentage of the population over 65 will be about the same as the OECD average in 1980. There will be a rapid increase in the percentage in the following decade but by 2030 it will only be marginally greater than the 1980 percentage for Germany, U.K., Austria and Sweden. The rather underwhelming impact of this demographic change upon the need for hospital and medical services is illustrated in Table 1 and Table 2 below.

TABLE 1. GROWTH AND AGE/SEX PROJECTED GROWTH OF MEDICAL SERVICES

Historical	Medical Services/Capita	Growth Rate p.a.
1966	3.3	
1973	4.7	5.0
1976	5.5	
1986	7.2	3.0
Projected		
2001	7.6	
2021	7.8	0.2

Source: Mathers et al (1988).

TABLE 2 GROWTH AND AGE/SEX PROJECTED GROWTH OF HOSPITAL SERVICES (TOTAL)

Historical ²	Bed Days (millions)	ALOS	Separations (millions)
1969/70	20.37	9.3	2.19
1982/83	22.21	7.2	3.07
% change p.a.	0.66%	-20%	2.6%
1984/85	21.25	6.6	3.22
1987/88	21.20	6.0	3.53
% change p.a.	0	-3.6%	2.8%
82/83-87/88			
Projected Growth		Growth Rates (%)	
1981-1996 ¹			
No ageing	-0.4	-2.0	1.6
Ageing	-0.2	-2.0	1.8

Sources:

1. Mathers C.D. et al (1988): Hospital data apply to NSW, Qld and WA. Dialysis excluded.
2. Deeble, J. (1989)

Between 1966 and 1986 Australian medical services per capita grew by about 4% per annum with the more rapid growth occurring in the earlier period. If the pattern of use remained at its 1986 level for each age-sex group and nothing else occurred except for the ageing of the population, medical services would rise at a rate of only 0.2% per annum to 2020AD - well below the historical rate of increase. A similar conclusion may be drawn from projections of hospital use (table 2). Historically, the number of persons completing an episode of hospitalisation (separations) has risen at about 2.6% to 2.8% per annum. If the population continued to rise but retained the 1985 demographic structure, separations would rise (in the three states included in the study) by 1.6% per annum until 1996. Projected ageing would increase this to only 1.8%. If the long term decline in the average length of stay (ALOS) continued, ageing plus population growth would result in virtually no net increase in the use of beds by 1996.

The likely effects of ageing on medical and hospital services is clearly modest. In an independent exercise the OECD has projected the level of health expenditures to the year 2030 on the assumption that, apart from ageing all else remained constant (OECD 1987). For the member countries as a whole, per capita expenditure rises by 0.35% per annum. Australia is above average with an annual per capita increase of 0.43%. This is still well below the long term growth rate for the economy and implies that, all else equal, the share of health expenditure in the GDP would fall.

If health expenditures are to resume the upward trend of the 1960s and early 1970s then some other factor will be responsible. The second variable commonly indicted is technological change. But the importance of technology both historically and in the future is problematical. Various

approaches have been adopted to determine its contribution to rising costs in the past. (For a review see Doessel, 1987, Richardson, 1986). Both Fuchs (1972) and Mushkin and Landefeld (1979) assumed that technology was responsible for that part of rising costs that could not be explained by other variables, i.e., the effect was measured as a residual. The former author found technology had increased costs; the latter that it had decreased them. Others, such as Feldstein (1977) have assumed that rising quality is a function of technology, but that this is itself a function of economic variables. More specifically Feldstein argues that rising insurance generated a demand for increased quality and that technological change was a consequence of this.

Analysis of the costs of treating specific conditions has been compatible with this latter conclusion. After one of the most comprehensive of these studies, Scitovsky (1979) concludes that "with minor exceptions cost raising changes in treatments outweighed cost saving changes in both periods studied ... so that the net effects of changes in treatment were generally cost raising" (p39). This was largely a result of the more intensive use of known procedures. Thus, for example, it was found that "the number of laboratory tests per case of uncomplicated appendicitis rose from 4.7 tests per case in 1951 ... to 9.3 tests in 1971 (and) tests per case of perforated appendicitis increased from 5.3 tests in 1951 ... to 31 in 1971" (p33).

This latter observation illustrates an important and recurring theme in the literature, namely, that the principal cause of rising costs has been the increased use of undramatic, small scale and often well established technologies. Banter (1979) notes that 10 to 15% of the US hospital expenditure of \$US85 billion in 1983 was on intensive care, itself a complex of technologies. Diagnostic X-rays and laboratory tests cost \$US7.6 billion and \$US15-20 billion respectively. Diagnostic tests alone accounted for 40% of the recent increase in hospital costs. Similarly, Banter (1983) argues that "widely publicised capital intensive technologies contribute a smaller percentage than diagnostic tests. CT scanners (\$875 million), coronary by-pass surgery (\$1.5 billion) and electronic foetal monitoring (\$411 million) do not make a ripple in the figures" (p86).

In the aggregate analysis of hospital costs, technology has generally been equated with the intensity of treatment. The approach is justified by defining technology very broadly as any change in the method of organisation of a treatment. However, as a consequence, such analyses cannot identify the specific technologies responsible for changes and, more seriously, they cannot disentangle the effects of changing knowledge or new equipment from the effects of changing practice norms caused, for example, by rising incomes, increased insurance coverage, the increased availability of a given type of equipment or from an increasingly defensive practice of medicine caused by the threat of litigation.

While most observers appear to accept that, on balance, technology has been cost enhancing it is not clear that it has always had this effect or that it should continue to do so. This cautious conclusion is summed up by Fuchs (1990)

"Most observers assert that expansion in the character and scope of interventions that physicians can undertake has been a major factor in the growth of health care quantity in recent decades. It must not be assumed, however, that this need always be the case. During the late 1940s and 1950s, the most important

technologic advance in medicine, antibiotic drugs, sharply reduced the average length of stay in hospital. Between 1947 and 1957, a period of great advances in medicine, the quantity of health care grew at only about the same rate as the rest of the economy. This experience should serve as a warning against a blanket indictment of technology as cost enhancing." (p.537)

In sum, the future impact of technology is uncertain. There are a number of large and small scale technologies which are presently diffusing through the health system. If there is no change in the present financial incentives for the overuse of these then it is likely that they will significantly add to costs. This is a particular risk in the case of diagnostic technologies where the use of a new test need not substitute for an older test (see Doessel (1987)) for an interesting analysis of the Australian experience with barium meal radiography and fibre optic endoscopy of the upper and lower gastro-intestinal tract). On the other hand, technologies are being adopted that will almost certainly reduce costs. These include less obtrusive procedures such as the percutaneous and endoscopic technologies, day surgery and the other hospital substitutes that are currently reducing the length of hospital stay around the world. In the longer term the results of genetic engineering may either be the extension of life so that the proportion of the population with disability and chronic illness is increased; conversely it may reduce the cost of treating such conditions.

The third premise underlining the belief that future health care costs will be subject to inexorable upward pressures was that the health system is presently run as cost effectively as possible - that it is not feasible to obtain more output from present expenditures or the same output more economically. An equally important question is whether there is a serious possibility of operating the system less efficiently and permitting costs to escalate when there is no real reason for this and no matching benefits.

There is overwhelming evidence that health systems can be operated on vastly different budgets and that, at the micro level, practice patterns can vary enormously without any known relationship to medical benefits. This is illustrated most clearly for selected OECD countries in Table 3. Health expenditures vary in these countries by more than 300%. Even as a percentage of GDP, the health bill in the USA is almost twice the level in Spain and yet infant mortality and life expectancy in the former are inferior to the outcome in the latter. In general there is no relationship between the available outcome data and the level of expenditure by western nations.

TABLE 3. HEALTH EXPENDITURE 1987, INFANT MORTALITY AND LIFE EXPECTANCY SELECTED OECD COUNTRIES

Country	Health Expenditure (\$US/Capita)	Health GDP(%)	Infant Mortality 100s	Life Expectancy	
				Female	Male
Australia	966	7.1	8.1	80	73
Canada	1483	8.6	7.9	80	73
Finland	949	7.2	6.2	71	79
Germany	1093	8.2	8.3	78	72
Ireland	561	7.8	7.4	77	70
Japan	915	6.8	5.0	81	76
Spain	521	6.0	8.7	80	74
Sweden	1233	9.0	6.1	80	74
U.K.	758	6.1	9.1	78	72
U.S.	2051	11.2	10.0	78	72

Source: Schieber and Poullier 1989

These summary indicators of health outcome give an incomplete picture of the impact of health expenditures but the lack of any apparent relationship between them and the size of the health sector calls into serious question the value of health expenditures. This concern is increased by the evidence of highly significant variation in practice patterns between countries which are again unrelated to apparent need or outcome. In 1980 the rate of tonsillectomies per thousand population varied by a factor of 9.8 between the UK and Ireland and 7.9 between the UK and USA. Cholecystectomy varied by a factor of 6.8 between the US and Norway and hysterectomies were 3.8 times greater in the USA than in Sweden (see Table 4).

TABLE 4. REPORTED ADMISSION RATES FOR SELECTED PROCEDURES: SELECTED COUNTRIES, 1990

Country	Tonsillectomy Appendectomy	Cholecystectomy	Prostatectomy	Hysterectomy
Number of Admissions per 100,000 population				
Australia	115	145	183	340
Japan	61	2	-	244
Sweden	65	110	48	168
Switzerland	51	49	-	74
United Kingdom	26	78	144	131
United States	205	203	308	130

Source: McPherson 1990.

As a result of observing such gross differences between countries there has been a widespread

effort to document small area variation in the rate of procedures within countries. Results have been startling. Between 30 different hospital market areas in the state of Maine, Wennberg et al (1984) found admission rates varying by a factor of more than 8.5 for chest pain, transient ischaemic attacks, minor skin disorders, chronic lung disease, hypertension and ten other conditions. Variations of 2.5 - 3.5 were found for another twenty admission categories. Ham et al (1988) reported a 26-fold difference in injections for Haemorrhoids between thirteen sites in the USA while 67 of the 123 procedures observed had at least a threefold difference after adjusted for age and sex. In general, medical procedures varied more than surgical procedures. This evidence gives powerful support to Wennberg's (1982) thesis that medical practice is characterised by uncertainty about the level and type of treatment that is appropriate.

The conclusion to be drawn from the proceeding discussion is that there is no mechanistic relationship between need, the level of health care and health care expenditures. Rather there is a significant diversity of practice patterns at both the national and the regional levels. As these patterns are subject to change, the task of long term prediction is exceptionally hazardous. When the incentives are appropriate it is technically possible for the health sector to absorb a very significantly higher level of expenditures than at present. Fuchs (1990) for example, has calculated (as distinct from predicted) that if the 3 percentage point gap between the growth of health expenditures and other expenditures in the USA which has existed during the 1980s should continue for another ten years, US health expenditures would be 15% of the GDP. With a 2.5% real growth of the economy this would result in 3.7 times the expenditure on real resources per capita than currently occurs in Australia. There is no technical reason why Australia could not also absorb this level of expenditure.

3. HOW THE HEALTH SECTOR DOES NOT WORK

In the absence of a mechanistic relationship between needs and expenditures the important task becomes the achievement of a health system with incentives to maximise the likelihood of value for money decision making. There is now a large literature on this subject. (For a review see Richardson 1988). The starting point of such an analysis is almost invariably the economic model of a competitive market and the presumption that in a liberal democracy individuals should be permitted to buy and sell whatever is within their means. In this Adam Smith conceptualisation of the market, efficient value for money decisions are ensured through the interplay of two approximately equal and countervailing forces, namely the self interest of the provider and the self interest of the well informed consumer. In the absence of coercion or deception any voluntary transaction is assumed to improve a consumer's welfare as (s)he would not have participated otherwise. Competition ensures that the consumer will be provided with the best value commodity or service that is technically feasible and consumer information ensures that the buyer will select the product that most satisfies his or her needs.

Despite a resurgence of interest in the application of this model to the health sector in the 1980s which was associated with the New Right, it is almost universally rejected for both theoretical and empirical reasons. Firstly, the most outstanding fact about health care delivery and financing is that it is the subject of very strong social objectives. Virtually every country in the world, and

certainly every country in the developed world, has intervened in health care delivery or financing. In the purely libertarian world of the competitive model if an individual fails to make ex ante provision for the possibility of a catastrophe they will suffer the full consequences. They may or may not be the recipient of charity, but benefits received would be the result of grace and favour and not an automatic right. While particular social objectives may not always be clearly articulated it scarcely seems possible to deny the special status given to health care and the fact that, to a greater or lesser extent, the ex post provision of basic health care is regarded as a right irrespective of an individual's previous decisions.

The second and equally fundamental problem with the application of the competitive model is that in the health sector consumer information is very poor. Efficiency in the model is the result of the consumer's ability to evaluate the consequences of purchasing a product. But in health care an assessment of the effects of the treatment is part of the service purchased. While there may be circumstances in which lay consumers believe they can assess the diagnostic abilities of a general practitioner, expenditures on general practice in Australia constitute only 5% of the health sector and, in the quantitatively dominating specialist care and hospital sectors, there is little question about the consumers inability to evaluate the consequences of alternative treatments. As noted earlier, there appears to be a significant question about the providers capacity to judge this. In the absence of adequate consumer information, the countervailing power to supplier interests is removed and with it the cornerstone of efficient decision making in the conventional market model.

Consumer ignorance does not, in itself, demonstrate that the market will be technically inefficient nor the extent of the inefficiency, if it occurs. In principle, professional or other motivations may result in the key decision makers - mainly doctors - acting as perfect agents for consumers as has been suggested by a number of the proponents of the unregulated market. However it is by no means clear that such an assumption is warranted nor that decision makers could replicate consumer decisions.¹

In the absence of satisfactory consumer information the issue of market efficiency must be resolved empirically. Three recent surveys of public and private ownership in the health sector have been undertaken (Stoddart et al (1985), Richardson (1988), Gardner and Scheffler (1988)). None of these has demonstrated the superiority of private ownership that is usually found in such reviews. Rather, there is evidence that private hospitals raise profits by increasing hidden charges rather than by decreasing costs - a result which is only possible in the absence of satisfactory consumer information. National and compulsory health insurance has been found to operate with a fraction of the administrative expenses of private and competitive health insurance, largely because of the elimination of much of the processing and promotional activities associated with the latter.

¹ It is ironical that such an argument should be used by libertarian economists. Market efficiency is the result of the interaction of two groups each attempting to maximise their selfish objectives. Confidence in the model rests upon a fundamental belief in the supremacy of such selfish motives. To establish the applicability of the model in the medical sector it is assumed by proponents of the market that the key suppliers abandon their personal objectives and, unlike providers elsewhere, pursue purely altruistic ends.

A second source of empirical evidence on the efficacy of the ineffectually regulated free market may be found in the literature on the diffusion of medical technology. There is almost unanimous agreement that inappropriate medical technologies have been introduced and efficacious procedures overused. The problem is not simply that procedures are adopted when costs exceed benefits. Rather, procedures are generally adopted before the benefits are known. Subsequent testing, if it occurs, has commonly shown procedures to be ineffectual and, on some occasions, potentially dangerous (Banter and Russell, 1981).

The proximate reason for this situation is that there is far greater enthusiasm and funding for basic research than for the evaluation of the products of this research. Few technologies have been implemented after testing by random control trials; even fewer have been subject to economic analysis. The more fundamental reason, however, is that the market for medical technology has failed in the sense that, in the absence of any countervailing interests, there is little incentive for the production of the information required for an accurate assessment.

At each decision point in the medical market the incentives operating in both the USA and in Australia have encouraged the uncritical use of new technology. Neither the individual nor the individual's agent in major decision making - the doctor - has the capacity to evaluate complex technology. In medical care, "more" is often equated with "better", especially when the treatment is new - an equation which is reinforced by the technological orientation of the population. Media coverage of dramatic innovations heightens public expectations and consumer demands while manufacturers of medical technologies vigorously promote their products. Similarly, doctors have little interest in costs and by training and socialisation have a pre-disposition to use the most recent technology. Hospitals might be expected to place greater emphasis on cost effectiveness, but in the USA for many years, hospitals have competed with one another in the provision of facilities in order to attract doctors and, with them, their patients (Pauly 1980). There is evidence of similar competitive behaviour in Australia and the probability of a hospital having a particular technology rises, not falls, when a nearby, competitive, hospital has the technology (Richardson, 1988). Within the hospital, doctors' professional aspirations and incomes are both promoted by the installation of new equipment. In the dominant public sector this does not result in any cost to the doctor but enhances the range of procedures (s)he can carry out on both public and fee paying private patients.

Finally, and most importantly, there are powerful financial interests within the health care system promoting the utilisation of new technologies. In 1979 there was an estimated world wide R & D expenditure on health related technologies of between \$US11 - \$US15 billion (Banter and Russell, 1981). The financial viability of the private sector component of this research depends upon the sale of the new technologies. Once sold, there is a further financial incentive for the doctor or hospital to maximise the use of services. With fee for service payment, "utilisation" normally means "income". There is clear evidence from a number of studies that the use of new technology is related to the remuneration for its use.

The result of this complex of incentives has been a fairly typical life cycle for new technologies that is described by Russell (1979), Williams (1983) and most fully by McKinley (1981). Following the introduction of a new technology, there is a series of "promising reports" in medical

journals. Despite the absence of adequate testing these generally lead to "professional adoption" and to "public acceptance". With time, the technology achieves the status of a "standard procedure". At this stage it may, for the first time, be subjected to a random control trial, but only after overcoming significant obstacles to this erected by the financial and professional interests that have come to be associated with the procedure. After the technology has been shown to be ineffective, there is the stage of "professional denunciation" - of the trial. The final stage of "erosion and discreditation" of the procedure occurs only gradually and may take more than a decade.

The outcome described here is a result of a system in which interests are unbalanced. There is little effective resistance in the insurance augmented free market to those with a powerful interest in higher expenditures. The problem is more general than the market for new technology. Palmer (1980) notes that:

"Health care personnel in general have benefited from increased expenditures on health services, and measures to contain the growth of costs will have major adverse repercussions on their income and employment opportunities ... those likely to be adversely affected, medical staff, administrators, the suppliers of equipment, materials and services to hospitals and hospital board members, are amongst the most well informed, best organised and articulate members of the community. Their influence on the political process is therefore likely to be disproportionately large in relation to their numbers. The adverse effects of cost escalation on the rest of the community, in their role of tax payers and consumers, are relatively unimportant." (p.25)

Perhaps the most persuasive evidence on the nature of the medical market is obtained by a comparison of the experience in the market oriented U.S.A. with the outcome of health systems where government regulation and ownership is more pervasive. As revealed in tables 3 and 4 earlier, the U.S. not only has the world's most expensive health system - it spends 50% more per capita than the world's next most expensive system (OECD, 1990) - but its outcome appears to be inferior. Life expectancy for both males and females is in the bottom half of the OECD league table and infant mortality is only greater in Greece, Portugal and Turkey.

In the last two years particular attention has been given to the performance of the Canadian and U.S. health sectors as the introduction of comprehensive health insurance in Canada represented something akin to a natural experiment (see Newhouse et al (1988), Fuchs (1988), Richardson (1987), Evans (1988), Evans et al (1989), Evans (1989), Mitchell (1988)). As shown in Figure 1 before the introduction of Canadian (hospital) Medicare in 1962 (see dotted line), infant mortality in Canada was consistently greater than in the U.S.A. After the introduction of Medicare, Canadian rates fell below the American level where they have remained. Canadian analysts have claimed that the only explanatory variable to have changed during the relevant period was the extent of the Canadian insurance coverage and that Canada's improved relative position was a direct result of this change. The result is plausible. Independent evidence suggests that infant mortality is related to the level of health insurance and in the U.S.A. rates of infant death are significantly higher amongst those social groups that, in Canada, were included in the compulsory insurance system.

Figure 1 also indicates that before the introduction of hospital Medicare, Canadians devoted a greater share of GDP to health. This position was reversed immediately after the introduction of hospital Medicare. Following the introduction of compulsory medical insurance in 1970-72, Canadian health expenditures rose as a result of increasing medical prices. In the remainder of the 1970s Canada achieved greater restraint over its expenditures than in any western country except Australia. Other evidence suggests that the declining expenditure also resulted in declining costs (Detsky et al (1983), Newhouse (1988)).

The almost universal view of Canadian economists with respect to the U.S. health system is summed up by Evans (1988):

"The Canadian approach to funding was declared unworkable by its opponents - physicians and private insurers - in the early 1960s, and the same interest groups have continued to detect imminent collapse right up to the present. The American health care system is well into the third decade of the longest running cost explosion since the great inflation of the sixteenth century ... All over Europe, governments are struggling to contain costs ... their academic advisors ... sometimes suggest that they look to the United States for solutions, which makes about as much sense as looking to the USSR for advice on organising grain production or to the UK for ski jumping coaches ... Canadians consider getting sick in the United States as the equivalent of a rather severe mugging. It has similar economic and physical consequences, and provincial governments have sent medical evacuation flights to rescue their citizens from the US hospital system." (p.180)

A further contrasting feature of the US and Canadian systems is worth noting. Following the recent passage of the "Canada Health Act", "extra billing" in Canada has virtually ceased to exist - in Australian terminology, there is universal bulk billing. In combination with its universal health insurance, Canada has ceased to use patient copayments as a means of controlling demand. By contrast, despite vigorous attempts by the government to promote bulk billing ("assignment") amongst Medicare patients, the US still employs user charges to a much greater extent than other western countries. The respective cost performance of the countries illustrates that, while consumer charges may have a small role to play in an otherwise well regulated system, they are neither necessary nor sufficient for cost control. Their principal purpose appears to be twofold. First, they are a source of income and revenue for providers (and hence the almost universal call by providers for the use of copayments "to control demand"). Secondly, they are a means of shifting cost and risk from the primary insurer. These powerful motives for the retention of copayments and perhaps a desire to explain all behaviour in the same simple economic model have sustained the belief - or, at least, the public statement of the belief - that copayments have an indispensable role throughout the health system. This is despite the complete absence of evidence that copayments have a particularly significant quantitative effect or that they can explain even a fraction of the post-war inflation of health costs. Evans (1988) offers another explanation for this phenomena:

"Devotees of rather simple minded economic views of human behaviour consistently insist that free care leads to overuse, abuse, waste, and exploding costs. This would appear, on the surface, to be a testable empirical issue. But a fascination with "the price system" or "the market", which in some systems of thought plays a role very similar to that of God for the eighteenth century deists, leads to the conviction that "free" anything is profoundly immoral as well as fattening and therefore ought to be illegal regardless of its consequences."
(p.179)

Belief in the efficacy of copayments as a means of controlling costs is based upon the simple view of the market discussed earlier in which the consumer is seen as capable of exercising a countervailing influence to providers if there is a financial incentive to do so. The contrasting view of the health market implied throughout this section is that the countervailing influence necessary for market efficiency must be exercised by a larger, better informed and more powerful agency than the consumer. With this perspective, the key feature of an efficient market will be a concentration of financial responsibility with a single body and a limited ability of that body to shift risks and costs. This is the antithesis of the US market with its multiple sources of finance and its behaviour characterised by risk skimming and risk shifting.

Following the world wide inflation of health care costs in the 1960s and early 1970s the failure of the ineffectually regulated market became apparent to most governments and, in a number, vigorous measures were adopted to limit expenditures (OECD, 1990). In particular, a number effected this through the control of centralised budgets. Australia followed Canada in imposing expenditure caps on the chief spending units, the hospitals. In the first and conventional view of the market, government financing simply augments demand and increased expenditure - a criticism levelled at the UK NHS, Canadian Medicare and Australia's compulsory health insurance schemes. With the alternative view with its emphasis upon the existence of countervailing power, the effect of government financing may be reversed. The government is, in effect, perceived as providing the countervailing power which the simple market otherwise lacks.

The importance of this second perspective has been tested recently. Using its own cross national data the OECD (1987) carried out a series of regression analyses. The relevant result for the present issue is:

$$\log (H/GDP) = -0.064 + 0.414 \log (GDP) - 0.417 \log (PUB)$$

(0.128) (0.205)

where H/GDP = percentage of GDP spent on health
PUB = public sector share of health expenditure

The key result is the negative coefficient on PUB, the public share of health expenditures. As it is a double log equation, the coefficient is an "elasticity" - a 10% increase in the public share is, on average, associated with a 4.17% decrease in H/GDP, the percentage of GDP devoted to health.

An objection to this analysis raised by Lew (1986) is that an increased proportion of public spending does not necessarily imply increased control. In some, but not all cases, it may simply increase demand as envisaged by the simple economic model. A distinction should therefore be drawn between countries in which the effect of government financing is simply to reduce the price paid by the consumer and those countries where government control of health budgets is used to curtail the growth of expenditures. The result of Lew's own analysis is that all else equal, government expenditure is, in fact, associated with higher health care expenditure (the elasticity being 0.16) but the existence of a central budget reduces spending by 23%. As with the OECD result, this strongly supports the view that cost control in health care is most effectively achieved, not by having a diverse source of health finances, but by their concentration.

3. OPTIONS

The physical delivery of health care in Australia has been relatively stable in the post-war period. Controversy and change has been primarily associated with health insurance and health financing, coincidentally the issues which effect government budgets and provider incomes. They are, of course, important to consumers as they influence the distribution of income and determine the level of risk exposure for the population. As in many countries the debate has been generated, at least in part, by the conflict between libertarian and egalitarian social values. In Australia there has been at least some common ground. Even the authors of the most radical plan for the privatisation and deregulation of the industry acknowledge the need for a very substantial redistribution to ensure the basic well-being of the medically indigent (Freebairn et al, 1987).

There appears to be little prospect of Australia adopting a Freebairn type of scheme with its fairly extreme libertarian value basis. Three other options appear more likely. These are summarised in table 5. In the present context, the chief interest is not the detailed operation of these schemes but rather the extent to which they embody different views about the way in which the health sector operates and the implications of each for aggregate health care expenditure.

Medicare

The first option is a continuation of Medicare in its present or in a slightly modified form (for a detailed description see Deeble, 1989). The scheme has an impressive list of achievements. It has included the entire population; it covers a large proportion of medical costs and provides universal access to hospital. Despite a sustained campaign of obstruction and designation by interests opposed to the scheme it has proved to be popular. An important achievement in the present discussion is its containment of total health care costs. From 1982-83 (the year prior to Medicare) to the present, total health expenditure has absorbed about 7.8% of GDP. This has almost certainly been a result of two factors, firstly, the *desire* to contain costs arising from the economic problems of the late 1980s and, secondly, the *ability* to constrain expenditures. The important characteristics of the scheme which permit this are the concentration of hospital expenditures with the state governments and, of much lesser importance quantitatively, the ability of the Commonwealth government to regulate medical fees. While extra billing is permitted, the oversupply of doctors has prevented fees from departing substantially from the

rebate for most categories of doctors.

TABLE 5.

SCHEME	CHARACTERISTICS
Medicare	<p>Overview: . Universal tax financed health insurance plus independent regulated and uncompetitive private health insurance; unintegrated private hospital sector. Government control of finance; conventional delivery.</p> <p>Finance: . General taxation/income related levy . Compulsory and universal . Centralised (public) hospital budgets; government determined fee schedule</p> <p>Benefits: . Rebate from medical benefits schedule; (extra billing occurs) . Free public hospital care . No private hospital benefits</p> <p>Choice: . Doctor of choice out of hospital . Hospital doctor for public hospital care . Doctor of choice, for private hospitalisation</p> <p>Cost control: . Public hospitals : state government control of budgets . Private hospitals : competition with public sector; constrained by membership of private health insurance . Medical : Commonwealth Government control of fee schedule</p>
A.M.A. Overview: Medicover	<p>. Universal and compulsory competitive private health insurance; elimination of government controls over financing</p> <p>Finance: . Private insurance premiums . Unlimited supplementary insurance possible . No premiums for pensioners, health card holders . Community rated premiums . Tax rebate geared to income . (Large?) out of pay pocket patient contribution</p> <p>Benefits: . Medical; 50% medical out of hospital 75% medical in hospital No schedule; all doctors fee for service . Hospital; Private insurance rebate subject to co-payments . Safety net; Government funded; related to income; subject to ceiling</p>

		. Card holders; free medical, hospital care
	Choice:	. Unconstrained
	Cost Control:	. Competition between private insurance . Co-payments if no supplementary insurance . Innovation by PPO's; HMO's . Removal of supply side controls over expenditure
Managed Competition	Overview:	. Compulsory Medicare with an "Enthoven window" i.e. provision to substitute private health insurance for Medicare
(Enthoven/ Scotton)	Finance:	. Patient contribution as for Medicare plus (voluntary) supplementary private premiums . Age/Sex related subsidy for those opting out
	Benefits:	. (a) As for Medicare or . (b) Regulated private insurance benefits . Minimum private benefits as for Medicare i.e. minimum standard tables . Upper dollar limits on co-insurance . Open membership
	Choice:	. Individuals select own scheme (or Medicare) . Private schemes may restrict choice of providers
	Efficiency:	. No cost shifting . All prices reflect cost . Elimination of cross subsidies/community rating . Competition between private funds

Two main problems must be resolved if Medicare is to be viable in the long term. The first is the present unsatisfactory level of queuing. The important issue here is whether or not the problem is transitory or a permanent feature of the scheme. From a long term perspective queuing may be indicative of a structurally sound system even if the temporary phenomena is undesirable. Australia has had and continues to have one of the worlds highest rates of hospital admissions. As this is the most costly form of medical care there has been almost universal agreement that a reduction in the rate of hospitalisation would be desirable. There was further widespread agreement that ten years ago Australia's hospitals were highly cost inefficient. Unfortunately, the control of hospitals world wide has proved to be difficult as hospitals have found political and public action easier and more rewarding than the task of internal change. To date, the only effective instrument of control has been the global budget which, as noted, has been used very effectively. However the global budget is a blunt instrument. It does not discriminate between the efficient and the inefficient. Historically, there have not been adequate data systems in the hospitals to permit a better targeted intervention. With the introduction of a `Diagnosis Related

Group' classification of separations and with the spread of hospital management information systems this situation could change. Whatever the solution, it should not be an indiscriminate increase in funding as some suggest as this will simply undo the efficiency benefits that have been achieved.

A second, more intractable, problem is the inefficient and inequitable relationship between the private and public hospital sectors. Those who opt for the former are inequitably penalised in the sense that they must contribute towards both the public and private systems. Further, private patients in private hospitals are penalised more than private patients in public hospitals as the latter receive a de facto subsidy. In the long term, any system will be viable only if there is a reasonable consensus that it is equitable and the different treatment of the three categories of hospital patients detracts from this.

Perhaps more seriously, the scheme is in "disequilibrium". High insurance premiums are resulting in a reduced level of private insurance. As this occurs first amongst better risk (healthier) patients, their departure increases adverse selection in the private insurance pool, increases premiums and induces a further transfer to the public system. It is not known when this spiral will cease. Reduced queuing in public hospitals will accelerate the spiral. While a final equilibrium may be reached somewhere before the collapse of the private hospital sector some change may be needed to preserve the present balance of the health system.

Medicover

A further criticism of the Medicare scheme is the lack of choice and diversity it offers patients. This is one of the attractive features of the second scheme in Table 5. The scheme also embodies most of the features which have been consistently advocated by doctors. Medicover would require universal membership of a voluntary health insurance scheme. Premiums would be community rated except for pensioners and health card holders who would receive free care. The Medicare levy would be removed and a flat rate tax rebate introduced for the majority of the population. That is, there would be a fixed dollar amount deducted from each eligible person's annual tax commitment. There would be very substantial co-payments for both medical and hospital care but supplementary insurance would be possible. There would be a government funded safety net which would prevent out-of-pocket expenses from exceeding \$1000 per annum or 10% of gross family income. The fee schedule would be abandoned and with it bulk billing. All doctors would receive fee-for-service remuneration.

There are a number of unsatisfactory features in the scheme which should be noted in passing (see Deeble, 1988). Ensuring membership of private insurance would be difficult. Administrative costs would rise with the proliferation of Health Funds and the reimbursement of doctors for health care card holders would be awkward. More importantly the retention of community rating virtually ensures that resources would not be efficiently allocated. Scotton (1990) makes the reason for this clear:

"The connection between risk rating and efficient insurance has been demonstrated and reaffirmed so often by economists that one wonders why it is still necessary to state the obvious. Deliberate distortion of prices, such as

occurs under community rating of health insurance premiums in order to effect cross-subsidisation between groups with substantially different risks, presents insurers with such gross incentives to deter bad risks and attract good risks that cost containment and efficient resource use become insignificant factors in their underwriting outcomes ... Government subsidies constitute the only effective means by which cross-subsidisation can be undertaken." (p.7)

Many of these problems could be overcome in a way which preserves the essential features of the scheme and it is these that are of primary interest. The proposal purports to achieve cost control, as in the USA, through the use of co-payments and competition. Simultaneously, it incorporates most of the features which have produced the opposite result in that country. First, and most importantly, the government is totally removed from active participation in the health sector and, with it, its countervailing power to providers. In principle, this would be exercised by insurance companies. In Australia these have acted in the past as passive financial conduits underwriting the financing of health care. Medicare will not prevent risk skimming and cost shifting. Indeed, community rating will maximise the incentive for this.

Secondly, the dominant position of the government in financing will be replaced by a diverse source of funds - a multiplicity of health insurance companies, rebates, a passive government (via the safety net) and possibly increased out-of-pocket consumer payments. Each group will have only a diluted incentive to contain health costs.

In the hospital sector, global budgets will be replaced by passive underwriting of expenses. It is envisaged that utilisation will rise, exacerbating the excessive Australian reliance upon hospital care. Finally, in the medical sector, the fees schedule will be removed. In the USA it has been found that these restrain medical fees and governments are promoting their introduction. Competition from bulk billing will be eliminated and even the possible restraining effects of consumer co-payments will be mitigated by the existence of gap insurance.

In sum, it would be difficult to devise a more inflationary system. It would result in the rapid escalation of prices, medical incomes and the size of the private hospital and private health insurance sectors. National health expenditure would almost certainly follow the US trajectory.

Regulation Competition

The third proposal in table 5 is an interesting combination of the better features of the first two. It is most fully developed by Scotton (1989, 1990) and is based upon the work of Enthoven (1988). Like Medicare, it envisages choice and competition between health agencies, but unlike Medicare it preserves a substantial government sector for those who do not "opt out" and, most importantly, it embodies regulations which maximise the likelihood of beneficial competition.

The first of these is the requirement that prices reflect true costs and resource allocation be based upon undistorted price signals. In the hospital sector this would require the adoption of DRG based charges, an option which is now feasible (Scotton and Owens, 1990). Insurance premiums would be risk rated but Medicare would provide an age-sex related subsidy to those

who opted out. In this way the major incentive for risk skimming by insurers would be removed. The regulation, essential for efficiency in health insurance would include:

- . open membership
- . provision of basic benefits, equivalent to basic Medicare cover
- . medical benefits tables
- . acceptance of the full cost of medical and hospital care and predetermined, fixed dollar, limit on the consumers contribution

The first of these requirements is to further inhibit risk skimming. The last, and an essential feature of the scheme, is to prevent cost shifting. As the insurers would have to bear the entire marginal cost of treatment they would have the maximum incentive to contain costs.

While this scheme represents the "best bet" use of the private sector, aspects of it are problematical. There would be a risk that a two-tier (government - opt out) system would develop and that, with the loss of its wealthiest and most articulate constituency, the public sector would degenerate. The scheme would certainly involve higher administrative costs than Medicare. The more than offsetting benefits envisaged would result from genuine competition. The assumption that this would occur is the lynchpin of the scheme. As noted, Australia does not have a tradition of non-government intermediaries successfully negotiating with the providers of medical care on behalf of consumers. There is a serious risk that "competition" would take the form of marketing and the creation of an image of a "cost attractive" as distinct from a cost effective product. There would be a need for continual revision of the regulatory structure to ensure the achievement of the latter, not the former, type health care.

4. CONCLUSIONS

The present paper has not answered the question "is 8% enough?" It is unanswerable. Rather, the theme has been that the range of options and the corresponding level of expenditures are very wide. The final level of expenditure depends upon the quality of care demanded, the extent to which unproven technologies are allowed to proliferate and the incomes of the providers. In this latter respect, US experience is again interesting. In the decade to 1977 US health prices rose 0.8% per annum faster than the CPI. The quantity of services rose 2.4% faster than production in the remainder of the economy. However in the following ten years - the decade of the "competition revolution" - the excess inflation rose to 3% per annum and the excess growth of health output fell to zero (Fuchs, 1990). That is, the competitive model adopted by Americans has increased expenditure but this has been primarily through rising prices and medical incomes. It has reduced the growth rate of health care services to consumers.

There is no technological imperative driving Australia's health costs to a predetermined level. In the next decade ageing will have only a marginal effect. The impact of technology is

problematical. Rather, the decisive factor which will determine the level of expenditure is the nature of the regulation, financing and financial incentives built into the system. At present, debate and public commentary on these is very largely doctor driven, as evidenced by the issue of bulk billing. In Canada and the USA these have been actively promoted as a self evident method of restraining fees. The issue in Canada was whether or not anything but bulk billing should be permitted. The answer, now embodied in legislation, was no. In Australia, the medical profession appears to have successfully turned this issue on its head and it is the existence of bulk billing, not extra billing, that is in doubt.

In terms of their quantitative importance such issues are simply a distraction. The major question is the preservation of a framework in which there is a countervailing influence to the extraordinary capacity of providers to inflate costs but a system in which cost effectiveness, and not simply cost containment is the primary objective.

REFERENCES

- Australian Medical Association (1989), "Medicover: Reform of Australia's Health Insurance System", Green Paper prepared by Access Economics, Sydney.
- Deeble, J.S. (19??), "The Medicover Proposals", Working Paper No. 4, National Centre for Epidemiology and Population Health, Australian National University.
- Detsky, A.S. et al (1983), "The Effectiveness of a Regulatory Strategy in Containing Hospital Costs".
- Doessel, D.P. (1987), "Should Government Regulate Technology to Reduce Health Expenditures? Some Australian Results for the Policy Debate", *Economic Papers*, 6, 1, 38-51, Reprinted in Butler, J.R and Doessel, D.P., *Health Economics*, Australian Readings, Australian Professional Publications, 1989.
- Enthoven, A.C. (1988), "Managed Competition: An Agenda for Action", *Health Affairs*, 7, 3, 25-47.
- Evans, R.G. (1988), "We'll Take Care of It for You: Health Care in the Canadian Community", *Daedalus*, Fall, 155-189.
- Evans, R.G. (1989b), *Kings Fund Interrogatory*, Health Policy Research Unit, The University of British Columbia, B.C.
- Evans, R.G., Lomas, J., Barer, M.L. et al (1989), "Controlling Health Expenditures - The Canadian Reality", *The New England Journal of Medicine*, 320, 9, 571-577.
- Fellstein, M.S. (1977), "Quality Change in the Demand for Hospital Care", *Econometrica*, 45, 7,

1681-1702.

Freebairn, J., Porter, M., Walsh, C. (1987), "National Economic Priorities 1987: Spending and Taxing Australian Reform Options", Allan & Unwin, Sydney.

Fuchs, V.R. (1988), "Perspectives: United States", Health Affairs, Winter, p.25-30.

Fuchs, V.R. (1990), "The Health Sector's Share of the Gross National Product", Science, 2 February, 247, 534-538.

Gardner, L.B. and Scheffler, R.M. (1988), "Privatisation and Health Care, Shifting the Risk", Medical Care Review, 215-254.

Ham, C. (ed.) (1988), "Health Care Variations: Assessing the Evidence", London, Kings Fund Institute.

Lew, R.R. (1986), "The Public Private Mix and International Health Care Costs", in Culyer, A.J. and Jonsson, B. (eds.), Public and Private Health Services: Complimentaries and Conflicts, Oxford, England, Basil Blackwell.

McPherson, K. (1990), "International Differences in Medical Care Practices", in OECD, Health Care Systems in Transition: The Search for Efficiency, Paris, 1990.

Mathers, C.D., Gillett, R.S. and Harvey, D.R. (1988), "Impact of Population Ageing on Utilisation and Demand for Hospital Services in Australia", Paper presented at the Twentieth Scientific Conference of the Public Health Association of Australia and New Zealand, Brisbane, August 1988, Australian Institute of Health.

Mitchell, S.A. (1988), "Perspectives: United States", Health Affairs, Winter, p.31-34.

Newhouse, J.P., Anderson, G. and Roos, L.L. (1988), "Hospital Spending in the United States and Canada", Health Affairs, Winter, p.6-16.

OECD, 1987, "Financing and Delivering Health Care: A Comparative Analysis of OECD Countries", Paris.

Palmer, G. (1980), "The Political Economy of Health Care", in Tatchell, P.M. (ed.), Economics and Health: Proceedings of the First Australian Conference of Health Economists, Health Research Project, Canberra.

Richardson, J. (1986), "Technology Assessment in Medicine: An Australian Proposal", Promatheus, 4, 1, 3-24.

Richardson, J. (1987), "Ownership and Regulation in the Health Care Sector", in Abelson, P., Privatisation: An Australian Perspective Australian Professional Publications, Sydney, 249-74, reprinted in Butler, J. and Doessel, D.P., Health Economics, Australian Readings,

Australian Professional Publications, 1989.

Richardson, J. (1988), "Medical Technology and Its Diffusion in Australia", *International Journal of Technology Assessment in Health Care*, 4, 407-431.

Schieber, G.J. and Poullier, J.P. (1990), "Overview of the International Comparisons of Health Care Expenditures", in OECD, 1990, *Health Care Systems in Transition: The Search for Efficiency*, Paris, 1990.

Scotton, R.B. (1989), "Integrating Medicare with private Health Insurance: The Best of Both Worlds?", *Economics and Health 1989*, C. Selby Smith (ed), Public Sector Management Institute, Monash University.

Scotton, R.B. (1990), "Health Insurance and Hospital Reimbursement: New Directions", Working Paper, Public Sector Management Institute, Monash University.

Scotton, R.B. and Owens, H.J. (1990), "Case Payment in Australian Hospitals: Issues and Options", Public Sector Management Institute, Monash University.

Scotton, R.B. (1990), "The Role of Government in Health Care", *Australian Health Review*, (forthcoming).

Stoddart, G.L. and Labelle, R.J. (1985), "Privatisation in the Canadian Health Care System: Assertions, Evidence, Ideology and Options", *Health and Welfare*, Ottawa, Canada.

Wennberg, J.E. (1982), "Professional Uncertainty and Supplier Induced Demand", *Social Science in Medicine*.

Wennberg, J.E., McPherson, K. and Caper, P. (1984), "Will Payment Based on Diagnosis Related Groups Control Hospital Costs", *New England Journal of Medicine*, 311 (5): 295-300.