REPORT FOR

THE NEW ZEALAND BUSINESS ROUNDTABLE

OPTIONS FOR HEALTH CARE

IN

NEW ZEALAND

by

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The interest of the Business Roundtable in the topic arises from the importance of an efficient and accessible health system for economic and social well-being, the management and organisational issues that arise in both the provision and funding of health care, the role of employers in the health field and the weight of health care expenditure in government outlays. The Business Roundtable believes the report lays out a framework and a set of options for health care which represent a valuable contribution to the debate on policy reforms which would improve the performance of the New Zealand health sector.

PART 1: OVERVIEW

1.0 INTRODUCTION

This report reviews and evaluates the options for changing the financing and delivery of health care in New Zealand. Our analysis is motivated by widespread dissatisfaction with the level and quality of services produced by the current system, and particularly by the public hospitals. The lack of meaningful data which could be used to assess performance in the public sector means that most evidence of the inefficiency and inadequacy of the public system is anecdotal. However, the rapid growth of private health insurance, now purchased by almost half the population, is one indicator that the public sector is failing to meet the demand for some medical services (for example elective surgery) and financial protection against the cost of those services. Another indicator is the persistent co-existence of waiting lists for some services in some areas together with under-utilised capacity for other services or in other localities. There are daily reports of conflicts over the allocation of shrinking public budgets.

In the report, we analyse in more detail some of the major problems with the status quo and propose alternative methods of health care funding and delivery.

In Part 1 we provide an overview of the report. We begin by defining the equity and efficiency criteria we use in assessing the performance of different health care systems, and outline the problems we believe exist with the current system. The first set of options involves corporatising the delivery of health care services. These options retain a major role for a public insurer, although we consider the option of introducing private sector insurance by allowing opting out from the public insurance system. We also discuss objections to the use of markets for financing and delivering health care. We then outline the second set of options that rely primarily on private markets.

These issues are discussed in more detail in the main body of the report, as follows. Part 2 describes the status quo in New Zealand and assesses its performance using the criteria of equity and efficiency. Although some of the changes to the health system implemented in the past two years should improve the performance of the hospital sector, the present institutional structure has inherent limitations. A logical extension of current reforms is to corporatise the delivery of health care services, particularly the hospitals, and to clarify the objectives and monitoring of the funding/insurance function. This option is discussed in Part 3. Although such a move would strengthen incentives for performance, a number of problems will remain as long as the public insurer does not face competition. Accordingly, we proceed to examine how competition can be introduced at the insurance level. In Part 4 we examine the option of private insurance and private provision of health care services as a response to the problems of the status quo and corporatisation. Three sub-options are considered. The first leaves the purchase of insurance to voluntary choice. The second is a voluntary system modified by the provision of a publicly-funded and possibly publicly-provided safety net. In the third option, the purchase of insurance is mandatory and a targeted set of subsidies used to assure that coverage is affordable and goals of universal access and equity are met. Part 5 draws together the conclusions of our analysis.

1.1 CRITERIA FOR ASSESSING PERFORMANCE

Two criteria are used in evaluating the options for health care financing and delivery: efficiency and equity. The general principle underlying the notion of economic efficiency is that resources should be allocated to any use up to the point where the marginal benefit is equal to the marginal cost. Efficiency in the context of medical care requires that resources be optimally allocated to medical care relative to other factors that contribute to health, such as lifestyle and the environment. It requires that the resources be optimally allocated to various medical inputs, such as surgical care, primary care (e.g. GP visits) and pharmaceuticals. It also requires that resources are used to produce the outcomes desired at minimum resource cost. An efficient allocation of resources to health care applies to prevention as well as treatment of illness and recognises suffering and inconvenience of patients as real social costs, along with more conventional resource costs such as labour and capital. Reductions in health care spending do not necessarily imply an improvement in efficiency. The most cost-constraining system is the one that incurs no cost, but this is obviously not optimal. If spending reductions are achieved by reducing services that consumers value more than their cost, then efficiency is not achieved.

Equity has a less precise meaning because fairness is defined differently by different people, and neither economics nor logic can prove that one person's definition is necessarily superior to another's. In the design of policies affecting income distribution two considerations are important and are used in this report. Vertical equity requires that government transfers should be progressive, that is, from those with more income to those with less income - although exactly how tax rates and benefits should change as real income changes is much more debatable. Horizontal equity requires equal treatment of those in similar circumstances.

A widely accepted constraint on the design of an optimal health care system - and one applied to all but one of the options evaluated here - is to assure universal access to a basic level of medical care. The services that should comprise these basic medical benefits are an important and controversial issue. Services with external benefits may be under-provided by private action, for example vaccination against communicable diseases, and would clearly qualify assuming no serious risks of side effects. Beyond that, societies differ in the level of medical benefits that they consider a basic minimum. As the evidence accumulates that nutrition and lifestyle factors contribute as much to health as does medical care, the importance of optimally allocating limited budgets between these different factors becomes increasingly obvious.

If the principle of a basic safety net is accepted, then a key issue becomes the optimal design of a system that provides the basic safety net but leaves freedom to supplement to those who are willing to pay for more comprehensive medical benefits and insurance cover. Broadly, there are two possible models:

(i) A publicly-funded system of basic care, provided largely free of charge to the user. Delivery of services could be undertaken by either public or private providers (assuming that the private or public nature of the delivery system does not affect equity of access). Supplementation would be available through private insurance. Variants of this model exist in New Zealand, Australia and the United Kingdom.

(ii) A system of private insurance and private provision, with income-related subsidies to purchase insurance and a minimum set of regulations to fulfil the requirement that everyone has affordable insurance against the costs of basic care.

Neither of these models assures full achievement of all dimensions of efficiency and equity. Some of the models, however, provide greater opportunity for individuals to determine their own trade-off between cost and equity. In this paper we outline the main features of the most promising options, and evaluate their advantages and disadvantages. We begin by outlining problems with the status quo.

1.2 SUMMARY OF PROBLEMS WITH THE CURRENT SYSTEM

Although it is difficult to measure the performance of the health care system, particularly given the data constraints in New Zealand, both theory and casual empirical evidence highlight features of the system that can be expected to create distortions in both equity and efficiency.

• Because the area health boards are not subject to competition, consumers cannot use their buying decisions to influence the allocation of funds to competing needs for medical care. The vacuum is filled by central government, the area health boards, hospital medical staff and hospital managers, and pressure from various interest groups including community committees established by area health boards. It is most unlikely that the resulting allocation of resources yields the maximum value for consumers.

• Because patients have little choice in terms of where they can be treated or what services will be offered to them, providers have weak incentives for efficient performance. In their role as insurers, area health boards have relatively weak incentives to monitor the performance of the providers of health care. Lack of incentives arising from diffuse ownership and the conflicting objectives of public sector managers increase the difficulties of ensuring good performance.

• The funding of primary care through the general medical services subsidy (GMS) is inefficient in terms of resource allocation to medical care and in terms of insurance against financial risk. Insurance is most valuable when it protects against large (i.e. catastrophic), unpredictable and infrequent losses such as major hospital expenses. For most patients, including children, visits to doctors are predictable, routine expenses which can be budgeted for. Blanket subsidies encourage excessive use and insufficient precautions. Although blanket subsidies may ensure access to the health system, they are poorly targeted to give most help to those who can least afford health care.

• Differential rates of public subsidy and user fees for different services distort user choices between alternative services. Hospital-based care and pharmaceuticals have been heavily subsidised relative to GP services. This has encouraged substitution towards hospital care even when primary care may be more appropriate.

• The public/private interface is not the outcome of considered evaluation of the optimal role of the government and individual responsibility in the financing and delivery of health care. Restrictions on contracting and other rigidities lead to a misuse of resources in the public sector. This applies to capital, doctors, nurses and other personnel inputs. Area health board flexibility in employment contracting is constrained by national awards, the largest of which is that for nurses.

The paucity of data on the public system has been noted by the Health Benefits Review (1986), the Report of the Hospital and Related Services Taskforce (1987) and the Audit Office Report (1989). It is particularly remarkable since a potential advantage of a public monopoly is that it has ready access to data from all providers and for all patients, with maximum potential scale economies in data collection and processing.

1.3 CORPORATISATION OF THE DELIVERY OF HEALTH CARE SERVICES

If the government retains a dominant role in the funding and delivery of services, then restructuring of the funding/insurance function and corporatisation of the provision of services (for example, public hospitals) offers some promise for improved efficiency.

Currently, the area health boards act as channels for government-provided funding. They receive income from the government on a modified capitation (i.e. per head payment) basis, using this to buy health services for individuals in their regions and to fund health promotion. In addition, they have traditionally managed the delivery of services through hospitals. These functions could be separated, with the area health boards acting as contract managers or insurance claims administrators ('public insurers'), purchasing services from competing providers on behalf of consumers in their areas and using various forms of reimbursement, including diagnostic related groups ('DRGs') and capitation. The government would be responsible for negotiating output contracts with the public insurers, specifying the range of services they are to purchase and access-related policies. Hospitals and other service providers would be separated from funding and operated commercially. Corporatisation would be a logical extension of current moves to increase the accountability of managers of the area health boards. Separation of the functions of funding and provision would allow the introduction of competition at the provider level.

However, as long as the government remains the monopoly insurer for basic services, the scope for consumer preferences (influenced by advice provided by GPs and others) to determine the range of services available is limited and the corporate structure of the monopoly insurer is necessarily artificial. As a result, full corporatisation at the funder/insurance level does not appear to be the most attractive approach.

A logical additional step under the corporatisation scenario would be to allow individuals to opt out of the public system and transfer their funding to private insurance. This would permit efficiency gains from two sources: greater competitive constraints on the public insurer/funder and improved matching of resource allocation to consumer preferences. It would allow individuals to influence the extent of private involvement in the funding of the health system through their choices, since this would be determined by opting-out decisions. Individuals who remained uncomfortable with private funding of health care could choose to stay with the public system.

1.4 PRIVATE INSURANCE AND PROVISION OF HEALTH CARE SERVICES

1.4.1 Possible Objections to Market-Based Provision of Medical Care and Medical Insurance

Medical care clearly differs in important ways from most other goods and services. Nevertheless, there is good reason to believe that delivering health care using price mechanisms can achieve significant efficiency benefits without compromising equity objectives. Most of the inefficiencies of the status quo can be traced to the removal of prices which measure consumer preferences and input costs, the absence of the stimulus of competition and the weaknesses of the ownership and monitoring regimes that apply to publicly-owned organisations.

For most goods and services, competitive private markets promote efficiency in resource allocation through three main effects. First, competition encourages organisations to minimise the value of the resources used to produce a given quantity and quality of output. Second, competition encourages firms to continually search for new methods of organisation, production and marketing which better satisfy consumer demands. Third, competition reduces a firm's discretion to price significantly in excess of the incremental cost of supply.

But there is strong hostility towards the use of markets for the delivery of health care from some observers, based on both theory and the experience in the United States. It is often argued that markets for medical care and medical insurance violate the conditions necessary for efficient markets. Some of these objections have merit but some do not and incorrect conclusions are often drawn from valid premises. The arguments which are summarised here in summary form are discussed in detail in Part 4 .

First, it is suggested that medical care is a necessity and that the standard rules of demand do not apply. However, there is conclusive evidence that demand for medical care is sensitive to its price in terms of money and time spent in obtaining treatment. Medical care is different from other goods and services in that the random nature of illness and accident and the high cost of some treatments result in a demand for insurance against the risk of health care expenses. There is also a widespread desire on equity grounds to ensure that all citizens have access to basic medical care. These demands for insurance and universal access can be met by private insurance with appropriate public subsidies where necessary, or through a mix of private and public sector services. They do not require public provision of free care.

Second, it is argued that individuals lack the information necessary to make informed choices in the market for medical care. However, no one has perfect information. While there may be a role for the government in financing the collection and dissemination of information that is of collective value (a 'public good'), the optimal pattern of treatment for an individual patient with a particular condition is best determined by the patient and doctor. The doctor can be presumed to know the costs and benefits of treatment but the patient knows best the trade-offs he or she is prepared to make.

A further argument relating to asymmetric information is that doctors exploit patient ignorance to manipulate demand to maintain their target income ('supplier-induced demand'). The extensive theoretical and empirical research on this issue leads to the conclusion that the degree of supplier-induced demand is likely to remain an unresolved empirical question, but that the scope will be constrained by competition at the provider level. The potential for patient ignorance and supplier-induced demand exists equally under publicly-funded insurance. Because patients have more incentive to become informed when they have choices, and private insurers have more incentive to eliminate non-cost-effective use, supplier-induced demand may actually occur less frequently in competitive private markets than under a monopoly public insurer.

A third argument relates to the problem of 'moral hazard' which arises with insurance - having insurance reduces the out-of-pocket cost to the insured and leads to greater use than if the individual is not insured. However, moral hazard applies equally to publicly-provided insurance and free or subsidised care, including the subsidised GP services and free hospital care in New Zealand. The competitive pressures on private insurers create incentives for private insurers to control inappropriate spending on health care, through either co-payments or provider-targeted control such as capitation and other forms of prospective payment, since in the long run it is not worthwhile for consumers to pay premiums to cover the cost of inappropriate spending on health care. A public insurer has weaker incentives for efficient control of moral hazard and is more likely to rely on rationing by queuing, as evidenced by experience in the United Kingdom and Canada, as well as New Zealand.

Fourth, it is sometimes inferred that private insurers cannot or will not provide coverage of comprehensive medical services from the fact that private insurance in New Zealand so far covers only a limited set of benefits that account for only 2 percent of total health expenditures. But this simply reflects the fact that the demand for more comprehensive private insurance is limited as long as most services are publicly provided free or at subsidised prices. Comprehensive coverage is provided in the United States.

Fifth, the overhead costs of private insurance schemes are sometimes compared unfavourably with public schemes. But the reported costs of public schemes that are financed through tax revenues generally ignore the deadweight costs (distortionary effects) of raising taxes. In any case, reducing overhead costs should not be a goal in itself since these may reflect expenditures that are of value to customers (e.g. the provision of information).

The apparent inability of the United States health care system to control costs or provide an acceptable level of care for all is often cited as the inevitable consequence of reliance on private, market-based delivery and financing of health care. However, the current United States system is not an illustration of how a well-designed market system would work and we do not recommend it as an option for consideration. The United States system is grossly distorted by several factors.

First, until the 1980s, the publicly-funded Medicare programme paid providers of health care for costs incurred with virtually no constraints, driving up costs and prices system-wide. Second, in the United States, employment-based health insurance receives a tax subsidy which effectively reduces the cost of health care from an individual's viewpoint and has led employees to choose much higher levels of health insurance coverage than if they faced the full marginal cost of insurance. Further, the tax subsidy is regressive, offering higher subsidies

to individuals in higher tax brackets. It violates horizontal equity by providing subsidies only to those that receive insurance through employment.

The other major defect with the United States system is that roughly 15 percent of the population has no insurance coverage. They rely on the safety net of charity care and involuntary bad debt incurred by hospitals. This system is generally perceived to be inefficient and unstable. However, the problem of an uninsured minority of citizens is not inevitable in a private insurance approach. Universal coverage and access to medical care can be assured by making basic coverage compulsory and providing targeted subsidies to those for whom this is not affordable.

1.4.2 Private Sector Approaches to Insurance and the Delivery of Medical Care

In Part 4 we examine three market-based options: the first leaves health care entirely to private sector initiatives with social welfare issues being handled by voluntary charity; the second and third options assume that there is a widespread demand for a safety net level of medical care for all, and that this should be taken into account in designing a preferred system. In the second option, insurance is voluntary but a system of public funding or possibly public hospitals provides a safety net. In the third, the purchase of insurance is compulsory. In all options, provision of care is privatised. This would strengthen the incentives of managers to act in the best interests of owners and to use resources efficiently.

a A Pure Voluntary System

The purely voluntary approach to medical care would simply allow individuals to purchase private insurance and medical care based on their own preferences and budget constraints. Any income support or redistributive goals of government would be met by policies designed explicitly to maintain or redistribute income. To the extent that some individuals wished to subsidise the consumption of medical care by others, they might do this either individually or collectively through charitable activities.

In this option, there would be no regulation of insurance, in order to give insurers maximum incentives for efficiency in rating and underwriting functions, administration of claims, and designing policy terms that optimally control moral hazard and provide the trade-off between cost and quality preferred by consumers.

The purely voluntary approach avoids the enforcement costs of ensuring universal coverage and reduces the risk that regulation will be captured by interest groups at the expense of most consumers. In a voluntary system, people would not be forced to fund levels of medical care for themselves and others that they thought inappropriate. Poor individuals might still benefit from income redistribution initiated by the government but would be free to decide whether to spend the money on health care or other services such as food and clothing.

On the other hand, reliance on pure voluntary choice may be inefficient if there is a widespread demand for a safety net, motivated perhaps by altruism or a purely selfish desire to insure against the risk of becoming destitute oneself. The possible inefficiency arises because the provision of the safety net is in the nature of a public good; the problem with its provision is the traditional free rider problem of public goods - everyone benefits but each has an incentive to wait for others to pay for the public good. Thus private provision through voluntary welfare may result in under-provision. The outcome in the purely voluntary case may be politically unsustainable if voluntary charity does not provide a sufficient safety net and if people who are not truly needy make use of the free care. The extent to which free riding might be a problem requires an empirical answer.

b Voluntary Insurance with Public Safety Net

If society is unwilling to let people suffer the consequences of their own decisions not to buy insurance or medical care and it believes the free rider problem in the provision of the safety net is potentially large, then there may be a case for government intervention to assure a safety net.

However, the existence of a publicly-funded safety net of free medical care undermines incentives for individuals to provide for themselves. Free public care that is sufficient to meet socially acceptable norms of minimum care may also involve a safety net that is high enough to invite considerable free riding. Experience in the United States indicates that this may be a major problem.

c Compulsory Private Insurance with Targeted Subsidies

One possible solution to the free rider problem (if society demands that a minimal level of care be available to all) is to make the purchase of private insurance compulsory, with subsidies through tax credits or vouchers to purchase insurance for low income families or persons with costly medical conditions. Low income individuals could be required to have a higher level of cover than high income individuals. The latter would be free to choose a higher level of co-payment or higher stop/loss limits.

Requiring people to purchase health insurance and providing subsidies to those in need would overcome the problems of free riding in the provision of the safety net and free riding for the purchase of cover. Many of the efficiency gains from competitive private markets in insurance and medical care would be achieved under this approach.

There are several disadvantages of this approach. It is possible that making insurance compulsory would reduce competitive pressures on insurance companies and introduce pressures for more regulation of the insurance market. These would have to be resisted if insurance markets are to do their job as efficiently as possible. Compliance costs would be incurred in making insurance compulsory, although if administered through the Inland Revenue Department these could be relatively low. Compelling people to buy insurance will force some people to do so when they would have preferred to spend the money on other things which they valued more highly. The use of the tax system to subsidise insurance for the needy may force some individuals to contribute more than they would wish to give. These are the costs of ensuring that everyone has access to, and can afford to pay for a basic level of medical care.

PART 2: STATUS QUO

2.0 INTRODUCTION

This section describes the main features of the current system of financing and delivery of medical care in New Zealand, focusing on those features that are essential to evaluating the efficiency and equity of the system relative to alternatives. We then examine in more detail how the structure of the system contributes to its shortcomings and present some limited empirical evidence on performance.

The New Zealand health care system is made up of public, private and voluntary sectors that interact in financing and providing medical care. Total expenditure on health care in New Zealand of $4,873 million in 1989/90 was funded in the proportions of $4,150 million by the government and $723 million by the private sector. Funding is provided by the Department of Health, Accident Compensation Corporation (ACC) budget allocations and levies, individuals' private insurance premiums, insurance managed by employers and other organisations (such as unions), as well as out-of-pocket payments by patients. In 1988/89 payments were shared between the major third party funders approximately as follows: central government, 80 percent; ACC, 4 percent; local government, less than 1 percent; and private health insurance companies, 2.5 percent. Most of the remaining expenditure (12.5 percent) was made by individuals out of their own pockets (Department of Health, 1990). The public sector dominates the financing and delivery of hospital care, with 80 percent of beds being provided in public hospitals. Private patients from their own pockets make a relatively large contribution towards doctors' services and to geriatric, paramedical and dental care.

The public sector, through the Department of Health, provides free treatment for all New Zealand citizens at public hospitals, outpatient services, long term care, public health services and free dental care for those under 18. It also subsidises geriatric care provided in private hospitals, GP visits, pharmaceuticals and other outpatient ancillary services. Training of health professionals is also funded by the state, largely through Vote: Education. The ACC, which provides cover for personal injury by accident, does not pay for public hospital services used by accident victims but does pay for short term private hospital stays, paramedical treatment, GP and specialists' services and diagnostics.

Private hospitals have evolved to provide services not adequately provided by the public sector, notably elective (i.e. non-urgent) surgery and geriatric care. Private insurance has developed over the last 20 years and now covers about 45 percent of the population although it contributed only around 2.5 percent of total expenditure on health in 1989 (Department of Health, 1990). It covers services provided in private hospitals and some of the out-of-pocket costs of GP and other services not fully covered by the public sector, or services that are rationed in the public sector through queuing.

The voluntary sector includes such organisations as the Intellectually Handicapped Society, Plunket Society, Family Planning Association, Salvation Army and the Crippled Children Society, to name only a few. These organisations tend to target specific populations or diseases. Some receive government assistance.

2.1 ORGANISATION OF THE PUBLIC SECTOR

2.1.1 Area Health Boards

Government funding to health care is largely delivered through 14 area health boards. The operation of the boards is controlled through the Area Health Board Act 1983, which provided for the integration of hospital boards and the Department of Health district offices to form area health boards. Boards consist of 12 members (or 14 in special cases determined by the Minister) who are elected or appointed for a three year term. The elected board members (normally 7) are locally elected, creating divided lines of accountability to local electors and the government. A 1988 amendment to the Act required that each health board appoint on contract a general manager as the administrative head of the board, responsible for the general conduct and the efficient and effective management of the functions and activities of the board, including management of the hospitals, and with responsibility for decisions on appointment, promotion and discipline of staff. The appointment of a single manager is in principle an important move towards increased accountability, replacing the previous arrangement whereby hospital management was divided between three executives - a doctor, a nurse and an administrator.

Although the management structure is now comparable with that of other businesses, boards still face divided responsibilities to the Minister and national taxpayers as funders of services (and ultimately owners of capital and risk bearers for cost overruns) on the one hand, and to local consumers (including taxpayers), as electors, patients, and employees on the other hand. As a result of this multiple accountability, it is relatively difficult to define clearly what the area health boards' objectives should be or to measure their performance or hold them accountable for outcomes.

Voted funds which are derived from general tax revenue are allocated to the area health boards according to a formula that is based primarily on population, but with adjustments for age, mortality and fertility, bed utilisation, cross boundary flows, and the number of private beds in the area. The Department of Health is trying to move the funding formula on to an age-adjusted population basis, which has advantages of simplicity, equity and robustness against manipulation. Some account, however, is taken of assessed variations in need. Additional funding is provided to area health boards on an ad hoc basis, usually tied to specific projects such as providing community mental health services or reducing waiting lists.

In addition to Department of Health allocations, area health boards can borrow on capital markets, although they cannot raise equity. Government guarantees that previously existed have been eliminated, and although an implicit guarantee remains (because lenders are likely to believe that the government would stand behind an area health board loan), the marginal cost of capital is now close to the market rate faced by other comparable private organisations. However, the fact that they are not required to earn a normal return on the effective equity provided by the government gives them an advantage relative to private organisations operating on a commercial basis.

The responsibility of boards to manage within allocated budgets has been increased in recent years. Perverse budgeting incentives have also been reduced: a board can carry a surplus or shortfall in expenditure from one year to the next, subject to limits on the deficit allowed; and a surplus in one year does not trigger a reduction in funding allocation in the next year. In the past, boards frequently overspent their budgets, seeking additional funds from the government to meet the shortfall each year. However, the government has in more recent years taken a stronger stance, for example dismissing the Auckland Area Health Board for the mismanagement of its budget and appointing a Commissioner in 1989.

The goal of current policy is to grant boards considerable autonomy in the allocation of funds, subject to meeting the broad health goals laid down by the Health Department. The Department intends to manage the quality and quantity of services by means of contracts agreed between each area health board chairperson and the Minister of Health, specifying the range of services the government requires each area health board to provide as well as measures of performance. Contracts are agreed on the basis of annual plans. The contracts require the boards to give effect to the New Zealand Health Charter (a government document which describes the operation and goals of the public health system), other health policies or service requirements as prescribed by the Minister, and the board's five year strategic plan and operating plan. Each year the contracting process will take into account an assessment of boards' performance against their previous contract commitments. Performance indicator systems are being developed to guide strategic and operational planning and to aid the monitoring of board performance.

Within these constraints, the area health boards are free to determine the allocation of funds among alternative uses. Although most services are provided through public hospitals, the boards can contract with other providers, including private hospitals, GPs and hospitals in other areas. As yet, little use has been made of this flexibility. Instead funds tend to be distributed amongst existing services according to historical patterns, possibly because of provider and other political pressures and lack of an adequate information system to indicate true demand. However, some area health boards are exploring innovative ways of delivering health care.

Defining and enforcing performance targets is extremely difficult for medical care, quite apart from the political difficulties (see below). Thus, whether the new system will prove efficient remains to be seen. In the absence of good information on performance and monitoring systems it is possible boards may achieve their goals by unreasonably curtailing services or by compromising maintenance and renewal of facilities and equipment. Given that this is the first year of this contracting process, it also remains to be seen just how much flexibility will be left to boards in allocating overall resources.

2.1.2 Public Hospitals

The public sector dominates the provision of secondary (hospital) care and high technology, high cost (tertiary) services. New Zealand's public hospitals, which number around 175, are administered by the area health boards. These public hospitals provide around 23,000 beds or about 80 percent of the total hospital beds in New Zealand. Services are provided to patients at zero monetary cost although costs are incurred in terms of waiting for an appointment for treatment, as well as waiting times once appointments have been made and limitations in the quality of service provided to patients (for example patients cannot pay for a higher level of privacy).

Since 1972 the funding of mental health, psychiatric hospitals and hospitals for the intellectually handicapped has been fully integrated with that of public hospitals controlled by area health boards, subject to targeted funding and other constraints imposed by central government. Mental health services are in a state of change with an attempt to move from hospital-based to community-based psychiatric care using hostels, community mental centres and activity/day care centres.

The performance of the public hospitals has been the subject of critical comment over recent years, with widespread concern that hospitals are not making an efficient use of allocated funds. Factors suggested as contributing to poor performance include the lack of market constraints to enforce efficiency; the method of payment of specialists and the level of remuneration of all personnel; the fact that specialists rather than managers control the rate of output through their control of scheduling; and the inflexibility of wages and work practices for other personnel. Indicators of performance of the hospital system are discussed in more detail in section 2.7.2.

Under the current system, most specialists divide their time between the public sector, where they are paid a salary regardless of output, and the private sector where they are paid on a fee-for-service basis. Of qualified specialists, approximately 70 percent work in both the public and private sector; 30 percent are full time public employees; and 1 to 2 percent work only in the private sector. By one estimate, specialists can expect to earn 3 to 5 times their public sector hourly earnings in their private practices.

So far, public hospitals have been able to retain specialists because such employment provides non-monetary benefits such as collegial interaction with peers, opportunity to exchange ideas and keep up with latest

developments and techniques, status, and a source of patients for a specialist's private practice. However, because specialists' public hospital salaries are unrelated to output, financial incentives to achieve the maximum throughput, subject to quality and budget constraints, are lacking. We have heard reports that while some specialists are extremely conscientious and committed, others work fewer than the hours contracted for and fail to make optimal use of other capital and personnel resources available. Examples include cancelling operating sessions without notice, thereby imposing significant staff and patient time costs, unwillingness to work outside normal hours and assigning emergencies in the evening or weekend to junior staff.

As long as waiting lists remain one of the few available indicators of demand, they may influence the allocation of resources. This creates incentives for padding of waiting lists, as opposed to expeditious processing. The Audit Office Report (1989) notes that some of the surgeons interviewed perceived that if a surgical specialty had a small waiting list, resources would be reallocated to a specialty with a larger number of people waiting. As a result, surgeons would effectively be penalised for efficiently clearing their waiting lists.

The 1988 amendment to the Area Health Board Act has given the general managers of the area health boards substantial flexibility to move away from the traditional salary system and introduce contracts with performance requirements and incentive-based features, including minimum standards and quantities of services for salary, and rewards and penalties based on actual service. Although boards have introduced packages that are more incentive-based, they have not moved to remuneration on a fee-for-service basis, partly because of concern that this would lead to excessive surgery rates as well as constraints imposed by their budgets. Better remuneration systems offer the potential for significant improvement in public sector performance but whether this potential will be fully realised remains to be seen.

Wage rates and work practices for nurses and other personnel in public hospitals are less flexible than in the private sector. Nursing levels are not matched to patient numbers, and instead are often set in terms of the number of beds. Overtime rates are paid at an additional 50 to 100 percent of the basic rate. Penal rates apply to night and weekend work. This leads to under-utilisation of capacity, thereby reducing output below potential levels and adding to costs. Because of overtime rates, both public and private hospitals attempt to minimise the number of patients cared for over the weekend. Although nursing in the private sector is unionised, work practices are more flexible with significant use being made of permanent part time workers and temporary staff. Thus although public sector staffing is now in principle the responsibility of general managers who have flexibility to design incentive contracts, changes have been slow to occur. The framework for employment contracting provided by the Employment Contracts Bill offers considerable potential for improved efficiency in the health sector. The scope for efficiency gains from applying appropriate incentive packages and flexible staffing arrangements for nursing professionals, in particular, appears to be large.

2.1.3 Primary Care

Primary care includes services such as general practitioners, pharmaceuticals dispensed through retail pharmacies, diagnostic services, physiotherapy and a range of non-traditional therapies such as naturopathy.

GPs act as gatekeepers to much of primary and secondary care, through their control over the prescription of drugs and of referrals to specialists. Thus GPs' influence over total expenditures is much greater than is implied by their relatively small share of total expenditures. Most GPs are in solo or group practices. However, innovative methods of delivery of primary care are emerging, such as the private clinics in Auckland offering GP, specialist and 24-hour accident and emergency care. Nurse practitioner practices are also increasing but are constrained by their lack of authority to prescribe drugs. However, some restrictions on prescribing have been reduced, so that, for example, midwives can now prescribe drugs that might be required during childbirth.

Public funding of GP services is primarily by way of the general medical services benefit (GMS) paid to GPs on a per visit basis. This, and the subsidy to pharmaceuticals (see below), is administered by the Department of Health, with the result that much of primary care is outside the influence of the area health boards. GPs also receive a subsidy tied to the employment of practice nurses. Until the 1990 Budget, a single system of subsidies for patient visits applied in which the basic GMS benefit was $4 per visit and GPs were free to bill patients for the balance of their fee. The GMS benefit, which was claimed by doctors under bulk-billing arrangements, was higher for the young, old, chronically ill and social welfare beneficiaries, but invariant with respect to locality (other than special rural assistance) and patient income level. GPs' fees for accident victims are largely paid by ACC. Coverage of GP fees is also a major element in some private insurance schemes.

The 1990 Budget (implemented in September 1990) announced a substantial increase in the GMS subsidy and in the involvement of the government in the regulating of primary health care services. GPs were offered a choice between two options. The first continued the old system but provided for increased GMS subsidies for some patients. The second provided a structure of higher subsidies but required GPs to enter into a contract with the Minister of Health to provide a comprehensive range of health care services, including quality assurance provisions; to agree to limit fees to patients to a scale set by the government; and to provide information about their practices. Contracting doctors were also to receive a higher practice nurse subsidy.

The 19 December 1990 economic statement by the government made further changes to the rates of GMS subsidy. The statement announced the termination of the contract scheme after the required three month notice period. From that time the contract practices will receive the same levels of GMS benefit as non-contract practices. The new rates announced by the government applied from 1 February 1991. The GMS subsidy was reduced (relative to the 1990 budget level) by $4 for children and non-beneficiary adults, and the GMS subsidy for the elderly was reduced to the same level as that applying to other beneficiaries. The new GMS rates preserve higher rates of subsidy for children and the chronically ill compared with pre-September rates. The changes are intended to be a transitional measure while a new system of targeted assistance for primary health care is developed. Table 2.1 below sets out the rates of GMS benefit that applied prior to the implementation of the primary care package on 1 September 1990, the changed rates for non-contract practices, and the rates that have applied from 1 February 1991.

Table 2.1

Patient Category	Before September 1 1990	September 1 1990 to 31 January 1991	After 1 February 1991
Children 0-4 years	$16	$29	$25
Children over 5 years	$16	$24	$20
Adults	$4	$4	$0
Beneficiaries	$12	$12	$12
Elderly	$12	$17	$12
Chronically ill	$12	$17	$17

Setting fixed fees for each visit by contract, regardless of length of visit, creates incentives for doctors to prefer multiple visits to a single comprehensive visit, thereby increasing income to doctors and the time cost to patients. However, the non-contracting doctors are free to bill for longer consultations and the low level at which the adult benefit was set and its subsequent abolition reduce this effect.

2.2 PRIVATE INSURANCE

2.2.1 Market Size and Structure

Despite the dominance of public sector financing in the New Zealand health care system, there is an active market in private health insurance. As private hospitals have developed to meet some of the unsatisfied demand in the public sector, private health insurance has arisen to cover these costs and other out-of-pocket costs, in particular, costs in excess of the public subsidies by primary care doctors. Around 45 percent of the population now has private health insurance which pays for around 2.5 percent of the total health expenditure in New Zealand. The total premium volume of private insurers is approximately $180 million per annum. This understates the extent of private insurance coverage because of self insurance by some large employers. However, private insurance will necessarily provide a relatively minor share of total financing as long as the public sector provides most services free of charge and opting out is not permitted.

Health insurance is offered by non-profit friendly societies and private insurance companies in an environment of virtually no regulatory controls. The largest of the mutual insurers is Southern Cross, which was established in 1961 and has maintained an 80 percent market share for the last twenty years despite the entry and exit of several competitors. Several corporate insurers with international experience in health insurance, for example Aetna Health Corporation, have recently entered the health insurance market in New Zealand.

2.2.2 Benefits

The structure of benefits offered by private insurers in New Zealand appears to contradict the simple theory of optimal insurance, but this probably reflects the fact that private insurance supplements free or subsidised public medical care. Co-insurance rates are low, with 20 percent common but zero an important option. All insurers impose upper limits on coverage per service. Although this limits protection against large or catastrophic losses, it may be necessary to constrain the fees charged by providers. As well, where the public sector potentially provides catastrophic protection, although in a less desirable setting, upper limits may be a necessary control on the risk that patients will use private sector services when public sector services are available. The emphasis on first dollar coverage (i.e. no co-payment) may also reflect a carryover from earlier days when health insurance was tax deductible. With full tax deductibility of insurance but not out-of-pocket medical payments, there is a strong incentive to fully insure all expected medical expenses because the tax deduction more than offsets the additional overhead costs of insurance. With the application of fringe benefit tax to health insurance since 1988, policies with larger deductibles (in which the patient pays the full amount of expenditure) and co-payments may become more common.

2.2.3 Scope of the Market and Rating

The majority of individuals with private insurance obtain it through employment. For example, the employment-based share is roughly two thirds for Southern Cross and four fifths for Aetna. This reflects the administrative cost savings of large groups and their potential for reducing adverse selection risk, if coverage is effectively mandatory for all members of the group and it is formed for reasons other than the purchase of insurance. These factors account for discounts, of roughly 10 percent and 10-20 percent for administrative cost savings and adverse selection risk respectively, off the cost of non-group coverage. Other group organisations such as unions, banks and credit card companies also provide group coverage. This non-employment market may see increased relative growth now that fringe benefit tax has eliminated the prior distortion in favour of employment-based policies.

Coverage is spread among all socio-economic groups, although the percentage of the population with coverage tends to be higher for higher income groups and for persons in urban areas; it is lower among young age groups. This pattern reflects in part demand for medical care, which tends to increase with age and probably income. It also reflects access to private sector services: rural populations that lack ready access to specialists and/or private hospitals have a low demand for private insurance. Further, some insurance companies restrict coverage for the elderly.

The extent of private coverage may also increase as the practice of adjusting insurance premiums for risk and experience (experience rating) becomes more common. Traditionally, insurers have charged a single 'community' rate for persons under 65 regardless of age, sex, locality, income and other actuarial risk factors of the individual or group. Setting premiums based on the experience of employer groups has also been limited. This implies premiums that are actuarially unfair (i.e. are not based on expected costs) and hence unattractive to relatively low risk groups. For example, community rating without regard to age or locality has probably constrained the demand for coverage by young adults and persons outside major metropolitan areas where doctors' fees are lower and the resulting premiums are high relative to actual medical costs. The extent of cost differences is mitigated because the public sector and the ACC absorb much of the catastrophic risk. With reductions in funding by the public sector, cost differences between different categories of risk will increase, thereby increasing pressures for risk-adjusted premiums. The recent entry and growth in the market share of insurers that offer age-related premiums and experience-rated policies to employers suggests that community rating may not be sustainable in the longer run.

Public funding levels and strategies will play a very significant role in the development of private insurance coverage. As long as the public sector provides the majority of medical services free of charge, the demand for private insurance will be limited.

Also important in potentially limiting the development of private insurance is the risk of changes in government policy that cannot be diversified by pooling of different risks. As public budgets become increasingly constrained, certain types of care must be rationed or eliminated, resulting in an unanticipated shift of the cost of such care from the public sector to individuals and their insurers. For example, the recent decision to severely limit government subsidies to prostheses raised the cost of hip replacement to the elderly or their insurers by up to $3,000 - a cost that could not have been anticipated at the time outstanding policies were priced. Such cost shifts entail losses for insurers until premiums or contract terms can be adjusted.

There is considerable potential for growth of private insurance to cover long term care and home health services for the elderly although such policies suffer from intrinsic problems of defining what events will be compensated. The risks of moral hazard are also particularly severe for these services.

2.3 PRIVATE HOSPITALS AND VOLUNTARY SERVICES

Approximately 180 private hospitals provide just over 6,500 beds or around 20 percent of the total number of hospital beds in New Zealand. All are required to be licensed by the government. Private hospitals are owned by churches and religious groups, welfare organisations, charitable trusts, private companies and individuals.

Private hospital provision has been influenced over the years by public subsidies to and controls on the private sector. Until 1987 patients in private hospitals received a daily subsidy from the government including, in 1986, long term medical and geriatric benefits. In 1987, the government removed medical and surgical benefits provided to private hospital patients, as well as maternity benefits, and it has subsequently removed most subsidies relating to prostheses, medical gases, non-clinical drugs and anaesthetic drugs. At the same time, restrictions on the development of new surgical and acute medical services have been removed.

Income for hospitals providing acute services is now derived mainly from fees charged to patients and their insurers. Up to 30 percent is derived from the ACC, but this may decrease with the recent decision not to pay for care in private facilities except where delay in treatment significantly affects the accident victim's work-related activities. In the case of long term care, the government still pays patient benefits. If a patient is admitted to a private geriatric hospital because no public beds are available, the patient is entitled to additional assistance.

Private hospital growth has been most pronounced in geriatric care, reflecting partly these public policy shifts but also the aging of the population. Private hospitals provide about one half of the total beds officially

designated for geriatric patients. Geriatric bed numbers in the private sector have increased from 1974 to 1987 at a rate of around 7.5 percent per year. Since 1982, there has been an annual increase of 6-7 percent in the number of operations performed in private hospitals, which represents a modest increase in the percentage of total operations performed. There has been a continuing decline in average length of stay from around 3.9 days in 1975 to 3.3 days in 1987 (excluding geriatric beds). The average occupancy for medical/surgical hospitals has declined from 73 percent in 1977 to around 53 percent in 1987.

Consultants operate in private hospitals as independent private contractors and set their own fees. The result is that while consultants are often the constraining factor on output in the public sector, this is generally not true of the private sector. In areas where this personnel shortage results in under-utilisation of public hospital capacity, there may be potential long run gains to both public and private sector patients if public hospitals contract out their facilities to the private sector. The co-existence of under-utilised capacity in both private and public hospitals is in part the result of distortions induced by the operation of separate public and private systems. However, changes in medical technology that permit the substitution of outpatient for inpatient treatment are also a contributing factor.

The voluntary sector includes a diverse range of organisations. Larger organisations include the Plunket Society, Family Planning Society, the Salvation Army and St John Ambulance. Some of the larger voluntary organisations such as Homes of Compassion and the Intellectually Handicapped Society run hospitals, day-care centres, hostels and sheltered workshops. There is also a wide range of organisations catering for the sufferers of specific diseases or disabilities such as the Foundation for the Blind and the Multiple Sclerosis Society. Some, such as the Cancer Society, provide services as well as educational and research funding. Charities benefit from special treatment by the government; they are generally tax exempt on their income and donations result in a tax rebate. Many of the charities receive substantial government funding. For example, the Plunket Society received $18 million in 1989/90.

2.4 LONG TERM CARE

The provision of long term care involves both income maintenance and health care, creating an issue of the appropriate boundary between the health care and social welfare systems.

The boundary problems are apparent in the case of long term care for geriatric, psychiatric and physically and mentally disabled patients. The Department of Social Welfare pays subsidies for long term care to institutions, although on the basis of a specified entitlement to funding for each individual in care. The Department of Health is also involved in this area. Some of these programmes are completely demand driven; others face annual caps on spending. The boundary problems are not simply institutional. There have been inconsistencies in the levels of assistance and the type of means testing that applies, depending on the type of institution that provides the care.

2.5 PHARMACEUTICALS

Pharmaceuticals account for a relatively large fraction of health care expenditure in New Zealand. In 1987, New Zealand's expenditure on pharmaceuticals as a percentage of total health expenditure stood at around 15 percent compared with 7 percent for the United States and 8 percent for Australia (US Department of Health and Human Services, 1989). This may reflect the high frequency of prescribing due to the system of public subsidies; relatively high prices for specific drugs; and relatively low rates of substitution of generics for branded drugs. Further research is needed to determine the contribution of these factors and appropriate policy responses. Here we simply outline the main issues.

A range of medicines which are included in the government's drug tariff (the tariff of drugs which are approved for subsidy) and prescribed by medical practitioners or dentists were previously available for New Zealand residents for a minimal charge of $2 for children and beneficiaries and $5 for adults (or higher if suppliers decline to supply the drug at the schedule price) with the government paying the balance. These low co-payment rates created incentives for physicians acting as good agents to prescribe drugs even when expected benefits were very low. Expenditure on pharmaceuticals increased rapidly through the 1980s, slowing on the introduction of part charges in 1988 which were increased from 1 January 1990. The government announced a further increase in prescription charges in the 19 December 1990 economic package. From 1 February 1991,

prescription charges for children, beneficiaries, the elderly and the chronically ill rose from $2 to $5 per item. For other adults, the charge rose from $5 to $15, a move which could further slow the growth in expenditure on pharmaceuticals, provided that nominal charge levels are adjusted to keep pace with inflation.

However, changes in maximum out-of-pocket costs mitigate the incentive effects of these co-payments. Previously there was a ceiling of 25 prescription items for an individual or 40 items for a family on which the charge must be paid each year. Prescription items over this annual limit were free. The ceiling meant that for children, beneficiaries, the elderly and chronically ill, the maximum cost of prescription charges each year was $50 for an individual or $80 for a family. For other adults, the annual maximum cost was $125 for an individual or $200 for a family. From 1 February 1991, the ceiling was reduced to 10 items for individuals and 15 items for families. The maximum annual cost of prescription charges for children, beneficiaries, the elderly and chronically ill was maintained at $50 for individuals and reduced to $75 for families. For other adults, the maximum cost each year will increase by $25 to $150 for individuals and $225 for families.

The Department of Health has the ability to monitor prescribing patterns of doctors. However, this is of limited value in the absence of information on the medical conditions of the doctor's patient population and is not used to impose sanctions on doctors whose prescribing appears out of line with other doctors. A pilot study is gathering information on doctors' prescribing habits and providing feedback.

The price of drugs on the drug tariff is set by negotiation between the government (through the Department of Health) and the manufacturers. The Health Benefits Review (1986) noted that Australia, which operates a similar system to New Zealand, pays substantially less for the same drugs. Whether this simply reflects New Zealand's lower bargaining power or differences in strategies for generating competition among alternative drugs is unclear. Competition from generic drugs may also have been slowed by litigation and requirements of the approval process, in many cases repeating tests carried out in other countries. Where generics and branded drugs are available and approved, the government subsidy covers the cost of the cheapest option, thereby creating some incentive for patients (or physicians on their behalf) to substitute away from the more expensive drug.

2.6 ACC

The Accident Compensation Corporation was established to provide compensation for wage loss, medical and other expenses incurred by persons who suffer "personal injury by accident". The system is financed through levies on motor vehicles; levies on employers and on self-employed persons to pay for other accidents to earners; and general taxation.

The ACC provides more comprehensive medical benefits for accident victims than does the Department of Health for persons ill or disabled through other causes. In particular, the ACC pays for services in private hospitals and fees charged by doctors, although restrictions have recently been placed on both benefits in an attempt to control the rapidly rising costs of the ACC. The ACC does not pay for services performed in public facilities. In general, statutory restrictions for the ACC and other constraints have not created incentives to operate as a cost-conscious insurer. There is no meaningful utilisation review or use of either patient or provider-targeted incentives to use medical resources efficiently.

2.7 ASSESSMENT OF THE CURRENT SYSTEM

2.7.1 Evaluation of Performance

Evaluating the performance of a medical care system or an individual provider such as an area health board or a hospital is not easy. The performance of a producer of a homogeneous product can be measured in terms of quantity and cost. But a producer of medical care must be evaluated on the basis of a large range of services whose value is highly patient-specific and whose quality is multidimensional. Dimensions of quality include the provision of cost-effective prevention and health promotion services, whether the treatment was appropriate for the patient's condition, the technical competence of the treatment performance, waiting time for appointment and the patient's own waiting time, the amenities and privacy of the environment, attentiveness of staff and physicians to the patient's questions and concerns, and so forth. Obviously some dimensions of quality are

objective but others are highly subjective and depend on the patient's preferences. Patients may differ in their willingness to make trade-offs between these different aspects of quality and between quality and cost. Thus ultimately the best measure of performance is market survival - consumers will tend to patronise those who provide the most satisfactory cost-quality trade-offs.

Evaluation of a health insurer raises further difficult issues. In the long run consumers prefer health insurance contracts that control moral hazard, since by definition moral hazard entails the use of services that yield benefits less than cost, and over time premiums must rise to cover these costly services. Consumers therefore choose policies with features such as co-payments, review of service utilisation, financial incentives and constraints on providers. Provider-targeted mechanisms have the advantage of controlling moral hazard without exposing the patient to financial risk. But when sick, each insured will resent the application of these constraints on their own use. Thus optimal insurance requires some short-run frustration of consumer demand, in the interests of achieving the best long-run trade-off between premium cost and access. However, it is very difficult for an external monitor to distinguish cost-effective rationing from the failure to maximise output within the budget constraint. In competitive insurance markets consumers who feel that the rationing is inappropriate can switch to an insurance scheme that relies more on co-payment or simply has fewer constraints and so costs more. With a monopoly state insurer, market survival is not available as an indicator that the insurer has maximised consumer satisfaction, given the budget constraint, and has on average engaged only in cost-effective rationing.

The problem is compounded when the monopoly public insurer is also assigned the task of making allocative decisions among consumers. Given a fixed budget and the decision to offer services free or with minimal co-payment, rationing of excess demand is inevitable. Someone must decide whether money is better spent on preventive care for children, hip replacements for the elderly, or lithotrypsy for those with kidney stones - and, for approved categories of care, which individuals are the most urgent recipients. Ideally, the decision maker(s) should maximise some social welfare function. But this is undefined and indeed there is unlikely to be agreement. The issue is essentially distributive. Thus some people may feel that short pediatric waiting lists are more important than short geriatric waiting lists, but this is a value judgement. These allocative decisions could be aided by cost-effectiveness and cost-benefit analysis to a much greater extent than currently occurs, to direct resources more to those services that have high yield in terms of some common measure such as quality-adjusted life years or a monetised (willingness-to-pay) measure of benefits. But the use of a common unit of measure does not eliminate the distributive question of how to weight benefits that accrue to different individuals.

Thus to evaluate the performance of the current system (or any other that relies on administrative rules rather than market survival tests) requires a measure of the weight attached to health benefits to different groups (a social welfare function) and measures of the health benefits achieved. Such measures are necessarily ambiguous, because some important relevant dimensions are unlikely to be captured by even a sophisticated database, others are intrinsically subjective and in any case health status depends importantly on factors other than medical care, such as heredity and lifestyle.

Given these problems, we and other researchers are forced to rely on the comparison across area health boards of measures of inputs and outputs and to rely on our assessment of the incentives for performance created by the institutional structure of the health care system.

Even this approach is not straightforward. For example, one of the problems that plagues inter-board comparisons of a number of measures is the difference between boards in the proportion of long-stay care of the elderly that they contract out to the private sector, rather than caring for in the board's own facilities. Some boards, notably Auckland, have been much more aggressive about contracting out. In the past, use of private geriatric beds allowed boards to increase their total funding. Other boards, such as the West Coast, have made little use of private geriatric beds. Because the bed numbers and length-of-stay data are for the boards' own facilities only, these differences in geriatric care provisions reduce the conclusiveness of inter-board comparisons of bed numbers per capita, cost per bed day, length of stay, and nurses or doctors per occupied bed.

2.7.2 Performance Measurements

a Cost Control

The fact that New Zealand spends less on health care as a percent of GDP than other nations at similar income levels is sometimes cited as an achievement of the current system. However, control of measurable costs is a meaningless indicator of performance for two reasons. First, it omits the costs of raising tax revenue and patient time costs. Second, it is inappropriate to compare costs without comparing benefits, and to adopt an implicit presumption that benefits are uniform across countries. The relevant measure of benefits includes both objective health indicators and more subjective measures of well-being. The available mortality and morbidity indicators do not capture all relevant dimensions and do not control for other factors that contribute to health. The forgone benefits from denial of cost-justified care are likely to be relatively high in a country such as New Zealand which relies on non-price methods of rationing.

b Equity of Allocation

Rough indicators of the equity of health care resource allocation can in principle be obtained by examining the allocation of resources to individuals, and, at a more aggregate level, between the different area health boards. In practice, there is little data on the allocation between individuals. Two measures of the equity of resource distribution between area health boards are summarised in Table 2.2 and discussed below.

Table 2.2

Variation in Resource Distribution Across Area Health Boards

Indicator	Mean	Minimum	Maximum
Expenditure per capita	$781	$624	$1174
Beds per 1000	9.1	6.9	19.1

Allocation Among Individuals

There are no data on medical care use by income or health status of individuals. The population-based Household Expenditure and Income Survey collects some information on medical care expenditures but this is not an accurate indicator of overall use when public services are free. Hospitals report data on patient age and sex, but so far there are no patient-specific data attached to payments for GPs, pharmaceuticals, laboratory work and other ambulatory services. Some promising survey data on general practice are becoming available which may overcome some of these deficiencies.

Rough estimates of the distributive effects of public health expenditures have been made by assuming that age and gender are the only factors affecting usage (Department of Statistics, 1990). This leads to the conclusion that in any one year the net beneficiaries of the current system are the elderly (who may be paying minimal taxes and who receive a larger than average amount of care) and large families, particularly those with young children. This does not necessarily correspond to a progressive distribution because many elderly people and large families with children are quite well off and many of the people paying taxes are poor.

Any inference from this data that the overall effect of expenditure on health care is progressive by income is based on the unsupported assumption that demand for medical services is not affected by income, conditional on age and family status. A review of evidence from several studies in other countries suggests a positive relationship with income (Feldstein, 1985) although that is an overall demand relationship rather than a demand for public sector services which is at issue here.

Expenditures Per Capita by Area Health Board

In 1989, annual expenditure per capita ranged from $624 in Northland to $1174 on the West Coast with the average for New Zealand being $781. The South Island had an average of $924 per head in 1989 which was 19 percent higher than that of the North Island. Only 18 percent of this variation in per capita expenditure across boards can be explained by differences in the proportion of the population over 65. The remaining variation reflects funding allocations lagging behind population movements, other factors used to weight the formula and persistence of factors used before the introduction of the present formula. If equity is defined in terms of equal

per capita allocation - and this is by no means the only possible definition of equity - then the status quo indicates considerable inequity between regions.

Beds Per Capita

Variation in beds is even greater than variation in per capita expenditures. The number of public beds available in 1989 per capita ranged almost threefold, from 6.95 per thousand of population in Northland to 19.05 for the West Coast, with an overall mean of 9.1. The South Island had on average 4 more beds per thousand of population than did the North Island. Aside from equity considerations, this indicates a mismatch of resources to demand because demand tends to be greater in urban areas on account of lower travel costs.

c Output

The variation in performance across area health boards for a number of different measures is summarised in Table 2.3 and discussed below. In addition we report the findings of the studies conducted by Arthur Andersen (1987) and the Audit Office (1989). It should be noted that, while an increase in the number of operations and the numbers of services delivered for a given input of resources is one measure of efficiency, measures that reduce the requirement for costly medical interventions are also valued outputs of a health care system that are not captured by the measures discussed here.

Table 2.3

Variation in Performance Indicators Across Area Health Boards

Indicator	Mean	Minimum	Maximum
Surgeries (per 1000 pop)	55	13	82
Day patients (per 1000 pop)	86	36	172
Outpatients (per 1000 pop)	1249	842	1819
Cost per bed day	$418	$226	$634
Average length of stay (days)	13.3	7.7	30.2
Number on waiting lists (per 1000 pop)	18	14	26
Qualified nurses per occupied bed	1	0.7	1.3
Doctors per occupied bed	0.18	0.05	0.29

Surgeries, Outpatient and Day Patient Attendances per 1000 Population

There is significant variation in these three categories of hospital output. Multivariate regression analysis we have undertaken indicates that the variation in surgery rates cannot be explained by total per capita resource allocation or substitution of day patient attendances.

It is often alleged that the availability of private beds creates incentives for surgeons to reduce their output in the public sector in order to create demand for their private sector business. The regression of public sector surgeries on private sector beds shows a negative correlation between public surgery and private beds but the coefficient is not statistically significant at conventional levels.

Cost per Bed Day

A crude aggregate measure of hospital output is the number of bed days per dollar of funds available. Of course, we do not suggest that an area health board would or should try to maximise bed days, given its budget constraint. Since surgical days are costly relative to geriatric and recuperative days this would certainly lead to a

non-optimal substitution away from resource intensive acute care such as surgery towards more residential care and unnecessarily long length of stay.

Table 2.3 reports the inverse measure, the cost per bed day. In 1989 this varied from a low of $226 on the West Coast to $634 in Auckland. With the data available, we cannot determine the extent to which this reflects differences in area health boards' allocation of funds to different categories, especially hospital versus non-hospital services and hence distributional preferences of area health boards, as opposed to differences in production efficiency in terms of minimising cost per unit of services that are produced. As well, cost functions may vary between different regions. For example, the accommodation component of costs is presumably much higher in Auckland than on the West Coast.

Length of Stay

The variation in overall length of stay is critically dependent on the proportion of geriatric and psychiatric admissions which have a longer mean length compared to pediatric and medical stays. The length of stay within a category can also be affected by the severity of case mix and substitution between inpatient and day patient (a problem which affects comparisons between private and public sector performance). As a result, the overall length of stay figures are ambiguous indicators of variation in performance between areas. They range from 7.7 days in the Bay of Plenty to 30 on the West Coast with a mean of 13.3.

Waiting lists

Waiting lists are a widely cited measure of performance failure, but they too are ambiguous. Most fundamentally, in a system that chooses to provide free care, rationing by either outright denial or waiting is generally necessary and, if targeted at low benefit services, can contribute to efficient resource allocation. The public health system uses both devices. It simply refuses to pay for some services and others are rationed by waiting. The true social cost of either outright denial or delay is the discounted present value of the expected benefits of treatment to the patient, minus the costs. The available data do not permit such calculations.

In addition to the problem of distinguishing inappropriate from cost-effective rationing, the value of waiting lists as an indicator of unmet need may be further undermined by the alleged problem that surgeons manipulate the waiting time in public facilities to generate demand for their private business. As well, some persons may be on waiting lists primarily because it gives them an option for treatment and others on the list may no longer require treatment. Conversely, some persons for whom treatment may be of positive net value may be discouraged by long waits from seeking care at all. Thus the direction of bias is unclear.

The data used indicate that the number of people per 1000 of population on surgical waiting lists varies from 14 in Southland to 26 in Nelson with a mean of 18. As of March 1988, 15 percent of those on the list (18,000 people) had been there at least a year.

If waiting lists are primarily a means of rationing scarce resources, the mean numbers waiting (over all types of procedures) should be negatively related to resources per capita. In fact, there is no significant correlation. If beds are a binding resource constraint, there should be an inverse relation with length of stay or occupancy rates but again there is no significant correlation. The numbers waiting are negatively related to the availability of private beds, which is consistent with the hypothesis that the private sector takes some pressure off the public sector.

Input Use

The number of qualified nurses per occupied bed in 1988 varied between 0.7 on the West Coast to 1.3 in Taranaki with an average of 1. The New Zealand ratios compare with the 0.6 average of the OECD (US Department of Health and Human Services, 1989). The New Zealand ratio of total nurses (enrolled and registered) to occupied beds totalled 1.2. The number of doctors per occupied bed ranged from 0.05 on the West

Coast to 0.29 in Auckland with a mean of 0.18.

Arthur Andersen and Company Report, 1987

Arthur Andersen and Company prepared an assessment of the relative performance of New Zealand public hospitals for the Hospital and Related Services Taskforce. The report suggested that savings in the order of $451 million to $601 million (1986/87 dollars) or 32 percent of total expenditures on hospitals could be gained annually by implementing various improvements in the system.

The study estimated the potential gains at two levels: first it assumed that the current structure and organisation remained, and estimated how much more efficient the system could be made. The second estimated the gains that could be achieved if the health care system was significantly restructured.

The first approach focused on comparing the performance of institutions within New Zealand in terms of length of stay, staffing, and utilisation rates. It used the data to estimate the gains that could be achieved if all New Zealand institutions operated at a level of efficiency demonstrated by a majority of institutions or by the best performers. The assumption is made that the same level of services could be achieved at a lower cost, resulting in improvements in efficiency. The second level of the study attempted to quantify the gains that could be achieved by restructuring the health system. This included introducing incentives, co-payments, and health maintenance organisation ('HMO') delivery systems, using the United States as the basis of comparison. In part, the cost reductions suggested reflect some shifting of costs from the public sector to individuals and to their insurance companies and cannot necessarily be deemed to be gains in efficiency.

The report suggested that the gains shown in Table 2.4 could potentially be achieved.

Table 2.4

Potential Savings in Expenditure

$million (1986/87)

	First Approach	Second Approach
Reduction in length of stay	179.6	198.5
Utilisation of institutions	24.3	25.5

Departmental operations 79.5 104.5

Support functions 52.5 67.9

Reductions through incentives 115.3 204.5

TOTAL 451.2 600.9

There is clearly a large margin for error in the estimates since, as noted in our earlier discussion, it is difficult to determine whether differences in outcomes in different hospitals are the result of differences in performance or the result, for example, of a different case mix. Estimates of the efficiency gains from further changes to institutional structures are necessarily speculative. However, the report does point to the possible existence of large inefficiencies and hence large potential gains.

Audit Office Report

In 1989, the Audit Office reviewed the management of public hospital surgical workloads in five of the 126 public hospitals that have more than 50 surgical beds. The five hospitals chosen were representative of provincial and city hospitals. The audit covered the management of outpatient clinics, waiting lists, bed occupancy, nursing staff, operating theatres and surgical staff. The Audit Office report noted the following findings.

• The hospitals lack reliable information with which to make good management decisions. This has inhibited the best use of hospital resources in the management of surgical patient workloads.

• More effective use could be made of outpatient clinics, for example through not booking patients for return visits when these may not be necessary.

• The allocation of patients to surgical waiting lists is inefficient and contributes to delays in treatment. The lists are not accurate and do not indicate either the total number of people seeking treatment or the resources required to cater for people needing treatment. For example, some patients are on waiting lists even though their surgeon has not decided whether an operation is necessary.

• More effective use of available bed space could be made. The practice of allocating fixed numbers of beds to various medical specialties such as general surgery, orthopaedics, general medicine and so on means that shortages occur for some specialties while other beds are empty.

• The number of nurses on duty did not always correspond to the number of patients requiring care.

• Analysis of operating theatre use showed an under-use of afternoon operating sessions.

• The hospitals appeared to be over-estimating the amount of operating theatre time that needs to be reserved for emergencies during weekdays.

• There appeared to be inadequate use of day surgery at some hospitals.

• More efficient use of operating theatres might reduce the need for future capital expenditure.

• Some registrars were working excessive hours, earning more than full-time employed surgeons who were not paid for overtime.

The study concluded that there is scope for improving efficiencies in the public health system by ensuring better use of available resources.

d Summary

We cannot draw firm conclusions about the equity or the efficiency of the public hospital system on the basis of available evidence on performance.

The uneven distribution of funds across area health boards seems *prima facie* inequitable but inferences depend on what other factors are included in the definition of equity. Equity among individuals is equally hard to define and cannot be determined with the available data. Even the new data collection systems being implemented in public hospitals and intended for GPs will not collect information on patient income or health status, so are not designed to measure or direct allocation based on need or income.

With regard to possible indicators of efficiency, none of the available measures permits us to distinguish between differences in the preference structures of area health boards versus differences in the efficiency of producing specific outputs. However, the two detailed reviews of the efficiency of the health system do suggest serious efficiency losses.

2.7.3 Incentives for Performance

Although it is difficult to measure the performance of the health system, it is possible to identify problems that exist in terms of the environment in which it operates and the incentives for performance resulting from it. The following major problems (which are discussed in more detail below) can be identified. First, the process of allocating funds in the public sector does not ensure that consumers' preferences are met, or that they are met at minimum cost; second, incentives for performance in the public provision of services are weak; third, the allocation of public funds through the GMS subsidy goes against principles of efficiency in resource allocation to medical care and insurance against financial risk, and also violates norms of equity; fourth the lack of information on the public sector means that it is not possible to determine the distributive effects of the system or the efficiency with which services are currently provided; fifth, the structure of public subsidies creates a distortion between primary and secondary services; sixth, the interface between the public and private system creates difficulties and finally, regulatory controls may act to constrain competition within the health sector.

a Allocation of Public Funds

Because area health boards do not compete for patients, patient preferences have little influence on the allocation of funds to competing needs for medical care. Because consumers are not able to choose the structure and extent of insurance cover they receive, they are not able to signal to area health boards the quality and quantity of health care that they desire. The vacuum is largely filled by central government, the area health boards (subject to political pressure from the government and interest groups), hospital medical staff, and hospital managers. Where supply is inadequate to meet demand, rationing among consumers is determined largely by specialists. Other processes include the use of community committees. However, these may be subject to capture from interest groups.

The powerful provider interest groups, and those groups with a major stake in the status quo, have an important influence on the distribution of resources. Although the population-based funding formula is intended to facilitate funding changes in the face of changing needs and priorities, it has proved difficult to reallocate resources from one region to another or from one specialty to another. Those regions or specialties which have strong advocates or which have received high levels of funding in the past strongly resist reallocation of resources to other areas of need. There is nothing in this process of resource allocation to ensure that the resulting allocation of resources yields the maximum value to consumers.

The new system of contracting between area health boards and the government and the improvements in the accountability of general managers will in theory assist in improving the incentives for cost minimisation. It remains to be seen how far this potential will be realised.

An additional factor that raised the cost of producing health care in the past was the provision of public funding to public and private hospitals that was tied to particular inputs or activities. For example capital costs were subsidised, leaving a legacy of too many hospitals, inadequately configured for current practices. Although some of these input subsidies have been removed, others, such as the subsidies to GPs that are tied to the use of practice nurses, remain. Subsidies create incentives to over-utilise the subsidised inputs, in violation of principles of cost minimisation.

b Public Provision of Services

The institutional structure within which public managers operate does not create clear incentives to maximise consumer satisfaction at minimum cost. Given the current structure of public ownership, hospitals face very limited accountability to their owners (presumably the taxpayers who have funded the area health boards in the past) for their performance. Managers do not have clear objectives and substantial difficulties face officials in their monitoring of board performance.

Because patients have limited choice in terms of where they can be treated or what services will be offered to them, and those choices that are made do not directly affect provider revenues, there are disincentives for efficiency. For example, the hospital that exerts minimal effort to increase patient throughput and reduce waiting lists suffers no loss in revenue and can enjoy additional slack, whereas a hospital that does exert effort is rewarded primarily by higher costs, less slack and a reduction in spare funds.

The lack of competition between hospitals (and other services) means that any failure to provide the services desired or to minimise costs is not penalised by a loss of business or a decline in income received by the organisation. Violation of cost minimisation, for any mix of output, implies failure to maximise the output that could be achieved from any given budget allocation.

Until competition between providers operating in a competitively neutral environment is allowed (and possibly enforced by the provisions of the Commerce Act), the full potential pressures for cost minimisation will not be exerted on medical providers. Resources will continue to be allocated to organisations not because they are able to deliver the best services at the lowest cost, but because they have advantages not enjoyed by other participants. Similarly, the incentives for management performance will be weak as long as the owners of the organisations take little or no interest in monitoring performance.

In the absence of constraints imposed by competition and strong shareholder monitoring, inefficient incentive mechanisms may be used within the provider organisations. For example, the payment of a salary to specialists, who largely control the rate of output in the public sector, results in them having few incentives to maximise output in the public sector or to have regard to the efficient use of other resources. The salary system may create a perverse incentive to maintain excess demand in the public sector since this generates private sector demand for their services, for which they are paid fee-for-service at a higher implied hourly rate. (However, as discussed earlier, our very simple regression analysis failed to detect a significant effect along these lines.) The moves to introduce performance payments for specialists should improve their incentives to increase throughput. It is unclear whether the changes that have been proposed will go far enough towards solving this problem.

c The GMS Subsidy

There are limitations to the present structure of public funding to primary heath care. The subsidy system is not consistent with principles of efficiency in resource allocation to medical care and insurance against financial risk. It also violates norms of equity.

Consider first the equity issues. The subsidy rates differ by patient type, regardless of procedure, with higher subsidy rates for children, beneficiaries and chronically ill. These differential subsidies are apparently intended both to encourage differential use and to redistribute income. But the net effect depends on the extent to which differential subsidy rates translate into differential prices charged to consumers. There is no guarantee - indeed it is most unlikely - that these subsidies to doctors are fully passed on in lower fees to consumers or that the rate of pass-through is uniform across consumers. Instead, it is likely that the GMS subsidy is partially a pure transfer to doctors, depending on how responsive demand is to pricing. Transfer is particularly likely if doctors can determine *ex ante* which patients have insurance since insured patients' demand will not be sensitive to price when co-payments and stop/loss limits (i.e. limits on out-of-pocket expenses) are low. To the extent that

subsidies are passed on to consumers, there will be some increase in demand for GPs and for referral and hospital services.

To the extent that the GMS does reduce the cost of GP services to consumers or particular classes of consumers such as children, it will improve access to primary care, potentially achieving a desired equity objective. However, there is no evidence that increased use of GP visits will have the highest payoff in terms of improved health status of target groups. Even if that were proven, targeting subsidies at families with low relative utilisation because of income or other factors would be more cost-effective than a blanket subsidy, regardless of family income.

A second possible rationale for the GMS is to improve medical service in poor and rural areas. Again, blanket subsidies are extremely inefficient. That is, only a small fraction of the total cost to the government will contribute to achieving this goal.

In terms of insurance issues, even if public subsidies do achieve a significant reduction in cost per GP visit for patients, this is not an optimal form of insurance. Insurance is most valuable when it protects against large or catastrophic losses which are unpredictable and occur infrequently, such as major hospital expense. For most patients, GP visits are a predictable, routine expense that can be readily budgeted for just like any other predictable expense. The considerable moral hazard of insuring GP visits further undermines the value of such insurance. While insurance does make sense against the risk of chronic illness that necessitates a large number of GP visits, this is best addressed by an insurance policy with a large deductible, a declining co-insurance rate and an upper limit or stop/loss on out-of-pocket expense, rather than the GMS per visit subsidy that provides too much up front cover but no stop/loss. The removal of the GMS benefit for most adults is consistent with this analysis.

More generally, fee subsidies and controls for different services induce distortions in the choice of input mix. For example, higher subsidies for pharmaceuticals than for GP visits have probably contributed to the relatively high per capita expenditure on pharmaceuticals. Imposition of a fee ceiling or a fixed subsidy per office visit encourages the use of multiple short visits instead of one longer visit. Real resource costs are higher because patient time costs increase in proportion to the number of visits and there are also likely to be fixed costs per visit in the doctor's office, such as clerical time scheduling appointments, billing and so forth. Determining an incentive-neutral system of reimbursement for multiple services under a fee-for-service reimbursement system is extremely difficult. This is a major argument in favour of some element of capitation in the system of paying doctors.

d Paucity of Data

The paucity of data on the public system has been noted in both the Health Benefit Review (1986) and the Report of the Hospital and Related Services Taskforce (1987). It is particularly remarkable since a potential advantage of a public monopoly is that it has ready access to data from all providers and for all patients, with maximum potential scale economies. For example, there is no public sector information on utilisation of services by patient category (although some information is available on utilisation by age, gender and occupation and, in the area health board system, by ethnicity). Thus it is not possible to determine whether the net distributive effects of the current system are progressive. It is quite possible that middle and upper income families receive larger per capita benefits from the system than do lower income families, and possibly even larger per capita transfers net of taxes. Such regressive distributive effects are possible because benefits are not means tested but the demand for medical care increases with income. The regressivity may be constrained, to the extent that higher income families substitute private services for public services. But with the lack of data in the public sector the net distributive effects of the current system remain unknown and those who defend it on grounds of equity have no empirical basis for their claims.

e Interface Between Primary and Secondary Care

The structure of assistance to health care provided by the government creates a distortion between primary services which the patient must pay for and secondary services which are provided free. Although access to secondary care is achieved through GP referral, the GP, if acting as a good agent for the patient, may recommend inappropriate treatment at a public hospital if this saves the patient private expenses. The result is to encourage substitution towards hospital care even though primary care might be more appropriate.

Currently, some of the pressure arising from the different levels of subsidy is experienced at the accident and emergency (A&E) level of service. This is essentially a primary service but is provided by hospitals free of charge. As a result, patients tend to overuse A&E services as a way of avoiding the cost of primary services (although access to these services has been discouraged or curtailed by some hospitals in recent years). A simple solution to this problem would be to charge a fee for non-emergency use of these services provided in hospitals.

Another criticism of the interface between primary and secondary care is that there is little information transfer between the two sectors. GPs do not continue treating their patients once they are admitted to hospital. The result is to force repetition of diagnostic services and to reduce the extent to which useful information is available to assure appropriate and coordinated care. Moreover, it appears likely that involving GPs in hospital procedures may well lower time demands on expensive surgeons, and GPs would also benefit by keeping abreast of medical developments.

A further suggestion is that charging for primary care but providing secondary care free may result in consumers (particularly the poor) investing sub-optimally in their own primary care, with the result that they may end up imposing unnecessarily high costs on the free secondary care system. Similar arguments can be made about nutrition and lifestyle factors, which in many cases might have a higher marginal product in improving the health of the poor than free medical care. However, the evidence from the Rand health insurance experiment (Manning et al., 1987; Brook et al., 1983) found that free medical care had no significant effect on the great majority of measures of health status, either objective or self-assessed, even for the poor (with a few exceptions). This evidence suggests that concern for the health of the poor, for either altruistic or investment reasons, is better addressed by narrowly focused interventions, targeted at specific conditions where medical interventions have proven benefits, rather than by a comprehensive set of free medical services.

f Public / Private Interface

The public/private mix is not the outcome of a considered evaluation of the optimal role of the government and individual responsibility in the financing and delivery of health care. Rather, the allocation of public funds has been determined by various political pressures as well as by the constraints on funding to the boards in recent years. This has left gaps that have been filled to varying degrees by the private sector.

The fact that patients are prepared to pay to obtain services in the private sector from surgeons who also have appointments in public hospitals, together with the existence of under-utilised public sector capacity, is evidence of the distortions and waste introduced by constraints on the flexibility of the public sector. These constraints may be overcome by contracting out public sector facilities for use by the private sector, or through the public sector charging patients for some services. Current restrictions on patient charges in the public sector impede this, so that public hospitals cannot raise additional revenue to pay consultants. As a result, the total costs to patients are higher. To get the same services performed in the private sector, patients must pay fees sufficient to pay not only for the consultants' time but also to cover the capital costs of the private hospitals.

It must be emphasised that these are not problems created by the existence per se of private insurance and private hospitals. Eliminating the private sector, as some have proposed, would not resolve the problems. Indeed on balance it seems likely that the existence of a private sector increases the amount of physician time and other resources available to those served by the public sector. The private sector satisfies some demand, thereby reducing demand pressure on public funds. Less obvious, the private sector provides a market in which doctors can maintain incomes at levels comparable to those available in other countries. The market for doctors' services is international, and migration is significant. Thus in the absence of income generated in the private sector, many New Zealand doctors - in particular, those with the highest opportunities elsewhere - might migrate. As other countries including the United Kingdom and East Germany have learned, the public sector health system cannot squeeze doctors' salaries and count on retaining qualified doctors, given the international market. This has obvious implications for the current system of providing free medical training in New Zealand, with no repayment obligations. A full analysis of this issue is beyond the scope of this report.

g Regulatory Controls

A range of regulatory controls apply to the funding and provision of services by the government and others.

The Medical Practitioners Act prescribes educational standards, levels of experience and personal characteristics that a person must meet to be allowed to practice medicine or surgery. The Act prevents unregistered persons from describing themselves as medical practitioners. Other legislation controls dentists, nurses, psychologists, physiotherapists, occupational therapists, dietitians, optometrists and dispensing opticians, chiropractors, pharmacists, medical radiation technologists and medical laboratory technologists. The Medicines Act 1981 gives the exclusive right to prescribe medicines to medical practitioners, dentists and veterinary surgeons. Ownership controls apply to pharmacies and optometrists.

In addition to the statutory restrictions, medical practitioners have adopted a number of voluntary restraints through the New Zealand Medical Association. The Association has a code of ethics that restricts self-advertisement, especially of fees, and condemns competition among doctors for patients. However, the scope for anti-competitive behaviour is constrained by the Commerce Act 1986.

The delivery of hospital care is controlled by the Hospitals Act 1957. Almost all private hospitals in New Zealand are licensed under the Act. The Act imposes minimum standards covering management, staffing, records and premises which are enforced by the Health Department.

Statutory controls which limit the practice of medicine or surgery establish barriers to entry and potentially limit competition. Doctors and other health professionals have an interest in restricting entry to their own and substitute professions, thereby enhancing their own value. While some controls on quality may be justified, the current regulatory structure is not well designed to assure quality with minimum interference with competition. The ownership controls on pharmacies and optometrists are particularly inefficient.

2.8 SUMMARY

Although it is difficult to measure the performance of the health care system, particularly given the paucity of data in New Zealand, both theory and casual empirical evidence highlight features of the system that can be expected to create distortions in terms of equity and efficiency.

The major failings of the system arise because of the weak incentives on area health boards to act as efficient funders and providers of health care services.

Because area health boards are not subject to competition in their role as intermediaries of public funding, consumers cannot use their buying decisions to express preferences or dissatisfaction with the type of coverage offered. As well, the nature of the area health boards makes monitoring of their performance difficult; for example, it is difficult to specify performance measures and there are no comparable private organisations that could be used as a benchmark at the funding level. However, there is some scope for comparisons between the different health boards, and at the provider level some aspects of private hospitals are comparable to the public sector. These comparisons, although necessarily inconclusive, are at least suggestive of inefficiencies.

The institutional structure within which public hospital managers operate provides weak sanctions against inefficient performance. Patients have little choice as to where they can be treated or what services will be offered to them. As a result, a hospital does not lose business or funding if it fails to provide the services desired by customers.

These failings are inherent in the funding arrangements and diffuse ownership structures of the present system. Possible reforms that address these fundamental problems are addressed in Parts 3 and 4.

PART 3: CORPORATISATION OF FUNDING AND PROVISION

3.1 INTRODUCTION

Corporatisation of health care providers and clarification of the funder/insurer role would be a logical extension to current moves by the government to increase the accountability of managers of the area health boards and improve their incentives for efficient performance. It would allow further clarification of their objectives and the introduction of improved incentives for performance and improved monitoring arrangements.

In this part, we review the corporatisation process in New Zealand, before applying the corporatisation model to the New Zealand health system. Two corporatisation options are examined. In the first option, the funding and provision functions of the area health board are separated and corporatised. Funding is still channelled through the area health boards (area health insurers) but competition between corporatised hospitals and between public and private providers is able to develop. The second option opens up competition by allowing individuals to opt out of the public scheme, and assigning to the private insurer their 'premium' derived from tax funding.

3.2 CORPORATISATION IN NEW ZEALAND

The problems associated with the funding and delivery of health care are similar to those identified with many of New Zealand's government trading organisations in the early 1980s. The reform measures subsequently adopted to improve the efficiency of government trading organisations, and the significant improvements in efficiency resulting from those changes, provide valuable insights into options for improving the performance of the health care system, although important differences must be taken into account.

Analysis in the early 1980s of the commercial performance of major government businesses revealed a consistent pattern of poor quality investment decisions, excessive operating costs, cross-subsidies between consumer classes and very low commercial returns. A thorough analysis of these problems led the government to conclude that fundamental structural reform was required to give staff in government trading enterprises the best incentives to use resources efficiently. The subsequent reform focused on removing commercial advantages and disadvantages applying to SOEs by virtue of their government ownership, and subjecting SOEs to rigorous commercial incentives and reporting requirements modelled on private sector norms.

The removal of the commercial advantages and disadvantages applying to SOEs was designed to ensure that they face the full costs to society of the resources they use. The establishment of a 'level playing field' enables the performance of SOEs to be monitored on the basis of standard commercial criteria and allows private sector businesses to compete in their markets on even terms.

Prior to the government's corporatisation programme the managers of most major SOEs had very little, if any, incentive to maximise the value of the state's investment. Many major government businesses operated without a clear commercial mandate. Entities such as the State Coal Mines and the Forest Service, for example, were given a mix of commercial, social and policy functions to perform. These different objectives often conflicted, with the result that it was difficult to measure management's performance and call management to account. Failure to perform could always be excused by the need to meet some other, conflicting, objective.

Managers also often had quite constrained authority to manage their business activities. Detailed involvement in day-to-day business affairs by politicians and central government agencies made it difficult for managers to exercise their management expertise and further compounded the problem of calling them to account. Additional difficulties arose because of the lack of information on the commercial performance of SOEs and the failure of remuneration systems to provide commercial rewards to successful managers and apply commercial sanctions to non-performers.

The previous government developed and applied a consistent set of structural reforms to address these difficulties. By restructuring individual SOEs through the umbrella provisions of the State-Owned Enterprises Act 1986, the government gave major SOEs a clear commercial mandate and transferred non-commercial functions to other government agencies with responsibility for the activities concerned. For example, the non-commercial forests of the Forest Service were transferred to the Department of Conservation and the new Forestry Corporation was given the objective of operating as a successful business.

The SOE Act also established a clear arm's length relationship between Ministers and their policy advisors on the one hand, and the SOEs on the other. SOEs' boards and managers were provided with normal commercial

levels of authority to make day-to-day business decisions. To ensure that the greater flexibility provided to management was channelled into maximising the value of shareholders' investment, the government required more detailed and meaningful information disclosure from SOEs and devoted more resources to monitoring the quality of the SOEs' commercial performance. To maximise the responsiveness of managers to this new environment, managers were exposed to a more rigorous system of individual rewards and sanctions based on commercial norms. However, the SOE Act also imposes requirements, such as the requirement to be a 'good employer' and to 'exhibit a sense of social responsibility' on SOEs that are not borne by private sector organisations. These requirements may reduce the competitive neutrality established by the SOE framework.

Whilst key Ministers and many policy advisors and SOE managers expected significant economic benefits to flow from corporatisation, the gains have, in general, out-stripped expectations. It remains to be seen whether these improvements will be maintained in the long run. The risks that the disciplines will be eroded over time and political decision making re-emerge provide a strong argument for full privatisation.

3.3 CORPORATISATION APPLIED TO THE HEALTH SECTOR

3.3.1 Introduction

The area health boards currently perform two roles. First, they receive funds from the government which they use to pay hospitals and other providers for medical services (the public funder/insurer role). Second, they provide health care services, mainly through their management of the system of public hospitals (public provider role).

Because the area health boards have these dual roles, they serve two or possibly three interests that may conflict: they are responsible to taxpayers via the Department of Health for ensuring that taxpayers' money is used in a cost-effective manner; they are responsible to local consumers for choosing what services should be provided and who should receive them, subject to constraints laid down by the Department of Health; and they manage the hospitals that provide those services. Consumers' preferred reallocation of resources may conflict with the interests of staff in the area health boards' provider organisations or the priorities laid down by the Department of Health. As long as consumers are not able to choose between competing insurers and providers, these conflicts must be resolved by the monopoly area health boards.

Separation of the area health boards' two main functions of funding and provision would reduce these conflicts. The area health boards as funders would not employ service providers and would therefore be less prone to capture or influence by groups of providers. More fundamentally, separation would allow the introduction of competition between corporatised public hospitals and between public and private providers.

Separating the funding and provision functions may involve some loss of potential efficiencies from vertical integration. These costs are difficult to assess *a priori* but the observation of various forms of vertical integration in the United States for organisations such as HMOs (health maintenance organisations) suggest they may be significant. Separation may therefore be a transitional phase, and be modified in due course if the further moves suggested at the end of this Part and in Part 4 are adopted. As well, some integration could be achieved through the area health board paying downstream service providers on a capitation basis and allowing them to contract between different providers to provide a comprehensive health service for clients opting for this alternative. (However, this option raises some of the problems that arise in the competing insurer model, such as client identification and preferred risk selection. These issues are addressed in section 3.4.)

Competition at the provider level of service is potentially a major stimulus to efficient performance and its introduction is likely to generate gains that exceed any costs arising from separation of funding and provision. In urban areas, competition between different corporatised hospitals and other organisations would be possible for many services. Competition would develop between the public hospitals and private hospitals and with alternative forms of service such as ambulatory (day) care for some types of service. While it is likely that some services would be offered by only a single provider in any urban area, it is for those services that are infrequently required but which have profound implications for the patient's health (for example heart surgery) that a patient may well consider providers outside the immediate region. In some cases, for example some transplants, the market is international.

3.3.2 Implementation of Corporatisation

a Introduction

Given the potential benefits that could be achieved at the provider level if the funding and provision functions of the area health boards are separated, we suggest that corporatisation proceed by separating these two functions.

The public funder/insurer, at least initially, would remain a monopoly or at least a regional monopoly. The nature of its structure and functions means that the corporatisation model is of limited relevance at this level. Instead, reform should concentrate on further clarifying the objectives of the area health funder/insurer and monitoring performance. The proposed reforms at this level would not therefore represent a major change from current moves. On the other hand, public providers, including hospitals and possibly others, could be corporatised and competition between public and private providers allowed.

b Clarification of Objectives and Structure

The SOE framework emphasises the importance of establishing clear objectives for an organisation. Clear objectives provide a direct focus for management and prevent managers using poorly specified objectives as an excuse for poor performance. Generally the most suitable objective for the managers of a corporatised entity is to maximise the value of the state's investment in the assets they manage. Non-commercial services provided by SOEs should be based on explicit contracts with the government or, in the case of the service providers, with the area health insurers.

- Area Health Insurers

The area health boards currently produce both potentially commercial and non-commercial outputs at the insurer level of the market. They act as funding/insurance intermediaries for people in their region, having a role analogous to private insurers and claims administrators; and they undertake (explicitly and implicitly) non-commercial income distribution functions. For example, by providing the same level of coverage for all people in a region regardless of cost, they transfer income from low health cost to high health cost individuals.

An attempt to separate commercial and non-commercial objectives within the existing area health insurers would be complex and therefore costly. As well, optimal insurance broadly defined in a life-cycle context includes coverage against the risk of becoming high risk i.e. people may be prepared to pay a premium now that is above their current expected costs if it insures them against having to pay very high premiums if they become high risks in the future. Because it is not clear how commercial and non-commercial objectives could be distinguished and separated, we instead suggest that the objective of the health insurers be defined as the provision of insurance for health care to the population of an area, funded on an age-adjusted capitation basis and subject to the constraints of providing universal coverage for their populations with community rated premiums.

More specifically, the role of the area health insurer would be to achieve the following:

• Determine, in negotiation with the government, the nature of the insurance package to be provided to consumers (including services covered, degree of co-payments for different services and so on); the range of services to be purchased; and access-related policies such as the permissible rate of patient part-charges for different services and different client groups. The area health insurer, with feedback from community committees, should bring to the negotiations the local preferences of the area. Given the absence of competition at the insurer level, contracting with government may act as an important constraint on the insurer's behaviour, reducing the scope for 'capture' by particular interest groups.

• Purchase or arrange for the provision of services, by contracting with competing public and private hospitals and other providers, making decisions according to which provider is able to offer the most appropriate trade-off between cost and quality.

• Monitor the services purchased to ensure they are consistent with standards established by the insurer and those defined in the contract with a provider.

• Achieve any non-commercial objectives, for example income distribution goals, that the government has explicitly contracted for.

These objectives should be spelled out in a statement of health policy (analogous to the statement of corporate intent of commercial organisations) negotiated between the board of directors and the ministers responsible, possibly modified by periodic contracting between the minister and the area health insurer. Such contracting may help ensure that all insurers provide a basic level of coverage while allowing expression of the preferences of local consumers.

Government funding for the area health insurers would include not only that currently provided to the area health boards but also the funding currently provided to doctors through the GMS and pharmaceutical benefits, as well as funding channelled through the Health Department to voluntary organisations such as Plunket and the Children's Health Camp Boards. This would create incentives for more efficient use of these various inputs and coordination of information flows.

Full corporatisation of the health insurer may not be practical given the artificial nature of the organisation and its functions. Defining accountability is difficult where the monopoly insurer has no pricing or underwriting flexibility and limited flexibility in benefit mix, and consumers cannot choose alternative insurers. We discuss in section 3.3.4 the serious problems of defining a sensible corporatised structure that would remain as long as the public insurer is not subject to competition for the provision of basic insurance. Competition for supplementary coverage with private insurers would continue to provide some constraints on the public insurer's performance. The introduction of competition in the basic insurance function is discussed in section 3.4.

The area health boards are currently set up on a regional basis although a case can be made for a single nationwide insurer. On the one hand, using regional intermediaries allows boards to be more responsive to local needs than a single national organisation, a factor which might be important if there are significant variations in consumer preferences between regions. The establishment of regional operators allows their performance to be compared, creating benchmarks that may assist in monitoring. On the other hand, operating a number of regionally based insurers, particularly if they are corporatised, could be more costly than for a single organisation, involving the replication of organisational structure. It may be more difficult to assure the provision of a national standard of coverage and service, although the government could achieve some standardisation (as is currently the case) through contracting. On balance, it is not clear whether a single organisation or regionally-based intermediaries would be preferred. In the discussion below we assume continuation of regionally-based funding.

- Public Hospitals and Other Provider Institutions

Provider organisations could be organised into business units based on services provided, geographic area or the existing institutions. The restructuring could allow for possible future amalgamations and rationalisation of the units chosen. In the discussion below we refer to such units as 'hospitals' although they could be other provider organisations, or groups of currently separate entities.

The objective of a corporatised hospital or group of providers would be to operate as a successful commercial business contracting to provide services to the local area insurers, private insurers, the ACC and individual patients. There should be no major conflicts between commercial and non-commercial objectives for hospitals. A hospital's success would then depend on the extent to which it meets the preferences of insurers and the requirements of the patients at a minimum cost adjusted for quality. A hospital would only be paid for the services it provides to users, no longer receiving funds from government irrespective of output. Separate arrangements should be made for the teaching functions of some hospitals although this raises issues that go beyond the scope of this report. The strength of the incentives for performance provided by this competition would depend on the area health insurers implementing well-designed contracts and monitoring the performance of the hospitals. To the extent that the insurers themselves face weak incentives, their incentives to ensure good performance from the hospital providers would be weakened. This would be a significant concern if the area health insurers discussed above were expected to be retained for more than a transitional period.

The hospitals could be established as for-profit or alternatively not-for-profit organisations. Both types of organisation co-exist in private health care markets and there appears to be no systematic evidence of differences in performance, if competitive constraints are similar. In any case, both types of organisation must earn a surplus or 'profit' to continue to operate and fund future development. Both would face the market cost of capital and other inputs and compete in product markets. The dominance of the not-for-profits in New Zealand and overseas has probably been influenced by the tax preferences they have enjoyed. The greater role of the not-for-profits in health care relative to other industries may also relate to the use of donations for funding of

services. In a for-profit organisation there is a potential conflict between donors and shareholders, with donors being concerned that shareholders might expropriate donation funding.

We suggest that given the substantial investment in public hospitals by taxpayers, the corporatised hospitals be initially established on a for-profit basis with central government ownership. Consideration could be given at a later date to selling or gifting hospitals to community trusts (i.e. conversion to not-for-profit) or to divestment to private operators.

It is difficult to determine *a priori* the appropriate degree of aggregation of existing hospitals into separate SOEs. The decision requires weighing the possible benefits from greater competition that could be achieved from a greater number of hospitals competing in one region relative to the increase in costs from forgoing an integrated service. Efficiencies may be generated by specialisation and coordination between different hospitals. Some of these same gains from coordination could be realised by allowing the separated hospitals to contract for services they require from other hospitals or from other service providers. As well, it may be possible to divest some services currently provided by the hospitals or to integrate with other services e.g. emergency clinics, geriatric services or primary care clinics. In some situations, it may be preferable to corporatise along service, rather than institutional lines. There is also a trade-off between increasing the number of potentially competing entities and the demand created for suitably skilled people to serve on boards and fill management positions, at least in the shorter term. These issues are best resolved on a case by case basis following a study of each region.

c Managerial Authority

Clear organisational and management objectives would not provide incentives for sound economic performance unless managers are given the authority to make decisions. Managers should have the authority to hire staff, set remuneration levels and so on without interference from central government. The 1988 amendment to the Area Health Board Act already moves substantially in this direction for area health boards. This authority should be transferred to the new entities, both the insurers and the corporatised hospitals.

- Area Health Insurers

The managers of the public insurance organisations should be given sufficient day-to-day authority to make full use of their management expertise. Rewards and sanctions should be applied to the organisations' senior managers to ensure they have a strong personal stake in achieving the objectives specified.

The problems of ensuring suitable authority and rewards for the public insurer are similar to those faced by executives of the core government sector who generally do not have a commercial mandate and are not exposed to competition. The principles governing the core government sector are set out in the State Sector Act 1988 and the Public Finance Act 1989. The State Sector Act empowers the chief executives of government departments as the main agents of ministers, within formalised parameters including explicit performance expectations. The Public Finance Act assigns departments responsibility for outputs and makes the introduction of accrual accounting measurement systems obligatory. More detailed reporting by departments regarding their performance is also required. These principles, which are similar to those underlying the government's SOE framework, provide a sound basis for improving the core government sector although their application has to date lacked the vigour and ministerial commitment that has characterised the SOE reform. Given the difficulty of establishing the area health insurers on a commercial basis, the approach adopted in the reform of the core government sector appears to provide an appropriate model for the area health insurers.

- Public Hospitals

Managers of corporatised hospitals should have full authority to hire and fire staff and set remuneration levels and other employment conditions. The management reward system should be based to the extent possible on private sector practices since the survival of such practices in the face of competition is generally testimony to their efficiency. Unwillingness to provide a market-related reward system would result in difficulties in attracting talented people to manage the hospitals. Any reluctance to sanction poor performance would undermine the effectiveness of performance-based remuneration. Similarly, flexibility in staffing levels and contract design for other personnel is critical.

d Board of Directors

The primary responsibility of the board of directors is to appoint a chief executive of the company and to monitor his or her performance and the overall performance of the organisation.

- Area Health Insurers

In addition to the role of ensuring that the organisation operates efficiently, the board of an area health insurer has the responsibility of representing consumer preferences, as long as there is no competition. Because of this additional role, it is sometimes suggested that area health boards be elected by the public rather than appointed by the Minister of State-Owned Enterprises (or Minister of Health). The major argument in favour of an elected board is that this increases the degree to which members are responsive to the community. However, the very low level of interest in area health board elections as evidenced by poor elector turnout and the poor information and voter knowledge of the identity of the candidates argues against this. An added risk is the tendency for elected members to be drawn from and to be captured by provider groups. (As noted earlier, a tight specification by the government of the objectives of the insurer can help overcome the potential problem of capture.) As well, elected members have confused accountability - they must be responsible both to the local electors and to the government. While such conflict would be removed by having only appointed members, this would reduce linkages with community preferences. Other mechanisms, such as the community committees, could potentially fill this need.

The system of elected boards has generally failed to ensure that sufficient people with business skills are elected to the boards, although the government has co-opted additional members to fill this need. In the medical context, provider capture remains an issue. Although government-appointed boards involve the risk of political patronage, this has not proved to be a significant problem with the corporatisation process in New Zealand over the last five years. Overall, the evidence suggests that an elected board is not the preferred arrangement for ensuring that people with business skills serve on the boards or minimising capture by interest groups. The board or the government may wish to retain other structures such as the elected community committees that feed through to the board the preferences of consumers. Again, distinguishing appropriate expression of local preferences while avoiding undue influence of vested interests will be difficult.

- Public Hospitals

Because hospitals can be regarded as normal commercial businesses, the board of directors of the hospitals should be appointed by central government in the same manner as those appointed for other SOEs. Their principal objective would be to run the hospitals as successful businesses, providing services for the area health insurers, private insurers and individual fee paying patients. There is no substantive reason for hospital boards to be elected by the public.

e Other Monitoring Issues

- Area Health Insurers

The Department of Health's role in relation to health care services would be to advise the Minister on the appropriate level of funding for health care services and the minimum set of services that should be provided by all area health insurers, and to represent the Minister's interests in contracting with the public insurers. The Department of Health is already moving to implement such a system, through contracting with the area health boards. The Department, with the assistance of the Treasury and the State Services Commission, would be responsible for monitoring the performance of the health insurer organisations in achieving their objective. Further monitoring on behalf of consumers would be provided by the community committees. However, there are substantial difficulties involved in defining and measuring quality-adjusted health outputs. This is one of the major reasons for allowing competing private insurers (discussed in the later section on privatisation).

- Public Hospitals

The hospitals would be run as commercial entities subject to the same monitoring arrangements as for other SOEs.

f Competitive Neutrality

- Area Health Insurers

In the initial stage of corporatisation, the area health insurer would be a monopoly provider of publicly-funded insurance and would not be exposed to competition on a competitively neutral basis. Private insurers would continue to compete in the provision of supplementary cover.

The public insurer could be exposed to competition by allowing people to opt out of the state scheme, allocating their share of public funds to buy coverage from a private insurer. The details of such a scheme are discussed in section 3.4, either as an alternative final option or as a transitional arrangement for moving towards full privatisation.

- Public Hospitals

Public and private hospitals would compete for funding from the public insurer to provide defined services. The type of contract and system of payment of hospitals could take various forms, including payment on the basis of diagnostic related groups, capitation or negotiated fee-for-service. Individuals (drawing on advice from GPs and others) could influence where funding was directed by their choice of hospital, assuming that a number of hospitals were approved by the area health insurer to provide those services. This could be achieved, for example, if the funding was 'attached' to the patients, rather than the funding being provided in bulk to the hospitals.

For some services the corporatised hospitals would compete not only with one another and with private hospitals, but also with ambulatory care clinics that provide similar services. The public insurer, other insurance companies and individuals could choose between these substitutes in obtaining the service that best meets their needs. For some low frequency and tertiary care services, hospitals in certain areas may be the sole providers. But potential competition from other areas, new entrants and even international providers would constrain excessive fees.

The area health insurer would have monopsony power (as a monopoly buyer) as long as it is the dominant purchaser of medical services. As such, it may provide some countervailing power to potential provider monopoly. However, if it exercises this monopsony power, the result may be to distort resource allocation. Until there is substantial competition between insurers this is a potential problem for both public and private hospitals and for health professionals.

Competitive neutrality dictates that hospitals pay tax and earn a normal return on capital and, if established as for-profit, pay dividends to the government as shareholder.

3.3.3 Relationship of Providers to ACC

Corporatisation and accountability for public hospitals is incompatible with the current requirement to provide free care to ACC beneficiaries. The ACC should pay for services provided to its beneficiaries, whether by public or private facilities. The present system distorts ACC incentives for optimal choice of provider; it also fails to internalise the full cost of accidents to the ACC. Thus requiring the ACC to pay for services, like other public and private insurers, is consistent with rational reform of the ACC, in addition to being necessary for competitive neutrality in the market for medical services. The reform would need to address some of the sub-optimal features of the way the ACC currently reimburses providers.

3.3.4 Developments Expected with Partial Corporatisation

The major potential gain from corporatisation is the achievement of increased production efficiency in the provision of hospital services. Corporatisation would improve the incentives for management performance and allow competition between corporatised providers and between the corporatised and private entities for some services. Competition would force corporatised hospitals to price medical outputs. This in turn would force hospital managers to develop information systems to measure economic costs, including marginal costs, in contrast to the present contracting system which has no prices and is likely to produce only accounting costs. The development of a system of prices and economic costs would permit trade-offs between services and

between alternative producers of different services to be made in a more informed and efficient way. Corporatisation and competition would also encourage the development of new contractual arrangements between hospitals, specialists and GPs, including PPO (preferred provider organisations) and HMO-like arrangements.

Competition would provide pressure on hospitals to minimise the costs of the services they provide. It would force providers to become more responsive to consumer requirements. A clarification of the objectives of the area health insurers and a strengthening of the monitoring regime should improve their incentives to act more like cost-conscious purchasers of services. The result could include selective contracting with the public or private provider that most cost-effectively meets the needs of consumers. It may also include experimentation with alternative methods of reimbursing providers that provide incentives to restrain costs, for example payment by diagnostic related groups or capitation, and monitoring of the quality of care. The area health insurers might be expected (possibly in negotiation with the government) to make greater use of consumer-targeted strategies to control moral hazard, such as co-payment.

The public insurer could obtain services from competing providers, choosing the organisation that provided the preferred services at the lowest quality-adjusted cost. The corporatised hospitals could provide services for both the public and private insurers.

The public insurer could encourage coordination among providers through preferred provider organisation networks or through HMOs to permit better integration of primary, hospital and specialist services (the health insurer could pay on a capitation basis for the provision of a range of services to enrolled patients, effectively creating an HMO). The public insurer could contract with doctors through capitation or other mixed methods of reimbursement for the provision of services. However, if capitation of GPs is introduced, the intermediary would need to ensure that the scheme does not create incentives for GPs to shift costly care to other providers. Since capitation places risk on doctors, methods of addressing this risk should be considered. These would include ensuring that risk pooling is possible and providing for risk adjustment of the capitation payment.

The corporatisation process could commence immediately, starting with those area health boards that are organisationally ready for change. It may be appropriate to use one area health board as a pilot for the whole system if there is political resistance to change or uncertainty over the most appropriate approach. A freeing up of cross-border flows and appropriate compensation for such flows would allow the more efficient regions to attract patients from other regions and provide protection for patients in both the pilot and other regions.

However, potentially serious problems limit the corporatisation model, particularly at the funder level of the market.

a Difficulty of Measuring Performance and Providing Incentives

Corporatisation is unlikely to have a major impact on the efficiency with which an organisation uses resources unless its performance is subject to competition and to rigorous monitoring and assessment, with managers and directors being rewarded and retained or dismissed on the basis of their performance.

For the public insurers exposed to limited reform, measurement of performance - that is the extent to which they are providing forms of insurance coverage that are appropriate for their customers - is extremely difficult in the absence of competition. Having insurance creates moral hazard, which can be constrained but not eliminated by co-payment and provider-targeted strategies. But in the long run consumers do not want their short run demand fully satisfied, preferring instead lower premiums.

In a competitive insurance market, consumers can signal their preferences by moving from one company to another. An insurer that is not providing a trade-off between financial protection and control of moral hazard that meets consumer preferences would lose business. In the proposed system, in the absence of competition, consumers cannot use their buying decisions (influenced by advice from GPs, employee benefits managers and others) to indicate to the public insurer their dissatisfaction with the price of the insurance package offered, the structure (e.g. the extent of co-payment and rationing), or the quality and quantity of health care services that are covered by the package. Since individuals must continue to pay premiums through their taxes for the government-run insurance scheme, they are not able to opt for alternative insurance schemes without effectively paying twice for coverage. These problems are exacerbated because of the mix of social and commercial

objectives the area health insurers are pursuing and the relatively weak monitoring arrangements that are inevitable with government ownership.

In the absence of this information on consumer satisfaction, performance must be measured by specifically examining outcomes. Performance would ideally be indirectly measured through changes in the health status of local residents. However, a wide variety of factors other than the performance of the public insurer could contribute to changes. For example, health status could be affected by an individual's decisions to supplement publicly-provided health care, or decisions on life style.

Many dimensions of care are intrinsically not measurable, for example 'caring' and responsiveness to requests for information. As well, there are substantial difficulties in establishing measures of health status. The absence of competition between insurers exacerbates intrinsic monitoring difficulties that cannot be resolved as long as insurance is provided by a monopoly organisation. Without competition, it is not possible to readily determine whether the insurer is meeting patients' needs. Introducing competition to the insurance function provides better, albeit still imperfect information. This option is examined in more detail in section 3.4.

The gains in efficiency at the provider level would depend to a large extent on the performance of the insurer in specifying output and carefully monitoring service providers. In this regard, the experience of poor monitoring of service providers by the ACC is not encouraging. Some of the institutional constraints facing the public insurers appear worse than those currently facing the ACC. For example, there are elements of 'user charges' in the funding of ACC, in the form of charges levied on employers, whereas the health insurers would simply receive a bulk grant from government. As well the area health insurers' operations are more likely to be subject to political intervention given the sensitivity of the services they produce and the area health insurer's responsibility for establishing the mix of services to be provided.

b Possible Loss of Economies of Vertical Integration

Separating insurance and provision may involve some loss of potential efficiencies from vertical integration. The cost would depend on the difficulty of defining, enforcing and monitoring contracts in vertically separated organisations relative to the situation in a single organisation. These costs are difficult to determine *a priori*, but the observation of vertical integration in the United States for organisations such as HMOs and, in New Zealand, the integration of insurance and hospital provision in the case of Southern Cross indicates there may be some costs of this type. On the other hand, non-vertically integrated organisations also compete successfully in the United States.

As long as the insurance function is a public monopoly, its separation from the provision of health services is necessary to stimulate the potential efficiency gains from competition at the provider level. Moreover, if the efficiency gains from vertical integration are indeed substantial and contracting arrangements are flexible, there would be nothing to prevent provider organisations forming links (either contractual or ownership) between hospitals, ambulatory care and so on, receiving a payment from the public health insurer on a capitation basis. Such organisations resemble HMOs and are effectively surrogate insurers. If individuals are allowed to opt into such arrangements, then it is a short step to permit them to opt into other private insurance plans, with a rebate from the public to the private insurer. The only difference is that the latter model facilitates supplementation as discussed further below. In establishing such arrangements, the area health insurer would need to ensure that the HMO does not have incentives to 'cream skim' i.e. to enrol only low risk individuals. Again this points to the need to permit risk pooling and risk adjustment of capitation payments.

c Protection against Financial Risk

The government currently provides most publicly-funded hospital care free of charge to users. Under a corporatisation model, some services could still be offered to patients for no charge with non-price forms of rationing; for other services, greater use could be made of charging and of rationing through pricing. If the corporatised insurers choose to purchase care from private and public hospitals which are able to balance bill patients (i.e. patients pay part of the cost), the result is a change from the current system in which those that get treatment in the public system do not have to pay for it. If the government wishes the public insurer to provide some services to some customers for no charge, then the public insurer would have to contract for them either from the public or private sector on the basis that balance billing is limited or zero. Alternatively, as in the current situation, rationing could be by queuing with some weight given to emergency need. Public and private

hospitals would be free to balance bill for services not explicitly contracted for at controlled prices. Those that did not wish to queue could continue to purchase services from either private or public providers, supplementing the government payment from their own funds or from private insurance.

d Risk of Political Interference

An important element in the success of the corporatisation programme to date has been the distancing of politicians from involvement in the running of SOEs.

Continued government involvement in insuring and providing health care increases the probability that the system will be captured by organised interest groups pushing to advance their own interests. The provision of health care services is politically sensitive and therefore subject to the substantial risk that politicians will intervene to satisfy pressure from particular interest groups. As long as politicians are identified with decisions that have implications for major aspects of the welfare of particular individuals, there will be strong pressure to direct resources to specific categories of beneficiary or particular groups of providers. Political intervention will weaken the accountability of the managers of the health insurer and hospitals.

Given the importance of hospitals as employers in many areas and the advantage to consumers of having convenient access to medical care, communities and employee groups will exert political pressures to resist rationalisation of resources, particularly excess hospital capacity.

Through time there is an increasing risk that politicians will become more involved in decisions made by hospitals, weakening the structure of incentives established by the SOE framework. This is a problem inherent in the SOE model.

e Quality of Management and Directors

A key factor in the success of SOE reform to date has been the attraction of some of New Zealand's top business people as managers and directors. Their commitment has been achieved because of the opportunity to turn around the commercial performance of major businesses that affect the well-being of all New Zealanders. Critical elements have been the well-specified commercial objectives of the businesses and the lack of political interference in their operation. There are risks that these requirements could not be met in the proposed reform, and that skilled managers and directors would not be attracted into the health care system.

3.4 COMPETING PUBLIC AND PRIVATE INSURERS

3.4.1 Implementation

As long as there is a monopoly public insurer that faces only very limited competition from the private sector, the system will fall far short of maximum efficiency. The existence of a monopoly public insurer, funded through the tax system, precludes consumers using their buying decisions to express preferences or dissatisfaction with the type of coverage offered. A monopoly insurer has weak incentives to act as a prudent purchaser in contracting for services on behalf of consumers. These difficulties are exacerbated by the relatively weak incentives for monitoring of performance by the owners (taxpayers) of government-owned organisations. Thus pressures for production efficiency in the hospital sector may be weak, relying mostly on the stimulus of competing for supplementary private sector business.

a Opting Out With Open Enrolment

Competition in the insurance function could be introduced, while retaining a major role for the public insurer, by allowing individuals once each year to opt out of public insurance and enrol with a private insurer of their choice. The public insurer or alternatively the Health Department would assign over to the private insurer the individual's 'premium' derived from tax funding to the Department of Health. The restriction of switching between insurance plans to an annual open enrolment period is a common practice in situations where

individuals are offered a choice between plans, such as large employment groups. Permitting switching at will at any time of the year generates adverse selection against plans that offer more comprehensive coverage, since individuals would have an incentive to stay with the cheaper, no frills coverage, switching to the more costly coverage only when they anticipate needing care. Limiting the enrolment period restricts the opportunity for someone to switch at a time when they require additional care.

b Determining the Public Premium

Ideally, the premium that an individual could assign over to a private insurer should be actuarially based, that is, based on the expected costs imposed on the public system by a person of that risk class, given the benefits covered by the public programme. As noted earlier, the benefits covered by the public programme would be established by negotiation between the government and the public health insurer. The expected value of these benefits differs by age and health status. Rough relative cost differences by age could be determined from the existing data. Adjustments based on objective indicators of health status would also be possible, once the public system had developed a database on the outcome of competitive contracting. Guidance in setting actuarial categories and relativities might also be drawn from the premium structure of private insurers for a basic policy offering benefits comparable to those currently provided by the public sector. If private insurers realise significant cost savings, the premium for comparable coverage would be lower. But to the extent private insurers also offer plans with more comprehensive coverage, premiums for these plans could of course be higher.

One initial estimate of the cost of private coverage (see Part 4) indicates that the premium individuals could transfer from the public insurer might cover the cost of a basic private plan. Thus switching to private coverage would not require significant additional out-of-pocket expense, so this option would be affordable regardless of income status. If the private sector insurer is able to achieve efficiency gains compared with the public insurer, then individuals opting out would be able to use the opting out premium to purchase a more attractive insurance package from the private insurer. Alternatively, individuals could opt for the same level of coverage and then cash in the balance of the premium transferred from the public insurer. However, considerable refinement of the method of estimation is needed to provide a reliable indication of the likely cost of premiums under a private insurance option.

The public insurer would have some incentives to correctly assess the level of the premium (that is the amount assigned to a person opting out of the public system). For example, suppose a high risk individual is considering enrolling with a private sector insurer. If the public insurer understates the value of the premium that would be assigned, then the person can choose to stay and impose the relatively high expected costs of his or her treatment on the public insurer. These above average costs would not be covered by the capitation funding from government. However, because of the weakness of the commercial incentives on the area health insurers, they may pursue other objectives such as maximising the size of the business irrespective of commercial implications.

c The Development of Comprehensive Private Coverage

The freedom to opt out would make it worthwhile for private insurers to develop comprehensive policies that would compete with the public coverage. Public providers could enter into contracts to lease out facilities to private insurers and charge user fees for services performed for private patients. This might speed the development of private insurance from its current status as a purely supplementary cover to a more comprehensive, stand-alone benefit package. It would also encourage a more efficient use of total hospital resources and avoid unnecessary duplication. As long as public insurers do not favour public hospitals in buying services, eliminating direct public subsidies could mean that public hospitals would not have an unfair advantage over private hospitals in bidding for paying patients.

With this contracting structure, private insurers would be in a position to offer comprehensive coverage inclusive of services now offered only by the public sector.

d Defining Qualified Private Insurance Plans

The government would have an interest in assuring that tax-funded dollars are used only to buy private policies that meet some minimum level of adequacy, defined in terms of both medical services covered and co-payment

to which the individual is exposed (otherwise those opting out might underinsure, cash in part of the voucher and then free ride on the public system if they need expensive care). The issues that arise in defining minimum medical benefits and maximum allowable co-payment are discussed in Part 4.

e A Single Public Insurer

If opting out to private insurers is either the intended goal or a possible extension of the corporatisation approach, then the case for a single public insurer is stronger, since functions would not be duplicated in the public sector and diverse preferences would be catered for by the option of enrolling with private insurers. The magnitude of the costs of multiple public insurers would depend on the expected duration of the transition as well as the extent to which the public insurers could be established using existing area health board structures.

3.4.2 Evaluation of the Mixed Public-Private System

a Efficiency Gains

Introducing private competition in the insurance function, by allowing consumers to choose between public and private insurers for their basic coverage, could be expected to yield significant efficiency gains. Competition among insurers would assure greater satisfaction of diverse preferences (although limited by the extent to which the government defines the minimum package that must be offered); greater stimulus and efficiency in controlling moral hazard; and greater incentives for production efficiencies by providers.

One aspect of this efficiency gain is that individuals could purchase an integrated, comprehensive package from private insurers rather than supplemental coverage as occurs now. This avoids overlaps and gaps in cover and in medical services that occur with the current mix of free public and private supplementary policies. The single insurer can better monitor total use and hence control moral hazard; and it provides better insurance to the individual since there is greater certainty as to what is covered. Coordination of insurance coverage is also likely to promote more rational use of public and private facilities and avoid wasteful duplication.

Allowing opting out enables individuals to choose between private and public insurers and, through these choices, to affect the timing and extent of involvement of private sector insurers. Individuals who remain uncomfortable with private sector provision of insurance could elect to remain with the public insurer.

b Administrative and Deadweight Costs

For those individuals who elect a private insurer, there is unnecessary overhead cost as a result of funding being channelled through the government rather than the insured paying directly to the insurer. Channelling funds via the tax system and the public insurer to the private insurer entails higher public budget costs and probably higher administrative and deadweight costs than the private options discussed in Part 4. This could be viewed as the cost of ensuring that everyone has coverage, and that the poor and those at high risk do not have to pay more for coverage than the amount implied by their tax contributions into the current system. The public insurer also automatically operates as a fallback insurer for those who decide not to enrol with a private insurer.

It seems likely that the overhead cost of assuring that coverage is universal and affordable is greater under this option than under a system that relies solely on private insurance but uses the tax system to enforce compliance and administer subsidies based on income and actuarial category (as discussed in Part 4). However, this is an empirical question which remains to be resolved.

c Competitive Neutrality Between Public and Private Insurers

The system as outlined should be competitively neutral. All insurers are required to hold an annual open enrolment period, but are free to set premiums. The public insurer in effect has a freedom which is equivalent to setting premiums; it sets a 'negative' premium which is paid out if a policy holder dis-enrols. A competitive

public insurer with a break-even constraint has incentives to set premiums equal to marginal cost for each actuarial category, just as does a private insurer. If it sets the premium for exit too low, then the person will opt to stay with the public insurer, but the public insurer will bear the costs of continuing to cover that person. If the government's funding is on a capitation basis, then the public health insurer would lose by understating the premiums for exit. Thus there is no reason why the public insurer should experience adverse selection. However, it is important to ensure that the public insurer does not influence the minimum acceptable insurance package in a way that strengthens its own market position. Instead this should be established by the Department of Health. Further, as noted earlier, management in a public insurer which faces only weak constraints from owners may attempt to maximise the size of the business (rather than the returns to shareholders) and therefore have incentives to understate the premium for persons opting out.

A residual role for the area health boards or a single national board as providers (as distinct from insurers) might remain, for example, in providing services not covered by basic health insurance, including the 'pure' public goods as well as long term psychiatric and other care (the latter have not been examined in this report). Public funding does not of course necessitate public provision and these services could be contracted out as is effectively the case with much geriatric care.

d Distributive Effects

The distributive effects of this system would be broadly similar to the status quo. It could be more or less progressive than the option of compulsory private coverage with tax credits discussed in Part 4, depending on the structure of subsidies under the latter arrangement. It would be more progressive than the pure voluntary approach, unless the voluntary approach is accompanied by increased income transfers to assist the poor in purchasing coverage.

3.5 SUMMARY

Corporatisation is a logical extension to current moves by the government to increase the accountability of managers of the area health boards and improve the incentives for their performance. Corporatisation could proceed by separating the intermediary and provider functions performed by the area health boards and corporatising at a minimum the providers, and possibly also the health boards as insurers. This would achieve efficiency gains through promoting competition at the provider level. However, it would be difficult to separate commercial and non-commercial objectives for the monopoly public insurers. Since it is extremely difficult to measure performance in the absence of competition, full corporatisation of the insurance function may not be a sensible option. The relatively weak incentives for performance by the public insurer would also weaken the incentives for performance at the provider level. However, on balance, corporatisation as described would probably achieve worthwhile gains in the performance of the health sector. It would also be a sensible transition path if more far-reaching reform is contemplated.

Allowing competition in the insurance function would be a further sensible extension. Individuals could be allowed to opt out of public insurance and enrol with a private insurer of their own choice. The public insurer or the Department of Health would assign to the private insurer the individual's 'premium' derived from tax funding. The introduction of competition in the insurance function, by allowing consumers to choose between public and private insurers for their basic coverage, and the involvement of private sector operators would create the stimulus necessary for a more complete realisation of the potential efficiency gains in both provider and insurance functions.

PART 4: PRIVATE SECTOR APPROACHES TO INSURANCE AND THE DELIVERY OF MEDICAL CARE

4.1 INTRODUCTION

Corporatisation offers efficiency gains particularly if individuals are able to opt out of the public system. However, potential problems with the corporatisation model suggest that a move to full privatisation would offer further advantages.

In this part, we begin by examining arguments that are raised against a more market-based provision of health care. We then examine three possible private sector approaches to insurance and the delivery of medical care. In the first 'pure private' option we examine the likely outcome of relying entirely on private choices and private sector provision, including voluntary charity for those who cannot or do not purchase their own insurance. The second and third options assume that there is widespread demand for a safety net level of medical care for all, and that this factor should be taken into account in designing a preferred system. The second option involves a voluntary private insurance system with a publicly-funded and possibly publicly-provided medical care safety net. In the third option we consider making the purchase of private insurance compulsory. If the cost of this insurance is considered unaffordable to low income families or persons with costly medical conditions, this is addressed by targeted public subsidies. All options assume the private provision of health care services (except for the public safety net in option 2). Finally, we examine a possible transition path from the status quo to the private insurance and provision options.

4.2 POSSIBLE OBJECTIONS TO MARKET-BASED SOLUTIONS

Delivering health care using market mechanisms can achieve significant efficiency benefits without compromising equity objectives. Most of the inefficiencies of the status quo can be traced to the removal of prices which measure consumer preferences and input costs, the absence of the stimulus of competition and the weaknesses of the ownership and monitoring regimes that apply to publicly-owned organisations.

For most goods and services, competitive private markets result in efficient resource allocation through three main effects. First, competition encourages organisations to minimise the cost of the resources used to produce a given quantity and quality of output. This frees resources to be used in the production of other goods and services. Second, competition encourages firms to continually search for new methods of organisation, production and marketing which better satisfy consumer demands. Firms which fail to innovate or which make poor investment decisions tend to incur higher cost structures and lose market share. Third, competition reduces a firm's discretion to price significantly in excess of the incremental cost of supply.

But there is strong hostility in New Zealand towards the use of markets for the delivery of health care, based on misunderstandings of both theory and of the experience in the United States. It is often argued that markets for medical care and medical insurance violate the conditions necessary for efficient markets. Some of these objections have merit but some do not. It is worthwhile examining these before considering the preferred role for the government. In analysing the functioning of medical care markets it is worth noting that the issue is not whether they depart from the ideal perfect competition model but whether alternative arrangements are more efficient. Design of the role for the government must also recognise that the government does not automatically have the information and means necessary to correct 'market failures' and government intervention can create distortions of its own. Thus the realistic choices are between options, none of which is 'ideal' (or first best, in the sense that it satisfies all efficiency and equity criteria).

a Medical Care is a Necessity

It is often suggested that medical care is a necessity, that demand depends on need rather than price and that standard rules of demand do not apply.

It is true that demand depends on health status and may be extremely unresponsive to price (i.e. 'inelastic') in some emergency situations. But there is conclusive evidence that, conditional on health status, demand is sensitive to price in terms of money and time spent in obtaining treatment (Manning et al., 1987, McCarthy, 1985). A health care system that ignores price elasticity of demand is fatally flawed. Providing medical services free of charge generates increased demand and either cost explosion and the provision of services that cost more than the value consumers ascribe to them, or the necessity for rationing by waiting, service denial and other restrictions.

b Markets Should Not be Used to Allocate Resources to Health Care

In addition to the positive argument that prices do not affect demand, the normative argument is made that medical care should not be allocated according to market principles and the ability to pay. Several points must be distinguished here. The first is that medical care may have important externalities, such as the prevention of communicable diseases. This is true and may well warrant special government intervention such as mandatory vaccination and some traditional public health programmes. However, even in this case, the private benefits that accrue to an individual may be sufficient to significantly limit external effects. In any case, services with positive externalities currently account for a very small fraction of total medical care. This argument cannot justify generalised government subsidies for the provision of medical care.

A desire on equity grounds to ensure that all citizens have access to basic care that is individually affordable does not require public provision of free medical care or public financing of insurance. This goal can also be achieved by private financing and provision, with appropriate public subsidies, or by some mix of the private and public sectors. Choosing the optimal role of the private and public sectors is the critical issue.

c Imperfect Information in Medical Markets

Another argument against private markets is that individuals lack the information necessary to make informed choices in the market for medical care. Imperfect information can exist at several levels, but the preferred corrective role for the government is in financing information that is of collective value (a 'public good'). For example, the cost effectiveness of many medical technologies is not well known. For new technologies, developing the information base necessary to determine effectiveness may be a public good in a narrow sense, warranting public funding for medical research. However, private insurers can be expected to provide some 'public' information to their clients.

Given the availability of the medical information base, the optimal pattern of treatment for an individual patient with a particular condition is best determined by consultation between the patient and his or her doctor (including doctors providing second opinions). The doctor can be presumed to know the risks, costs and benefits attached to alternative treatments but the patient knows best how he or she is willing to trade off these risks, other costs and benefits. Thus although the government may have a comparative advantage in providing some information that is a public good, this does not imply regulating day-to-day decisions about the optimal treatment for specific patients or specific medical conditions.

A frequently voiced concern about leaving individual treatment decisions to the patient-provider team is 'supplier-induced demand'. It is argued that doctors exploit patient ignorance to manipulate demand, in order to maintain their target incomes. There has been extensive theoretical and empirical analysis of supplier- induced demand. The conclusion is that the full extent of supplier-induced demand is, and is likely to remain, an unresolved empirical question. Recent empirical evidence from the market for primary care indicates that, at the margin, doctors are constrained by competitive forces and have little flexibility to induce demand (McCarthy, 1985). Whether such conclusions carry over to the New Zealand market depends on the extent of competition in the market for doctors' services.

It is important to note that, to the extent supplier-induced demand exists, it arises from asymmetry of information between patients and providers and is not confined to markets in which insurance is privately financed. Whether the potential for supplier influence is exploited depends on the extent of competition and on actions by insurers - public or private - to control excessive use. The important policy conclusion is that, since the government cannot conceivably monitor every doctor-patient encounter, the best role for the government is to encourage competition in the production of medical services and competition among insurers to develop techniques for controlling excessive use. It is striking that private insurers in New Zealand and the United States have developed a range of utilisation review programmes and other provider-targeted strategies to control inappropriate use, whereas the publicly-funded monopoly insurer in New Zealand has not developed the database necessary to implement such programmes. This is part of a consistent pattern, which is that competitive pressures on private insurers create incentives for control of inappropriate use, whether patient- or supplier-induced, since in the long run it is not worthwhile for consumers to pay the premiums necessary to cover the costs of inappropriate use. A public monopoly insurer has no such incentives. Thus private insurance markets are likely to be more effective than public insurance at controlling both supplier-induced demand and traditional moral hazard.

d Imperfect Information and Insurance Markets

People often know more about their own risk class at the time an insurance agreement is sought and know more about their actual losses after treatment than do insurers. Such asymetry in knowledge creates problems of 'adverse selection' and 'moral hazard' for insurers.

Moral hazard occurs when insurance undermines the insured's incentives to reduce the probability or size of claims on insurance. In the case of health insurance, the insurer cannot costlessly monitor the insured's lifestyle contributions to health risk or determine the actual condition when illness occurs. The observable event is expenditure on (or demand for) medical care. Having insurance reduces the insured's out-of-pocket cost of medical care and leads to greater use than if the individual is not insured.

Since moral hazard induces demand for services that are worth less than their full cost but premiums must rise to cover the full cost, individuals who pay the full cost of their own insurance rationally prefer policies that contain provisions to control moral hazard. These provisions could include patient-targeted incentives such as co-payments and incentives to use 'preferred providers', and provider-targeted provisions such as capitation forms of reimbursement (i.e. a payment per person enrolled with the organisation) that create incentives for providers to constrain use. As argued above, comparison of the innovations of private insurers in this area compared to monopoly public insurers provides clear evidence that private insurers are likely to be more effective than government organisations in controlling moral hazard.

A second potential problem with insurance markets is adverse selection. Adverse selection is the tendency for insurers to attract bad risk policy holders. It occurs if insured individuals know their own risk class but insurers cannot costlessly distinguish between risk classes, and design policies for different risk classes. Wilson (1977) shows that if insurance markets are subject to adverse selection, everyone may be better off if the government mandates a minimum level of coverage equal to the level preferred by those of low risk. Those preferring higher levels of coverage would be permitted to purchase supplementary coverage. In this simple model, mandating a minimum level of coverage leaves everyone better off only if supplementation is permitted. This is an important result for the design of an optimal system of health insurance.

However, several issues require further analysis. First, modification of this conclusion is necessary to take account of moral hazard, externalities and possible interdependence or jointness in production. Supplementation may have positive and negative external effects on the cost of the basic coverage and the optimal policy should take account of this. Second, given a goal of a universal basic level of coverage with voluntary supplementation, the universal basic level can be publicly financed, as in New Zealand, or privately financed. Efficiently integrating these two tiers is an important consideration in designing the optimal system. There may be large efficiency losses from using public funding of the basic system and private supplementation compared to a system where both basic and supplementary coverage are privately provided.

e Overhead Costs of Private Insurance

The overhead costs of private insurance schemes are sometimes compared unfavourably with public schemes. However, these comparisons are not as one-sided as is often claimed. The reported overhead costs of public schemes that are financed through tax revenues understate the real social costs. Often ignored are the costs that are incurred in raising tax revenues. Common estimates of the marginal costs of raising taxes are in the range of 20-30 cents per dollar of tax revenue due to the deadweight costs of tax-induced distortions in taxpayer behaviour. This exceeds the overhead cost of large employment-based health plans.

More fundamentally, reducing overhead costs should not be a goal in itself. Private insurers incur overhead expenditures in order to administer claims, provide information to policy holders, control cost and quality of services used, and so on. To the extent that these expenditures produce services that are of value to consumers, they should not be viewed as pure waste. Even expenditure on advertising is to some extent a necessary part of providing consumers with information about the options available. It is certainly possible that some of the expenditures incurred by competitive insurers should be viewed as a deadweight loss from a social standpoint. But conversely, public monopoly insurers may invest sub-optimally in some of these activities. It is not *a priori* obvious that the deadweight losses from over-investment by private insurers exceed the deadweight losses from taxpayer distortions and under-investment in information by public insurers.

Publicly-funded insurance schemes such as exist in New Zealand, the United Kingdom and Canada tend to rely on non-price mechanisms to ration the excess demand that inevitably develops when care is provided at zero or

minimal cost. Patient time costs and the costs of forgone benefits are significant unmeasured costs of such systems, including the New Zealand system. These costs tend to be lower in market-based systems where insurers and providers have incentives to take account of patients' time costs and rates of time preference, by avoiding unnecessary patient waiting or repeat visits and by timely scheduling of appointments. In market-based systems, rationing is achieved through pricing rather than through imposing other costs.

f Experience in the United States

The apparent failure of the United States health care system to control costs or provide an acceptable basic level of care for all is often cited as the inevitable consequence of reliance on private, market-based delivery and financing of health care.

But the United States is by no means an illustration of how an undistorted market-based system would work. The United States health care system is grossly distorted by several factors. First, until the 1980s, the publicly-funded Medicare programme paid providers for costs incurred with virtually no constraints, driving up costs and prices system-wide.

Second, on the private insurance side, incentives for cost control are seriously undermined by the tax subsidy to employment-based health insurance. Because employer contributions to health insurance premiums are non-taxable compensation to employees, employment-based health insurance is effectively subsidised, at a rate that increases with the employee's marginal tax bracket. For example, for an individual in a 40 percent marginal tax bracket, one dollar of health insurance effectively costs 60 cents. This subsidy has led employees to choose much higher levels of health insurance coverage than they would if they faced the full marginal cost. Standard insurance theory implies that, because insurance entails a loading charge to cover administrative expense, in the absence of a subsidy we would expect people to buy insurance against major, unpredictable expenses but not to buy insurance against expenses such as routine physician visits, and to accept significant co-payments on insured services that are price elastic. But with the tax subsidy it is cheaper for individuals to pay for routine services through insurance, because the tax subsidy more than offsets the loading charge.

The effects of comprehensive insurance coverage on cost escalation cannot be overstated. When consumers are fully insured, medical care at the point of purchase is essentially free. The first round effect is to increase demand or utilisation. The Rand health insurance experiment demonstrated that per capita expenditures are 45 percent higher when care is free than when individuals face a 95 percent co-insurance payment subject to an upper limit on out-of-pocket expenses; 23 percent higher with free care than with an individual deductible; and 18 percent higher with free care than when they face a 25 percent co-insurance rate with a stop/loss (Manning et al., 1987).

The dynamic effects are that fully insured consumers have little incentive to search out lower priced providers, and every incentive to select the highest quality, regardless of price. Newhouse (1978) describes how insurance leads to the erosion of medical markets and can lead to a higher rate of cost inflation, not simply a higher rate of utilisation. Feldstein (1973) shows how insurance can lead providers to engage in quality competition rather than price competition. An important element of this quality competition is that it induces a bias in technological progress, reducing incentives for cost-reducing innovation and stimulating incentives for quality-enhancing innovation, regardless of cost. As 'quality', costs and prices rise, consumers face increased financial risk in the event of illness and this generates an increased demand for insurance. Thus a vicious cycle is generated, whereby insurance leads to rising costs which in turn lead to increased demand for insurance.

Some degree of inflationary pressures on prices and utilisation is an inevitable consequence of insurance, if insurers cannot costlessly monitor unnecessary use. The optimal policy trades off the benefits of financial protection against the costs of moral hazard (Zeckhauser, 1970). But these inflationary pressures have been unnecessarily high in the United States because of the tax subsidy on insurance premiums. Further, the tax subsidy is regressive, offering higher subsidy rates to individuals in higher tax brackets. It is also horizontally inequitable, paying subsidies only to those who receive insurance through employment. The tax subsidy is now estimated to cost roughly $60 billion in forgone tax revenues to federal and state budgets.

As outlined below, a system of much more limited tax credits could be used to make insurance affordable to everyone without generating significant inflationary pressures. The structure of tax credits proposed would be progressive rather than regressive and limited to basic coverage rather than open-ended as in the United States.

The overall level of subsidy is a policy option that could be designed to achieve whatever trade-off between cost to government revenues and support to individuals is desired. Whereas the tax subsidy in the United States is open-ended and hidden, and so increases without explicit budget allocation, the credits discussed here would be limited and would require explicit allocation, to be weighed against other possible uses of government funds.

The second major concern with the United States system relates to the proportion of the population that is uninsured. The purchase of private insurance is voluntary in the United States but there is a public safety net that takes three forms: publicly-funded health insurance for the elderly and the disabled (Medicare) and low income single parent families (Medicaid); a network of public hospitals that can charge but cannot deny care to those unable to pay and receive tax support to cover losses; and some obligation on and subsidies to private hospitals to provide care, particularly in emergency situations, to those who lack the means to pay. The outcome of this system of voluntary private insurance with a public safety net is that roughly 15 percent of the population elect not to buy health insurance and are uninsured, while others buy insufficient coverage to protect against large costs. The uninsured and underinsured generate a significant burden of bad debt that is concentrated on public hospitals and large private urban hospitals that are located in areas with a disproportionate number of uninsured. The uninsured also tend to rely on hospital emergency rooms for primary care that might be delivered at lower cost in ambulatory settings. This is probably an inefficient means of subsidising care for those who receive free care. This system is widely perceived to be inefficient and unstable.

4.3 OPTION 1: A PURE VOLUNTARY APPROACH

4.3.1 Structure

The purely voluntary approach to medical care would simply allow individuals to purchase private insurance and medical care based on their own preferences and budget constraints. The delivery of all medical services would be turned over to the private sector. This would require privatising public hospitals, clinics and other publicly-operated institutions and eliminating direct public subsidies to existing private hospitals and to doctors. The government would not subsidise or constrain the purchase of insurance or medical care. The supply of insurance and production of medical care would be left to private firms, without regulation of availability or quality of service by the government.

Public funding and responsibility would be retained for those services that are 'public goods' in the economic sense, that is, they convey communal benefits which would be sub-optimally provided by reliance on voluntary choice, including certain traditional public health activities like sanitation, vaccinations, and some health promotion activities that are of proven benefit. These services would be the responsibility of either the Department of Health or local authorities, but could be provided by contracting with private sector firms.

To the extent that some individuals wish to subsidise the consumption of medical care by others they might do this either individually or collectively, through charitable activities. Such activities would not receive government assistance, either through direct subsidy or tax preference.

Any income support or redistributive goals of the government would be met by policies designed explicitly to maintain or redistribute income. As with food and clothing, medical care would not be singled out for special treatment. An assessment of the advantages and disadvantages of the voluntary approach is presented below. A comparison of this approach with other options is deferred to section 4.6.

4.3.2 Advantages of a Pure Voluntary Approach

a Unconstrained Competition in Insurance Markets.

The absence of government regulation gives insurers maximum incentives for efficiency in rating and underwriting functions, administration of claims, and designing policy terms that optimally control moral hazard and provide the trade-off between cost and quality preferred by consumers. Moral hazard in this context applies to the prevention of illness as well as to the use of medical care. Competition among insurers in turn creates incentives for providers to produce the preferred levels of quality at minimum cost.

Consumers may differ in their willingness to accept co-payment or constraints on use in return for lower premiums, and in the types of services they wish to use. These diverse preferences could be satisfied to the

maximum possible extent, subject to economies of scale relative to the size of the market. Even with a population the size of New Zealand's, considerable diversity could be accommodated. The use of reinsurance markets permits small insurers to operate without incurring inappropriate risk. Perhaps more importantly, a single insurer can offer multiple policies and each basic policy type can be written with optional riders for coverage of additional services or procedures.

Allowing individuals to choose the preferred amount of self-insurance and insurance would result in a closer matching of insurance and health care services with preferences. The ability to choose higher levels of self-insurance will improve the incentives to search out lower-priced providers, putting pressure on insurers and providers to control costs and constrain premiums.

b Absence of Enforcement Cost and Immunity From Provider Pressure

Because this system relies solely on voluntary choice, the government and individuals do not incur the enforcement costs of ensuring that all people have insurance cover, the costs of providing a safety net through public funding, or the use of a system of public hospitals acting as providers of last resort for medical care. The administrative costs and the deadweight losses of raising taxes for these public functions are avoided.

The absence of government intervention also reduces the risk that a regulatory process is used by providers to capture and influence the delivery of care, thereby raising costs for consumers. For example, it is sometimes argued that doctors and hospitals in the United States were instrumental in the public programme, Medicare, adopting cost-based reimbursement of hospitals and fee-for-service payment of doctors, which generated rents for providers and higher costs for consumers system-wide.

In a pure voluntary system, people would not be forced to fund levels of medical care for themselves and others which they thought were inappropriate. Poor individuals might still benefit from income redistribution initiated by the government but would be free to decide whether to spend the money on health care or on other services such as food and housing.

c Efficiency gains from Privatisation of Provision

Differences remain between public and private ownership which suggest that in the longer run privatisation would bring significant benefits, despite the possible gains from corporatisation.

The ability to transfer ownership following privatisation would strengthen the incentives acting on the management of the formerly corporatised organisations. For example, the threat of takeover by competing management teams and the threat of bankruptcy encourage additional monitoring of organisations and strong incentives for performance which would be expected to lead to increased efficiency in their operation. Privatisation would reduce the likelihood that politicians would intervene in the operation of the business, and in particular prevent the use of the hospitals to deliver benefits to politically powerful groups. Although none of the private sector mechanisms operate perfectly, they are powerful in aligning the actions of managers with the interests of the organisation's owners. The benefits from privatising the providers of health care services will be similar in all three of the private options considered.

4.3.3 Disadvantages of a Pure Voluntary Approach

a Altruistic Demand for Medical Care

Reliance on pure voluntary choice may be inefficient if there is a widespread demand for a safety net level of medical care for all. The motive for this demand is not important - it could be an altruistic desire not to allow uninsured people to suffer because they cannot afford treatment, a purely selfish desire to insure against the risk of becoming destitute oneself, or a concern to prevent the development of an underclass. The fact that most civilised societies provide some form of medical safety net is *prima facie* evidence of such a demand, although of course it is not conclusive - either of the existence or of the extent of the demand. Capture of the political process by medical provider groups or potential beneficiaries might be a contributing factor although it seems unlikely that such pressure would be successful in the absence of some demand for a medical safety net.

If there is a significant demand for access to a minimum level of medical care or medical safety net, shared by a large proportion of the population, then relying on voluntary charity may be an inefficient way of providing it. This is because a safety net is in the nature of a public good. The problem with its provision is the traditional free rider problem of public goods: everyone benefits but each has an incentive to wait for others to incur the costs of providing the public good. Thus private provision of a safety net through voluntary welfare may result in under-provision. The extent of the free rider problem is essentially an empirical question which cannot be determined *a priori*. Its measurement is difficult given the extensive involvement of the government in health care systems in all developed countries.

b Adverse Selection

If individuals know more about their expected health costs than do insurers, competitive insurance markets may have no equilibrium. If an equilibrium exists, it will entail sub-optimal coverage for low risks (Rothschild & Stiglitz, 1976; Pauly 1974).

If insurers cannot determine the risk class of applicants and instead set premiums based on the average expected cost for the population (community rating), these rates are actuarially unfair. The single premium exceeds the expected cost of low risks but is less than the expected cost of high risk individuals. Low risk individuals are therefore less likely than high risks to buy the coverage. Since a community rated policy will attract a disproportionate share of the high risks in a population, it will tend to lose money. In the next period the insurer may raise the premium, but the same problem recurs: those with below-average expected costs will tend to drop out, and again the insurer will lose money. If the asymmetry of information between policy holders and insurers is severe there may be no equilibrium, i.e. insurers who enter the market may invariably lose money.

A more likely outcome is that the policies that survive are those that cater specifically to low and high risk individuals, inducing policy holders to reveal their risk class by the type of policy they select. For example, a low cost, low coverage option can be offered that is preferred to no coverage by low risks, but is less appealing than the high cost, high coverage option designed to attract high risks. Even if this type of equilibrium emerges, it leaves low risks with less coverage than they would choose to buy if insurers could discern risk classes and price policies appropriately. If insurers can distinguish between risk classes this would enable them to offer more complete coverage to low risks without thereby attracting high risks and causing the policy intended for low risks to lose money (Rothschild and Stiglitz, 1976). More important, it can be shown that if private insurance markets do suffer from severe adverse selection, it may be possible to make everyone better off by mandating a minimum level of coverage, no greater than the level that would be preferred by low risks, while permitting the purchase of supplementary cover by those who prefer more comprehensive benefits (Wilson, 1977; Dahlby, 1981; and Pauly, 1974). This is an argument in favour of the option discussed in section 4.5.

Of course the extent to which adverse selection would undermine pure private markets in health insurance is an empirical question. It depends on whether insurers can avoid the problem by marketing through groups formed for other purposes, such as employment groups. For the non-group market, if insurers can in fact get reasonably accurate estimates of risk class by the use of low cost underwriting screens, such as age, then the asymmetry of information between insurers and policy holders may be minimal. In that case, pure private insurance markets may function reasonably well.

Adverse selection is probably one factor contributing to the 15 percent uninsured in the United States (Browne, 1989) and the significant limits on coverage in non-group policies. Adverse selection - or attempts to control it - also contribute to the higher overhead costs of non-group policies.

4.4 OPTION 2: VOLUNTARY INSURANCE AND PROVISION WITH PUBLICLY-FUNDED SAFETY NET

4.4.1 Structure

If society is in fact unwilling to let people suffer the consequences of their own decisions not to buy insurance or medical care and the free rider problem in the voluntary provision of the safety net is potentially large, there is a *prima facie* case for government intervention to assure a safety net. This may be preferred by a majority of taxpayers. This safety net could take the form of a network of publicly-funded hospitals, or public subsidies to charity care cases that are treated by private hospitals. The preceding discussion suggests that government

funding and private provision would be preferable to public funding and public provision as a means of providing the safety net. The optimal level of the minimum universal benefit is also an issue. Of course the costs of such intervention, including all distortions in other markets, must be weighed against the benefits of such intervention. The advantages and disadvantages of this approach are discussed below with a comparison of this option with alternatives being deferred to section 4.6.

4.4.2 Issues Raised by a Public Medical Safety Net

a Basic Care as a Good Social Investment

It is often suggested that providing a safety net for acute care and failing to subsidise primary care and prevention is 'penny wise and pound foolish'; if the poor invest sub-optimally in their own primary care, they may end up imposing unnecessarily high costs on the free public medical care system and possibly on public income support systems, assuming poor health lessens ability to work. However, as discussed earlier, the evidence from the Rand health insurance experiment (Manning et al., 1987; Brook et al., 1983) found that free medical care had no significant effect on the great majority of measures of health status, either objective or self-assessed, even for the poor (with a few exceptions). This evidence would argue that if there is a public concern for the health of the poor, for either altruistic or investment reasons, this is better addressed by focused interventions, targeted at specific conditions where medical interventions have proven benefits, rather than a comprehensive set of medical services.

b Free Riding, Equity and Political Stability

A further consequence of providing a safety net of free medical care is that it undermines incentives for individuals to provide for themselves. The closer the quality of free public care approaches the quality available by purchasing private insurance, the greater the incentive to free ride (Friedman, 1980). Thus the optimal level of the free public safety net involves a trade-off: the quality that is high enough to meet socially acceptable norms of minimum care and assure socially optimal investment in care may also be high enough to seriously undermine the voluntary purchase of private insurance.

The New Zealand experience is consistent with this. The free publicly-funded medical care system has, until recently, been sufficiently adequate that there was little demand for private insurance or private medical services. But as the perceived quality and availability of care in the public sector has decreased, the demand for private insurance and private medical care has increased. It may be objected that this reliance on the public health system for some services is not free riding - that it is the intent of the system to substitute for private provision. But the point being made here has no moral or ethical content. It is simply to point out that if care is available free of charge, people will rationally cut back on their provision for themselves.

The recent United States experience provides further evidence on this point as discussed above. The situation is unstable in that it undermines the competitive viability of hospitals that incur a disproportionate amount of the bad debt arising from treating uninsured patients. A few states in the United States (New York, Massachusetts, Maryland, New Jersey) have attempted to solve this by increasing public subsidies to hospitals that incur disproportionate 'uncompensated care'. But this is an inefficient form of insurance to providers and to patients. A public subsidy of bad debt undermines the incentives of hospitals to attempt to collect from patients. This in turn undermines the incentives of patients to purchase insurance or provide other means for financial responsibility. Further, there is a growing unwillingness on the part of those that do buy insurance to subsidise the care of those that do not because some of the latter can afford to pay. Ultimately the costs of free care and bad debt must be met from tax revenues or from higher charges to paying patients. This involves arbitrary redistribution with no assured basis in equity. Resistance to this inequitable and inefficient means of providing a medical care safety net is fuelling the demand for increased government intervention to assure some form of universal health insurance in the United States.

In summary, public insurance or free care creates moral hazard with respect to private provision. This undermines the efficiency of an approach that relies on voluntary private provision by those who can afford to pay and a free safety net intended for those who cannot provide for themselves.

Ideally, the free public care should be available only to those who, by some definition, cannot afford to pay, and should be a graduated subsidy, with some co-payment required from the near-poor. But such an assessment of

income can be enforced more efficiently by government departments that apply means tests for other purposes, rather than by medical providers. This option is discussed next.

4.5 OPTION 3: COMPULSORY PRIVATE INSURANCE WITH TARGETED SUBSIDIES

a Introduction

If society demands that everyone has access to medical care at a level and quality that is comparable to that desired by a significant percentage of the population, the free rider problem undermines the viability of relying on the voluntary purchase of insurance with a free public safety net at this minimum acceptable level.

One possible solution to this problem is to make the purchase of private insurance compulsory. If the cost of this insurance is unaffordable to low income families or persons with costly medical conditions (high risks), this can be addressed by targeted public subsidies, in the form of tax credits or vouchers for the purchase of private insurance. Some minimal government intervention may also be required to ensure that everyone has access to affordable insurance, by establishing a high risk pool. Given universal private insurance coverage, medical services would be provided by competing private providers. Public funding and responsibility (but not necessarily provision) would be retained for those services that are 'public goods'.

b Defining Compulsory Minimum Cover

All citizens would be required to have private health insurance against the risk of catastrophic expense associated with basic medical care services. The basic coverage requirement would have both a minimum service and a maximum co-payment (stop/loss) dimension. Low income individuals could be required to purchase cover with a lower stop/loss than high income earners with the latter having greater scope to self-insure. A requirement for poorer people to buy higher levels of coverage is necessary to reduce the risk that a person who needs treatment will not be able to afford necessary care (i.e. their ability to self-insure is more limited than a wealthy person).

The minimum services that everyone would be required to cover should be the minimum acute care services that society would be unwilling to deny someone *in extremis*, not the maximum potential range of services available and not necessarily all those services currently provided by the New Zealand public health system. Ideally, preventative services that have been shown to be cost-effective should be included but there would be no requirement to cover services that are not proven cost-effective. In practice, of course, the cost-effectiveness of many medical services is not conclusively proven, so some judgment is inevitable. It is probably simpler to define services that are not required to be covered by the basic package, rather than those that are. In determining what services would not be covered, the focus should be on services that are costly, either single big ticket items or those that entail an ongoing stream of smaller costs and have doubtful benefits. Individuals who desire coverage of a more comprehensive set of services or less financial risk would be free to purchase supplementary coverage but this would be voluntary and would not receive any public subsidy.

Given a list of services that need not be covered, there would be a presumption that basic policies covered other acute medical care. Government regulation or prior approval of each insurer's policies would not be necessary.

The level of co-payment that individuals could make should differ according to income level, because ability to pay out-of-pocket costs increases with income. Requiring low income individuals to have a higher level of coverage is consistent with a desire to ensure that low income people have access to medical care while minimising the cost to high income individuals who can bear a higher level of self-insurance.

All would gain from permitting maximum retention of out-of-pocket payments. Co-payment makes consumers cost-conscious, reducing overuse and indifference to price, thereby constraining health care cost inflation for all (Feldstein, 1973; Newhouse, 1978). An acceptable stop-loss (upper limit on out-of-pocket payment) for higher income individuals might be, for example, $3,000 or more, whereas the maximum a lower income person would be able to pay would be lower, say $500. Requiring more comprehensive coverage for lower income individuals is not inequitable because although they would pay higher insurance premiums to reflect the expected cost of the additional cover, they would have lower expected out-of-pocket costs. Further, income-related subsidies would be based on the cost of cover for the income level.

Families and individuals could meet the obligation to have private insurance by obtaining insurance through employment, through some other group or association such as a union, or by purchasing non-group cover. Because of the advantages of group policies for reducing administration costs and adverse selection, the majority of the population would probably obtain cover through employment. But other groups would probably become more active in sponsoring health insurance. Overhead costs would fall in the non-group market in response to the expansion of demand and reduction in the adverse selection risk as a consequence of making insurance compulsory.

c Targeted Subsidies

The government could in principle convert the funds currently allocated to Vote: Health into a system of equal per capita subsidies for the purchase of private insurance. This is clearly unnecessary and wasteful. The same result could be achieved simply by reducing everyone's tax contribution by the amount that they would receive as a subsidy. Indeed cutting tax rates rather than reallocating tax revenues to a system of subsidies would avoid the deadweight costs associated with taxes and subsidies, so there would be a net gain.

If society wishes to provide a minimum level of spendable income after the purchase of 'necessities' including compulsory health insurance, a case can be made for some public assistance for the purchase of health insurance. This could be based on income and factors that raise the actuarial cost of coverage, such as age and identifiable health conditions like diabetes, cancer or AIDs. This is also consistent with providing insurance against the risk of becoming high risk. Targeting of tax credits on the basis of health status could be achieved either by (partially) reimbursing the actual premium cost in excess of the 'standard rate' or by using categorical information to determine an individual's actuarial class. Further work would be required to assess the relative costs and benefits - including the effect on marginal incentives for insurers and insureds - of the different approaches.

A system of subsidies based on income, age and other actuarial indicators could be implemented through tax credits for taxpayers and through the social welfare system for those who pay no taxes and are eligible for social welfare. The level of these subsidies is a policy option. Assuming that the purpose of the subsidy is only to assure a minimum level of disposable income after medical costs, the great majority of the population would receive no subsidy but would enjoy a cut in tax rates. Those with very low income or with high risk conditions would have their insurance premium fully subsidised. This could take the form of a voucher for the purchase of health insurance or the welfare agency could enrol the individual with a fallback insurer (see below). Details of the implications of such a system for New Zealand are discussed in Appendix 1.

d Enforcement

Compliance with the compulsory insurance requirement could be enforced at low marginal cost through the Inland Revenue Department, which could check to ensure that taxpayers had coverage and that the policy was appropriate to their income. It could also administer tax credits for persons not on welfare but eligible for a subsidy. Everyone would be required to present evidence of having basic insurance coverage for the current year as part of their tax return for the prior year. This would ensure that tax credits are available when premiums are paid rather than after a delay of a year. Parents would provide evidence of family coverage for dependents. For those who obtain insurance through employment, the employer could simply add a line on the employee's IR 12 form.

Those who fail to provide evidence of coverage would have their expected insurance cost (mean for their actuarial category, net of any tax credit due and any penalty for non-compliance) added to their tax liability. They would receive a voucher for the purchase of coverage; alternatively, the Inland Revenue Department could enrol them with the fallback insurer.

Individuals with income below the level required to file a tax return and who choose not to file (and their dependents) would be handled through the Department of Social Welfare. They would be given a voucher for the cost of coverage, and any amounts due would be deducted from their support payments. An upper bound to non-coverage would be the number of persons who are non-tax paying and non-beneficiaries and are not dependents of taxpayers or beneficiaries.

A small number of people may fall through the cracks and fail to enrol. If an uninsured person visits a medical provider, the provider could enrol them with the fallback insurer and would have an incentive to do so in order to assure payment of bills. The fallback insurer would then collect the premium payment from the individual, and any arrears of past payments, net of any subsidy due. This may raise the objection that the threat of having to pay the premium may deter some people from seeking necessary medical care. But very low income individuals would not have to pay the premium cost; others are by assumption of sufficiently high income that they can afford to pay (at last part of) their own premiums. They should not be allowed to free ride. The alternative of providing unlimited free care to ensure that no one fails to seek cost-justified care is inefficient because of the moral hazard induced by the absence of user charges. It would also necessitate a massive increase in resource allocation to medical care that is not economically justified and is politically infeasible.

If assistance for the purchase of insurance is targeted by household income and premium costs, the New Zealand tax administration is not well placed at present to implement this because Inland Revenue does not have the capacity to link together returns for different members of a household.

e Supply of Insurance

As already noted an active market in both group and non-group coverage is expected to develop in response to the demand for private insurance. The Appendix provides rough estimates of the cost of a basic policy. Of course more comprehensive policies would also be offered to meet demand by those who prefer coverage more complete than the minimum required.

It may be useful, at least initially, for the government to contract with one insurer in each area to act as a fallback insurer which would provide coverage for those who fail to arrange for it themselves. This insurer would be selected by competitive bids, defined in terms of the premiums at which the bidder would be willing to write coverage for standard actuarial categories.

In addition, if experience shows that some individuals are unable to obtain coverage in the voluntary market, a high risk pool should be established to assure availability of coverage to all. The pool would write coverage at rates that are regulated below actuarial cost but are nonetheless above the level in the voluntary market. Such pools exist in overseas private insurance markets where coverage is compulsory. It is a political decision whether the subsidised rates obtainable through the pool should also be available to persons able to obtain coverage but only at rates that are significantly above standard rates given their actuarial category and corresponding credit. It is preferable to address the problem of high cost through tax credits that can be geared to income as well as health status, rather than through a high risk pool. A high risk pool will not be necessary if the information available to the government in setting credits is similar to that available to insurers in setting premiums. In cases where the risks and costs will eliminate the possibility of insurance, the government will need to ensure that there are incentives to contain the costs of care.

A more costly approach to assuring universal access is for the government to require all insurers to use community (uniform) rating within designated actuarial categories and to hold open enrolment periods during which all applicants are accepted at the designated rates. This approach requires extensive regulatory intervention in insurance markets that is costly to implement and destroys much of the potential efficiency gain from competition. It undermines incentives to engage in optimal levels of self-protection. Moreover, it implies that high risks within each category are subsidised by low risks within that category. This is an inequitable means of subsidising coverage for the high risks since low risks do not necessarily have more income than high risks. The implicit tax on low risks depends on the number and cost of the high risks in each category with each insurer. Insurers have much stronger incentives to 'cream skim' than if rates are not regulated, and may find subtle ways of attracting good risks and discouraging bad risks from enroling, despite the nominal requirement of open enrolment. For all these reasons, this regulatory approach to assuring availability is likely to entail considerably higher deadweight costs than the approach outlined above that uses tax credits based on income and actuarial status but then leaves the private insurance market unregulated.

f Subsidies Without Compulsion

If the goal of subsidisation is a minimal universal level of care and government subsidies are to be used to make this affordable to the poor, then it is prohibitively costly (in terms of deadweight tax-raising costs) to attempt to achieve universal coverage by subsidy but without compulsion. The level of subsidy necessary to induce

everyone to buy would probably be close to 100 percent i.e. free insurance. But this pays far more than the necessary subsidy to everyone who is infra-marginal i.e. who would buy in any case at less than the 100 percent subsidy.

4.6 EVALUATION OF THE PRIVATE SECTOR OPTIONS

4.6.1 Compulsory Coverage with Targeted Subsidies Relative to a Pure Voluntary Approach

a Elimination of Free Riding

Assuming that there is a widespread demand for a universal minimum level of health care, either because of altruism or self interest, then making insurance coverage compulsory is potentially welfare-improving because it eliminates the possibility of free riding by unintended recipients and by donors. In the absence of compulsion, the level of benefits that could be provided to the truly needy would have to be lower than the preferred level, in order to deter the not-so-needy from dropping their private coverage and taking advantage of the free care. Essentially, a co-payment is necessary to deter the moral hazard induced by the existence of a free-of-charge medical safety net.

Using the tax system makes it easier to identify need and thus permits a more accurate targeting of subsidies than the alternative of a publicly-funded safety net. In general people will be willing to give more to subsidise care for the poor if they are assured that free riders are excluded from sharing in the donations. In addition, since providing charity is a 'public good' to donors (i.e. all benefit from seeing the poor taken care of), this creates free rider incentives in the giving of charity, which are eliminated if contributions take the form of compulsory taxes. Free riders raise the cost to donors of providing charity. It is reasonable to assume - and there is some evidence - that when the price of charity to donors is high, they give less. Thus elimination of free-riding makes donors and recipients better off. On the other hand, to the extent that some people are forced to give more than they would voluntarily choose to, using the tax system to subsidise care for the poor entails costs that are avoided if this is left to voluntary charity. The more heterogeneous are peoples' preferences in relation to the level of the safety net, the greater the costs that are imposed by making their contribution through the tax system compulsory.

b Efficiency Gains From Competitive Insurance Markets

In both approaches significant efficiency gains from competitive private markets in insurance and medical care should be achieved. This assumes that intervention in insurance markets in the case of compulsory insurance is confined to defining the minimum benefits that would be presumed to be covered which, as indicated earlier, might be done most simply by exclusion. Establishing a presumption of benefits assumed to be covered by policies that claim to meet the minimum standards avoids the need for inspection or regulation of each insurer's contracts. Nor are rate regulation and restrictions on underwriting necessary and these should be avoided.

c Costs of Compulsion

Compulsion will involve some efficiency loss relative to a voluntary approach in that some people will be forced to spend more on health insurance than the value they derive from that expenditure. Individuals may prefer to spend their money or the subsidy provided by the taxpayer on other goods and services, bearing the adverse consequences if they do need acute medical care. Others who are forced to insure could more efficiently self-insure without having to rely on the safety net. Self-insurance would give them greater incentives to constrain their expenditure to efficient levels. The efficiency loss from mandating a minimum level of insurance should be small if the required levels of services and financial protection are basic i.e. do not exceed the level necessary to protect against (the risk of) catastrophic loss, or of becoming a charge on others.

d Political Sustainability

There is a concern that making insurance compulsory will lead to political pressure to regulate rates and underwriting. If this occurs to a significant degree, it would seriously undermine the potential efficiency gains from operating private insurance markets for several reasons. Insurers' incentives for efficient operation are blunted. Rate regulation creates incentives for 'cream skimming', whereas with unregulated rates insurance should be available even to high risks. The administrative costs of regulating rates and open enrolment would also be considerable. Thus in order to realise the potential efficiency gains of the compulsory insurance model it

is essential that heavy regulation of the insurance market be avoided. The automobile insurance market in New Zealand prior to 1974 is an example of a situation where compulsion led to heavy regulation. On the other hand, there are many examples of compulsory insurance without regulation in workers' compensation and automobile insurance in the United States. Thus regulation is not an inevitable consequence of making insurance compulsory, particularly in New Zealand where the insurance market is currently unregulated.

The pure voluntary insurance approach also entails serious risks of being politically unstable. The safety net that is provided by voluntary charity may be very low relative to the preferred level, because of free riding by potential donors (because charity is a public good) and by unintended recipients.

The outcome could resemble the current situation in the United States with a significant percentage of the population uninsured or underinsured, forcing the involuntary provision of free care/bad debt by hospitals that would be under strong social pressure not to deny care to people unable to pay. This threatens the competitive viability of some hospitals and risks an inefficient political/regulatory response. It is non-optimal for those who would prefer a decent minimum level of care for the poor. It may also lead to a socially sub-optimal investment in health by some people. Thus the pure voluntary approach will be non-optimal and unstable if either type of free riding is significant and the medical safety net provided through charitable donations falls well below the level desired by many people.

e Elimination of Adverse Selection

As discussed earlier, the extent of adverse selection depends on the asymmetry of information between insurers and individuals. There is some evidence that adverse selection contributes to the problems of the uninsured in the United States. If the adverse selection risk is severe, this strengthens the case for making insurance compulsory, thereby eliminating adverse selection, at least for the basic level of coverage. Mandating a minimum level of coverage in an insurance market that is subject to adverse selection can make everyone better off, provided that supplementation is permitted.

f Administrative Costs

The pure voluntary approach avoids the regulatory costs incurred by the compulsory insurance approach. These include the enforcement costs incurred by Inland Revenue and the Department of Social Welfare in verifying coverage and administering subsidies and the costs of contracting with a fallback insurer. However, by enforcing the programme and administering subsidies through government departments that already verify individuals' income, the marginal cost would be minimised and need not be large. To the extent that charitable organisations develop to provide care for the poor in the pure voluntary approach, these would also entail administrative costs, including costs of determining who should be eligible. Since private agencies would not have the income information available to government agencies, the cost per recipient of determining need could be lower for the government-run programme. Of course, the total subsidy costs of the voluntary approach would be lower if fewer people receive assistance.

g Deadweight Costs of Taxes and Subsidies

The compulsory programme would seem to entail higher deadweight costs from the adverse work and savings incentives caused by raising tax revenue and administering means-tested subsidies. However, if the two programmes are compared *for a given distribution of income* then the same taxes and transfers would be required for the voluntary approach, giving rise to the same deadweight costs.

h Equity

The alternative is to assume that the switch from the status quo to a pure voluntary approach is not accompanied by any income redistribution to ensure that low income people have access to care. Under this assumption, the distribution of income would differ under the two approaches. Low income and high risk individuals would be worse off under the pure voluntary approach, since they would receive no assistance for the purchase of their medical care. The first round effect would be a reduction in annual net income of at least $550 for individuals and $1,500 for families; the reduction would be larger for poor people because poor health tends to be correlated with low income. For elderly low income earners the reduction in disposable income would be between $2,500 to $4,000 per annum. If the elimination of the public health system led to a reduction in taxes, taxpayers would

realise an offsetting reduction in taxes so would be at least no worse off in the long run. But those who pay no taxes would not benefit from the reduction in tax rates.

4.6.2 Evaluation of a Pure Voluntary Approach with Publicly-Funded Safety Net

A modification of the pure voluntary approach is to assume that the government maintains a publicly-funded safety net that provides minimum care free of charge, operated through a system of public hospitals, rather than relying on voluntary charity.

In order to differentiate this from the status quo, one must assume that the services provided and standard of amenities in the free public system are considerably reduced relative to the current public health system, such that the majority of the population opts to buy comprehensive private coverage.

This would almost certainly entail much higher costs than either the pure voluntary approach or the compulsory private coverage approach. The problems of achieving efficiency in the public system would be identical to those in the current public health system although the system would be a fraction of its current size.

The overhead costs of operating the public system would be similar to those of the status quo, since an administrative apparatus would be required and is largely a fixed cost, independent of the scope of the programme being implemented.

Further, wasteful duplication of facilities would probably be at least as great as under the status quo. Operating parallel networks of public and private hospitals would entail higher system-wide fixed costs. This assumes that the potential for contracting out underutilised capacity to the private sector would be reduced, because the reduction in quality of care and amenities dictated by the scaling back of the public system would make these facilities less acceptable to those paying for private insurance.

The option of public funding of private hospitals would overcome the problems of ensuring efficiency in the public sector, remove some of the overhead costs of operating the system and avoid wasteful duplication of facilities.

As noted earlier, a public subsidy to private hospitals would undermine the incentives of hospitals to collect from patients, and the incentives for patients to take responsibility for themselves. Thus, providing a safety net of free care, either through public or private hospitals, reduces the incentives for individuals to provide for themselves - the free rider problem. The subsidisation of those that could afford to pay for themselves also creates resentment on behalf of those that do buy insurance. It results in an arbitrary redistribution of income that has no basis in equity.

The poor would probably be better off with a publicly-funded safety net than with the pure voluntary approach, although there might be some reduction in voluntary charitable care. However, they would be worse off than under the status quo. If the public system is to be sufficiently spartan to encourage the majority of the population to buy private coverage, then there would clearly be two standards of medical care. If this were politically unstable, it would lead to increased budget allocations to the public system and, in effect, a return to the status quo.

4.7 TRANSITION FROM THE STATUS QUO

A direct move to private insurance in New Zealand may be difficult to achieve given the current status of the insurance market in New Zealand. Private insurers, although writing cover for around 50 percent of the population, currently offer only supplementary cover designed as an add-on to the basic public cover. They will not be able to offer basic insurance coverage until full medical facilities are available in the private sector or by contracting with the public system. They will not seek to offer basic coverage while the government funds all public insurance through the area health boards. It is questionable whether a very rapid transition from the status quo to a fully private system could be achieved without risking some dislocation, although an assessment would require a more detailed examination of specific institutions involved in the New Zealand market. However, since what is required is partly a reorganisation of ownership rights and contractual arrangements, rather than construction of new facilities, the dislocation should not be exaggerated.

A more gradual transition from the status quo to a market-based approach can be achieved, using the corporatisation of health care providers as a first step with the introduction of competing public and private insurers as a further step. The evolution must provide for the simultaneous development of autonomous providers, public and private, funded by user charges for services (hence privatisation or the vesting of provider assets in autonomous organisations is a priority); insurance mechanisms for patients to protect them from unreasonable financial risk that will arise as entitlement to free public care is reduced; and income-related credits where necessary to ensure affordability of private insurance, assuming that some government assistance is deemed desirable.

As a first step, area health boards would receive funding on a population basis (possibly adjusted for age structure) from the central government. They would use this to arrange for the provision of services to their populations by competitive contracting with public and private providers. Public hospitals would be corporatised and would compete for business from the public insurer.

Public providers would be permitted to enter into contracts to lease out facilities to private insurers and charge user fees for services performed for private patients. Permitting private insurers to contract for the performance of services they do not currently cover by using some public facilities would speed the development of private insurance from its current status as a purely supplementary cover to a more basic stand-alone benefit package.

With this contracting structure, private insurers are in a position to offer coverage inclusive of services now offered only by the public sector. But as long as these services continue to be available free of charge through the area health boards, individuals have little incentive to buy more comprehensive private cover.

Moreover, the difficulty of establishing a public insurer on a sensible commercial basis and providing strong incentives for its performance while it remains a monopoly means that this interim option involves risks that the outcome would not achieve a substantial improvement over the status quo. Any failure to achieve substantial gains may jeopardise further reform. As a result, it would be desirable to move rapidly to the next stage of reform.

The essential next step is to permit individuals to opt out of their area health board 'coverage' and assign the capitation the area health board received on their behalf to a private insurer. This establishes a more level playing field between the area health boards and competing private insurers. The premium that an individual could assign over to a private insurer should be roughly actuarial, based at least on age. The government share of this premium might be income-tested, although if so there would need to be income-tested contributions towards the cost of area health board care. Private insurers could buy health care services from both private and public providers. The final step is to terminate capitation contributions from the Department of Health to the area health boards for purposes of benefit coverage. A reduction in taxes for funding the Department of Health could thus coincide with the switch to individual responsibility for paying the cost of private insurance.

The termination of basic benefits funding to area health boards would mean that individuals would have to pay more out of pocket for their health insurance. Thus this termination should coincide with the introduction of the income-related tax credits or vouchers for the low income category and across-the-board cuts in tax rates, to minimise the effects on spendable income net of tax and net of health insurance costs.

Privatisation of hospitals could proceed following corporatisation and could be implemented prior to the move to private insurance. The procedure for privatisation could follow the same path as that adopted in the privatisation of other SOEs. Some public services could possibly be privatised immediately in a move which would enhance the credibility of the reform programme, increase competition at an early stage of the process and facilitate the provision of basic insurance cover by private insurers. However, the feasibility of by-passing the intermediate stage of corporatisation would need to be assessed on a case by case basis.

Some role for the area health boards (or a national health board) might remain for providing services not covered by basic health insurance, including the 'pure' public goods as well as long term psychiatric and other care (issues which have not been considered in this report). Public funding does not of course necessitate public provision, and these services could be contracted out.

PART 5: CONCLUSION

Although it is difficult to measure empirically the performance of the health care system, particularly given the data constraints in New Zealand, both theory and casual empirical evidence highlight features of the system that can be expected to create distortions in terms of equity and efficiency.

The major failings of the system arise because of the weak incentives on area health boards to act as efficient intermediaries and providers of health care services.

Because area health boards are not subject to competition in their role as intermediaries of public funding, consumers cannot use their buying decisions to express preferences or dissatisfaction with the type of coverage offered. As well, the nature of the area health boards makes monitoring of their performance difficult; for example, it is difficult to specify performance measures and in any case there are no comparable private organisations that could be used as a benchmark.

The institutional structure within which public hospital managers operate provides weak sanctions against inefficient performance. Patients have little choice as to where they can be treated or what services will be offered to them. As a result, a hospital does not lose business or funding if it fails to provide the services desired by customers. These failings are inherent in the diffuse ownership structures of the present system.

An initial step to reform the existing system would be the corporatisation of the provider functions of the area health boards. This would be a logical extension of current moves by the government to increase the accountability of managers of the area health boards and to improve the incentives for their performance. Corporatisation could proceed by separating the intermediary and provider functions performed by the area health boards and corporatising the provider level of services. This would achieve efficiency gains through clarifying the objectives of management of hospitals, improving on current monitoring arrangements, restructuring organisational arrangements where appropriate, allowing flexibility to set up different organisation forms, and enabling competition at the provider level.

However, it would be more difficult to corporatise the funder function of the area health boards. For example, it would be difficult to separate commercial and non-commercial objectives for the monopoly insurer. As well, it is extremely difficult to measure performance in the absence of competition. As a result full corporatisation of the insurance function may not be a sensible option. The difficulty of corporatising the funder functions and the relatively weak incentives for performance by the public insurer will have the effect of weakening the incentives for performance at the provider level. However, on balance, corporatisation as described would achieve worthwhile gains in the performance of the health sector. It would also be a sensible transition path if more far-reaching reform is contemplated.

Privatisation of the provision of services could occur any time following corporatisation, independent of the track taken for insurance. For some services privatisation before corporatisation might be an option. Private ownership would further strengthen the incentives for performance by managers of hospitals by introducing additional capital market disciplines and distancing them from the possibility of political intervention.

Allowing competition in the insurance function would be a further sensible extension of the corporatisation/privatisation process. Individuals could be allowed to opt out of public insurance and enrol with a private insurer of their own choice. The public insurer or the Department of Health would assign to the private insurer the individual's 'premium' derived from tax funding. The introduction of competition in the insurance function, by allowing consumers to choose between public and private insurers for their basic coverage, and the involvement of private sector operators would create the stimulus necessary for a more complete realisation of the potential efficiency gains in insurance and medical care delivery. This publicly-funded system with opting out is one possible final structure.

A more central role for private insurance is not as radical a change for New Zealand as it might appear and the private insurance market could readily expand to cover a comprehensive set of services. As described earlier,

almost half the New Zealand population already has private health insurance. This funds only a small proportion of total health expenditure and provides only partial cover, not because private insurance is intrinsically unable or unwilling to cover a comprehensive set of medical services but because there is no demand for more basic private cover as long as the public sector provides most hospital care free of charge and heavily subsidises primary care. The private insurance market has grown to fill the increasing gaps in public services and could expand further to provide basic cover.

The other possible final structures would rely on private insurance, with different possible degrees of government involvement to ensure universal access. If there is a widespread demand for a medical care safety net for all, or if a change to a purely voluntary system is not politically feasible, then a strong case can be made for making the purchase of health insurance compulsory and providing income-related subsidies through the tax and welfare system, rather than relying on voluntary welfare or the provision of free public hospitals as a safety net for those on low incomes. All New Zealanders are already required to obtain medical insurance and disability accident insurance; the only difference is that at present this is by 'premiums' paid to the Inland Revenue Department through tax payments and ACC levies on employers and vehicle registration, because the government operates as a monopoly insurer.

The switch to private insurance offers some gains over the option that retains full tax financing of a public insurer with opting out to private insurers. Relying on private insurance eliminates the costs that are incurred in first raising taxes and effectively returning the money to those people who wish to purchase private insurance, thereby eliminating the double handling of money by the public intermediary and significant deadweight losses. The private insurance options would entail lower government budget costs and more careful targeting of public funds to those in need. This is an important consideration given the present and forseeable fiscal pressures.

A private insurance option (with or without subsidies and the requirement to purchase), could be viewed as a final stage towards which a mixed public/private system with opting out could evolve. Thus, the options are perhaps best viewed as possible stages in an evolution, in which more experience can be gathered along the way, to better inform the choice of a final structure.

APPENDIX 1: SUBSIDISING COMPULSORY PRIVATE INSURANCE IN NEW ZEALAND

An approximate estimate of the cost to the government of providing subsidies for the purchase of insurance cover by lower income earners can be made using information from the Statistics Department's household income and expenditure survey and an estimate of private insurance premiums.

The following estimates of the annual cost of premiums that would apply for private insurance covering primary and secondary care have been provided by a private insurer.

Estimates of Private Insurance Premiums

Person (0-64 yrs) Family (0-64 yrs) Person (65+ yrs) Person(65+yrs)

(No long term (With long care) term care)

$550 $1,500 $2,500 $4,000

The premiums are in 1987 dollars and assume the following: a 20 percent co-payment; a 5 percent administration charge; no state (or ACC) subsidisation; dental fees exclusion; no change in utilisation patterns; and universal inclusion. They compare with an average of approximately $1000 per capita spent through Vote: Health and the ACC's expenditure on medical and hospital care in 1987/88.

To obtain a broad estimate of the potential cost of providing support to low income groups, we assume that individuals and families that receive income at and below the level of the universal benefit (as defined in the 1990 budget) receive a full subsidy of their health insurance premium and that the benefit is abated over a $10,000 range (so that, on average, people in that range receive a subsidy of half the insurance premium). Given these assumptions, the required subsidy by the government would be in the order of $800 million to $1,000 million with the latter figure including long term care for the elderly. A full subsidy for all elderly people above 65 (but excluding long term care) would raise the cost to between $1,100 and $1,600 million (the latter amount including long term care, all in 1987 dollars). The figures do not take into account those very high risk individuals who would face much higher insurance premiums (and in some cases may be uninsurable). These would include the totally disabled, those with serious medical conditions and the psychiatrically ill, particularly those that require institutional care. The government may choose to subsidise some or all of their insurance or health care costs, adding approximately $200 to $500 million to the total budgetary cost. This compares with expenditure by the government of around $3,400 million through the Department of Health and ACC in 1987/88.

The calculation assumes that the subsidies decline over an income range of $10,000. The use of graduated subsidies rather than a threshold avoids the notch problem of abrupt termination but does increase the proportion of income earners exposed to high effective marginal tax rates.

In New Zealand, low income earners on social welfare benefits face high effective marginal tax rates. Low income earners face tax rates of 28 percent (the marginal tax rate of 24 percent and the 4 percent abatement of the low income earners' rebate). As well, welfare benefits abate at 70 cents in the after-tax dollar, giving an effective marginal tax rate of around 78 percent. For non-beneficiaries the effective marginal tax rate for those receiving family care is 48 to 63 percent (marginal tax rates of 28 and 33 percent and abatement rates for family support of 20 and 30 percent). Unless other changes to the welfare benefit/abatement system are made (for example, by abating at the current rate but starting at a higher level), the abatement of a subsidy to purchase health insurance would worsen effective marginal tax rates, adding 5 to 40 percentage points to rates (assuming the premiums range from $550 to $4,000 and are abated over a $10,000 range).

Against this cost must be offset the reduction in tax rates for the great majority of the population, including those at the bottom of the income range, that could be achieved if the changes were undertaken in a fiscally neutral manner. This would ease the effective marginal tax rate problem faced by low income earners. However, like any means tested programme, means tested transfers for medical care involve a trade off: high marginal tax rates for recipients can be avoided only by imposing higher marginal tax rates on all taxpayers.

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Curriculum Vitae

Susan J Begg

Present Position: Economic analyst, CS First Boston NZ Limited

Education: MCom (1st Class Hons), economics, 1981, University of Canterbury

BSc (1st Class Hons), chemistry, 1978, University of Canterbury

Awards: University Prize 1981, top student in Master of Commerce class

State Services Commission study award 1981

Free Masons study award 1981

Previous Employment: 1987 Manager, macroeconomic policy section, the Treasury

1985-1986 Co-ordinator of the interdepartmental economic forecasting team, the Treasury

1982-1985 Economist, policy development and co-ordination section, the Treasury

1981 Tutor, stage I economics, University of Canterbury

1979 Research chemist, ICI New Zealand

Fields of Specialisation: Specialist in the following areas: regulatory economics; competition policy issues, including the competition policy regime in New Zealand; organisational economics using transaction cost and agency theory; and SOE policy issues.

Major Projects:

Ms Begg has been involved in several major studies of regulatory issues in a number of industries while at CS First Boston. These include the following: joint author of a paper for Electricorp which outlined a framework for analysing the structure and regulatory environment for the electricity industry; joint author of a paper for the Electricity Industry Task Force which analysed the effect of government regulation on preferred ownership arrangements; co-author of a major report for Telecom on regulatory issues relating to privatisation; joint author of a report for the New Zealand Government on the extent of market power in the airport industry; joint author of a paper on port reform and regulation for Ports of Auckland Limited; author of a paper for New Zealand Post analysing regulation of the postal system; joint author of a paper on the cost of capital for Natural Gas Corporation Limited ("NGC") for use in a pricing application to the Commerce Commission; and joint author of a paper for NGC outlining the principles of pricing relevant to a regulated gas utility.

She was author of a paper prepared for the Ministry of Commerce on options and issues associated with reducing greenhouse gas emissions.

Ms Begg is joint author of the New Zealand Business Roundtable's study, *State-Owned Enterprise Policy*, principal author of the study *Antitrust in New Zealand* and co author of a paper which examined alternatives to the mandatory prior notification of mergers and takeovers required by the Commerce Act 1986. She was joint

author of an economic review of Commerce Commission decisions under the Commerce Act 1986 for the Treasury. She has acted as economic advisor to clients on a number of Commerce Act cases.

She was joint author of a study prepared for government analysing the issues and options associated with privatisation of New Zealand's international airports. She has advised clients on rate of return and valuation issues.

She has advised the Change Team for Targeting Social Assistance on health insurance issues.

Publications and Publicly Available Papers

• *An Economic Analysis of Issues and Options for Reducing Greenhouse Gas Emissions*, Ministry of Commerce, 1990.

• With Kathy Kang, *Mergers and Takeovers in New Zealand: Mandatory Clearance Revisited*, New Zealand Business Roundtable, 1990.

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• With Stephen Jennings, *An Economic Review of Commerce Commission Decisions Under the Commerce Act 1986*, Treasury, 1988.

• With Stephen Jennings, *State Owned Enterprise Policy: Issues in Ownership and Regulation*, New Zealand Business Roundtable, 1988.

• *Appraisal of the Exchange Rate Debate*, paper presented to the Australian Agricultural Economics Society (New Zealand Branch) Conference in July 1985.

• *Venture Capital: A Perspective*, paper presented to NZIER seminar, April 1984.

• With Rob Cameron, *Venture Capital*, paper presented to the New Zealand Association of Economists' February 1984 conference in Wellington.