REFORMING TERTIARY EDUCATION IN NEW ZEALAND

NEW ZEALAND BUSINESS ROUNDTABLE

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Summary

There are unnecessary weaknesses in the present system of tertiary education which reduce the opportunities for New Zealand citizens to make the most of their lives. In particular, the present system inhibits people's capacity to meet the challenge of national economic reconstruction.

The present system is not responsive to the individual preferences of New Zealanders. This diminishes the quality of our democracy, and diffuses accountability for educational outcomes in an ambiguous command structure characterised by a sea of committees.

Reforming the system to make it more responsive and accountable requires *either* more direct political control over the tertiary education institutions *or* more decentralised and indirect methods of funding them (a "client-driven" approach). The former option would destroy the intellectual vigour and integrity of the institutions as places of learning and would worsen, rather than improve, their performance in meeting their proper objectives. We therefore reject this option. In our judgment the latter option (decentralised funding) is the only acceptable possibility.

The tertiary education system consists of formal and informal (on-the-job training and learning) sectors. The informal sector is quite large, but not as large as in the United States or, probably, Japan, relative to the formal sector. The reason for the smaller size of the informal sector in New Zealand is the lower incentive for skill acquisition because of the compression of earnings related to skill and experience compared with other countries. The reduced returns to skill acquisition have induced compensating subsidies to formal sector education and training in order to maintain the flow of skills. Without receipt of such subsidies, the informal sector has, therefore, tended to be "crowded out" of tertiary education in New Zealand.

A full reform of the tertiary education system will only be fully effective if implemented in the framework of a freer labour market which permits more appropriate incentives to emerge for skill formation. Steps need to be taken to restructure employment arrangements so as to provide better-delineated career structures, generating lower starting pay and higher finishing pay. Such restructuring

would provide a desirable extension of the "career" philosophy from salaried staff to the whole of the workforce in each enterprise.

In the absence of the development of such "career" structures, the incentives for employee and enterprise investments in on-the-job skill formation will not improve, and this vital informal sector of tertiary education will make less of a contribution than is warranted.

"Training-levy" schemes are a poor substitute for improvements in career structures as a means of increasing training activity because, at the level of detail involved, they are administratively cumbersome and expensive, arbitrary, and attract resources to manipulating the system rather than improving training opportunities.

- **Criteria for Measuring Performance in Tertiary Education**

We believe that appropriate criteria for assessing the performance of tertiary education are:

. the effectiveness of freedom of choice;

. the effectiveness of skill formation systems;

. the degree of emphasis on values consistent with socialisation into a liberal and diverse society;

. the efficiency of the system, and

. the equity of the system.

On these criteria, the New Zealand system of tertiary education does not rate well. The reason for this is the inappropriate incentive structure which arises from centralised funding and its associated management system. The problem is not the efforts of the individuals and institutions operating within this inadequate structure. It is the system that needs changing by reforming incentives and opportunities to liberate the undoubted capabilities of New Zealand's universities and polytechnics and the academics and tutors in them.

Freedom of choice has been restricted by quota rationing of places on the demand side, and resource inflexibilities on the supply side. Excess capacities persist alongside excess demands. New courses take many years to set in place, in a process in which student demand can become secondary to other pressures.

The effectiveness of skill formation is low despite claims about the technical competence of those graduating. There is considerable elasticity in this yardstick. Further, enrolment rates are low and non-completion rates are high. In a climate of budgetary stringency, central funders have reduced real inputs in equipment and library holdings, which attacks the knowledge base. Tenure and inflexible salary-setting processes have combined to starve skill formation precisely in those areas on which the labour market is setting a premium. Incentives for teaching units to economise or innovate are weak or non-existent because of centralised funding arrangements.

Tolerance of diversity has been relatively well served by the present system, principally because of the inherently liberal content of the traditional curriculum in tertiary education. This is a ground on which we support the claims of the humanities for a major continuing place in New Zealand's tertiary education. A case for broadening access to tertiary education can also be made on the basis that the liberal values acquired will help New Zealand citizens better accommodate the inevitable changes that lie ahead. We would resist the present tendency towards vocational narrowness in course content, therefore, and encourage the free expression of ideas, however unconventional, in our tertiary institutions. Equally importantly, increased institutional responsiveness to the diversity of student wants is likely to be a means by which disadvantage can be addressed and overcome. Where it is appropriate to create incentives for this, they should be made at a decentralised level.

The efficiency of the tertiary education system is low. It is quite implausible that the system operates at least cost, or anywhere near it. The planning "norms" used to provide resources to the system are arbitrary and the process of allocation creates incentives to maximise claims. Nor does the system maximise social benefit. Students' preferences are widely frustrated, although students capture much of the social benefit. (If this were not so, students would not compete so strongly for places in preferred courses, or indeed enter tertiary education at all. If most of the benefit went to third parties why would students care what courses they did?) Subsidies are much higher for science-based courses than humanities-based courses, but there are no grounds for believing that the former create greater benefits to third parties than the

latter. The structure of subsidies may be such that the system is both overblown and distorted compared with a system that would maximise social benefit.

Incentives for innovation in the system are weak, reducing its potential for performing efficiently in a dynamic sense. Innovation in the system emerges from "big" initiatives at the top rather than incremental initiatives from below. The record of innovative success of such systems appears to be low. Diffusion of innovations is also delayed by the red tape of the committee processes involved in their adoption.

The equity of the system is doubtful. Subsidies to students on equity grounds involve regarding them as "poor" or disadvantaged. The low incomes of students while studying should, however, be regarded as simply a stage in their life-cycle. In later years, these initially low incomes are recouped by the earning of higher incomes than average. The taxation system would need to be altered so as to tax former students at a higher rate than other citizens if it were to be used to recoup these subsidies in an equitable way.

Access to the system by disadvantaged groups has not been promoted by the present subsidy arrangements. A particularly bizarre feature is that quota restrictions (denying access) operate at the same time as subsidy arrangements intended to "promote access". Selective scholarships and loans or loan guarantees could be used instead to provide more equitable access.

Removing subsidies would result in a reduction in enrolments in tertiary education unless the earnings of graduates and other skilled persons increased. This illustrates the need for complementary reforms in the tertiary education system and in the labour market if the reform process is to be fully effective.

- **Suggested Reforms**

The reform package we propose draws on a number of emerging government policy directions, including the ACCESS scheme, corporatisation initiatives and state sector pay-fixing proposals.

Essentially, we regard the best strategy for reform as one which subjects the whole range of tertiary education institutions to the opportunities and constraints provided by a decentralised competitive market for their services, while funding users of these

services (to whatever extent desired) by a system of targeted entitlements financed, at least in part, by the Government.

Advice on education policy at all levels would be integrated within an agency such as a *Ministry of Social Policy*. The administration and monitoring of the Government's tertiary education budget (along with other education budgets) would be the responsibility of a separate *Education Commission*. This budget would be divided between a *Tertiary Education and Training Entitlements Council* and a *National Research Council*. *A National Validation Authority* would also be formed by the Education Commission, but would not be centrally funded.

The existing universities, polytechnics and teachers colleges would become autonomous *state corporations* funded by tuition fees, research funds, capital raisings and the sale of goods and services generally, consistent with furthering their objectives of providing education, training and research services.

The Tertiary Education and Training Entitlements Council would provide entitlements to New Zealanders towards the costs of tertiary study. These entitlements could be targeted towards particular groups, courses or institutions and could take the form of scholarships, loans and loan guarantees. Scholarships might be, say, 30 per cent of fees for entering students and for those maintaining "good standing" subsequently. Loan guarantees should be made available at least for all disadvantaged persons and possibly for all students.

The National Research Council would provide grant funds to a number of competing *Research Agencies* for funding "public good" research activities in tertiary education institutions and other government and private sector agencies undertaking "public good" research. The budget for the Research Agencies would comprise that part of the present salaries bill for academic staff in the universities which can be attributed to "public good" research activities beyond those used for teaching purposes, together with the budgets of those other government agencies undertaking "public good" research. Private sector funders of "public good" research would also be able to use the Research Agencies as distributors of funds. University and other staff in tertiary education institutions and in other public and private research agencies would compete for salary and other support for research activities from the Research Agencies.

The National Validation Authority would offer non-compulsory validation and accreditation services to all tertiary education institutions. These services would be funded by users. The need for a state authority to perform this service could be reassessed in the longer term.

No restrictions would be placed on the services that the tertiary education institutions could offer, the terms under which the services could be offered, the terms under which staff could be employed or the structuring of the institutions themselves. New institutions could enter the field of tertiary education services and be eligible to receive entitlements and research funds in terms of government policy.

These reforms would rejuvenate performance in tertiary education institutions by altering incentives to emphasise client-driven outcomes, while retaining as large or small a role for state funding as the Government decided. Extra funds are likely to be injected into the institutions from new sources as a result of this shift in incentives.

The reforms improve incentives for research performance, coordination (both among the institutions and with schools and industry), responsiveness to users' interests, and equity of access. Equity of access would be enhanced because entitlement targeting would encourage participation by the disadvantaged and offer extra incentives to the institutions to respond to the preferences of the targeted groups.

The reforms we have proposed are realistic and feasible. They will work because they create appropriate incentive-setting mechanisms. Proposals that fail to do this must inevitably be ineffective in addressing New Zealand's tertiary education problems. However, in any state funded activity incentive problems will remain, and there is an ongoing risk of political interference. Both these factors reduce efficiency and therefore potential gains in the well-being of society as a whole. There is no reason why publicly funded organisations should retain a virtual monopoly in the provision of tertiary education. Private sector competition should therefore be encouraged. There is also a case for reviewing whether all parts of the existing system should remain in state ownership or under state management.

1. Introduction

This study is the main response by the New Zealand Business Roundtable to the call by the Government for comment on tertiary education in New Zealand. The New Zealand Business Roundtable welcomes this opportunity, because we consider that substantial improvements are possible in our system of tertiary education. The current system inhibits the opportunity for New Zealand citizens to lead the fullest lives of which they are capable, as well as the opportunity for our tertiary education institutions to reach their full potential. One result of this inhibition of opportunity has been a slower rate of economic advance - and lower living standards - than New Zealanders are capable of creating for themselves.

Of immediate importance, the major economic restructuring which the Government has set in train has created new opportunities and pressures to which the responses of the tertiary education system are critical. Inadequate responses to the required changes in skill formation and research performance will increase the costs and reduce the returns from the national reconstruction effort. The present system is not sufficiently well designed to meet this challenge.

Important as this matter is, it is not the most important consideration. The quality of our democracy is dependent on the capacities of our citizens to direct themselves towards their own goals in effective and civilised ways. A responsive and effective education system is essential for the achievement of this democratic goal.

The essential idea of democracy is to set in place institutions which are *responsive* to each citizen's free and self-expressive pursuit of his or her own ends, within the rule of law. The more responsive our educational institutions can be made to the desires of each citizen, freely expressed, the more democratic our society will be. It may be that each of us would regard the balance of free choices made as less desirable than some balance that might be imposed by authority. The incentive always exists, therefore, for people and groups with power to try to impose their own preferences on the system by making institutions more responsive to their own perceptions of the desirable balance (and less responsive to those of others).

These incentives have been strong until recently in New Zealand and have been basic to the extension of state influence and control in many aspects of economic and social life. In this regard, the developments that have occurred within the tertiary education system

should be seen as part and parcel of developments not only in the whole education system but in the extension of the role of the state more generally. Decision-making power, removed from the dispersed hands of our citizens, has become concentrated in far fewer hands - in the government, public service and other public authorities. The preferences of people in these powerful groups, and of other people able to influence them, come to control the performance of a wide range of activities. Vested interests - both economic and political - become established to protect these privileged positions. "Representative" bodies are formed to influence the centralised, politicised, decision-making process. Change becomes acrimonious and it becomes politically difficult to carry out necessary reforms. Reviews, policy changes, changes in advisory bodies and in key decision-makers come and go, but inadequacies in performance remain. They remain because they are embedded in the structure of centralised funding and control and the incentives associated with that structure.

The main weakness of the present tertiary education system arises from the extent to which it has moved down this road. Instead of responding efficiently to the educational preferences of each citizen, it responds rather to an elite process of decision-making, filtered through an ambiguous chain of command which disguises accountability in a morass of committees. The ends served by this system, together with accountability for their achievement, are so diffuse that the system sometimes seems to verge on the irresponsible. This does not mean that people in the system do not work and study hard, but that almost anything could occur and be justified within it because of the nature of its internal processes. This reflects the incentive structures that have developed in the system.

This situation arises for two reasons: education budgets are centrally determined by the government and its authorities, but the education institutions are ostensibly autonomous in service delivery. Institutional "autonomy" is necessary if the content of education, training and research services is to refer to an intellectual agenda broader or different from the prevailing wisdom of the government and bureaucrats of the day. Centralised funding has been provided to control overall directions, resource levels and access to these services. In particular, centralised funding has been justified in order to separate access from considerations of ability to pay. Education institutions have been removed from accountability to a decentralised "market", on the one hand, and from direct political accountability, on the other, although some expressions of market and political pressure emerge from time to time. The two main sources of social accountability - the political process and the market - have both been dulled in their application to the system. The effect has been to dull the incentives for the system to be

responsive to the wishes of citizens - expressed either individually through markets for educational services, or collectively through the political machinery of the state.

The problem with reform by means of direct political control is not that it could not improve the responsiveness of the system, but that this responsiveness would be to a political process which, in practice, gives little weight to meeting effectively the varied wishes of ordinary citizens. The centralisation of decision-making within the political process carries strong incentives for the politicisation of an activity through the formation and strengthening of organised interest groups. The real performance measure in such a system is effectiveness in maintaining and enhancing the power of the key players in the system. Performance in terms of the delivery of educational services becomes secondary to the real goal of the system - the preservation of the powerful. This process is deeply demoralising to the people actually delivering the services, who become alienated by their inability to exercise professional independence in carrying out their functions, and whose successes are expropriated by the system and its key players while their failures are attributed to their own inadequacies. Not surprisingly performance in terms of the real delivery of services declines. Energy is diverted to "playing the system" and "keeping one's nose clean". Costs of service delivery rise and quality falls as effort is withdrawn. This has been the fate of politically centralised activities in all fields.

Nevertheless, direct political control has appeal to politicians in that it offers the appearance of action in the face of "a problem", and creates further opportunities for patronage to enhance political support and influence.

Australia is conducting a review of tertiary education similar to that being undertaken in New Zealand. In December 1987, the Minister for Employment, Education and Training released a Green Paper on Higher Education (Dawkins 1987). That paper opts unambiguously for reform by means of direct political control. It does so by proposing the abolition of the UGC-equivalent, the Tertiary Education Commission, and replacing it with a system in which each institution will "negotiate" its "educational profile" with a department in Canberra, in the light of "national needs and priorities" determined on the advice of a tripartite National Board for Employment, Education and Training.

The Green Paper itself acknowledges that there is no objective basis for determining what these needs and priorities are - even in terms of "the national requirement for graduates" as a whole, let alone by detailed course of study (Dawkins 1987, pp. 2, 11, 12). It is therefore likely that the determination of these priorities will be politically, and lobby group, driven.

Assertions made in the Green Paper about the importance of economies of scale in institutions for teaching and research are not supported by any credible evidence, but form a key part of the proposals. Such assertions are typical of bureaucratic systems which are typically unable to coordinate the activities of large numbers of producers (a function which the market normally carries out in a more efficient way). Indeed, a major recent study of this question (Throsby, 1986) concludes that diseconomies of scale start above a full-time enrolment of 8,500 students, a "fact" not canvassed in the Green Paper. Some recently amalgamated institutions have been decentralising their administrations because of such diseconomies.

It is important to emphasise that it is *typical* of politically-controlled systems that *subjective* political priorities dominate decision-making and that coordination requires as few (and, therefore, as large) producers as possible. It is also typical that "unnecessary duplication" is seen as existing in the system (i.e. unnecessary competition), although no criteria are available to determine "necessary duplication" (i.e. necessary competition). It is also important to reiterate that such problems as what courses to provide or research to undertake, in what size of institution and with what number of rivals, are easily resolved in a decentralised market system delivering educational services to citizens who pay as they need them. It is for these reasons that the Business Roundtable finds the course proposed in the Australian Green Paper unacceptable.

It is sometimes suggested that the way forward in a centrally-driven, non-market system is to introduce measures of a statistical kind against which performance can be assessed. A comprehensive list developed in the United States is presented in the appendix. This list encompasses outcomes in terms of student, faculty and administrative performance, the nature and level of inputs, informal and formal characteristics of the organisational structure of a department and the nature of that department's broader environment.

The problem with statistical performance measurement is immediately apparent from such a list, and is one that has bedevilled centrally planned systems in all fields: what weights should be attached to the items in the list in evaluating performance? A decentralised, market system has no need for such a list because consumers (and producers) apply their own subjective lists and weights and the market aggregates them in ways which permit appropriate specialisation and diversity to emerge on the supply side, as nearly as possible meeting the weighted ratings of consumers.

A centralised system, by contrast, has no means of matching this performance in coordinating differentiated demands and supplies at appropriate costs. If the central planners' weights are known, institutions will maximise weighted performance by neglecting those areas where weights are small (or non-existent). Whole segments of the education market will be ignored and the range and volume of what is done will be distorted - for example, by over-weighting numbers at the expense of quality, or *vice versa*. Performance measures may be useful to managers of educational *institutions* in improving their output of services or in reducing costs to stimulate demand for what they do. But used as central planning evaluation criteria they have typically proved disastrous.

The shift to direct political control of Australia's tertiary education institutions is unlikely to enhance their vigour, integrity and effectiveness as places of learning and research. On the contrary, the effects are likely to be adverse and profound. We believe New Zealand should not adopt the "political control" path to reform, whatever the superficial "reformist" appeal of such a course.

In particular, it is important to acknowledge that there are values of respect for scholarship, commitment to the truth, faith in reason, freedom of expression and preservation of culture which are of fundamental significance in tertiary education and research and in universities in particular. Political control places these values in jeopardy, a fact acknowledged in many countries by the creation of buffer institutions (such as the University Grants Committee) for the allocation of government funding. However well or poorly individual institutions and academics may measure up to their heritage of values flowing down through history for 600 years from Bologna, Oxford and Paris, none would dispute their obligation to those values. These values form the core of a culture to which university academics have given their loyalty for generations. Direct political control of the universities carries a real prospect of demoralising them in a way which would not only severely diminish their capacity to perform even the utilitarian tasks which they might undertake, but which would be devastating for the preservation of their civilising, but fragile, values in society at large.

The life of the mind at the frontier of understanding is not an orderly affair. Creativity and innovation, which every society wants for utilitarian, materialistic purposes, is not something that is produced by ordering it to appear. It arises from intuitions and empathies of a profound and subtle kind. Creativity calls for courage, and often results in disappointment, even despair. The world may not be flat! The earth may revolve around the sun! Blood may circulate in the human body! Supply may not create its own

demand! Government intervention may not improve social outcomes! Such revolutionary ideas can only be conceived in a climate of tolerance for the outrageous and a willingness to seriously question any "prevailing wisdom". It is in the nature of politics, on the other hand, that patronage flows to those acceptable to the powerful and not to doubters, critics, or opponents of the prevailing wisdoms of those in power. The very climate in which creativity is nurtured is likely to be subverted by direct exposure to politico-bureaucratic control. Progress is frequently anarchic in origins and arises as a by-product of the activities of persons whose highest reward is to hear, occasionally, "the music of the spheres". Progress demands not the attempt to impose order on this process through central direction, but an enlargement of scope for intellectual entrepreneurs, subject to their capacity to muster support from the publics they directly serve.

In summary, centralised, politically-driven "reform" will be inferior to decentralised, "client-driven" reform in which educational institutions respond to the choices of individuals. Client-driven reform would lead to better use of resources, better skill formation, and an enhanced capacity to respond innovatively to change. More generally, it would contribute to an improved distribution of income by fostering a higher rate of economic growth and hence higher employment. A more responsive tertiary education sector will also generate fairer access and opportunity.

To be acceptable to New Zealanders in our present circumstances, a "client-driven" reform package for tertiary education should possess the following characteristics. It should make the system more responsive to the individually-expressed wants of our citizens. It should maintain and, if possible, enhance access by our citizens to tertiary education irrespective of their financial circumstances. It should provide appropriate incentives to attract, retain and organise the staff and other resources necessary to provide the desired services. And it should be consistent with the diminished capacity of the public sector to fund services of all kinds in the face of its vastly increased debt-servicing commitments over the last decade (*Tertiary Education in New Zealand*, 1987 p. 23).

The essential elements of such a reform package are clear. First, a degree of decentralisation of funding into the hands of direct consumers of training and research services is required, in a context of actual and potential competition between service providers. This element of the package provides the necessary incentives for an efficient response to citizens' educational wants. Second, targeted entitlements, depending on government social policy objectives for their design, should be introduced to provide fair opportunities of access. Third, freer labour markets for skills need to be allowed to

evolve, in particular for skills involved in tertiary education, training and research, so that career and pay structures can develop which possess more appropriate incentives to acquire, and to provide, skills.

This combination of elements has all of the democratic and economic characteristics which a responsive and accountable tertiary education system should contain. It is responsive to citizens' wants. It can be as equitable as may be required by the government of the day. And it economises on public spending, to the degree desired, by creating appropriate private incentives as a substitute for public subsidies.

We believe that these proposals for reform go a long way towards meeting the objectives of the Government as expressed in *Tertiary Education in New Zealand* (1987,pp. 8-9):

> "To be effective the tertiary education system must provide for the needs of the individual and the demands of the work-place. It must also take note of the direction in which the community as a whole is moving and be sensitive to the policies of the government of the day.
>
> New Zealand's fourth Labour Government has targeted *economic productivity* and *social equity* as matters of paramount importance and is committed to ensuring that these priorities are reflected in the management and programmes of the nation's system of tertiary education.
>
> The Government believes that the New Zealand system of tertiary education should be *responsive* to the needs of the individual, the society and the workplace and be *effective* and *efficient* in meeting those needs. Tertiary education should also be *accessible*, both in general terms and in terms of *social equity*. To achieve these ends it must have access to *adequate resources* and be able to establish and maintain an effective knowledge base. Tertiary education must equip students with credentials which reflect their attainments and are understood and recognised by employers. The system must be *accountable* for its educational achievements and use of resources and, wherever possible, be *decentralised*" (italics added).

Appendix :
Performance Measures in a Centrally Planned System

Bare (1980) provides the following list of performance measures for tertiary institutions:

1. Student outcomes

   a. Learning gain scores on standardised tests.
   b. Multiple measures of satisfaction (i.e. satisfaction with programme content, learning process, faculty relationships, academic advising)
   c. Graduate school admission ratios
   d. Employment ratios
   e. Programme completion ratios
   f. Attainment of desired problem solving, interpersonal, aesthetic or vocational skills

2. Faculty outcomes

   a. Publication productivity
   b. Multiple measures of faculty satisfaction (i.e. satisfaction with departmental research, job satisfaction, satisfaction with personal and professional development)
   c. Research proposals, technical reports, and patent applications per faculty member
   d. Indicators of university and community service

3. Administrative outcomes

   a. Budget variance
   b. Degrees produced, cost per degree, or other efficiency measures
   c. Ratio of new to total credit hours produced
   d. Student enrolment growth or decline
   e. Grievance rates
   f. Staff turnover ratios

4. Input variables

   a. Indicators of student quality (e.g. average scores on standardised tests)
   b. Indicators of faculty quality (e.g. PhD ratios)
   c. Admissions/applications ratio
   d. Average faculty compensation
   e. Scholarship dollars per student
   f. Research income per faculty member
   g. Ratio of matriculated/nonmatriculated students
   h. Indicators of departmental resource quality (laboratory, learning centre, facility budget levels)
   i. Subject matter

5. Group structure and process

   a. Departmental goal setting and planning
   b. Decision making and influence processes
   c. Personal and programme evaluation methods
   d. Chairperson leadership behaviour
   e. Faculty collegiality, interpersonal relationships, informal communication
   f. Faculty relationships with students
   g. Student role in goal setting, decision making, and evaluation
   h. Openness to change
   i. Workflow characteristics (i.e. mix of teaching modes, assistant/faculty ratio, faculty/staff ratio, upper/lower division course ratio, etc.)
   j. Workload (e.g. student/faculty ratios, credit hour/faculty ratio, other workload surrogates)
   k. Tenure, rank, promotion patterns
   l. Perceived reward structure

6. Environmental constraints and supports

   a. Departmental autonomy within division or college
   b. Relationships with external program planning, evaluation, and control units
   c. Nature of market for departmental 'product'
   d. Relationships with external funding sources

e. Course load induced in serving other departments

f. Differential participation in external faculty, instructional, and management development activities

g. Results of accreditation or external program evaluations

h. Policy constraints affecting departments differentially.

2. The Labour Market and Tertiary Education

When people talk of the tertiary education system in New Zealand they usually mean the network of formal education and training activities associated with particular state-sector institutions specialising in the provision of these activities: the universities, polytechnics and teachers colleges. These institutions are overwhelmingly devoted to skill formation before entering career structures in the labour market, i.e. with providing entry-level skills. Very little of their activity is associated with the provision of post-entry labour market skills. These are largely learned on the job by informal processes associated with work experience. A broad view of tertiary education properly includes such on-the-job learning as well as learning in formal education institutions.

The informal system is very large. Associated with it is an experience-related increase in average earnings, typically of 50 percent to 100 percent, depending on entry-level educational attainments. If all of *entry* earnings were ascribed to investments in formal education before starting work, the same logic implies that the increase in earnings thereafter is due to investments in skills acquired informally on the job. This suggests that, in terms of work-related skill formation, the informal system is *at least half as large* in investment terms, in New Zealand, as the formal system is. In the United States, "workplace learning" is said to be even larger - equivalent in size to the entire formal education system (Carnevale, 1986, p. 18). In Japan, workplace learning is probably even larger still relative to formal education.

Indeed, many economic analyses of tertiary education argue that the real skills in the workforce are learned in this informal system (in its "internal labour markets") as a result of long-duration job attachments. Training and not formal education is said to provide all of the skills in two out of three jobs (Carnevale, 1986, p. 18). Formal education does not create jobs (from this perspective), but jobs do create training. What the formal system does is to affect the selection of people into different career structures (skill-learning opportunities) and the rate at which real job skills can be learned (Doeringer and Piore, 1972; Thurow, 1985). Other economists would not dispute the large investments made in skill-formation by informal processes, but would contest the view that the skills learned in the formal system are of little productive value in themselves.

It is unfortunate that in New Zealand so much weight is usually attached to the *formal* tertiary education system in considering policy issues concerning skill formation. This

emphasis begs the question of the most efficient ways in which desired patterns and rates of skill acquisition can be brought about. Simply spending more public resources on the formal system may have negligible productive effects compared with changing incentives to bring about greater investments in skill formation in the informal system. Indeed, the subsidies to formal tertiary education may "crowd out" efficient, informal on-the-job training alternatives. In any event, it is clear that there are important interdependencies between the formal and informal systems of tertiary education: the outputs of the formal system become the inputs of the informal system. Skills learned in the formal system condition the economics of informal skill formation. The economics of production activities are influenced by the availability and cost of various skills.

All productivity improvement, all enhancement of human capability, requires investment. The incentive for investment depends, among other things, on the duration of the expected returns. New Zealand is a high labour-turnover economy compared with many OECD countries. Enterprises with high labour turnover are less likely to make major investments in the skills of their labour force, because the recoupment period is less. Further, investments in plant and equipment, R & D and organisational improvements are then likely to be selected from a restricted set of opportunities - those requiring little associated enterprise investment in employees' skills (see Chapman, 1988).

The duration of attachment between employees and enterprises depends on the costs of separation. An important contractual solution which reduces turnover (and increases training) is to offer long-term career prospects, involving long-term advancements in pay dependent largely on experience within the particular enterprise. An increase in the correspondence between pay and experience will, by reducing labour turnover, increase the incentive to undertake investments in skill formation. If enterprises are constrained in offering career structures and contractual terms which reduce turnover among skilled employees, the degree of investment by enterprises in employee training will accordingly be restricted.

An enterprise can only afford higher pay for those employees who have acquired skills (at the enterprise's expense) if the pay offered while skills are being acquired is commensurately reduced. Over the whole duration of the attachment, the average pay/average productivity ratio for an employee acquiring skills can be no greater than for an employee not acquiring skills. Moreover, enterprises providing training will often prefer to pay out a stream of wages which increases more rapidly with employee experience than does productivity, in order to guard against employee losses. An

appropriate career structure and pay strategy will occur where the short-run gains from reducing turnover by paying more are balanced by the gains in profits which would occur were employees paid less. The greater the investment made in employees' skills, the more an enterprise will wish to pay its trained employees, so as to protect the investment by reducing turnover. By the same token, employees are unlikely to accept low "training wages" if their "post-training" wages are not high enough to average out (over the period they spend with a firm) at least at the "non-training" wage rate.

An economy characterised by more enterprise training (than another economy) is thus likely also to be characterised by longer and steeper pay-experience gradients for persons acquiring skills, *unless the government pays the costs of enterprise training.* Similarly an economy in which persons acquiring skills receive little extra in pay will be characterised by little enterprise training *or by the government paying the costs of enterprise training.*

Economies like New Zealand in which skill and experience margins are compressed, particularly for sub-professional skills and in the public sector, are likely to be more heavily dependent on government funding for skill formation than are other societies with less compressed skill margins. The provision of subsidies to the formal education system, but not to on-the-job training, has altered the balance towards the former and set up incentives to shift training activities into formal institutions. It follows that an increase in training activity in New Zealand without an increase in government funding for training will require an increase in pay margins for skill and experience, and an increase in the costs of training borne by trainees, including lower trainee wages. Such a shift may raise concerns about access by lower socio-economic status households to the low-start/high-finish earnings opportunities associated with skill acquisition. In this event, targeted financial assistance to such households would be appropriate, as we discuss in a later section.

Appropriate and flexible rates and patterns of skill formation will not be easy to achieve in the absence of a flexible labour market capable of generating contracts which permit the necessary durations of attachment, career structures and pay-paths which define the incentives for skill formation. The imposition of uniform career structures and skill margins on the labour market is likely to lead to shortages in some training opportunities (and excess supplies elsewhere), accompanied by excess supplies of some trained persons and shortages of others. Also, if pay gradients are generally pitched too low, the general training effort may suffer because of high turnover amongst skilled workers. Government subsidies for training to offset this may increase training activity

but not the stock of persons utilising the skills learned, because turnover to other (better paid) employment may increase. A critical adjunct to reform of tertiary education in New Zealand is therefore greater freedom for employees and employers to experiment with different career/pay packages associated with the formation of skills.

It is instructive to extend this discussion to considering New Zealand itself as a training/employing country in competition with other training/employing countries. If training costs are pitched too low and skill margins are consequently also pitched low, a high rate of emigration of trained workers can be expected unless the general standard of living in New Zealand is so high that the pay for trained workers matches overseas offers, notwithstanding the compressed pay structure in New Zealand. It may be expected, therefore, that as New Zealand has slipped down the league tables of international standards of living, more graduates will choose to live and work overseas. There is considerable evidence of such a trend.

Just as the value to enterprises of training workers depends on how long after training workers remain with the firm, so the economics of national training depends on workers' post-training attachment to the nation. If the costs/pay stream is pitched too low, the nation will not reap the stream of benefits which it has anticipated from the subsidies it has provided for training, because of emigration of those trained. One solution is to increase both training fees and graduate pay, thereby reducing taxpayer "investment", on the one hand, and the incentive for graduates to emigrate, on the other. The economics of the "brain drain" illustrates the problem of attempting to reform the tertiary education system without considering the labour market as well.

A first-best solution to reforming the wage system to provide stronger training incentives would be to free up the labour market in ways which we have described elsewhere (see, for example, New Zealand Business Roundtable, 1987). Essential moves would be to enable workers to choose how they will be represented in the negotiation of employment contracts, and to enable employers to negotiate directly with their workers on an individual basis and at a workplace or enterprise level. This would facilitate the tailoring of wages and conditions of employment to the preferences of workers and requirements of firms to a far greater extent than at present, and greatly increase the capacity of firms and workers to respond innovatively to changing circumstances.

In particular, in a labour market in which enterprise or workplace bargaining was the norm, the ability of firms to develop internal career structures that both provided incentives for employees to undertake training and protected the firm's investment in

training would be greatly enhanced. In the process, many skill demarcation lines would be likely to disappear (i.e., multi-skilling would increase), and pay ladders would evolve for employees who undertook in-house training. Wage rates for workers in training could be expected to be below present wages, but would rise to above the present level for workers who were fully experienced. In other words, the "career" philosophy that currently applies primarily to salaried personnel would be extended to wage earners. As well as providing incentives for skill acquisition and performance, this could be expected to enhance a sense of common interest among all members of a firm.

It is also important to consider the setting of income support levels for persons in training rather than in employment or unemployed. At present there is a wide disparity in support levels ranging from zero for school students to a little over $100 per week for unemployment-benefit recipients under 20 years, with tertiary students receiving the equivalent of about half the unemployment benefit. There is at the margin, for students who place little value on schooling or tertiary education and training, an incentive to remain unemployed (if a job is unavailable) rather than undertake a programme of study. The reforms which we propose for the tertiary education system would diminish this incentive because education and training programmes would pay greater regard to the needs of those who find present options unattractive. Nevertheless, a reduction in the range of support levels may also be warranted to improve the incentive to acquire skills. One possibility is a targeted age-related system of support. Sweden has moved in this direction, replacing youth unemployment benefits with work or training options for young people. Australia has recently moved in a similar direction.

An alternative policy for increasing the rate of on-the-job training - an alternative which we would strongly oppose - is to impose a training levy on firms that do not provide approved quantities and qualities of training, with the proceeds being used to create a "skill fund" for financing increased training elsewhere. The (Australian) Commonwealth/State Working Group on Skills Shortages and Skills Formation (1986) has pointed out some of the difficulties which have emerged in such schemes (pp. 45-46):

> "International experience suggests a number of important practical problems likely to be encountered with such arrangements. Training costs are not necessarily redistributed equitably because of the difficulty of determining appropriate grant and exemption criteria; more attention may be given to manipulating the system to obtain grants or exemptions than to improving the quantity and quality of training; there are problems in dealing with cross-sector occupations, localised labour market issues, and industries with large numbers of small firms; and administrative arrangements may be both complex and expensive, involving the monitoring of training performance, collection of funds, enforcement of payments, assessment of requests for exemption, and judgements on priorities for grants."

At the level of detail at which such government tax/subsidy incentive schemes necessarily operate, these sorts of effects are ubiquitous. At the margin, all such schemes become arbitrary and inequitable between individuals and between firms, and attract scarce resources away from training and production to the activity of subsidy-getting or tax-avoiding.

In our opinion, in the labour market as well as in the formal tertiary education system, the critical issue in improving education and training outcomes is to improve incentive structures. Most of our attention in this study is on the formal tertiary education system, but it cannot be emphasised too strongly that the efficiency and responsiveness of education and training is affected more broadly by labour market flexibility. It is the labour market that transmits incentive signals to students, trainees and businesses (where a very large amount of the most important skill formation occurs "informally", on the job). Hence, it cannot be said that the reforms proposed for formal institutions are sufficient to meet the challenge. They are a necessary part of the reform process, but complete reform would involve the evolution of more appropriate labour market incentives for skill formation.

3. Criteria for Assessing Tertiary Education

- **The Functions of Education**

The objectives or functions of education can be described and classified in various ways. The New Zealand Treasury (1987, pp. 24-26) has classified the functions under four headings relating to the individual, the society, the economy, and the parent-child relationship. The functions corresponding to each of these entities are, respectively, *fulfilment, integration, skill formation and certification*, and *custody* (i.e. protecting and caring for the young). Parish (1987, pp. 95-101) proposes a three-function categorisation: *cognitive, socialisation* and *screening* (i.e. certifying attainments). Bowen (1977) argues that "the primary purpose of higher education is to change people in desirable ways. These changes may, in turn, have profound effects on the economy and the society and even on the course of history. But in the first instance the objective is to modify the traits and behaviour patterns of individual human beings" (p. 432).

Actual education and training processes reflect balances and compromises between these objectives and also reflect different perceptions of the meaning and value of different kinds of fulfilment, integration, socialisation, skill formation, cognition, screening and certification. Hence, the perceived benefits of the education system depend on the balances of objectives and values that different members of society hold with respect to education and, indeed, with respect to society itself. The sorts of education that people receive change them in ways which condition the general social environment. Socially aware people of all kinds have always been interested in the education system, therefore, as a set of institutions capable, at least in principle, of moulding society in preferred directions. The role attributed to the government in education follows from its role as custodian of the state and of society itself.

In a democracy, the government will, to varying degrees, be limited in its powers by the constitution and by political checks and balances. Nevertheless, the extent, nature and direction of government involvement in education will depend on ideological preconceptions about the nature of "the good society" held by people of power and influence. To illustrate, a "liberal-democratic" government may perceive its role as giving weight to individual fulfilment as an educational goal and adopt an encouraging but permissive stance towards developments in the education system which result from the exercise of individual choices. A "social-democratic" government, on the other hand, may perceive its role as giving weight to socialisation and integration as educational

goals and adopt a more interventionist stance, restricting the scope of individual choices and encouraging the selection of particular education processes which fit better with its vision of collective good. A "conservative-democratic" government may give weight to the skill-formation and cognitive functions as well as to the integration function of education, adopting an interventionist stance encouraging "the basics" and the inculcation of the "traditional" values of society. In a pluralist democratic society and in most democratic governments, a range of views is likely to be held about the weight to be given to each of the various goals.

The outcome, in terms of education processes and their directions of change, will be a result of the balance of influences on the system over the history of society. Scope for change will depend on the extent of dissatisfaction felt about social conditions, and about the contribution of the education system in permitting or bringing about those conditions. The likely directions of change will depend on the prevalent agenda of ideas about how improvements in social outcomes can be achieved, not only through changes in the education system, but through institutional changes in society more generally.

Whatever the scope for artificially moulding children's attitudes and values at the lower reaches of the education system, the scope for doing so at the upper reaches appears limited. Higher education appears to have effects of a particular kind not necessarily on all students but on the majority: students in general become more "liberal", more willing and able to think for and express themselves and to be tolerant and flexible towards differences in people and ideas.

As Bowen puts it in his *Investment in Learning* (1977, pp. 435-436):

> "As compared with others, [higher] educated people on the average are more open-minded toward new ideas, more curious, more adventurous in confronting new questions and problems, and more open to experience. They are likely to be more rational in their approach to issues. They are more aware of diversity of opinions and outlooks, of the legitimacy of disagreement, and of the uncertain and contingent nature of truth. They are more tolerant of ambiguity and relativity, and more willing to think in terms of probabilities rather than certainties. They are less swayed by tradition and convention. They are less authoritarian, less prejudiced and less dogmatic. At the same time, they are more independent and autonomous in their views...
>
> They become more interested in ideas - in general education, as distinguished from specific vocational education. They become more concerned with self-expression and other intrinsic returns from career, as distinguished from returns in the form of income and security..."

If this is so, the spread of higher education in the population is likely to be associated in time with a spread of liberal values and in particular the values of self-expression and

tolerance necessary in cohesive, pluralistic societies. Consequently, as participation in higher education spreads, the scope for government intervention to restrict or mould individual choices towards non-liberal beliefs and behaviours seems likely to become less. Society is likely to become more pluralistic, not less. An education system which does not progressively accommodate an increasing desire for free choice by parents and students is likely to become an increasing source of dissatisfaction, and to be a persistent political sore to successive governments. Perhaps in the apparently incessant inquiries and reviews of education in recent times in New Zealand and elsewhere we are seeing the beginnings of this process at work.

That is one reason why we believe the Government is on strong ground in arguing that the education system should be responsive to the needs of the individual living in a pluralistic and democratic society. The *fulfilment* function of education is likely to require greater weight in the mix of functions which education meets. The *socialisation/integration* function is likely to need to emphasise qualities and beliefs such as tolerance, respect for human differences, equality before the law, equal opportunity, the social value of high moral standards in personal behaviour, the social value of voluntary associations of persons in undertaking collective action to meet their own and others needs, and so on. The *cognitive/skill* formation function is likely to receive weight as a means of heightened personal expression in work, and in private and social life. The *screening/certifying* function of education is also likely to be of importance in an environment in which the possession and exercise of skill and understanding becomes more economically valuable. However, certified credentials are only really important in terms of ease of buying and selling expertise in occupational labour markets (Marsden, 1986). If skills become less traded in occupational labour markets, for example as a result of longer duration attachments between particular workers and particular employers, the certification function of education is likely to become less important. Finally, the *custodial* function of education has little obvious relevance in higher education where students are adult (or near adult), as compared with children in primary and secondary schools.

Hence, important directions of evolution in tertiary education are likely to involve *more effective freedom of choice, more effective skill formation systems and a greater emphasis on such core social values as are consistent with socialisation into a society of increasing liberalism and diversity.* We believe the role of the Government should be to establish institutional, financial and labour market arrangements which *permit* tertiary education to evolve in response to the wants of individual New Zealand citizens.

There is now a body of research which shows that students form reasonably accurate expectations about prospective returns to various courses of study, and to attending particular institutions, taking into account quite long future time horizons. (See Stager, 1984, and McMahon, 1987, for a review of this evidence.) By contrast, long-term labour market forecasts are notoriously unreliable as a basis for central planning of tertiary education. Hence an efficient allocation of resources for meeting New Zealand's future manpower needs is at least as likely to be met by the decentralised decisions of students as by the decisions of tertiary education "central planners".

- **Efficiency and Equity**

The government also has a role, in education provision as in the economy generally, in trying to ensure that performance is *efficient* and *equitable.*

By *efficient* we mean that the desired range of services is produced at least social cost over time. This does not mean provision at least cost to the government, the provision of lowest quality educational services, or a restriction of services to ensure "mass production" of whatever is provided. What it means is that the system should minimise the costs of education to students and the community (taken together) for that spread of quality and range of provision they find most valuable. A small enrolment, expensive, high-quality course in bio-technology may be better value for money than a mass, inexpensive, low-quality course in economics, for example.

Traditionally, "value for money" has been regarded as assuring least cost production of each service, on the one hand, and net social benefit maximisation, on the other (meaning that provision of each service expands up to the point where the additional social benefits from expansion no longer exceed the additional social costs). This definition is meaningful primarily in an unchanging economic, technological and social environment, in which uncertainty is absent. Since the real world is, in fact, uncertain, we add to this conventional definition a requirement that appropriate incentives should exist to search out innovations in service provision which yield increased benefits, or decreased costs, as the environment alters.

Least cost production involves producing educational services at an appropriate scale for the size of the demand, using the most productive techniques available with the inputs at hand, and choosing the combination of inputs which costs least given their prices. In a competitive market, it is the force of rivalry that drives education providers to find these

appropriate scales, most productive techniques and least-cost input combinations. In the absence of a competitive market, other incentives must be found.

Net social benefit maximisation means that the volume of educational services provided should not be less (or more) than the volume at which the social benefit of the last service provided is equal to the social cost of providing it, assuming that the social value of *additional* services falls as volume increases and/or that the social cost of additional services rises as volume increases.

In a competitive market, rivalry drives competitors to produce this volume of services, on the assumption that costs reflect social costs and prices reflect social benefits. This will be true when service recipients capture all the benefits, when service providers must pay for all costs and when the service recipients can choose among the various suppliers. In practice, it is often thought that educational services create spillovers for third parties - creating benefits for some and possibly imposing costs on others. In general, this balance is thought to be positive, implying that the volume of educational services should be increased beyond what individuals would be willing to pay for from their own pockets. The inducement for this is normally a subsidy to the providers or to the consumers of the services. In the absence of market competition, services are usually valued by what they cost, the volume of services produced is determined politically and administratively, and the level of subsidy becomes subject to interest group pressure.

In practice, these spillover benefits may have been overstated. Fane (1984), summarising studies of such spillovers in Australia, suggests that positive spillovers for which a one-time student is *not* compensated, whether in salary or in prestige, are very small. He also points out that the use of education as a screening device by employers may confer negative externalities on workers who do not "pass" screening. On balance, he concludes that "it is ... not clear whether the net external effects of education are positive or negative and we doubt that any great inefficiency would result if policy decisions were based on the assumption that the net external benefits of education are zero" (pp. 20-21).

Appropriate incentives for *innovation* involve temporary rewards accruing to those who introduce new or improved services, or lower cost services, that consumers want. The incentive in a competitive market is the temporary monopoly position from being first, which enables revenues to be greater. The duration of this gain depends on the speed with which the innovation is adopted by rival providers to eliminate the source of monopoly gain. Without such incentives, innovation will not occur in a competitive market, unless a public agency undertakes the search for innovations, and pressures are imposed on

providers to adopt appropriate advances. In the absence of market competition, only innovations discovered by public agencies and government pressure will bring about advances.

By an *equitable* provision of education services, we typically mean more than that the cost of the service should be divided between those benefiting from its provision in proportion to their shares in the benefits. For example, it may be considered equitable to subsidise some recipients and tax others, making the balance of costs different from the balance of benefits. Second, there would be widespread agreement that access to education services should not be precluded by personal financial circumstances or other sources of disadvantage. In this respect, educational attainments are rightly seen as a prime vehicle of social mobility, access to which should be assisted for persons and groups whose opportunities for upward mobility would otherwise be unduly restricted. More generally, tertiary education may be seen as contributing to a "fairer" distribution of income through its impact on economic growth and hence on the availablility of employment.

Tertiary education institutions produce not only education services but other services as well, in particular research services, cultural services, commercial innovations, advisory and consulting services to national, regional and local communities, and public commentary on cultural, social and scientific issues affecting the community (OECD, pp.20-25). In part, involvement in the provision of these services may be seen as raising the quality of participants as educators - for example, a university teacher involved in research may well be a better teacher, in particular of graduates, because of this involvement. Many services cross-subsidised by the education budget are provided "free" to their final users, or are heavily subsidised in comparison with services supplied by the private sector. Such subsidies arise from the use of non-teaching time and of institutional capital, equipment and materials which are paid for by the government from the education budget. Expectations have been built up, with respect to the universities at least, that some, often unspecified, element of their budgets represents the cost of providing such services. This function is becoming more commercialised, however, so that extra resources are often being attracted to institutions and to individual academics.

The efficiency and equity of arrangements for producing these other services should also be assessed using the criteria adopted for assessing the efficiency and equity of education provision, recognising the benefits arising from their joint provision. The conditions under which alternative suppliers of such services operate, including in other parts of the

public sector and in the private sector, for example in research, are relevant in this assessment.

In the next section we assess the performance of the New Zealand tertiary education system using the criteria developed in the present section. A critical aspect of that performance is, as we argued earlier, the responsiveness of the system to changing educational, technological, economic and social circumstances.

4. Performance of the Formal Tertiary Education System

On the criteria proposed above for assessing performance in tertiary education, the New Zealand system does not rate well. We say *system* deliberately, as although in every system some institutions and individuals will perform better than others, on *average* performance will be the result of the incentives, limitations, procedures, power structures and understandings by which the system is governed. It is pointless to berate individuals, universities or polytechnics when their behaviour is rational and reasonable in terms of a system's operational realities, just because the results may not be to one's liking. It is systems that need changing if overall performance is inadequate. The performance of individuals and institutions are endogenous to the real incentives of the system in which they operate - with such variance as is normal everywhere.

This section of our study begins with some general observations about performance according to the criteria proposed in the previous section. It continues with a detailed analysis of the universities and ends with a detailed analysis of the polytechnics.

- Freedom of Choice

The first criterion we have proposed for assessing performance is effectiveness of *freedom of choice* by individual consumers (and thus also by providers) of tertiary education services. There are serious inadequacies in the system in this respect. The provision of places in courses for which there is excess demand is restricted by quotas, at the same time as resource inputs in many of these have been severely stretched, even in relation to the arbitrary planning "norms" adopted by the UGC and the Department of Education. Arbitrary rationing exists on both the demand side and the supply side of the system.

The principle on which demand has been rationed has been performance in entry examinations. Those with high entry scores have had their pick of courses. Those with low entry scores have been faced with restricted options - and maybe no options at all. We shall return to this issue in discussing efficiency and equity, but it should be noted here that this level of restriction on choices contributes to a sense of powerlessness on the part of ordinary citizens in the face of decisions by the authorities, converts quota-restricted education services into status goods, confers considerable economic rents on

those who gain entry, creates enormous pressures on students preparing for entry examinations, and pays no regard to the intensity of motivation of particular students in desiring to undertake particular courses.

In some instances supply has been rationed on the basis of a shortage of manpower, in which the interest of the professions in restricting supply has not always been absent. More generally rationing has been based on the nature of available resources. Resource availability has depended on what has been made available by the government and on the system's mechanisms for allocating and redeploying resources. The latter are typically so ineffective that excess capacity in some courses (assessed in terms of the standard resource "norms" of the education authorities) has coexisted for many years with excess demand in other courses, despite the diversion of students by means of quota restrictions from the latter to the former. It is said, of course, that the costs of more effective redeployment of resources are too high (because of the costs of retrenching staff in areas of low demand, for example). But this is simply to acknowledge the low priority given to meeting students' choices and a failure to give much weight to the costs to students (and, therefore, to society) of having their preferences (and maybe their whole careers) frustrated.

New courses can take many years, even decades, to set in place because of the plethora of committees whose sanction is necessary, especially in the polytechnics. Considerations of student demand are often a ghost at this banquet. Fashion, political pressure, the pressures of lobby groups, and inter-faculty rivalry are important.

It is not surprising, therefore, that private universities have started to emerge in New Zealand and Australia to cater to poorly met student preferences. It is a measure of the costs imposed on students by the failure of the existing system to pay regard to freedom of choice that these institutions expect to survive despite the huge differential in fees that will be charged, amounting to tens of thousands of dollars.

- **Effectiveness of Skill Formation**

The second criterion we have proposed for assessing tertiary education is the *effectiveness of the skill formation systems.* At one level, the tertiary education system is said to perform its task *technically* well by meeting standards of skill which permit those with credentials gained to seek employment (or higher qualification) internationally. Also, there is a ready demand for places from foreign students from

Asia and the South Pacific, especially under the present, low fee arrangements. At another level, however, this yardstick of "international acceptability" is inadequate.

First, there is considerable elasticity in such a measure as "international acceptability" of credentials. It is consistent both with bare adequacy and with superfluity. It disregards the great variation in entry requirements into employment (and further education) overseas, across institutions and over time. Similarly, the willingness of foreign students to enrol in New Zealand may simply show that standards are acceptable (at the low fees charged) by comparison with alternatives, which may be very inadequate.

Second, the incentive to acquire skills (and to provide them privately) is low in New Zealand, judging by the low enrolment rates and high non-completion rates in tertiary education compared with many other OECD countries. This is not necessarily inefficient in the economic environment that actually exists in New Zealand; the economy may not train many people because it is uneconomic to do so, given the incentives present in the labour market. For example, the compression of pay rates for skill and experience reduces the incentive both to acquire and to provide skills. However, as we argued in Section 2, the present incentives may be very inefficient in terms of promoting economic performance. The economy would grow more rapidly if labour market incentives were more favourable to skill formation. In this sense, a major source of ineffectiveness in the skill formation system lies not in the education system but in the labour market, which provides inappropriate signals to which the education system has, in its own way, adapted.

Any attempt to upgrade the rate of skill formation to more nearly attain "targets" based on international league tables of enrolments and the like (as proposed in the recent report of the Universities Review Committee) is bound to fail unless these incentives are addressed. What is required is to permit more appropriate incentives to emerge in the labour market and also in the tertiary education system which will then *yield* appropriate supplies of tertiary-trained labour. The main mechanism used in the past to increase the incentive to acquire skills has been, of course, to reduce the private costs of acquiring tertiary skills by increasing public subsidies. The extent of subsidy has borne no relationship to particular market shortages of particular skills, however, nor have the different costs of courses of various kinds been reflected in the private costs faced by students. As a result, private cost signals have been compressed and distorted, as have private demand signals coming from the labour market. However *technically* effective the education system may be in meeting "international standards", the suppression of

cost and wage signals alters the rate and composition of skill formation in ways which are likely to be *economically* ineffective for New Zealanders.

Third, the financing of tertiary education from the government budget, of which it forms a large component, means that the rate of expansion or contraction of expenditure on the system will be influenced by budgetary objectives which may be inconsistent with the achievement of medium-run growth objectives, including investment in skill formation. For example, the necessary effort in recent years to rein in government spending has led to real reductions in investment in equipment, books, journals and research funding which will take a toll in due course on the effectiveness of investments in skill formation. Increased reliance on private funding could have averted at least some of this reduction in the capability of the system to contribute to medium-term growth objectives.

Fourth, the system of tenure and the inability to vary salaries of teachers in particular fields to meet skill scarcities has led to an aging teaching force, whose research capability is likely as a consequence to be in decline, leading to some reduction in their effectiveness as teachers. Areas of expanding student demand have, at the same time, been starved of resources and of the ability to make appropriate employment contracts with people of the high abilities required. The quality of skill formation is therefore likely to have suffered precisely in those areas on which the labour market has been placing a premium.

Fifth, internal budgetary arrangements for the tertiary education institutions provide weak or (non-existent) incentives for teaching units to economise or to innovate in resource use; savings or extra resources attracted from bigger student enrolments in a particular department are taxed away at high rates by the institution as a whole. Thus we do not know the extent of untapped opportunities to introduce cost-effective, demand-enhancing new technologies (e.g. video and computerised teaching), although the spread of these technologies in the rapidly growing "distance learning" mode of tertiary education suggests that this may be so "on campus" as well. Cooperative arrangements between institutions also offer potential economies which often go unexplored through lack of incentives for the teaching units directly involved.

Further, there is little or no incentive for teaching units to be entrepreneurial in developing specialisations in teaching and research. As in all entrepreneurial endeavour, the risks are high and the costs can be substantial. Without commensurate rewards to the units which are successful, not much entrepreneurial activity is likely to

occur. Centralised funding militates against innovation, because successful innovators have their returns rapidly expropriated by the "system". In consequence, there are undoubtedly fields of specialisation which New Zealand's tertiary education institutions might have discovered, for which a strong national and international demand may have existed, but which have passed by untapped.

For all of these reasons, the rating of the New Zealand tertiary education system in respect of the effectiveness of skill formation falls short of desirable standards. International recognition of credentials is something, but it is not adequate as a measure of effectiveness.

- **Tolerance of Diversity**

The third criterion proposed for judging performance is the degree of emphasis on the formation of social values of *tolerance of diversity* in society. It is arguable whether New Zealand's tertiary education institutions have performed relatively well on this criterion, which is a particularly important one in New Zealand. The fostering of good relations between Maori and Pakeha is an obvious goal, but dissatisfaction with the mainstream institutions has led to the establishment of at least one separate Maori university project. However, the promotion of tolerance towards the goals and preferences of others is of quite general importance in a society that expects to be able to accommodate economic and social change peacefully and happily. For example, tolerance is needed in the evolution of proper opportunities to meet the career aspirations of women or the changing lifestyle interests of men.

As we argued earlier, the inherently liberal content of the traditional curriculum in tertiary education does appear to promote these attitudes. This is one of the grounds on which the claims of the humanities for a major continuing place in New Zealand's tertiary education are valid. Indeed, we would go further and argue that there are vocational advantages to graduates who have formed tolerant, adaptable attitudes towards others, which the humanities traditionally encourage, since these are precisely the adaptive characteristics that change will demand from us in the future.

We reject, therefore, the proposals sometimes put forward for a narrow vocationalism in tertiary education tied to the illusion of "skilled manpower requirements". Many businesses place greater weight on the scope and breadth of tertiary learning and the ability of graduates to think in analytical and strategic terms. In many ways, the

existing tendency towards narrow specialisms and "relevance" in first degree or diploma courses derives from a shallow analysis of skill needs in a dynamic economy and from the "crowding out" of private training in "the specifics" by adverse labour market incentives and public subsidies to the formal system. Necessary specialisms should be learned closer to the work environment, as the need for them emerges, on the basis of a capacity for learning and a flexibility of attitude developed in the tertiary education institutions. The tendency in "vocational" courses to reduce humanities elements (philosophy, languages, history, politics, and so on) is therefore a worrying one. It is instructive to note that the Graduate Careers Council in Australia regularly finds from its graduate surveys that economics graduates record the smallest proportion who say they are using "the skills they have learned at university". The high employment demand for economists indicates a "hidden curriculum" of thinking modes and values which is the real secret of their employability - not the details of the "vocational" curriculum which they have absorbed.

A case for *broadening access* to tertiary education in New Zealand can also be made on the grounds of promoting value systems which are likely to help New Zealand's citizens accommodate better the changes, and dilemmas and confusions, that inevitably lie ahead of us. By the same token, it should be said that a surfeit of courses which openly advocate *particular* value systems or beliefs about society may be unhelpful to students passing through them in forming those appropriately tolerant attitudes which assist their successful integration into work activities - and possibly into society more generally. A broad spectrum of value beliefs, and the right to hold and debate different beliefs, is critical to the development of a tolerance of diversity. This is a further reason why government intrusion (or intrusion by any other organised group) into the content and balance of ideas preserved, developed and transmitted in universities and polytechnics is unlikely to be socially beneficial, however irritated particular groups (including business) may become from time to time with the forceful expression of views contrary to their own. Moreover, it is not only the tolerant, diverse society that requires "openness", but the creative "scientific" society as well.

Government intervention in tertiary education on grounds of social equity may also conflict with the attainment of values of tolerance of diversity. For example, "affirmative action" policies to promote "equal opportunity" in access to, or in employment in, education institutions may become so strong that they create feelings of hostility and resentment towards the groups receiving favoured treatment. This is not to deny the merit of providing special assistance to the disadvantaged, but there is a need for sensitive awareness of the limits beyond which counter-productive attitudes can

form, undoing progress towards desired objectives. Greater institutional responsiveness to individual preferences in terms of the range, organisation and content of courses is likely to be at least as important a means by which disadvantage may be overcome. Appropriate incentives which create advantages for institutions meeting the special wants of targeted groups are likely to be more effective (and raise less antagonism) than "affirmative action" quotas or targets set politically.

- **Efficiency and Equity**

The next set of criteria concern the *efficiency* and *equity* of the tertiary education system. We proposed three efficiency criteria and two equity criteria.

The first efficiency criterion is least cost provision of tertiary education services. Since there is no competitive market for tertiary education, there is no rivalry to ensure least cost provision. Instead, arbitrary input norms and rules have been adopted which in no way guarantee least cost production. On the contrary, the persistent coexistence of excess demand in some areas of study with excess capacity in other areas implies that costs are not being minimised. Further, staffing, space and equipment "norms" have often been abandoned under budgetary pressures, indicating their arbitrary nature. Finally, the process of centralised funding creates incentives to *maximise* claims for resources throughout the system. It is quite implausible, therefore, that the system operates at or near least cost.

The second efficiency criterion is maximisation of net social benefit. The real agents for bringing about social value for money in tertiary education must be students. Students are on the whole good agents, since their private benefit forms a large part of the overall social benefit from tertiary education. Students are therefore likely to spend taxpayers' dollars more wisely than other agents who have less of a personal stake in the outcomes. Students are also more likely to be good agents for meeting employers' skill needs, since they have a personal interest in meeting employers' requirements. Just because employers have a "need" for particular kinds of skilled labour, it does not follow that the best way of assuring appropriate supplies is for employers' representatives to run the system. Similarly, it does not follow that the best way for governments to get the best value for taxpayers' dollars is to run the system. Decentralised decision making by agents facing appropriate incentives, such as students in this case, is likely to work better, not only because final decision making power over acquiring skills is in students' hands anyway, but because students have superior access to information about the value

of the services provided by the system at the point of delivery. The available evidence indicates that students are well-informed and serious about making such life-shaping decisions. (See McMahon, 1987, and Stager, 1984, for example.)

The Universities Review Committee (1987) correctly recognises that the mix of private and public funding of university education and research should reflect the mix of private and public benefits. It notes (p. 81) that it is very hard to pin down, let alone measure, the "benefit spillovers" to third parties which would justify the substantial subsidy presently received by students from society at large, although it subsequently asserts (p. 102) that private benefits are not more than 20% of the whole. This figure is inconsistent with the findings of Fane (described above), and is also implausible in view of the intense student competition for those places which offer the highest private salary returns. (If most of the benefit went to third parties, why would students care what courses they did?) The extent of subsidy also varies greatly from one field to the next. Science-based courses are more expensive than humanities-based courses, but fees are uniform, so that the subsidy to the former is greater. We know of no evidence which would support the proposition that the benefit spillovers to society are greater for courses in sciences than for courses in humanities. As a result, the rate of production of tertiary education services may be too great overall (subsidy levels exceeding the value of spillover benefits), and may be especially excessive in science-based fields such as medicine and engineering.

The third efficiency criterion is the appropriateness of incentives for innovation in the provision of services. As there is no competitive market for these services, there are no temporary financial rewards for institutions which are successful innovators (nor temporary financial penalties for institutions failing to match successful innovators). Instead innovation emerges as a process of mimicking changes in countries which are regarded favourably in terms of educational standing. Innovations selected by the usual committee processes are also likely to be delayed in their introduction, and even more delayed in their diffusion (because of resource-use rigidities in the system). The range of experiments explored is likely to be small, since most proposals fall by the wayside in the committees whose authority is needed, or are not even advanced because of the red tape involved. The time and effort needed to introduce an innovation "from below" are such as to discourage much innovation. Some innovation is initiated, or suggested, from the top of the system, however. Proposals which fit in with such suggestions have the approval battle half-won from the outset.

The incentives for innovation in the system are thus unfavourable to a wide range of incremental, grass-roots initiatives from which successful adaptations could evolve.

Instead, the incentives favour implementation of "big" initiatives by those at the centre. The record of innovative success by such systems appears to be low.

The two *equity* criteria we have proposed involve the distribution of costs according to benefits (unless a redistribution of net benefits is considered equitable for some reason) and non-exclusion from access to tertiary education services as a result of financial or other "disadvantage".

We have already noted that the existence let alone extent of "spillover benefits" in tertiary educaiton is moot, except in the sense that it may alter the values of society in ways which are considered desirable. Assuming that, in material terms, the value of spillovers is negligible, the equity case for subsidising students boils down to regarding them as deserving of a redistribution of income in their favour.

This case is sometimes made on the grounds of the low current incomes of students (while studying), as part of a general policy of redistributing income from "the rich" to "the poor". Since, on average, students become graduates whose incomes place them in the upper half of the income spectrum, their claims on the equity grounds of low income focus tenuously, at best, on a short period in their life-cycle when they are accepting lower incomes so as to invest in higher future incomes. This activity is exactly the same as a young farmer reinvesting his early returns in order to build up the productive capacity of his farm, or as any entrant into business or the labour force who accepts low initial returns in order to build knowledge, skills and capital on which higher returns can be earned (with ordinary luck) in the future. These other investments are not subsidised by taxpayers. Why should a low income while acquiring a tertiary education be more deserving (as a low income case) than a low income associated with other types of investment in future income?

It is sometimes said that the subsidies received by students are subsequently repaid through taxes on their higher incomes. This would be true only if there were an explicit tax rate for graduates, which was directed at recouping such subsidies. The farmer and the entrepreneur pay the same tax rates on their taxable income as does the graduate of similar income, even though the farmers and entrepreneurs may have had no subsidy on their investments. Hence the equity argument for subsidising tertiary education based on redistributing income to a group of the "poor" is not a well-founded argument, even though it is frequently encountered in New Zealand.

The second equity argument for subsidising tertiary education is based on protecting access to tertiary education in the face of economic or other disadvantage. At present university students are predominantly drawn from upper socio-economic groups in society, who are unlikely to require a subsidy in order to gain access to the system. It is also widely recognised that socio-economic selection within the whole education system occurs before entry into tertiary education (and mostly before the end of secondary schooling). The abolition of tertiary fees in Australia, for example, has had only very modest effects in terms of increasing representation among the lower socio-economic groups. The recent introduction of a $250 "administration charge" in Australia has similarly had negligible overall effects on the socio-economic composition of student populations.

Current subsidies in New Zealand are not considered likely to greatly affect access to the system by disadvantaged groups, and more importantly are not justified on a universal basis if equity of access is the goal. As things stand, "free" tertiary education largely represents a substantial, but varying, subsidy towards those persons (mostly middle class) who manage to gain entry to particular courses. It is not easy to make a conventional equity argument in support of such a situation, especially as selective scholarships and loans could be used to provide access more equitably, as often happens elsewhere.

Further, there is something odd about subsidising education to *promote* access to it while also *rationing* access to particular fields, in particular where the height of the subsidy is positively correlated with the constraints imposed by rationing, as in the case of medical schools.

But what would happen if the present level of subsidy were reduced or removed altogether? Undoubtedly, the level of enrolments would fall to some extent. In a free labour market, the ensuing shortage of tertiary-trained workers would lead to an increase in their pay until enough students were coaxed back to balance the graduate labour markets again. In this sense, the massive subsidies to tertiary education can be interpreted as an offsetting response to the compressed wage structure that has evolved in New Zealand. This wage structure could not survive without the present subsidy structure in tertiary education. A corollary is that tertiary education enrolments could not survive a cut in subsidies without appropriate offsetting increases in graduate pay. We are forced back again, therefore, to the connections between pay-setting in the labour market and the subsidies given to tertiary education.

The nexus between pay structure, education and training subsidies and enrolments offers at least some explanation of the pattern of education and training activities found in New Zealand. The earnings increase that is associated with increased education and skill is too low to induce a great deal of education and training unless the costs of education and training are heavily subsidised. This occurs mostly in the formal sector, but not in the informal, on-the-job sector. Hence, on-the-job training - while large - is a smaller activity in New Zealand relative to formal education than in countries where earnings differences associated with skill are not so compressed. Further, there are incentives to shift training activity from the (uneconomic) on-the-job sector to the (economic) subsidised formal sector. Formal education "crowds out" on-the-job training.

4.1 The Universities

The cost of a university place in New Zealand has been said to be low by international standards. For example, in 1980 the New Zealand Vice-Chancellors' Committee estimated it to be about half that in the United Kingdom (Commonwealth University Handbook, 1985, p. 2065). A study by the UGC (October 1983) found that average costs per student in New Zealand were $5,208 compared with Birmingham, $14,820, and New South Wales, $9,331. The course mix in the two latter universities is, however, different from the New Zealand average. The cost differentials may have narrowed in recent years. The Universities Review Committee (1987, p. 20) found that block grant operating expenditures per full-time equivalent student in 1985 were $6,580 in New Zealand, $6,579 in Canada, $9,813 in Australia and $9,933 in the U.K. (Currency conversion was made using purchasing-power parities rather than exchange rates.) For 1986, the Review Committee estimated operating expenditure per student at $7,154 in New Zealand, of which $2,385 was attributable to research (p. 102). To the extent that expenditures per student in New Zealand are low, this can be ascribed essentially to two factors: high student/staff ratios and low academic salaries compared with other countries.

It is not clear what to make of such comparisons. It could reasonably be argued that low expenditures (costs) per student represent high academic productivity and hence superior achievement of a social goal compared with other countries. On the other hand, it might be argued that the quality of New Zealand university education is too low by international standards, so that more should be spent per student to improve quality. We have already noted, however, that the quality of New Zealand degrees is often said to be at least adequate. Further, Canada appears to spend no more than New Zealand does. Canadians have a higher national income per head than New Zealanders do and

academic salaries are considerably higher. Whether we should be spending more or less than the Canadians is ambiguous.

Unhappily, therefore, international comparisons of expenditure per student, like international league tables of graduates per head of population (where New Zealand performs as well as the United Kingdom but not as well as Australia or Canada - see Universities Review Committee, 1987, p. 19) and tertiary expenditure as a percentage of GDP, or enrolments as a proportion of particular age groups, tell us nothing of policy relevance. The real issue is whether New Zealand's universities satisfy criteria that might be adopted for New Zealanders' purposes. In our opinion, the answer is that they do not, but this opinion relates to the financing and management *processes* of the system and not to comparison with "targets" of one sort or another. New Zealanders might be better served with greater, lesser or the same expenditure per student; that outcome should be a *result* of setting better *processes* in place, not a *desideratum*. It is on evaluating the processes that we therefore concentrate.

The six universities and Lincoln College are formula-funded over five-year periods on the basis of plans put to the government by the University Grants Committee, a body comprised of representatives from the universities together with other "appropriate" persons. These plans are based on expected student enrolments, by faculty, at each university. Target staff/student ratios are applied to the projected enrolments to derive employment and salary budgets. Non-salary expenses are projected on the basis of the established budget shares of such expenses. New developments may be approved with earmarked funding. Capital budgets are projected on the basis of space and equipment norms, together with requirements for new developments. If wages or prices increase, or if total enrolments deviate significantly from projections, changes in funding may be sought from the government. If the government provides less than the amounts sought, the actual budget is rationed among the institutions according to the decisions of the UGC. For example, the UGC may reduce planned staff/student ratios in some or all faculties, may defer making earmarked funds available for new developments, may change space and equipment norms, and so on.

The UGC's intrusion into the operations of the universities goes deeper than control of the broad direction of their activities through budgetary means. New courses, for example, require approval by the Curriculum Committee of the UGC before they can be introduced. This certification function sits oddly with the notion of university autonomy and responsibility. Further, what is certified is not competence in the performance of graduates, but the structure of the inputs to courses. This process tends to

narrow the scope for competition and innovation in university offerings. Centralised funding and course control make for a safe uniformity in structures and courses and the avoidance of competition (which is labelled "unnecessary duplication"). In passing we would note that, to the best of our knowledge, "necessary duplication" has never been adequately defined, despite the prevalence in bureaucratic circles of the idea of "unnecessary duplication".

Since 1975, the block grant to universities has increased by 2.3 percent in real terms. Over the same period, student load increased by 38.8 percent. Real expenditure per student has therefore fallen by 26.3 percent (Table 1). This may be regarded as one measure of productivity improvements in the system.

Table 1: University Funding 1975-86 (September 1986 dollars) -

		1975	1980	1985	1986	% Change 1975-86
Block Grant	$m	304.751	302.178	308.449	311.704	+2.3
Student load	EFTS	31,387	37,847	42,219	43,573	+38.8
Cost per student	$	9,709	7,984	7,306	7,154	-26.3

Source: UGC 1986, p. 7

Teaching staff have increased by 18.4 per cent. The student/staff ratio has risen from 11.5, in 1975, to 13.5, in 1986 (UGC, 1987, Table V, p. 7). However, the expansion of enrolments has been far from uniform across faculties (Table 2).

Table 2: First Degree - First Year Students by Courses

	1975	1980	1985	1986	% Incr. 1975-86
Education	646	703	456	718	11.1
Engineering	392	391	439	480	22.4
Medicine	193	256	246	272	40.9
Science	1,188	1,541	1,648	1,745	46.9
Arts	3,131	3,132	4,328	4,645	48.4
Agriculture and Horticulture	459	746	733	710	54.7
Law	450	582	680	840	86.7
Commerce (incl. Business & Management Studies)	1,125	1,791	3,205	3,555	216.0
Computer Science	781	2,264	4,529	5,095	552.4

Source: UGC 1986, p.3.

As can be seen, Commerce and Computer Science enrolments have increased at many times the average rate for the universities as a whole. Notwithstanding a UGC planning "norm" that student/staff ratios should not exceed 15, the UGC uses a planning ratio of 20 for Law and 19 for Commerce for funding purposes (Holborow, 1987, p. 15). Actual ratios in 1984 exceeded 23 in Auckland, Canterbury and Otago for both Law and Commerce (UGC, 1984). Computing Science is included with Geography and Psychology for planning purposes. This has imposed particularly difficult problems on staffing in Computing, because enrolments in Geography and Psychology have not increased as rapidly as in Computing. Hence, in Auckland, although the overall ratio was 16 for "Geography" (in 1986), it was nearly 21 for Computing Science. It is not clear whether the UGC has been funded on the basis of one set of ratios by the government and has distributed the funds to the universities on the basis of different ratios.

At the same time, student/staff ratios are usually below 11 in Languages and Science (across the universities) and are 6.5 or less in Medicine and Dentistry. It has been said that the UGC (like the universities themselves) is "traditional science oriented" and that

newer areas of study in consequence receive lower funding priorities. Differences that have emerged in staffing patterns are not inconsistent with that view.

Computing Science has also been said to have inadequate ratios of technical staff, student workstations and space resources in nearly all universities (Teachers of Computer Science, 1986, p. 3), while the UGC's assumption "that Commerce departments use equipment and materials at only one tenth of the rate of Science and applied disciplines is seriously outdated" (Holborow, 1987, p. 16).

In these expanding areas, salaries have also been unable to be pitched at rates which are attractive in competition with alternative employments. This is because of the setting of pay rates across faculties within quite narrow bands, irrespective of shortages or oversupplies of particular skills. Accountancy professors and readers, for example, could expect to receive a basic salary 50 percent above their university salary in the private sector (New Zealand Society of Accountants, 1987). Computing Science lecturers, similarly, are said to be paid half what they might earn in the private sector overseas (Dept. of Computer Science, Auckland, 1987, p. 2), and possibly two-thirds of what they could earn in New Zealand. These salary comparisons are relevant in so far as they reflect difficulties in recruiting and holding staff of an appropriate quality.

It is clear that the combination of restricted government funding for the universities, inflexible salaries in response to market conditions for particular skills, tenure irrespective of student demands for courses, and planning "norms" which have no technical rationale (and which have been clearly violated in a number of faculties) has produced a system significantly lacking in capacity to respond to changing student demands. Many universities have imposed quotas on enrolments in popular courses eroding a long-standing principle of "open access" (which has not been really "open" for a long time, since quotas on intakes for courses such as Medicine were first introduced decades ago). "Open access" effectively refers to access to a limited range of fields of study.

As an illustration of the severity of quota limitations on student choices, the following enrolment data from Canterbury University in 1986 are indicative:

Table 3: Quota Limitations, Canterbury University, 1986

	Stage	Pre-enrolled	Offered	Decline or Wait List
Accountancy	1	641	325	316
Computer Science	2	106	71	35
Economics	1	838	663	175
Fine Arts	Intermediate	120	77	43

Note: ACCY 101, 102, 151 CMIS 111; COSC 201, 202, 203, CMIS 211, 213; ECON 101; FINT 103, 130).

In addition, because preference is given to students who intend to major in the subject, the chances for students in other majors (such as engineering and forestry) to take courses in, say, economics, are restricted.

One way of proceeding to "reform" the universities, given the "causes" identified, would be to introduce more flexible salary scales to take account of "market" factors and to abolish tenure, leaving the existing institutional arrangements intact. We do not regard this as the appropriate course of action, even though we see merit in undertaking such changes in conditions. The reason is that the underlying institutional incentives would remain unaffected and progress towards the elimination of quotas would be slow. Retrenchments are always costly and difficult. Increases in salaries for staff in some areas, out of fixed university budgets, would be at the cost of the employment of colleagues elsewhere. Morale would suffer and productivity along with it. Tenure confers economic value, so that its abolition could in any event be expected to increase the salaries necessary to attract staff. Tenure permits tertiary education "on the cheap" so far as government expenditure is concerned - but not so far as the opportunity cost of an inefficient system is concerned.

The appropriate way of proceeding is rather to reform the incentive structures facing the universities and to allow them to sort out the most appropriate adaptations in staff conditions for meeting this change. A variety of forms of adaptation which suit the peculiar circumstances of different institutions might emerge. But more important, if

university budgets become responsive to efforts to meet student demands better, which is the heart of the reform needed, it would become possible for the people in the institutions to overcome stresses by their own collective efforts. This would be morale-building and productivity-enhancing for the universities, rather than the reverse.

Furthermore, simply increasing the block grants to the universities might not solve the problem efficiently. Some part of the extra resources might go to faculties with low student/staff ratios, for "rejuvenation" purposes, for example; some might go to administration. Under the prevailing tenure arrangements, extra resources would, in turn, become "locked in" providing no flexible buffer to meet changes in enrolment patterns in the future. To attract staff to shortage areas, salaries would, at present, need to increase system-wide across faculties - even in surplus areas.

It is possible that the old British university model which New Zealand has adopted may be less appropriate to our present needs than European, American or Japanese models. The British model seems to have been an elite model emphasising academic isolation. European and Japanese academics, on the other hand, often spend much of their time in non-university pursuits (which often also cover part of their emoluments) increasing the extent of their interaction with, and responsiveness to the needs of, industry in training and research. The United States exhibits a very diverse array of tertiary education institutions, funded by a variety of means, and offering quite disparate activities. A greater degree of latitude in organisation and funding methods in New Zealand would provide scope for alternative institutional forms to evolve.

Already there are plans to establish private universities in New Zealand (and several in Australia) spawned by the failure of government institutions to meet actual and potential student demand. Such failures extend to foreign student demand, notwithstanding the opportunity to earn export dollars. About 2000 private foreign students are studying at New Zealand universities at present, of whom three-quarters are undergraduates. The biggest groups are from Malaysia and Fiji, with the rest coming mainly from a number of other Pacific Island and Asian countries. In addition, there are nearly 600 government-sponsored students at the universities.

Private overseas students pay the same fees as New Zealand students. This amounts to a subsidy by New Zealand taxpayers of at least $15 million annually, based on expenditures per student in 1986 estimated by the Universities Review Committee. All courses must be approved by the government as being "worthwhile" (implying, presumably, that some existing courses are not!). Admissions are restricted in popular

courses, such as commerce and engineering, in some professional courses, and also by age and by country. Demand has been growing rapidly, but well over half of applicants in commerce and engineering are not admitted. Clearly, these policies amount to a strong discouragement to develop tertiary education exports. The policies restrict demand and offer few incentives for the supply of such services.

Despite the present policy restrictions, some promising full-fee foreign student "niche" markets have been developed - for example in Vulcanology, where a suspensory loan was taken out by Victoria University to fund the development, in advance of Asian Development Bank support. Prospects for fee-paying courses for foreign students in English as a second language and in Business Studies are excellent. The Asian market for the former may exceed 100,000 students annually, for example. Malaysia, alone, currently has more than 60,000 students studying abroad. Undergraduate fees of the order of $8,000 p.a. could undoubtedly be commanded in the international market, which would more than cover present average costs, even with the universities' high overheads. The Market Development Board has recently concluded that promising export opportunities exist in this field.

Overhead activities in the universities are large relative to resources applied directly to teaching and research, mainly because of committee activities devoted to "policy" formulation. Much of the heavy load of these committees is redundant, ritualistic or defensive. As one frustrated Computer Science Department has put it, "changes that might affect the existing staff negatively tend to be introduced in an exceedingly measured manner" because many important decisions are made by themselves or their representatives (Department of Computer Science, Auckland, 1987, p. 3). The Head of that Department has written (Doran, 1987, pp. 3-4):

> "there is no departmental planning, no statement of mission, no regular accountability, even budgets to control expenditure do not have to be prepared... All in all, the approach taken to management in the University can only be described as being beyond belief."

However well-intentioned and participatory the management methods used in universities, our judgment is that they are very cumbersome and give insufficient weight to efficiently meeting clients' needs. Unnecessary "management" activities would rapidly dissolve and be replaced by superior systems if there were more competitive incentives to maximise value given per dollar received. A mass of underutilised resources would, in the process, be released for teaching and research tasks rather than being absorbed in committee work.

- **Research**

The activity that distinguishes universities most clearly from other educational institutions is *research*. In New Zealand, as in Australia, very large resources are devoted to university research. The main method of funding research is the allocation of a proportion of institutional block grants to pay staff salaries for the proportion of staff members' time used in research. According to the UGC, this proportion represents one-third of the time (and of the salaries) of academic staff (Beattie *Report*, 1986, p. 28). A similar proportion has been found in Australia, and is confirmed by a survey of the University of Auckland. In 1985/86, this method of funding represented $72 million (80 per cent of all government research funding for the universities). A further $9 million comes from Medical Research Council Grants (Beattie *Report*, 1986, p. 27). The extent of non-government research funding is not known, but most observers believe it to be relatively small.

This research may be categorised in two ways. First, it comprises both "appropriable" and "non-appropriable" research. The benefits to the former can be "appropriated" by particular end users (say in commerce or industry). The benefits to the latter, which incorporates "public good" type or basic research are more diffuse and longer-term, so that its costs are not readily allocated to particular beneficiaries. Secondly, some part of university research, both basic and applied, may be seen as an essential part of the teaching process. Such research confers value not by its results themselves but by its impact on the quality of students. This value might be expected to be reflected in students' preferences for, and willingness to pay for, different courses at different universities. The case for public funding of university research may be seen as limited to that part of "non-appropriable" or basic research not carried out primarily for teaching purposes. The amount involved could be expected to be markedly less than the third of academic salaries accounted for by *all* university research.

An unsatisfactory aspect of the Beattie *Report on Science and Technology* (1986) is that no direct evidence is presented about the output from the government's research expenditure. Some assertions are made in the Beattie report about the intrinsic and economic value of research, together with assertions that more government resources should be devoted to the activity, preferably by Research Councils. Even then, attribution of institutional block grants would continue to dominate research funding. New Zealanders have no means of judging whether the very large public sums expended in this manner have any pay-off *at all*, not to mention a pay-off justifying the expenditure. Australians are in the same dilemma. The 21 year-old Australian Research

Grants Committee, for example, "has done little in the way of evaluation other than seeking a Final Report from each funded investigator at the conclusion of funding" (Aitkin, 1987a, p. 2).

A recent Australian study has estimated that the average rate of publication of top rank equivalent articles per member of university Economics Departments is less than half an article per year (Harris, 1987, p. 7). If the full cost of an average staff member (of Lecturer rank and above) is assumed to be $40,000 p.a., and if one third of staff time is devoted to research, the average staff cost of a top rank published research article in economics in Australia is more than $26,000. A further finding is that the distribution of research output across staff members is extremely uneven. Less than 3 per cent of staff are responsible for more than 15 per cent of research output, i.e. their productivity is 5 times the average (Harris, 1987, p. 9). At the other extreme, 20-25 per cent of staff are "non-researchers" (Harris, 1987, p. 13). A similar exercise for New Zealand would almost certainly show similarly striking results.

This distribution is very similar to the output distributions calculated for scientific researchers by de Solla Price (1963). About 3 per cent are prolific while more than half produce less than 20 per cent of the output. The prolific tend to interact with an (increasingly international) "invisible college" involving team research which serves to multiply their productivity still more (de Solla Price, 1963, pp. 44, 85). There are clear implications in this for distributing research funds in more effective ways than by "equal time" allocation across university staff members. A performance-based allocation would skew the distribution of available resources (in particular, time) more positively towards those who had shown themselves to be productive.

Further, in attempting to measure the social value of *expenditure* on research (or more accurately "research time"), even publication as a measure of output is something of a debased coinage. Out of 10,000 papers, only 100 will achieve more than 30 citations in other papers (proving that a message has been transmitted to another researcher). In a classic paper by Urquhart (1958), it was found that out of 19,120 scientific periodicals held in the Science Library in London, more than 4,800 were not used at all during a year, and 2,274 were used only once. Half the loan requests could be met from the top 40 journals (i.e. the top 1/2 per cent). Less than 10 per cent of the available serials were sufficient to meet 80 per cent of the demand (de Solla Price, 1963, p. 75).

This could be seen as supporting the case, not only in New Zealand, for researchers to be placing rather more emphasis on the solution of applied problems of importance to the

community, or to cultural developments which the community values, rather than on the pursuit of "international standing" based on obscure publications which often carry little real weight. New Zealand academics have, perhaps, too often neglected the problems of their own community in the directions they have pursued in their research. In better times we could afford the extravagance of not setting stronger incentives for researchers to direct their attention to their own backyard. In our more straitened circumstances, this is an extravagance which we can ill afford. The available reservoir of research capacity in the universities must be used more effectively for New Zealanders' collective benefit.

The main incentive at present to undertake competent research, both for its own sake and as a necessary adjunct to teaching, is the attention given to research activity by promotion committees, as well as the consultancies and conference travel that can accrue as rewards. These incentives are inadequate. Improved resource allocation systems can readily be devised. It is a further reflection of the inadequacy of management systems in the universities, and the lack of urgency felt in producing value for taxpayers' dollars, that improved incentives have not been widely adopted.

One popular idea seems to be "peer review" as a means of identifying "excellence" as a basis for research funding by research councils and the like. Collegial opinion undoubtedly has its place, but too centralised a system of funding encourages the development of "safe", "in-group" networks and the exercise of prejudices of various kinds by the funding dispensers (sometimes not of the top rank of researchers themselves). Typically, peer review yields a collection of excellent research proposals that have all the similarities of apples and submarines, amongst which further selections must be made, or budgets cut, to meet the constraints of the funds available. In reality, the prejudices of the research-funding bureaucrats are only partially restrained by "peer review". Further, there is no evidence to support the proposition that peer review, of itself, yields a highly superior crop of research activities, despite the intrinsic plausibility of this notion. Research-funding bodies need appropriate incentives to select well. "Peer review" is one input to their decisions that may be useful. Competition between research funders, with positive feedback for performance, is what is really needed.

The Chairman of the Australian Research Grants Committee, Professor Don Aitkin, has recently said (1987a, p.1):

> "For bodies like the ARGC excellence cannot be the single criterion, because there is too much excellence about...[The] old assumption that excellence and nothing but excellence should rule has lost is persuasive force, within both government

> and the penumbra of funding bodies. The themes of selectivity and concentration that have been central to recent reports, combined with the scarcity of public money, are pushing us towards asking questions about the kinds of excellence we can afford.
>
> Virtually every research granting body in the world has priority programmes, which reflect either perceived national needs (e.g. Sweden has one on acid rain), or industrial possibilities (e.g. biotechnology), or cultural imperatives (e.g. Spain has one on cultural relations with Latin America)."

None of this should be taken to imply that we regard the research function that can be played by the universities as unimportant to the life and progress of New Zealanders. On the contrary, we regard the contribution that can be made in this respect, and in particular in terms of the quality of education available to students, as major. To enable this contribution to occur, the system should identify effectiveness in research more with outputs and less with expenditures. "Spreading money around" in the hope that something valuable will turn up is not an efficient or effective way to manage an activity so vital to New Zealand society.

4.2 The Polytechnics

The twenty-two technical institutes and community colleges are ostensibly autonomous institutions, like the universities, governed by their own councils. Like universities this autonomy exends only to internal governance, and that too is restricted. Like the universities, funding is provided by central authorities. In the case of the polytechnics, the Department of Education is the main source of funding, although the Departments of Labour and Maori Affairs have also played supplementary funding roles. The role of the Department of Maori Affairs will be changed under the Government's devolution plans. The Department of Education also approves the courses that the polytechnics are permitted to run, a role reserved to the UGC with respect to the universities.

The control of the Education Department over the polytechnics is far more extensive than the control of the UGC over the universities. Not only are courses and the institutional allocation of course offerings arranged at the national level, but polytechnic staff are employees of the Department, enrolment decisions need departmental approval, and budget expenditures require detailed approvals from a host of separate departmental branches, depending on the type of expenditures involved. This degree of control reflects the origins of the polytechnics as technical high schools. The results of this degree of central authority are predictable - even less responsiveness and flexibility in the face of changing demands than in the case of the universities. As one polytechnic principal has put it - in a comment that goes to the heart of the weakness in

central-planning - "they don't have the knowledge, resources or manpower to control us as they want".

These remarks are made not to disparage the officials in the Department of Education responsible for the polytechnics, but rather to indicate the futility and poor-value-for-resources of such systems everywhere. The reason is that the incentives within such systems motivate people and institutions towards mastering internal politics rather than towards performance of the mission with which they have been entrusted. Performance requires a loosening of control from the centre as a necessary (but not sufficient) condition. But the centre does not want to let go, because loss of control means loss of power (the real focus of the present incentives). Power remains centralised, even though the exercise of such power results in a loss of enthusiasm, innovation, and task performance at the "chalk face".

The system is such that it is said to take about five years to set up a new course from the time that a need is seen for it. Course structures are expected to remain in place for 5 years before review. To change an existing course takes a further 4 years. It is no exaggeration to say that a course may be 15 years out of date before it is updated.

A reason for this is the extraordinary existing array of boards, authorities, councils and committees with advisory, certifying or licensing powers. Thus the tripartite Trades Certificates Board controls curricula, examination and certification of apprentices with the advice of 36 Apprenticeship Committees (which also deal with industrial relations problems concerning the employment of apprentices). The Authority for Advanced Vocational Awards is made up of educational and professional representatives and controls curricula, examination and certification of higher vocational qualifications, up to and including Diplomas which are at "First Degree" level. There is the tripartite Vocational Training Council which provides advice on national training matters, and contains representatives of several Departments, each of which compete to exert more influence over the system. There are 28 Industry Training Boards (below the Vocational Training Council) to provide more industry-specific advice, especially on what needs to be taught, how and where. More than 50 bodies examine and license the products of the polytechnics.

A new training initiative with important implications for the way polytechnics and universities might be funded is the ACCESS Scheme in which Regional Employment and Access Councils (REACs) purchase (by competitive bidding) training courses at a fee that varies according to the extent to which trainees are "disadvantaged" (by, for example,

duration of unemployment, race or lack of formal qualifications). ACCESS is akin to a capitation (or restricted voucher) scheme. It is intended to provide pre-employment training to improve people's prospects of finding employment or entering further training programmes. While there have been difficulties with the scheme due to insufficient commercial expertise in some REACs and a tendency to specify budget details for providers (which stifles competition), those difficulties need not be insurmountable.

Other recent developments have been the establishment of (up to one year) "foundation courses", providing a sampling of trade training options, and "employment rich" courses (such as introduction to computing, introduction to commercial cooking) which provide a more concentrated taste of what work is like in particular skilled areas. There are also "link" schemes being developed in which secondary school students spend a day each week at a polytechnic or in a job.

Recently there has also been an experimental (and controversial) development of "off-the-job" training programmes in polytechnics, promising a parallel and faster route to the gaining of trade qualifications. It is not yet known how successful this development will be. The development has been fuelled by government (and some employer, union and polytechnic) frustration with the apprenticeship system. As might have been expected, it poses some problems in the award area, in terms of both remuneration and of the establishment of credentials. The concern has been to identify training needs, and to involve skilled workers, unions and employers directly in identifying packages of work skills involved in particular occupations on the basis of which training programmes can be designed.

Several matters are evident in these recent changes. First, as in many other countries, a blurring is taking place between school (or training) and work. This is evident in the development of school-based "link" programmes, in the development of pre-employment training programmes like ACCESS, and in the work-skills-oriented development of new programmes in the polytechnics. Second, as part of this trend, there is a developing interest in ways of building connected sequences of training opportunities. Third, a movement towards greater autonomy by training providers is apparent - for example, in the tendering process for ACCESS training and in the alternative trades training programmes developed by individual polytechnics. These developments can form a basis for even more comprehensive and effective reforms to the system, essentially permitting a greater variety of modes of skill acquisition to emerge: night school, parallel trade

training in polytechnics, conventional apprenticeships, distance education packages, and so on.

In recent times, some consideration has been given to the formation of a Technical Institutes Grants Authority (or a Continuing Education and Training Board, as the Probine/Fargher *Report*, 1987, describes it) to take over responsibility for the polytechnics from the Education Department. TIGA would have powers much like the UGC. Such a development would be a step in the right direction, but would put the polytechnics into a system which has proved inadequate for the universities. Even more fundamental reforms are required, such as those needed in the university sector, if the polytechnics are "to be given a *chance* to make an impact on the nation", as one polytechnic principal put it to us.

Another issue of current debate is accreditation, validation, certification, and similar quality control functions affecting the activities of the polytechnics. As noted earlier, some 50 or more bodies, not to mention the Education Department, are involved at present. The Probine/Fargher *Report* (1987) recommends the formation of a national validation authority to absorb these functions.

We would not be opposed to formation of such an authority, provided it followed the sorts of directions of reform which are constant themes in this report. In other words, validation should be performance (outcome) oriented, voluntary (so far as training providers are concerned), user (employer and union) driven, and user (employer and union) financed. It is essential, in our view, that providers should be completely free to determine their own training programmes and assessments. There should be no imposed national examinations nor prescribed curricula and validation should monitor outcomes only to ensure that minimum standards are being achieved.

The ground for supporting this sort of validation authority (which could also perform a voluntary accreditation function for the same purpose) is the economic value of the information it could provide, permitting "external" markets for skills to operate more efficiently. Validation provides inexpensive information to prospective students and to geographically dispersed employers, and this reduces transaction costs in "external" markets for formally acquired occupational skills. As we note elsewhere, to the extent that "informal" skill formation, on-the-job, were to become a more important component of skill formation in New Zealand, the value of the information contained in standardised qualifications would diminish (see Marsden, 1986). "External" occupational skill markets involving inter-enterprise mobility would become less

important compared with internal labour markets conferring intra-enterprise mobility. The flexibility of the Japanese labour market appears to be associated with a greater emphasis on the latter form of mobility than on the former, whereas the New Zealand labour market appears to lay more emphasis on the former.

A *voluntary* national validation and accreditation authority could also be a promising start down the road to a more comprehensive reform. However, it is not really clear why there would be market failure in the provision of the desired information in the absence of such a national authority. Reputation is an important factor influencing people's choices in educational institutions, in employers, in neighbourhoods, in brand products, and in all kinds of service provisions, without any assurance being called for from national authorities. Private agencies exist to assess people's, firms' and countries' credit-worthiness. Private agencies exist to assess consumer products. Many private associations exist to provide assurance to persons using their members' services. In the United States, university departments are regularly ranked by departmental chairmen in private surveys which are published to inform potential students and staff. It is hard to see why there should be insufficient information provided, or insufficient uniformity in skill formation, in an environment without a national validating authority in New Zealand.

The need for qualitative *licensing* of training providers is even more ambiguous. The issue is not that one does not wish to exclude "fly-by-night" training providers who waste public funds and trainees' time. The issue is the cost of doing so via *licensing*, which necessarily concentrates on assessments of proposed inputs (staff, facilities and course descriptions). Major risks are the stifling of innovation and the scope given to the exercise of restrictive practices in curtailing training opportunities. Private associations of training providers are likely to supply the public with adequate assurance, without the adverse effects of licensing *per se*.

Our main concern with all such validating, accrediting, certifying and licensing authorities is their intrusion on the scope and flexibility of training providers in meeting clients' demands for skills. It should be noted that most university education gets by without formal accreditation and certification, and that reasonable suspicions may be harboured about the effects and purposes of accreditation in the fields where it does occur. Why is trade training different? Voluntary processes of quality assurance are more appropriate at both levels, and in most other fields.

Certification of competence may be valuable to consumers or it may not. Consumers (students and employers) should be free to choose whether to buy services from certified or non-certified service-suppliers. Restricting the right to practise only to the certified (by way of licensing) provides the professional group concerned with its principal means of restricting entry and maintaining monopoly incomes. The main means of bringing about such a restriction is to impose unnecessary (even bizarre) standards on the certification process, generally with the ostensible justification of maintaining "quality". Such artificial "standards" have the effect of increasing the cost of gaining entry to the trade or profession and, consequently, of restricting supply. Such "standards" are often imposed not by way of tests of competence, but by imposing curricula, length of course, teaching qualifications, contact hours, and examination requirements, i.e. by certifying training processes rather than their outcomes. Reform of apprenticeship training has been bedevilled by such intrusions on training processes. An approach to training based on competence for certain tasks, by contrast, has the virtue of starting with the identification of skills and of designing efficient means to form those skills.

A further training issue at the present time is how to improve the sequencing of training options so that people can build a variety of connected sets of skills more easily from various component parts. This issue concerns the transition from school to work and from one training institution to another (both horizontally and vertically). It involves the creation of "comparability" in standards and content of training programmes, so that the transfer of credit between institutions becomes easier. It does not involve "uniformity" in standards, however, which is, unfortunately, the interpretation often given in centrally directed systems.

The present system has weak incentives to create a set of inter-connected training options that responds flexibly to people's wants. There is no pay-off to the providers of services in doing so, whatever degree of exhortation may emanate from the centre. At the centre, the information load imposed in trying to design an appropriate set of options is so great that only the crudest of (inflexible) structures could be entertained. Those at the centre, with power, cannot obtain the necessary information to command the necessarily intricate structure of training provision and delivery needed, while those with the task of providing training services have neither the resources nor the incentives to identify and meet consumer demands for such a structure.

A decentralised system, on the other hand, in which the budgets of training providers depend on the custom each can attract, does contain incentives to resolve this problem.

The reason is that each institution would endeavour to keep the costs of training for its students as low as possible and the demand for its graduates as large as possible, in order to attract custom. Each institution has an incentive, in pursuing this goal, to attempt to coordinate its offerings in a variety of ways with those of other institutions, so that transfers will be least costly for the students involved, while maintaining employability across as wide a spectrum of employers as is appropriate and feasible. For example, course designs would pay more regard to the skills obtained in lower-level feeder courses of one kind or another. This interaction may lead, in turn, to changes in the lower-level courses to provide better skill mixes for those wishing to proceed further.

Similarly, transfer of credit from one institution to another would be treated more effectively, because institutions making transfer easier and less costly would be preferred by students moving between institutions. A voluntary exchange of appropriate information would occur amongst training providers, and appropriate modifications would occur in the services provided, because it would be in the interests of the institutions to act in this fashion to the extent that transfer is important in obtaining student custom.

Since there is no point in undertaking such measures to attract students unless potential students know about the advantageous possibilities that have been created, there is also an incentive for adequate and appropriate information to be made available by the institutions (or by agents of the institutions - such as the Education Department) so that students are able to choose in a more informed way between the options open to them.

An important aspect of creating an appropriate set of decentralised incentives for coordination, in place of the present confused "command" structure, is the potential effect on coordination with industry, and employers generally. In a decentralised system, there are better incentives to gear training programmes to dovetail with skills needed in employment - not only on entry, but over the course of people's working lives. The reason for this is that students will be attracted to institutions that provide programmes that are in demand by employers in the private and state sectors. Hence, polytechnics are likely to seek as wide a market as possible in defining their training activities: their catchment areas may be local but their product is "employable skill", nationally and even internationally. It should be noted in this respect that a small (500 student) demand already exists from foreign students, despite all the restrictions on demand and the lack of incentives referred to earlier in discussing the universities. A strong, private, foreign student demand for polytechnic courses could be expected, were the polytechnics free to develop it.

A more responsive system would also provide stronger incentives for employers (private and state) to make a greater contribution of ideas and financial support to the training institutions. This is because employers' needs would be given more serious and expeditious attention than at present, making interaction a more attractive activity. Heightened interaction between training institutions and industry is, of course, an important aspect of accommodating the challenge of restructuring facing the economy. In particular, there is more prospect of training activities evolving that give more substance to the notion of a "continuous learning society", jointly involving business and training institutions in providing more efficient and appropriate life-long learning experiences for members of the workforce. In this way, the Japanese idea of "Kaizen" could be encouraged in our commercial culture (Probine/Fargher *Report* 1987, p. 1).

A final important aspect of creating appropriate decentralised incentives for coordination is the potential effect on access by the disadvantaged. Institutions would face incentives to discover and nurture "pipelines" of potential students, such as those presently under-represented in the tertiary education system. If early leaving from school is a reason for such under-representation, the tertiary institutions have an interest in helping schools to increase their retention rates by efficient means, including providing counselling about tertiary education opportunities and subsequent employment prospects, advocating well-targeted programmes to increase retention, developing "link" schemes with the schools, and so on. Hence a decentralised incentive system for tertiary education institutions is likely to address in an effective manner the issues of equity of access to which the Government rightly gives weight, and to free the Government to concentrate on meeting specific equity objectives as effectively and directly as possible.

5. Reforming the System

We have left aside, at this point, a detailed examination of the teachers colleges, not because these are unimportant in the set of tertiary education institutions, but because to include them would be repetitious. The set of reforms which we suggest for tertiary education are quite general in scope and could apply equally to all elements in the system, including the teachers colleges.

Essentially, we regard the best initial strategy for reform as one which subjects the whole range of institutions to the opportunities and constraints provided by a decentralised competitive market for their services, while funding users of their services (to whatever extent desired) by a system of targeted entitlements financed by the Government.

This strategy would build on the more successful features of the ACCESS scheme as well as on the Government's corporatisation and state sector pay-fixing policy initiatives. Such a strategy would not, however, resolve all the problems of distorted incentives and potential political interference or interest group capture associated with the present system. There is therefore a case for reviewing the need to retain state management of all parts of the system. A logical initial step would be to encourage the evolution of private sector competitors for the existing state tertiary education institutions.

5.1 Proposed Institutional Structure

An agency such as a *Ministry of Social Policy* would be formed to provide policy advice across all "social" areas, including education, health, and welfare. The Ministry would thus consider education and the resources allocated to it in the broad context of social policy as a whole. This would enable interrelated social issues to be considered in a more coherent way, and reduce the scope for undue influence by special interests, especially those of the providers of services.

An *Education Commission* (EC) would be established which would be responsible for administering and monitoring the Government's budget for education and research services and for providing quality assurance in educational services, within policy guidelines laid down by the Ministry. To carry out these activities, the EC would establish specialised branches. We suggest these could take the form of a *Tertiary*

Education and Training Entitlements Council (TETEC), a *National Research Council* (NRC) and, at least in the short-run, a *National Validation Authority* (NVA).

TETEC would provide financial entitlements to New Zealanders towards the costs of tertiary study, within policy guidelines laid down by the Ministry of Social Policy and the Education Commission, including the targeting of particular groups, particular courses or particular institutions, in the form of scholarships and loans.

The NRC would provide grants to a number of *Research Agencies* (RAs) for funding non-appropriable, non-teaching research activities in tertiary education institutions, and any other research bodies, both public and private, recognised as undertaking non-appropriable, "public good" research.

The NVA would offer non-compulsory validation and accreditation services to all tertiary education institutions. These services would be funded by users (employers, unions and providers), and not by the EC or the Ministry. The continuing need for such an authority would depend very much on moves to deregulate the labour market, thus improving direct market signals as to the value of tertiary qualifications.

Tertiary education institutions would comprise a number of autonomous *state corporations* (the existing universities, polytechnics and teachers colleges), subsidiaries of such organisations, and any new state corporations or private bodies recognised as tertiary education institutions by the EC under government policy guidelines. All state education corporations would be required to pay a commercial rental for their sites, would enjoy no exemptions from normal taxes and government charges, and would be set target rates of return on a commercial valuation of their assets.

5.2 Operation of the System

- **Supply Side**

All tertiary education institutions would be responsible for meeting their own budgets from tuition fees, research funds, capital raisings and the sale of goods and services generally, consistent with furthering their objects for providing education, training and research services.

No restrictions would be placed on the tertiary education, training or research services that any of the institutions could offer. Thus, for example, polytechnics and teachers colleges could offer degree programmes (including higher degree programmes) if they wished, while universities could offer sub-degree, certificate or non-degree courses of study, if they wished. However, quality assurance services to the institutions would be available on request from the NVA on a fee-for-service basis.

No restrictions would be placed on the terms under which the institutions could offer their services. Tuition fees charged would be met by TETEC in whole or in part for students qualifying for tertiary entitlements. TETEC could negotiate special terms for particular groups of students, or for particular courses, or for particular institutions, depending on policy. Institutions would be free to enter into other fee-funding arrangements with other bodies, such as the provision of scholarships, bursaries, loans, or loan guarantees. Individuals could, of course, also make their own private arrangements with future employers, philanthropic organisations, banks, and so on.

In the first instance, the budget for TETEC could be set at the present total tertiary education recurrent and capital budget, less that part of the academic salary budgets of the universities currently devoted to non-appropriable, "public good" research (which would be set aside for NRC-funded research). The average full-time student entitlement would equal this amount divided by the full-time-equivalent number of students. The actual distribution of entitlements in terms of value and type (grants/loans) would depend on TETEC and the policy guidelines of the EC and the Ministry of Social Policy. In the first years of the system this distribution might be predominantly in the form of grants and approximate the present costs of courses in the various institutions. Over time, say within 3 years, the distribution would move away from this towards a more rational structure based on payment for output rather than funding of costs.

Under the pressures of competition, the extent of diversification in structures, courses, fees and other sources of funding of education institutions would probably increase. Such trends have been widespread overseas and have occurred in a limited way in New Zealand. For example, if institutions charged fees in excess of tertiary entitlements for some students or for some courses, private funding would be drawn in, increasing the total funding available to the institutions. Similarly, institutions would have an incentive to seek funding from alumni, businesses, government departments, and so on, in order to subsidise activities, provide scholarships, and keep tuition charges down to competitive levels. Finally, institutions would have an incentive to contain costs while maintaining quality, for example by being innovative in methods of tuition.

The councils or boards of the university and polytechnic corporations would be given the mission of providing tertiary education, training and research services, and any other associated services, within a financial constraint of meeting their own costs from the provision of such services. Where the institutions were wholly state owned, the boards would be appointed by the government. It seems probable that boards would include a cross section of people with education, business and trade union skills. The chief executive should be fully responsible to the board for the financial and academic management of the institution and would be appointed on whatever terms are agreed with the board.

No restrictions would be placed on the terms under which institutions could employ staff or other resources in meeting their objectives. Pay determination, in particular, would be free to follow the "enterprise agreements" approach of the revised state sector employment legislation because the institutions would be operating under effective external constraints imposed by their capacity to earn their own incomes. Each institution would negotiate with individuals or representatives of its own staff to determine appropriate packages of pay and conditions, including tenure arrangements. This method would offer the prospect of more appropriate differentials in pay and conditions emerging between fields and institutions, and in performance recognition.

As with corporatisation in other state activities in New Zealand, a complete reappointment process should be undertaken in each institution starting with the councils or boards and the chief executives. Those staff not reappointed should be offered the same sorts of severance packages as have been offered in the corporatisation process elsewhere.

Institutions would be responsible for meeting their own needs for capital as well as operating expenditures. Fees charged for tuition, research and other services would be at full cost, including a required rate of return on capital assets employed. Institutions occupying high opportunity-cost sites near city centres would, quite properly, face higher rental costs and might charge higher fees than institutions occupying less advantageous sites. Institutions might choose to relocate their activities in the face of these costs. Disposal of sites would be subject to normal land use restrictions.

In this situation, where university and polytechnic corporations were meeting full costs, the playing field would be levelled, and entry of competing private institutions would become more feasible. These institutions should be eligible for expenditure of tertiary

entitlements and research agency funds against the same criteria that apply to the university and polytechnic corporations.

No restrictions would be placed on the structures that might evolve within institutions. Some might fully decentralise, with individual departments becoming quasi-autonomous, buying administrative, computing, library and other services from the central administration of the institution (or from elsewhere if this was more efficient). Some might develop equity-funded subsidiaries providing tuition and research services to particular users, such as specially tailored courses for industry, courses for foreign students, or commercially-driven R&D projects. (Many overseas universities, for example, have now developed equity-funded R&D subsidiaries for commercial exploitation of their research potential.) Some might form partnerships with private or state enterprises enabling training to be given using the most up-to-date equipment, and research to be undertaken jointly by industrial and academic staff.

The *Research Agencies* (RAs) established under the National Research Council would collectively disburse a research budget representing that part of university payrolls presently devoted to non-appropriable research. (The ability to recoup some research costs through fees that reflect the value to students of working with teachers active in research should be taken into account here.) To this should be added the "public good" research budgets of other government research bodies. (That part of the research budgets of these bodies which are not "public good" should no longer be funded by grants but only by loans and equity.) These bodies would be eligible to compete with university and polytechnic corporations for funding on a full-cost competitive basis, to undertake "public good" research. The reason for establishing a number of RAs is that they would be obliged to compete with each other to find high quality research projects. Their budgets would be adjusted by the NRC (every five years, say) in the light of their performance in terms of clearly specified criteria, in a process open to public scrutiny. The RAs could supplement their allocation of funds from the NRC by receiving grant, loan or equity funds from other bodies to support "public good" and appropriable research activities. Any tertiary education institution (or staff member) or other research organisation could apply for funding. Institutions (or staff members) could apply, of course, to other potential research funding sources for support.

In the first few years of the system, the NRC would continue to make *block* allocations to the existing universities, starting at that proportion of their academic payrolls estimated to apply to "public good" research, and block allocations equal to the existing "public good" research budgets of other government research bodies, but these allocations

would diminish over a transition period of, say, three years. The residue of (non-block granted) funds should be used to fund research on a competitive basis among university and other research organisations, both public and private.

The result of this shift in the research funding structure would be to increase research performance incentives, to concentrate research resources on the productive, and to induce a greater diversity in teaching and research loads among staff in the institutions. Tertiary education staff winning large research contracts would free resources to be used to buy extra teaching. Tertiary education staff not engaged in productive research would teach more (or be paid less than they presently are). Exceptionally productive research (or teaching) staff would earn salaries well in excess of the average.

Provision is also made in the proposed new system for a validation and accreditation authority (the NVA). All students following courses at EC-recognised tertiary institutions would, however, be eligible to attract tertiary entitlements irrespective of NVA approval. Insofar as quality assurance is wanted by employers or other users of the skills of graduates from the institutions, the latter have an incentive to seek validation from the NVA or other information agencies, at market-determined charges for this service. The continuing need for an NVA would depend importantly on developments in the labour market's ability to signal directly the value placed on different skills and qualifications.

- **Demand Side**

The supply-side discussion above has assumed that the present level of government subsidy for tertiary education remains. Whatever the level of subsidy, tertiary education institutions will only face full incentives to be responsive and efficient if their clients demand performance from them. This requires consumer sovereignty, irrespective of level of consumer subsidy. From this perspective, students should meet all costs (apart from pure research), including the costs of capital employed in the institutions, and whatever level of subsidy is provided should be directed through the choices of students (and research clients).

The supply-side discussion begs the question of what level of subsidy is appropriate. The principle enunciated by the Universities Review Committee, that public funding should match public benefits, is pertinent here. This hinges on the extent of benefit spillovers to third parties, on redistribution policy, on access policy and on the rewards to skill provided in the labour market. Our analysis of these issues leads us to the conclusion that the evidence of extensive, material, third-party spillovers to tertiary education is

tenuous, that neither redistribution nor access objectives are well-served by the present level and distribution of subsidy, but that the returns to skill acquisition, as a result of wage compression in the labour market, are so low that there would probably be a significant reduction in enrolments if the present level of subsidy were to be eliminated.

In our opinion, the appropriate course for reform is to reduce the level of subsidy (and to allow fees to increase) according to a fixed programme which allows time for appropriate offsetting adjustments to take place in the labour market and in people's financial planning. Both costs *and* returns to students could then adjust in a way which would not necessarily result in major changes in life-time expected earnings (net of tuition costs). An appropriate adjustment period cannot be determined *a priori*. We would, somewhat arbitrarily, propose that a reduction in subsidy by 10 per cent (real) per annum should allow time for people to make appropriate adjustments in their saving and other financial planning, and to allow labour markets to adjust by increasing earnings margins for skills.

Financing arrangements which might receive more prominence would include part-time and vacation work, assistance from parents, private scholarship provision from state and private employers, and loan arrangements with banks. With regard to loans, it may be noted that the (private) Bond University in Australia has negotiated low interest loans for its students with Westpac as part of its financial arrangements with that bank.

Subsidy support should not, however, be reduced to zero: some general *scholarship support* should be available as part of tertiary entitlements to reward and motivate able students, irrespective of socio-economic background, and income-contingent *loan guarantees* should be provided students, especially those classed as disadvantaged. Loan guarantees are preferable to disadvantage-targeted scholarships because they enable support to be given to students with insufficient personal or family assets, while both creating an incentive to students to perform and reducing the risk to lenders of default. Most loan guarantees will prove unnecessary since graduates will earn sufficient to repay the loans. Avoiding repayment involves deliberately earning a lower income - which is unlikely to be a genuine choice. Nevertheless, the security that a loan guarantee scheme provides students who fear their capacity to repay such a debt is likely to be a stimulus to participation, especially from disadvantaged students. As Woodhall (1987, p. 450) notes "in Sweden, where graduates can automatically postpone repayments if their incomes are low, default rates are very low indeed. Studies of attitudes to student loans show that they are popular among students and there is no evidence that they deter working-class students or women".

Our view is that scholarships based on achievement, awarded to students who maintain "good standing", of 30 percent of fees (or some equivalent flat amount), would contain adequate performance incentives. The cost of loan guarantees is hard to evaluate but is probably small, since labour force participation rates of tertiary graduates are high, earnings exceed average labour force earnings, and unemployment rates are lower than for the workforce as a whole. It would be surprising if more than a small proportion of graduates did not earn sufficient over their lives to meet quite liberal criteria for the guarantees to become operative.

As noted earlier, one of the peculiar features of the present uniform fee arrangement is that the biggest subsidies are given to the most expensive courses, which are often attended by the brightest and most privileged students. Fees should properly reflect costs of tuition so that one incentive to introduce quota limitations is removed, the true costs of acquiring various skills are reflected in students' decisions (and in the labour market) and incentives are created to reduce costs, in the more expensive courses in particular. Such fees according to cost would probably advantage the polytechnics, whose recurrent costs have been said to be about 80 per cent of university costs per student (OECD, 1983, p. 131).

The demand-side criteria for determining the appropriate volume of funding for "public good" research are more difficult to establish. International comparisons are again of little value, and the marginal rate of return to "public good" research is inherently difficult to quantify. There is as little case for increasing funding for "public good" research as for reducing it. One important task of the National Research Council would be to try to establish the returns to the research it was funding. As we noted earlier, research which is intended or likely to have appropriable outcomes by particular users, i.e. research whose "public good" content is small, should not be funded by grants from the Research Agencies but by public and private contracts. There is no case for subsidising any particular sort of industry where spillover factors are not present. The playing field should be kept level. Research-intensive industries should commission their own research from research providers on commercial terms.

As has been noted, teaching and research are to some extent joint products, in the sense that research activity makes for better teaching. Nothing follows for financing arrangements, however. If the joint product argument is true, competitive tertiary education corporations will compete strongly for research funding, enabling them to raise the quality of their tuition at given costs and to charge higher fees. One would

expect institutions to become fee-differentiated over time by their research/quality intensity. This seems desirable in terms of creating an appropriate spread of institutions catering to the different abilities, interests and needs of the student population.

The Treasury (1987, pp. 195-196) has emphasised the importance of reforming both the demand and the supply side of tertiary education, emphasising the inefficiencies and inequities which would arise were either side freed up in isolation:

> "If the demand side is freed up but the supply side is not, inequities will result. At present, universities cannot meet the demand for accountancy studies because they cannot pay a market wage for accountancy lecturers. A freer demand side would respond to such an artificial shortage by bidding up the price for such courses which would increase inequity in access to them. On the other hand if the supply side is freed up but the demand side is not, inefficiences will result as some providers are enabled to exploit the surplus demand created by extensive state subsidy to create benefits for themselves... Perverse incentives will be created for academics and recruitment officers for specialist employers to create fashions. The result: growing inefficiency."

5.3 Evaluation of the System

The reforms sketched in this report are radical but feasible. They address the agenda for reform put forward by the Government. They would rejuvenate performance in tertiary education by altering the incentives faced by the institutions and their staff to emphasise client-driven outcomes, while retaining as large (or small) a role for state funding as the Government chooses. By the same token, the system would encourage the injection of extra funds from students, industry and the public sector as performance outcomes improved. In particular, extra funds are likely to be injected in the areas of skill shortage that emerge in the course of the restructuring of the economy. Fee income could be substantial in these areas. Industry support in capital and scholarship provision could also be anticipated.

The reforms devolve power and responsibility to the institutions themselves. Institutions failing to meet their budgets from their own resources would face the normal restructuring pressures of a market environment. Failing state corporations in tertiary education should be treated like failing state corporations in other spheres. Public or private injections of new capital and management would be called for in conjunction with a lessening of residual regulatory controls. Takeovers should be permitted as part of this process. In the last resort, failing institutions should be permitted to go bankrupt.

The reforms greatly improve incentives for research performance, while encouraging the development of additional research funding, especially from industry.

The reforms improve incentives for coordination among the tertiary education institutions and between those institutions and the secondary schools, on the one hand, and industry and state sector employers, on the other. Coordination is driven by rewarding people and institutions that efficiently meet others' interests. This "market" method of coordinating can be contrasted with the present "command" methods relying on central planning and control.

The reforms improve incentives for responsiveness to users' interests, and, therefore, enhance the democratic functioning of the tertiary education system. Accountability of the system is improved by rewarding elements that meet the interests of users. By imposing market constraints on institutional funding, pay setting can be made more flexible to assist adjustment to changing education and training needs.

The reforms retain equity of access as a major objective. Equity would be enhanced because of entitlement-targeting and differentially large incentives for institutional response to the preferences of targeted groups.

Overall, then, the reforms that we have suggested would, by realigning incentives and reducing the potential for capture of tertiary institutions by particular interest groups, greatly improve the effectiveness of their operation in terms of both efficiency and equity.

However, as has been argued elsewhere with respect to the Government's corporatisation of state trading activities (New Zealand Business Roundtable, *State Owned Enterprises: Issues of Ownership and Regulation*, 1988), the retention of primarily government funding (and hence ownership) may severely constrain the benefits that can be achieved. Only where organisations must compete both for finance (and other inputs) and for clients in relatively free markets can their members face true incentives to meet their clients' (in this case, students' and society's) needs in the most efficient manner, and to respond innovatively to changes in the broader economic environment. For this reason, we would argue that facilitating private sector competition in the provision of tertiary education would be a natural part of any reform process. We would also advocate a review of the necessity of retaining state management of the existing, publicly funded tertiary institutions.

As a result of reform in the tertiary education sector, clearer signals as to the value of skills (through changing pay structures) might be expected to evolve in the labour market, and the development of "on-the-job" training might be facilitated. However, compatible reforms of labour market institutions, along the lines advocated elsewhere, could be expected to facilitate both this process and the evolution of a more responsive tertiary education system. Ideally, then, labour market reform should accompany tertiary education reform.

6. Conclusion

This paper has focused on the principal issues for reform of the tertiary education system in New Zealand. In addressing these issues, we have reached a similar conclusion to that of Milne (1984) in reviewing Australia's universities: "The important issue is that the performance of universities is very much related to their incentive structure." Unless reform deals with this incentive structure, it will fail - whatever gloss may be put on the latest rearrangement of the deck chairs.

It is our belief that tertiary education institutions operate best under conditions of maximum independence, which is the only real protection of the academic freedoms that are crucial to democracy and to economic performance. This independence can only genuinely come about if tertiary education institutions are able to determine their own budgets by successful provision of services to students and research clients. Dependency always carries the danger recognised by a former Vice-Chancellor of Sydney University (Jackson, 1983):

> "Universities are having their decisions taken from them, even in strictly academic matters. The piper who pays wants increasingly to call the tune... We have to try hard to increase our own independent funding."

The reform path we advocate is, above all, intended to defend our tertiary education institutions from loss of their independence, and to revitalise them as places in vigorous pursuit of fundamental academic values.

The American tertiary education system provides some insights as to what such a reform process might be expected to achieve in terms of the autonomy and responsiveness of individual institutions. The advantages of such a system are described by the President of Harvard University as follows (Bok, 1986, pp. 51-52):

> "Competition provides a powerful supplement that pushes professors and administrators to perform better in the eyes of those whose opinions matter, be they students, faculty, alumni, scientific review panels, or other peer groups that evaluate scholarly quality. At the very least, these influences make a university administration continuously responsive to the need of the groups it serves. To the extent that professors, students, and other important constituencies press for worthy and reputable ends, the competition for their favor acts as a constant spur to elicit improvement thoughout the entire system.
>
> Other benefits accrue from dispersing power and initiative among a large number of relatively autonomous colleges and universities. A highly decentralized system encourages venturesomeness, since there are many centers of initiative and strong incentives to achieve something better...

> The American system also produces great diversity by pushing institutions to search for a distinctive role in serving the special needs of particular communities and groups of students. Of course, the process of differentiation does not work perfectly. The opportunity to experiment, to play a special role, exists in tension with the desire to achieve a higher status and to succeed according to the prevailing standards in the disciplines and professions. These latter pressures tend strongly toward conformity. Indeed, if the criteria of success are defined too rigidly, competition may actually stifle innovation and prevent universities from adapting to meet new challenges. But success is seldom uniformly defined in this country. In responding to many publics, our colleges and universities can succeed in many different ways and satisfy many different tastes...
>
> Perhaps the greatest advantage of a competitive, decentralized system is its adaptability. This characteristic is never so evident as in periods when large social changes sweep over universities. An apt example is the success of American higher education in adjusting to the vast increase in the student population during the 1960s. With encouragment from the federal government, existing institutions expanded and states began building new colleges and junior colleges. Eventually, over 40 per cent of America's youth were attending some form of post-secondary education without widespread, serious overcrowding... Since thousands of separate institutions were free to respond in their own way, the system also encountered little difficulty in taking account of the differences within a larger, more heterogeneous student population. Young people could choose a college or university suited to their needs, while the system as a whole could absorb much larger numbers without seriously diluting the quality of programs offered at the most selective institutions...
>
> All in all, therefore, a decentralized, competitive system seems to make universities more venturesome, more variegated, and more adaptable to changing needs. Over the years, these virtues have stood us in good stead. Most knowledgeable observers here and abroad believe that our colleges and universities surpass those of other industralized countries in the capacity for first-rate research, the quality of professional education, the extent of innovation in instructional programs, and the success achieved in opening higher education to the entire population with enough variety to meet the differing needs and abilities of a huge student population. At a time when America is so concerned over its competitive position internationally, such achievements should be welcome news indeed. They stand in striking contrast to the gloomy verdicts that so many commentators and commissions have imposed upon our public primary and secondary shools. Other factors may have contributed to our success, such as the amounts of money the public has been willing to spend on universities, or the influx of gifted European scholars after the rise of Adolf Hitler. But surely the peculiar nature of our system has made a decisive difference by providing the motivation and adaptive power to stimulate constant change and improvement."

It is clear, not only from this account, that competitive, diversified and decentralised systems have been remarkably successful in reaching a far greater proportion of the relevant age groups than we have been able to achieve in New Zealand. They provide a broad range of differentiated education and training opportunities reaching to the highest pinnacles of academic endeavour. In the American case they have contributed to a tolerance for difference which has played a major role in accommodating the tensions of an extraordinarily multicultural, multiracial society. They offer an exceptional freedom of choice encompassing the resources of the entire system for those with appropriate abilities. They have a network of financial support mechanisms which ensure (as well as any system can) that access is not denied on the grounds of financial disadvantage. They are efficient, dynamic and equitable.

The New Zealand Government has in recent years embarked on a broad re-examination of the public sector. This has been essential from the point of view of the extent of its fiscal problems. To date the tertiary education system has been one of the least accountable parts of the public sector. Investigation of its claims on the government purse is therefore of considerable importance. It is also an area in which reform which reduces government expenditure can simultaneously enhance the quality of services, the efficiency of their delivery and the equity of their distribution. This study has suggested a pattern for such reform. If adopted, it would enhance not only the performance of our tertiary education institutions themselves, but also, through its impact on the quality of our workforce, the performance of our economy as a whole in world markets, and thus our well-being as a nation.

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