*The Development of Vocational Education and Training in New Zealand**

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In recent years in New Zealand the provision of vocational education and training has been perceived as crucial to the development of an economy that embodies a high degree of skill and expertise. The purpose of this paper is to trace the development of vocational education and training in New Zealand over the long term to highlight the way in which this sector of education has been influenced by the demands of government, industry and students.

Since the 1980s there has been much concern expressed by policy makers about the relatively slow growth rate of the New Zealand economy. In response to this concern the New Zealand Government carried out an ambitious program of macro and microeconomic reforms designed to raise the rate of productivity growth. This involved the floating of the currency, financial market deregulation, a reduction in industrial and agricultural protection, the privatisation of major government utilities, reform of the labour market, and also reform of tertiary education. It is widely believed that vocational education and training is an essential requirement in the creation of a skilled and adaptable workforce deemed necessary to achieve increased levels of productivity and hence international competitiveness (see for instance Hawke, 1988; Smith, 1991; *Education in the 21st Century*, 1995; *Tertiary Education Review Green Paper*, 1997; *Tertiary Education Review White Paper*, 1998). Nowadays there is universal recognition of the importance of vocational education and training, not just in New Zealand, but also in countries such as the United Kingdom, the United States of America and Australia (for the United States see Bartel, 1994; National Center on Education and the Economy, 1990; for the United Kingdom see Bosworth *et al.*, 1996; CBI Taskforce, 1989; and for Australia see Maglen, 1993).

Recognition of the important link between vocational education and training and the economic development of New Zealand is not new. For over

one hundred years the New Zealand Government has invested in human capital for the purpose of stimulating the country's economic and social development.[1] During that time education and training has exhibited a high degree of flexibility and responsiveness to the needs of industry and commerce, and training institutions have often assumed functions far beyond what was originally intended.

The purpose of this paper is to use an historical approach to examine the changing nature, size and diversification of vocational education and training in New Zealand. By doing so one can better appreciate that although the main instruments for the provision of formal vocational education and training in New Zealand have been government institutions [technical schools, colleges, institutes and polytechnics] they have frequently been compelled to adapt to changing circumstances.

Background

According to OECD figures, New Zealand has an average proportion of its workforce with some form of tertiary qualifications (Table I: 25 per cent compared to the OECD average of 22 per cent). A notable feature is the high proportion of New Zealanders with qualifications from non-university institutions (Table I: 15 per cent compared to an OECD average of 9 per cent). The most important of these are the state run polytechnics.[2] By design and tradition the polytechnics provide a wide variety of academic, vocational and professional programs that cover subjects at various levels of specialisation ranging from introductory studies through to full-degree and even post-graduate programs. In 1997 there were 94,201 students enrolled in New Zealand's 25 polytechnics (*Education Statistics of New Zealand 1997*). They range in size from the Telford Rural Polytechnic with 143 students in 1997, to the Auckland Institute of Technology with 11,207 students and the Open Polytechnic with 17,865 (*Education Statistics of New Zealand 1997*). Many polytechnics are small by world standards and in recent years there have been suggestions that some of them should be amalgamated to create larger institutions or merged with neighbouring universities (Waikato Polytechnic, *Press Statement* 8 June 1988; *Media Release* 31 October 1997).

The importance of education to economic development has long been appreciated but it was not until the late 1950s and thereafter that economists began to analyse the nature of the relationship between investment in human capital and economic growth (Solow, 1957; Schultz, 1961; Becker, 1964).[3] Research has shown the relationship to depend on a number of factors and the causal link is not always clear (Fagerlind and Saha, 1989:91). There is no universally accepted definition of vocational education and training but its basic characteristic is a practical and task

oriented approach. Vocational education and training is instruction that is directly related to employment. By contrast, general education, which is often discipline-oriented and confined largely to arts and science, is not linked closely to employment.

TABLE I
Percentage of the Population 25 to 64 years of Age
by the Highest Completed Level of Education (1995)

	Non-University	University Level	Total
Canada	30	17	47
United States	8	25	32
Australia	10	14	24
United Kingdom	9	12	21
France	8	11	19
Germany	10	13	23
Sweden	14	14	28
New Zealand	15	10	25
OECD Mean	9	13	22

OECD, *1997*

The New Zealand Government has a long history of intervening in the economy in order to promote economic growth and development (Hawke 1982). A persistent theme of policy makers has been that greater state investment in education and training creates social and economic benefits through the development of a greater bank of knowledge and skills. Governments can achieve this goal by providing training in state run schools and colleges, by subsidising private sector training, by placing legal obligations on firms to provide training or by providing grants and loans to individuals. In New Zealand all four methods have been employed at one time or another.

The Origins of Vocational Education and Training in New Zealand

Concern was first expressed about the insufficient skill level of the New Zealand workforce in the late nineteenth century. Before the turn of the century technical education was catered for by a few secondary schools which provided some semi-vocational subjects, and continuation classes conducted in sporadic fashion in the School of Mines in the South Island and in mechanics institutes. The lack of formal provision of technical education in the late nineteenth century stemmed mainly from the fact that

there was no great concentration of manufacturing industry in New Zealand and consequently no great demand for technical skills.[4] Moreover, the colony could draw on the skills of the many immigrants that arrived from the United Kingdom. Employers showed little interest in promoting the instruction of their workers and either undervalued formal training or preferred to free ride on the training effort of others by recruiting workers who were already trained.[5] Private and local community attempts to establish vocational education and training in New Zealand on a permanent basis proved unsuccessful and it was not until the Government decided to intervene at the turn of the century that vocational education and training was established on a firm footing (Nicol, 1940).

Concern about the under development of technical education was also evident in Britain. The Royal Commission on Technical Instruction (Samuelson Reports, 1882–84) attributed part of the reason for Britain's decline in international competitiveness to a neglect of technical education. In 1889 the Government passed the Technical Instruction Act which empowered local authorities to raise a penny rate for the aid of technical education and in the following year central government funds were made available. The main difference between the British and New Zealand policies was that the British left the matter in the hands of local authorities whereas in New Zealand it was the central government that took the initiative. In both instances the need for government action of some kind was acknowledged.

The New Zealand Government first intervened in January 1885 when the Premier and Minister for Education, Robert Stout, encouraged the secondary schools to provide technical classes. In a circular letter dated 19 January 1885, the Secretary for Education, at Stout's direction, urged school boards of governors to consider 'the great importance of including in the program of the secondary schools as much instruction as possible in subjects that have a direct bearing upon the technical arts of modern life' (Nicol, 1940:22). Stout also urged the university colleges to provide technical instruction classes. There was virtually no response so Stout pursued the alternative strategy of granting the Wellington Board of Education a site for the building of a school of design. The Board hired a drawing master and the Wellington School of Design opened in 1885. Further technically oriented evening schools were founded in subsequent years (Dunedin Technical School 1889, Auckland Technical School 1895, and Wanganui Technical School 1892). Thereafter, the New Zealand Government became increasingly involved in the provision of technical education. After two government sponsored investigations, the *Manual and Technical Instruction Acts* of 1900 and 1902 were passed.[6] These Acts gave local authorities the power to spend money on technical education and make land grants. Government grants were also

authorised to pay for the cost of buildings, equipment and materials and allowed for the first technical school inspectors to be appointed. The intention of the Education Department was not to establish separate technical schools but to encourage the teaching of technical subjects in existing district secondary schools. The secondary schools again failed to respond. As a consequence existing evening schools set up day classes and new technical schools were established. The Wellington School became the Wellington Technical College in 1905 and in the same year the Christchurch Technical College was established. In 1913 the Auckland Technical School was redesignated the Seddon Memorial Technical College. Prior to the First World War technical colleges and schools were also opened in other major New Zealand centres and enrolments expanded.[7]

In the first half of the twentieth century young New Zealanders acquired skills mainly through apprenticeships and on the job training (as in Britain and Australia) coupled with part-time tuition at a local technical school or college. The New Zealand Government assisted with the provision of vocational education and training by providing financial assistance to technical schools and colleges operated directly by the Department of Education. This intervention took place in response to the disinclination on the part of New Zealand employers and existing secondary schools to conduct vocational education programs. The inability of trainees to finance their own training (especially apprentices) and the inability of firms to capture the full benefits of vocational instruction probably explains the failure of the market to provide an adequate level of vocational education and training. Employers were not interested in promoting the instruction of their workers and provision for day release facilities to enable students to attend technical schools and colleges were virtually non-existent. Given the small numbers involved in post-school vocational education and training, and the disinclination on the part of employers to release apprentices for day classes, the Government decided that the best way to provide technical training was through evening classes attached to technical day schools.

The government may have been the prime mover in the establishment of the technical schools but it was the demands of industry and their students that had the greatest influence on their subsequent character. In the early twentieth century New Zealand industry made only limited demands for technical training. Consequently, technical schools and colleges concentrated more on secondary school classes for adolescents rather than post-school programs. The technical schools offered a variety of evening programs, mainly of a vocational nature, which were attended both by adults and adolescents, many of whom were apprentices studying to gain trade qualifications. Amongst the technical trade classes, engineering and the

building trades were prominent. In 1928 the Education Department instituted technological examinations for a range of trades such as plumbing, carpentry, joinery, building construction, painting and decorating, motor mechanics, and mechanical engineering[8] but most students were engaged in elementary and advanced commercial subjects. They studied subjects such as bookkeeping, advertising, secretarial work, accounting, and banking and insurance, in preparation for government examinations or those of voluntary associations such as the Chambers of Commerce. The prominence of commercial and building classes was a reflection of the basic nature of the economy at the time. New Zealand was heavily dependent upon agriculture, but also possessed a substantial service sector comprising a large number of public servants, commercial employees and building tradesmen who wished to upgrade their skills and qualifications.[9]

The establishment of separate tertiary level technical colleges prior to the Second World War was unthinkable because of the small numbers involved in the formal training of apprentices and the lack of demand for non-university educated technicians Tertiary level technical colleges required specialised staff, buildings and equipment which would not have been fully utilised. Specialist teachers in the technical colleges who did not have sufficient tertiary level classes to occupy all their time continued to teach adult evening classes and at the secondary level. After the war, as tertiary numbers grew, it became possible to envisage that the secondary school functions of the technical colleges could be dropped, leaving the senior technical sections to stand alone as tertiary technical institutes.

The Technical Institutes

After the Second World War the technical schools and colleges began to transform themselves in response to changing economic circumstances. Before the war trade training classes were generally held in the evenings and it was not until the passing of the *Apprentices Act* 1948 that apprentices were compelled to attend trade classes. As a consequence New Zealand apprenticeship schemes became based upon the principle that the theoretical aspects of training should be taught away from the workplace and that apprentices should attend classes during work-time. In 1949 the New Zealand Trades Certification Board was established to oversee the development of trade training in New Zealand, to prescribe courses, to set standards and to conduct examinations. This was an important step and placed New Zealand ahead of Britain in the development of the educational component of trade training. Until the 1960s there was no obligation placed on British employers to provide formal training or release facilities for the purposes of external instruction. Nor was there any recognised outside

authority to supervise apprenticeship training. Unlike New Zealand during the 1950s, only a minority of British apprentices sat examinations for formal qualifications. They generally received their status as tradesmen automatically on completion of their apprenticeship training. Another important post-war development in New Zealand was the establishment of the Technical Correspondence School (later known as the Open Polytechnic) in July 1946. This institution grew out of the wartime Army Educational and Welfare Services study courses and provided correspondence instruction in vocational and technical courses for apprentices and advanced students unable to attend technical schools. The establishment of the Correspondence School meant that it was possible to compel all apprentices, regardless of their location, to complete technical courses and sit examinations.

Until the 1950s the technical colleges were predominantly secondary schools but the entry of day release apprentices into technical colleges began the process of creating tertiary technical institutions in New Zealand. After the Second World War there was a growing interest in technical education in New Zealand as the industrial base expanded. The growth and diversification of the economy into technically more demanding fields and the expansion of professional and clerical employment helped increase the demand for formal education and training.

As early as the 1930s there were calls from the Technical Education Association for the establishment in the main centres of 'technological institutes', separated from the secondary schools (Hockley, 1990). In 1952, at the annual conference of the Technical Education Association held in Dunedin, the Chief Inspector of Technical Education, G. V. Wilde, advocated that technical education should divest itself of its secondary school responsibilities and concentrate more fully on technical and trade training (Hockley, 1990). In the 1950s, with the expansion of New Zealand's industrial sector, there was a growing need for technicians trained at a level between that of tradesmen and university educated technologists. This need was clearly evident in the engineering profession which sought recognition for people whose qualifications were derived, not from study in a university school of engineering but from theoretical studies taken in conjunction with industrial experience. In 1954 the Department of Education sponsored a committee to consider the training of all senior workers in engineering. It recommended that technical colleges should establish 'middle level' engineering courses. In 1955 the New Zealand Certificate in Engineering was established. This proved to be the pivotal factor in the creation of tertiary level vocational education and training institutions in New Zealand. Initially there was only a small number of full-time students taking the Certificate courses but growth was steady (from 40 in 1955 to 1,120 in 1958). Further

Certificate courses were soon established in building, draughting, draughting (architectural), science, land surveying, quantity surveying, laboratory technicians and later commerce.[10] The introduction of the technician certificates filled a conspicuous gap in New Zealand's technical educational sector. During the 1950s Australia and Britain also produced thousands of certificate and diploma graduates annually. The establishment of certificate courses, and their expansion, stretched the spread of responsibilities in technical colleges to include at one extreme 12 year olds, and at the other, professional engineers. At this point it seemed logical to divide the colleges into secondary and tertiary level institutions.

The move to shift technical education into tertiary level institutions received a boost in 1956. Dr C. E. Beeby, the Director-General of Education, in a speech to the Senate of the University of New Zealand, noted the world wide trend toward moving technical education into tertiary level institutions and advocated that this should also occur in New Zealand. Beeby's vision of the type of tertiary technical institution required was largely adhered to over the following thirty years. In particular he envisaged that the type of institute established would be a vocationally oriented teaching institution rather than one based on any substantial research role. He stated that:

> It would be difficult to make a case for the establishment of a technological institute in New Zealand, if by that term is understood a college like the Imperial College of Science or Massachusetts Institute of Technology. There is, however, a case for the setting up of a less ambitious type of national college from which a technological institute might arise if the need for it ever became apparent (quoted in Offenberger, 1979,:17).

At the same time as the demand for more skilled technicians was influencing the technical schools, the size and nature of secondary education was also changing. Gradually the view emerged that secondary education should not concern itself with direct vocational training but should, instead, provide a broad based subject approach as a basis for later specialisation in academic or technical courses. An increase in the number of students going on to secondary education also meant that the technical secondary schools in major urban centres became substantial institutions in their own right. In 1956 Beeby envisaged that:

> At least three of these (metropolitan technical schools) may be expected to split into two separate institutions, a technical high school and a technical college responsible for all part-time courses and all senior technical work. Each institution will have its own independent principal .... The technical college will increase its daylight training at all levels, and will concentrate particularly on courses for technicians (Beeby, 1956:17–18).

The Currie Commission, which investigated the state of New Zealand education in the years 1960–62, supported the move to establish separate tertiary level technical institutes in the major centres. Although the Commission looked at the nature of the link between economic growth and investment in vocational education and training, its concerns were of a different nature to those expressed by government reports on education during the 1980s and 1990s. In particular the Commission was concerned about the need to train: 'specialised craftsmen, technicians, scientists, and technologists to meet the demands of a diversified and expanding industrial economy'. The Commission assumed that economic growth could be taken for granted and that the basic problem was one of alleviating a skill shortage (Currie Commission, 1962:386–7). In recent years government reports have emphasised that investment in vocational education and training is a basic prerequisite of economic growth and that further and more efficient investment in this field will help to raise growth levels and living standards.

The first technical institutes to be established were the Central Institute of Technology at Petone in 1960, and the Auckland Technical Institute (today the Auckland Institute of Technology) in 1961. The Central Institute of Technology was established to provide courses in areas such as pharmacy, chiropody and occupational therapy where the demand nationally was insufficient for such courses to be offered in technical colleges around the country. The Auckland Technical Institute was formed from the Seddon Memorial Technical College, then New Zealand's largest technical school. The Wellington Polytechnic was established in 1962, followed by the Christchurch Technical Institute in 1965, Otago Polytechnic in 1966 and Hamilton Technical Institute in 1968. These institutes were formally recognised by the *Education Act* of 1964.

Until 1968 technical institutes were established only in the major centres where there was enough demand for vocational courses to justify the establishment of separate institutions. Elsewhere, the technical schools in smaller centres continued to meet the needs of post-secondary trade training. In 1969 government approval was given for the establishment of technical institutions in centres where there was sufficient technical work to occupy 10 tutors full-time. This move boosted the establishment of technical institutes in provincial centres. In 1972 it became government policy to allow for the establishment of community colleges offering traditional technical education in conjunction with other educational services. The first community college was opened at Hawkes Bay in 1975 and others followed. During the 1980s the technical institutes and community colleges were reclassified as polytechnics to reflect more accurately the wide range of courses that they provided.[11]

The technical institutes were designed to provide trade training courses, certificate and later diploma courses and a wide range of short courses. They were encouraged to respond to immediate demand and ran courses only as long as there was sufficient support from students, local industry and commerce. They were expressly forbidden to grant degrees and were, therefore, prevented from developing along the lines of the English polytechnics or the Australian colleges of advanced education. Australia developed a 'binary' system of higher education after the release of the Martin Report in 1964–65 and England followed suit after the release of a White Paper in 1966 (Pratt, 1997). In New Zealand the arguments for creating a binary system of higher education were considered but rejected on the grounds that there was a greater need to develop the trade and technician training sector of tertiary education. The break up of the University of New Zealand in 1961 also prevented the move to a binary system of higher education. This split of the University into four separate universities and two agricultural colleges meant that New Zealand already possessed an ample number of higher education institutions to accommodate foreseeable growth in the number of students demanding degree courses.[12]

One of the basic characteristics experienced by the binary systems in Britain and Australia was that of 'academic drift' (Pratt, 1997). Broadly speaking this was the tendency for tertiary institutions to aspire to university status and for them to take on some of the characteristics of universities. In this process institutions sought greater freedom from government control and external validation. One indicator of academic drift has been the proportion of students studying part-time and a rise in the number of full-time, pre-employment students (Pratt, 1997). Academic drift of the sort experienced in Britain and Australia can generate problems in the provision of vocational education and training. In Australia, the establishment of colleges of advanced education in the 1960s meant that the technical colleges involved in the conversion quickly vacated responsibility for providing trade certificate and diploma courses, leaving the Federal and state governments with the need to develop a new sector of the education system. A similar experience took place in England where the polytechnics expanded their degree offerings at the expense of certificate and diploma courses in the 1970s.

There is evidence to suggest that in the late 1960s there was some government support in New Zealand for allowing technical institutes to provide degree courses and in effect create a binary system of higher education. In 1968, the Minister of Education spoke of the likelihood that the Central Institute of Technology would become 'virtually a technical university' (NZPD, 1968, vol. 256, 996). Later departmental statements

implied that teaching to degree level in the technical institutes was not favoured. The Working Party on technical and industrial academic awards set up by the Advisory Committee on Educational Planning, which reported in 1971, opposed the establishment of a binary system:

> The quite dramatic decisions in Australia and in the United Kingdom which led to the establishment of substantial numbers of institutions of higher education more or less competitive with universities were directly influenced by the conditions in those countries which do not exist in New Zealand. It is not the Working Party's opinion that New Zealand should or could realistically embark on a similar program of rapid dual development (Offenberger 1979:21).

At the end of November 1974 the report, Directions for Educational Development, was presented to the Minister for Education. Amongst its recommendations it advocated that New Zealand should avoid: 'a policy which divides technical institutes into trade schools and schools of higher education, with the latter aspiring to become alternative universities'. Therefore, the occurrence of academic drift did not occur in New Zealand before 1990. Instead, the polytechnics concentrated on providing trade training and sub-degree level courses mainly for part-time students who were already in employment.

The technical institutes established in the early 1960s grew at a rapid rate in response to a growing demand for trade, certificate and diploma courses. The institutes also diversified their activities and additional courses were established in response to an increasing demand for training. Student numbers enrolled at technical institutes (polytechnics) grew steadily during the 1960s and 1970s and by 1981 constituted over half of the students enrolled at the tertiary level (Table II). The vast majority were enrolled in part-time trade certificate and diploma courses. In 1981 New Zealand possessed five universities whose expansion in the preceding twenty years had been adequate to meet the demands for degree courses. At that time there was little pressure for the polytechnics to deliver degree programs and most were preoccupied with meeting the expanding demand for trade, certificate and diploma courses.

Recent Times

The economic stagnation of the 1970s and 1980s led to intensified interest in New Zealand in making use of tertiary education to rectify the macroeconomic failings of the economy. During the 1980s a wide range of government bodies undertook investigations of the country's tertiary education system.[13] The Hawke Working Party report of the late 1980s attempted to draw all of the different strands of the various reports

TABLE II
New Zealand Tertiary Education Student Numbers

	1961	%	1971	%	1981	%	1990	%	1997	%
Polytechnics										
Full-time	377		2,235		6,915		24,334		46,647	
Part-time	8335		14,701		35,849		60,905		47,554	
External	5681		15,456		30,091		*		*	
Total	14,537	41.3	32,393	47.6	72,855	55.3	85,239	50.2	94,201	37.9
Colleges of Education										
Full-time	3,814		8,154		5,901		5,691		7,412	
Part-time	-						75		4,981	
Total	3,814	10.8	8,154	10.4	5,901	4.5	5,766	3.4	12,453	5.0
Universities										
Full-time	8,741		24,995		31,549		49,546		71,105	
Part-time	6,585		9,412		13,379		15,748		35,381	
External	1,494		3,168		8,028		13,625		*	
Total	16,820	47.8	37,575	48.1	52,956	40.2	78,919	46.4	106,486	42.9
Wangana									1,088	0.5
Private Training									34,068	13.7
Total Tertiary	35,171	100.0	55,943	100.0	131,712	100.0	169,924	100.0	248,296	100.0

Source: *Education Statistics of New Zealand*
* external students included in the part-time category

TABLE III

Enrolments in Polytechnics by ISCED Level

	3 Trade certificate	4 In service refresher	5 Technicians certificates/ diplomas	6 Degrees or equivalent	7 Post-graduate	8 Foundation	Total*	Total
1975	25,939	-	20,132	-	-	-	46,071	49,361
1980	35,064	-	28,278	-	-	-	63,342	74,131
1985	30,121	-	33,976	-	-	-	64,097	74,615
1990	24,874	17	25,931	1,937	-	5,689	58,448	82,075
1995	42,336	618	32,775	13,724	202	4,734	94,389	-
1996	42,564	6,052	30,301	14,151	435	1,843	95,346	-

Source: *Education Statistics of New Zealand*

* Does not include students enrolled in community or hobby classes

together. It recommended that polytechnics become autonomous institutions, operating under their own governing councils, with degree-granting powers. There was already evidence that the responsibilities of the polytechnic sector and that of the universities was overlapping but the Hawke Report concluded that polytechnics were failing to attract sufficient numbers of students in the traditional trade and technicians certificate courses (see Table III). The polytechnics were also beginning to attract increasing numbers of full-time students. By then the nature of university education had also moved in a more vocational direction. In 1991, the OECD recorded that the universities in member countries showed an: 'increased vocationalisation' and a tendency to assume a growing number of functions which were originally perceived as being specific, sometimes exclusively non-university courses. This led to a blurring of the boundaries between the two sectors.

The final outcome of the various reports and investigations were two Department of Education policy documents *Learning for Life* and *Learning for Life II*. According to *Learning for Life*: 'The main focus and predominant role of polytechnics would continue to be vocational education and training' (pp.18–19) but the polytechnics should be given the power to broaden their range of activities. The general thrust was to release the polytechnics (and other educational institutions) from departmental control. The Department of Education was subsequently abolished and replaced by a Ministry whose sole role was to be responsible for overall policy. Until 1989 New Zealand's education system was largely under the administration of the Department of Education. There were, however, a number of separate national statutory bodies such as the Trades Certification Board (for trade level qualifications) and the Authority for Advanced Vocational Awards (for technician level awards) that were important to the polytechnic sector. The Ministry of Education, was, henceforth, responsible for providing education policy advice to the government and for overseeing the implementation of approved policies and for the distribution of funds to the various educational institutions. The *Education Amendment Act* provided for an annual allocation of funds to each institution, to be spent according to its own judgement. Each institution was to pay its own staff, own its own buildings and within the limits of its Charter and the funds available, plan its own destiny. A pool of contestable funds was also established for the polytechnics and private providers. By making the polytechnics autonomous institutions and funding them according to student numbers, it was hoped that they would become more market oriented and more responsive to the needs of industry.

As part of the reform process the New Zealand Qualifications Authority was established. In the process the government funded bodies which had

previously been responsible for controlling standards, analysing training needs and conducting examinations like the Trades Certification Board, the Authority for Advanced Vocational Awards and Vocational Training Board were abolished. Under the old system the boards were comprised of representatives of professional and technical bodies and educational professionals. They prescribed courses and set and marked examinations. The teaching was conducted by the polytechnics and successful graduates received New Zealand Certificates. From June 1990 each individual polytechnic was free to develop its own courses subject to accreditation and validation by the New Zealand Qualifications Authority.

During the 1970s and 1980s the polytechnics maintained their concentration on pre-degree level certificates and diplomas but there was a decline in the number of students undertaking trade courses (Table III). Trade certificate enrolments maintained themselves at a high level during the 1990s but certificate and diploma course enrolments dropped as degree courses took their place. Since polytechnics have been able to grant degrees the process of academic drift in a few of the larger polytechnics has occurred at a rapid rate. In the Auckland based UNITEC Institute of Technology and the Auckland Institute of Technology, degree students quickly outnumbered sub-degree students. Across the system the proportion of students studying part-time also plummeted. As indicated earlier, some commentators regard this as a sign that these institutions are moving away from sub-degree level vocational education and training.

The move toward making tertiary institutions more responsive to changing demand continued in 1998 with the release of a White Paper on the Tertiary Education Review. The first Tertiary Review announcements involved funding decisions included in the 1998 Budget. These removed the cap on student numbers so that all students, no matter where they study in New Zealand, now receive government funds towards the cost of their course as long as they are studying for an approved qualification with a quality provider. One characteristic of the New Zealand vocational education and training sector in the 1990s has been the growth of private training providers. This trend is likely to continue as they receive greater access to government funding.

As the larger polytechnics move towards university status and private training providers begin to compete at the training level, the future of the polytechnics is uncertain. Presumably there will continue to be a future demand for trade, certificate and diploma level courses. Whether these are provided mainly by government owned tertiary institutions that specialise in these fields, or alternatively by private training providers, or even multi-level tertiary institutions of the type found in Australia, remains unclear. Most likely there will be a combination of all models filling the gap that has arisen

due to academic drift amongst the larger polytechnics. What is clear is that New Zealand's vocational education and training providers, whether government or private, will need to respond to market demands just as they have done in the past, and presumably their character will continue to reflect the ever changing skill requirements of the New Zealand economy.

Conclusion

Throughout New Zealand's history technical schools, colleges, institutes and polytechnics have had to respond to the demands of students and industry in order to maintain enrolments and funding. In the first half of the twentieth century the technical schools and colleges provided secondary school education of a technical nature as well as part-time courses in trade training and commercial subjects. Only in the post-war period did numbers attending senior technical colleges rise to a level to warrant the establishment of separate tertiary level technical institutes. By responding directly to economic and technological needs, it has been possible for polytechnics to provide an important source of skilled workers for the New Zealand economy. This policy is likely to continue into the immediate future The types of courses offered and the means of their delivery will continue to vary as the New Zealand economy adapts itself to future market trends. The mix of government and private provision is also likely to continue with private providers playing an increasingly important part in the delivery of vocational education and training.

NOTES

* The views expressed in this paper are not necessarily those of the Australian Competition and Consumer Commission.

1. Human capital is the knowledge, skill and competencies that support economic growth. Human capital is an asset that can be invested in just the same way that individuals, governments and firms can invest in physical capital.
2. Between 1990 and 1998 polytechnics were bulk funded by the Ministry of Education according to the equivalent full-time student numbers and courses provided. In recent years the government has also funded private training programs. From 1999 subsidy payments are provided on the basis of actual enrolments and are available to students at private providers on the same terms and conditions of government institutions.
3. Adam Smith, Jevons, Marshall, Pigou and Keynes all expressed support for the notion that additional expenditure on education and training would lead to improvements in productivity (Evans and Wiseman, 1984).
4. In the Australian case the development of a large scale mining industry led to the establishment of a number of Schools of Mines and Industry which laid the basis for the development of technical education.

5. A view not just confined to New Zealand. English industrial managers tended to believe that education and training was not under resourced (Evans and Wiseman, 1984).
6. A. D. Riley, the first principle of the Wellington school, carried out these two investigations in 1888 and 1898.
7. Wanganui 1902; Palmerston North 1903; Westport 1909; Nelson 1910; Napier 1907; Invergarcill 1912;
8. Throughout the 1920s and 1930s many trainees preferred to sit the examinations of the London City and Guilds Institute which gave them qualifications that were more universally recognised.
9. In 1938, for instance, there were 4,359 trainees enrolled in commercial subjects compared to 4,100 in engineering and building trades (Nicol, 1940, p.207).
10. The Technicians Certification Authority of New Zealand was established in 1958 to prescribe courses and syllabuses and conduct national examinations.
11. The technical institutes began to provide more non-vocational courses, while the community colleges provided vocational education as well as non-vocational courses. The difference between the two types of institutions, therefore, was not as great as their titles would imply.
12. At the same time that these four universities (Auckland, Otago, Canterbury and Victoria) were established the States of New South Wales and Victoria in Australia possessed only two universities each, despite having populations of a similar size to New Zealand's.
13. The reports on education and training were the Probine-Fargher report on polytechnics (*The Management, Funding and Organization of Continuing and Training*, 1987), the Shallcrass Report on non-formal education (*He Tangata*, 1987), the Treasury briefing paper (*Government Management, vol.II, Educational Issues*, 1987), the Watts report on Universities (New Zealand's *Universities: Partners in National Development*, 1987), the Tertiary Review (*Report on Submissions to the Tertiary Review*, 1988), the *Report of the Royal Commission on Social Policy* (the April Report, 1988), and the Picot Report on educational administration (*Administering for Excellence*, 1988).

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