

A Long Run Appraisal of the Economics of Government Provided Tertiary Education and Training in New Zealand

by

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Abstract

This paper begins by reviewing the economic justification for government intervention in the provision of education and training. In the following sections an historical account of the development of vocational education and training in New Zealand is provided giving stress on the degree to which this development was influenced by market forces. Following on an analysis of the changing level of efficiency of the government run polytechnics in New Zealand is carried out which finds that although the productivity of these institutions has improved over the course of the 1990s there is still scope for improvement.

Introduction

Since the 1970s it has been recognised that the performance of the New Zealand economy has not reached its full growth potential. In response to this recognition the New Zealand Government carried out in the late 1980s and early 1990s a far-reaching programme of macroeconomic and microeconomic reform, which was designed to stimulate economic growth. This programme involved the floating of the currency, deregulation of financial markets, a reduction in manufacturing and agricultural protection, privatisation of state owned enterprises and reform of labour market institutions. As well as these measures, reform of the delivery of tertiary education and training was undertaken.

Tertiary education and training is today recognised as having an important part to play in stimulating economic growth, both in New Zealand and in the rest of the world. The efficient provision of education and training is regarded as making an important contribution to the development of the New Zealand economy. Over the past twenty years New Zealand governments have attempted to raise the quality of the labour force by extending subsidies to students and businesses, expanding the number of places in tertiary education and encouraged on-the job training. This has resulted in the quality of the workforce - as indicated by the years of education and training - increasing significantly over the past 20 years. Although there has been an intensified acceptance in recent years that education and training plays an important role in the economic development of New Zealand this view is by no means a new one. Throughout the twentieth century New Zealand governments have not only invested in the economy's physical capital (infrastructure such as roads, ports, electricity wires and gas pipelines; Hawke 1982), but have also invested in the education and training of this country's human resources; i.e. its human capital.

One measure that has been implemented in the reform of New Zealand's tertiary education sector during the 1990 has been the increase in the degree of competition in the education and training market in New Zealand. Prior to 1990 polytechnics and universities in New Zealand did not compete directly with each other, nor was there substantial competition to the polytechnics from private education and training providers. Since 1990 the polytechnics in New Zealand have been given much greater autonomy which has meant that they have been able to compete directly with universities in the delivering of degree programmes, have been allowed to establish campuses in centres besides their 'home' locality and in direct competition with other polytechnics, and in many cases have begun to attract overseas students. At the same time private education and training providers in New Zealand have been given greater opportunities to compete with the polytechnics in the education and training markets.

The purpose of this paper is to use an historical approach to examine the changing nature, size and diversification of education and training in New Zealand in the main government operated technical schools, colleges, institutes, polytechnics and institutes of technology over the longer term. In particular the aim will be to identify the degree to which the provision of non-university tertiary level programmes by government tertiary institutions was subjected to the pressures of market forces.

In the latter part of the study the impact of the partial deregulation of the polytechnic sector during the 1990s will be examined by utilising techniques that can be used to evaluate the change in productivity and efficiency of New Zealand' polytechnics and institutes of technology. During the 1990s one of the concerns of the Government has been to expand the tertiary sector and number undertaking education and training courses without placing too much of a strain on the Government's budget. This has meant that there has been an increased reliance on the part of government institutions on private sources of income but also it has meant that there have been

considerable efforts made to improve the economic performance of institutions. One of the purposes of this paper will be to determine the degree to which this has been successful.

In the first section the economic justification for government intervention in the provision of education and training will be summarised. In the following sections an historical account of the development of vocational education and training will be provided giving stress on the degree to which this development was influenced by market forces. Following these sections an analysis of the changing level of efficiency of the government run polytechnics in New Zealand is carried out and some conclusions made about the impact of competition on the level of efficiency of tertiary education institution in New Zealand.

Vocational Education and Training and Human Capital

The notion that education and training can enhance the productivity of labour and therefore increase the national wealth of a country is by no means a new one. In 1776 Adam Smith stated that:

“that a man educated at much expense and time to tasks that require dexterity and skill may be compared to an expensive machine that adds more to earnings than the cost of operating it.” (AdamSmith 1776, reprinted 1971)

Today the view that investment in education and training can raise the productivity of the workforce is embodied in human capital theory. Education, it is thought, enhances the productivity of workers by imparting the basic skills and knowledge of the three Rs, by providing highly vocational skills and techniques and by encouraging appropriate values such as desirable work habits, an agility of mind and the ability to solve problems. Not only, it is thought, will the productivity of labour be enhanced by education and training but also it may lead to the better use of other inputs such as capital and raw materials and better enable the introduction of new technologies. A wide variety of studies have been undertaken on the link between investment in human capital and growth rates. For example, the Organisation of Economic Cooperation and Development (OECD) in its studies of the link between growth in per capita output and a variety of input factors has found that there is a significant relationship between growth in output and investment in human capital. According to the OECD this relationship is by no means a uniform one across nations, and is not the only factor that promotes growth but it was found to be both consistent across all OECD countries and a significant contributor to the growth process (OECD 2002).

Human capital theory views expenditure on education and training, whether it is by an individual, a business or government as a form of investment similar to investments in physical capital (Becker 1964; Mincer 1958; Schultz 1961; Solow 1957). If people are going to be induced to invest in human capital then there must be a rate of return that accrues to them. This rate of return manifests itself in the form of higher incomes for those individuals who invest in education for themselves and higher productivity and growth for the businesses and nations that do so. From the individual's point of view the cost of investing does not just include the cost of education fees but also includes the income forgone by studying full-time and staying out of employment (i.e. the opportunity cost).

Support for human capital theory is by no means universal. Generally, human capital theory views the higher average earnings that more highly educated and trained people receive as evidence of their higher productivity and returns from investment. Criticism of human capital

theory is generally based on what is known as the “screening hypothesis” (Arrow 1973; Blaug 1985). According to this hypothesis although there is correlation between the average level of formal education people have and average level of incomes they receive, this does not necessarily signify that the education creates the extra income earning capacity directly if the formal qualifications are being used as a “screening” device. It is possible that employers pay higher wages and salaries to holders of higher qualification because they expect these people to be of higher intelligence and diligence than those without them. That is the formal education process acts as an indicator of intelligence rather than a creator of abilities (Maglen 1993, 1995).

It would appear that there is some substance to this latter hypothesis but it can quite easily be taken too far. For example, it would be difficult to argue for instance that a person that had invested in their education as a doctor, dentist, engineer or accountant was just doing so in order to pass a screening test. Clearly employers of these people are very interested in the skills they have obtained through their education. Investment in some (at least) education and training increases the productive level of the workforce and helps to contribute to higher levels of output.

Even if it can be shown that investment in education and training leads to increases in the productive capacity of an economy this does not, on its own, necessarily justify government funding of education and training. Private investment in human capital creates private returns therefore it would be expected in many circumstances that there are incentives for individuals to invest in their own education and training. If higher levels of education and training lead to the enjoyment of higher incomes, then there is a good reason for an individual to pay for it. If a company reaps the benefits from employees being more highly educated, then there is an incentive for them to invest in the education and training of its employees. In order to justify government assistance there needs to be a demonstrable market failure that leads to sub-optimal levels of investment in education and training. In other words, there needs to be a social return on the investment that exceeds that of the individual returns; perhaps because of the external benefits that flow from investment in education and training from individual and firm to other people (Quiggin 1999).

There have been a variety of reasons suggested why there might be a substantial difference between the individual and social returns to investment in education and training. Some of these are noted below:

- *Consumer ignorance (merit goods).* A merit good is one that is beneficial to consumers but which they might not be inclined to consume. An example of this might be the use of seat belts in motor car which clearly are of benefit to consumers but which consumers might be disinclined to use. Education at the primary school level might be considered to be a merit good as children would not be in an informed position to make choices about it;
- *Education as a natural monopoly.* This might be the case in isolated regions where the duplication of education facilities is uneconomic but is unlikely in larger towns and cities;
- *Public good characteristics.* A public good is one, which people cannot be excluded from the benefits. Clearly this is not the case with the education of individuals who can be charged fees for the education and training and excluded from education institutions. This type of market failure might possibly be more relevant when it comes to investment in basic research and development. That is in ‘pure’ research where the benefits are difficult to retain by individuals or firms; and

- *Externalities.* If positive spillovers are created by investment in education and training that are not captured in market prices then there would be an under investment in education and training.

At the post-secondary school level it is the latter factor that is probably the most important. It is possible that in some parts of the country there are natural monopoly characteristics such that more than a single provider is uneconomic. Of course this does not economically justify that establishment of a government provider after all, a private provider could quite easily act as the natural monopoly provider. If the government felt it was abusing its monopoly power its fees could be regulated. Alternatively if it could not survive as a commercial entity then it might be subsidised by the government.

On the whole, New Zealand governments have preferred to intervene in the education and training market directly by operating government owned schools, colleges, universities and other institutions. According to OECD figures, New Zealand has higher average proportion of its workforce with some form of tertiary education level qualifications than the OECD average; 28 per cent compared to the OECD average of 24 per cent (Table 1). One notable feature of the figures in Table 1 is that a high proportion of New Zealanders have qualifications from non-university institutions (Table 1: 14 per cent compared to an OECD average of 8 per cent). The most important of these non-university institutions are the state-funded and administered colleges, which are called polytechnics or institutes of technology. By design and tradition these institutions provide a wide variety of academic, vocational and professional programmes that cover subjects at various levels and specialisations ranging from introductory studies through to full-degree and even post-graduate programmes. In 2002 there were 20 polytechnics/institutes of technology operating in New Zealand with 95,782 students. They range in size from the Telford Rural Polytechnic with 341 students to Christchurch Polytechnic Institute of Technology with 9,575 and the Open Polytechnic with 25,891 (*Education Statistics of New Zealand*). Many of the polytechnics are, by world standards, of relatively small size and so in recent years there have been suggestions that some of them should be amalgamated to create larger institutions or even merged with specific universities.

Table 1: Educational Attainment of the Work Force (25 to 64 years) 1998

	VET	University	Total
Australia	10	20	30
Canada	22	21	43
France	12	12	24
Germany	11	15	26
Japan	12	21	33
Korea	6	19	25
New Zealand	14	14	28
Sweden	16	15	31
UK	9	19	28
USA	9	30	39
OECD total	8	16	24

Source: OECD, 1998