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The Structure and Dynamics of Schools and Business: Do they face similar issues?

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ABSTRACT

The main aims of the report are to: (1) gain a better understanding of key economic forces shaping choices available to schools; (2) build up our practical knowledge of how other organisations deal with the kinds of issues facing schools; and (3) bridge the gap between the view that economics has nothing useful to say about how to organise education and the view that education is just another business and should be treated as such.

The report draws on analogies from the business world to highlight parallels between the operating environment facing schools and businesses. It also identifies some important features of schooling which do not have a strong parallel in the business world, which suggests care needs to be taken not to draw too much from any individual example.

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Foreword

Do business and schools share similar problems? If so, can any insights be gained by examining how businesses react to them? These questions are the focus of this report.

Perhaps a more fundamental question, however, is why raise these issues in the first place? Some might assert that formal schooling is so far removed from most business activities that there are few parallels worthy of note. However, it would be difficult to align such a response with the growing overlap between businesses and schooling noted in this report. This growing overlap is due to an increasing diversity of schooling approaches and greater educational choice. The result is that many schools now confront problems typically faced by businesses. Likewise, the increasing importance of continuous learning and skill acquisition while people are in the workforce, means that businesses are confronting issues that schools have tended to tackle.

In contrast to those that assert that there is no overlap between schools and business, others might assert that the parallels between formal schooling and business are so strong and that schools should be run along business lines. However, such a stance ignores some complexities unique to schooling which typically give rise to government involvement. As a result, the structure and dynamics of formal schooling will always be much more influenced by government interventions than most businesses. Among other things, this is due to the key role that governments play in almost all countries to ensure adequate access by all sections of the community to schooling of an appropriate quality (in particular, by making attendance compulsory and ensuring provision at little or no cost to students who attend).

The report focuses on the performance and structure of schooling. Government involvement in education is pervasive and therefore shapes many observed features of schooling. Nevertheless, we look at underlying forces influencing school behaviour, such as how they deal with difficulties in measuring their performance and influencing parent perceptions of the quality of their services. We have tried to do this by drawing on analogies from the business world to bring into sharp focus some strong parallels between the operating or business environment facing schools and businesses, despite the fact that both are subject to very different regulatory environments.

There are of course important features of schooling which do not seem to have a strong parallel in the business world. Care needs to be taken not to draw too much from any individual example as some of the underlying forces on schools interact, and the combination of them – which is what schools in reality face - means that exact parallels cannot be drawn between schools and any particular business or industry. Nevertheless we believe that this report offers useful insights into the structure and dynamics of schooling that exist whatever the specific regulatory environment facing them. This is important because differences in regulatory environment may lead these forces to manifest themselves in different ways, but these forces are nevertheless present

and need to be understood by policy makers and sector participants alike. The report does not derive policy conclusions for the obvious reason that identifying general influences on schooling is only one small component of what is needed to develop policy in this area.

Executive Summary

The genesis of the report lies in debate about the inherent features of schooling that make it different from other activities.

This report examines how businesses deal with various types of issues facing schools. Its intention is to enrich the understanding of the structure and performance of primary and secondary schools by comparing and contrasting them with the provision of other goods and services.

Government involvement in education is pervasive.

The government is heavily involved in schooling in New Zealand. It is the dominant owner of schools, with more than 87 percent of students attending state schools. The state also funds primary and secondary education but funding is not uniform. The school sector is significantly regulated by the Education Act 1989. The current structure of schools and their performance thus reflects this involvement.

This report attempts to identify the inherent features of education and schooling that make schools similar to or different from other activities.

The observed structure and behaviour of schools explicitly and implicitly reflects the influence of government policies. This report identifies the intrinsic features of education and of schooling to assess how they could affect the structure and behaviour of schools by abstracting from the effects of government involvement in education. It then identifies how other businesses with similar features respond to them in the way they are structured or the way they perform.

But the abstraction of the effects of government intervention for the purposes of analysis should not be interpreted as implying that no or limited involvement in schooling is an appropriate public policy.

It should be noted that ignoring the effects of government involvement in schooling is an abstraction. It should not be interpreted to mean that the absence of interventions specific to the schooling sector is an appropriate public policy. However, identifying parallels between business and schools can provide insights about potential complexities in schooling that will shape the nature of government involvement. In almost all countries government involvement by way of regulation, ownership and funding of schools (with different mixes among these instruments) is pervasive, reflecting common community values about the importance of ensuring adequate access to schooling of appropriate quality by all sections of the community.

Education is a service whose inherent characteristics affect how schools are organised and how they function.

The nature of a product or service can influence how it is provided. Education is a service whose characteristics affect both the structure and behaviour of schools. The principal features of education are that:

- it is an investment which involves a current cost and a future and uncertain benefit;
- it is a complex process that depends not only on the ability and past education of the student but also on the quality of teaching;
- the needs of students are heterogeneous, and each student has different needs and capabilities;
- the quality of the service is hard to assess before it is used and the effects of poor teaching may only become apparent after some years;
- education is cumulative and sequential, so that what can be learned depends on what has been learned before; and
- education at the primary and secondary level involves children, whose parents act on their behalf in choosing to educate them.

Education shares some common features with many other services.

These characteristics of educational services are similar to those of many other professional services such as health care or legal services. For example health care is an investment that can improve the length and quality of life; the benefits of health care depend not only of the quality of the care, but also on the patient; the needs of patients are diverse; the quality of the service is hard to assess before use; health status often depends on past lifestyle decisions and activities and not all patients (such as the mentally ill or comatose) are capable of making their own decisions about the care they need.

Schools have certain inherent features that arise from the nature of the educational services they provide.

Schools are a typical organisational form for providing educational services. A deeper understanding of schooling can be inferred by looking below the surface of what is observed in schooling. Features such as the typical segmentation of schooling among age groups (schools for junior, intermediate and senior students), for example, may simply be the result of government policy, rather than an inherent feature of schools. Schools typically:

- involve a teacher or teachers with a number of students;
- involve long-term relationships between students, staff and the school;
- offer qualifications and examinations;
- offer a range of subjects of instruction;
- divide students into various categories; and
- offer other services in addition to education.

The structure of schools can be explained by the existence of transaction costs, in the same way that transaction costs explain the existence of firms.

Transaction costs are all those costs that surround economic activity and exchange. They encompass a spectrum including the costs of information, of negotiation, of drawing up and enforcing contracts, of defining and enforcing property rights, of monitoring performance, and of changing institutional arrangements. In short, they comprise all the costs that are not simply the costs of physical production. The very existence of organisations is a response to transaction costs. The structure of organisations reflects their implicit objective to minimise their total costs (transaction costs plus production costs) for a given level of output. The structure of schools can also be examined as a response to the nature of transaction costs.

So how might the forces that shape the responses of businesses to problems they face also find reflection in formal schooling?

So if transactions costs affect the structure and practices of schools as well as businesses, how might the forces that shape the structure of businesses also be reflected in formal schooling? These implications are the focus of this report. Many of the responses by businesses are already reflected in the current or emerging structure and practices of schools. Others are not typically seen in the educational sector. Some responses, such as price discrimination used by businesses, are more problematic in respect of schooling. Accordingly, not all the potential responses available to businesses are appropriate for schools.

Schools are a form of organisation that economises on the costs of co-ordination and takes advantage of specialisation.

If there were no schools, parents could contract with a number of individual teachers to provide instruction to their children. However, searching for appropriate teachers and monitoring their quality could be costly. The costs of co-ordinating specialist teaching could be high, and a generalist teacher might not have the range of necessary skills. A school can be a less costly alternative as it assembles and co-ordinates the necessary educational and administrative skills to provide educational services. A school can take advantage of economies of scale (teaching many students at once) or economies of scope (teaching a range of subjects). A school can also obtain information about the teachers it employs and assess their performance.

The structure of schools would be likely to be diverse.

Schools could take a number of organisational forms, from schools as corporate entities that employ a number of teachers, to schools that provide premises but lease them to individual teachers under contract. There would also be likely to be scope for individual teachers to offer instruction to students as specialist music teachers do now. It is difficult to foresee which types of arrangements would be most likely to emerge.

- Hospitals such as Ascot and those run by Southern Cross both employ staff and lease the use of facilities to service providers such as surgeons.

A significant characteristic of schools is that they involve long term relationships between students and the school on the one hand, and between teachers and the school on the other.

Schools do not operate on a 'spot' market. There is a durability or persistence in the decision to attend a school that does not involve very frequent changes between schools.

- The purchase of a house is a durable decision, since there may be significant transaction costs in moving. In contrast, renting a hotel room is a less durable decision as the transaction costs of shifting are low.

The long term nature of these relationships arises because transaction costs make frequent moves costly.

There can be significant transaction costs for both teachers and students in moving between schools. They are likely to arise from the costs of the disruption of personal relationships between students and their teachers; the disruption of learning when it is hard to find out what a student has already learned; and the costs of obtaining information about the quality of education provided at the new school. Students and teachers also acquire skills and knowledge that may be quite specific to the school and the course of study, thus making it costly to transfer to another school.

- The relationship between general practitioners and their patients is often a long term one, where a change of doctor can disrupt treatment and it may be hard for the new doctor to find out the exact state of the patient's health.

Education is a complex service, making the assessment of teaching and school quality costly and difficult.

Education, like many other services is an 'experience good' whose quality is not easily discerned before it is used. Measuring the quality of schooling is difficult because it is hard to observe the ability of students and the quality of their effort and to separate these effects from the value added by the school. The value added by the school in one year also depends on what the student has learned in previous years, and thus is potentially affected by prior teaching quality.

Schools use a range of mechanisms to assure potential students and employers of past students about the quality of the education they provide.

The difficulties of measuring the quality of education provided by a school underlies the use of a range of mechanisms to signal the quality of the school. The parents of potential students have an incentive to obtain information about the quality of the school, and potential employers have an incentive to find out the level of education of potential employees. The school also has an incentive to provide information about the quality of the services it provides in order to attract and retain students. It is more cost-effective for the school to provide the information because it has better information than parents or employers about the quality of the services it provides.

Schools typically measure educational attainment through the use of examinations and the award of qualifications.

Examinations and other systems of measuring educational attainment are commonly used by schools to measure the achievements of students. Qualifications are granted to students on the basis of their educational performance, and are used by them to signal their value to potential employers. Employers use qualifications as a cost-effective way of finding out what potential employees know and for screening them. Examination systems are also used as measures of what students who are still at school have already learned, and so common curricula and performance measures (such as examinations) facilitate the movement of students between schools.

In cases where the majority of students move from one school to another, the schools might seek to co-ordinate curricula or adopt other standard practices.

Vertical integration is a response to the existence of the costs of frequent transactions. When students move between schools (for example between primary and secondary school) there is likely to be some disruption to their education and the relationships they have formed with other students and teachers. Co-operation and the co-ordination of examinations, curricula, school culture and teaching approach between schools where most students move from one to another could reduce these costs. The relationship could involve informal arrangements at one end and full vertical integration under a single owner at another. Savings of other costs such as administration and marketing may also foster greater integration.

A number of forms of measuring performance are likely to arise.

The information provided by measures of educational attainment is enhanced if the measures are comparable across a range of schools and if measurement is independent. Schools may develop a common system of examinations that they all use, or independent providers could develop and administer examinations for schools.

Teachers have an incentive to signal their quality to schools as potential employers.

Teachers know more about their ability than do schools who are their potential employers. This informational difficulty arises in other employment situations, but is exacerbated in teaching because it is hard to observe the quality of the educational outputs. Certification is a way of reducing the transaction costs for schools employing prospective teachers, since it reduces the need for each to ascertain the quality of the teacher independently. Voluntary professional associations are likely to emerge in order to provide quality assurance to schools through teacher certification, as they do in other occupations.

- The New Zealand Master Builders Federation is a voluntary registered society which registers master builders according to strict criteria. Registered Master Builders are subject to recertification each year and must comply with the code of conduct of the federation. Membership of the federation involves an explicit guarantee of quality to buyers of building services.

Independent organisations are likely to rate school quality.

Customers rarely know more about a service's quality than the provider of a service does, yet have a strong incentive to obtain sufficient information about the service they intend to buy in order to make a decision. Independent organisations can provide information about service quality as they do for other services such as hotels and restaurants. However, the multidimensional nature of education and the diverse needs of students may make it difficult to provide a single measure of quality, such as a 'star' system.

- Qualmark is an independent rating system which is a joint venture between the Automobile Association of New Zealand and the New Zealand Tourism Board. It operates a one to five star rating system for hotels and motels. Properties display the rating on their properties and in their advertising and it is also used in accommodation guides to help travellers choose where they want to stay.

Schools are likely to invest in branding by developing a reputation for providing educational services of a certain type and quality.

Since a school knows more about the quality of services it offers than students or their parents, and it is harder and more expensive for the buyer to obtain the information, it is cheaper overall if the schools provide information. But the information must be credible for it to be effective in influencing the decision of the buyer. One way to promote credibility is for the seller to develop a trustworthy reputation that is compromised if the quality is not met. Investments in reputation, branding and goodwill are all means of providing information about the quality of education to potential buyers, and are common in other areas of professional services. These tangible activities are proxies for the unobservable quality of the education on offer. Schools at present face similar issues and respond by promoting their reputations.

- Legal services, like education, are intangible experience goods and it is hard to separate the activities of the client from the efforts of the lawyer in the legal outcome. As a result, it is hard for the client to discern the quality of the services provided. Legal firms thus typically focus on the observable and tangible aspects of their services as signals of quality, such as high prices, expensive premises, and highly qualified, well presented and well-spoken staff. They also develop reputations for providing high quality services and present themselves accordingly.

Chains of schools can economise on the costs of branding. In some respects, special character and denominational schools already exhibit some of these features.

A chain could be developed with a number of schools offering standard teaching approaches or curricula as a signalling or branding device that differentiated it from other schools (in some respects special character and denominational schools already exhibit some of these features). The chain's investment in branding would establish a reputation for a certain quality or type of service which it could capture in repeat business across the whole chain. Students shifting between schools would be likely to move to another school in the same chain, thus displaying some 'brand loyalty.' The branding would reinforce the 'lock in' of a long term relationship to the chain, but would facilitate movement between schools through common courses and performance measures. A chain could offer significant advantages to schools in economies of scale in administration and marketing, as well as in the development of a curriculum and common approach to pedagogy. Chains of businesses are common in other sectors.

- The Silver Oaks Group owns and operates a chain of motor inns which are subject to rigorous quality control. This means that potential patrons can be sure of the quality of the motor inn before they make a booking. The common quality associated with the brand establishes a reputation that signals quality and ensures repeat business from loyal customers.

Schools could operate as franchises.

Some schools (such as kura kaupapa) that share the same special character exhibit some of these features.

An alternative to a chain of schools under single ownership is franchising. Franchising would involve an individual school buying the right to provide a particular type of education from the franchisor which develops the curriculum and teaching approach to be used. A particular characteristic of franchises is their uniformity. Franchising is often preferred where firms are geographically dispersed and costly to monitor. Franchises are common in some service industries, such as hotels and accounting and already exist in some sectors of education.

- Yamaha and Suzuki music schools are operated by independent teachers (generally sole practitioners). However, they share common teaching techniques and training programmes.

Both for-profit and non-profit schools might co-exist.

It is difficult to identify any specific feature of education that inevitably leads to a non-profit form of organisation for schools. Schools have not always been run as non-profit organisations. There are currently a large number of specialist schools, such as music schools, that are run for profit, although historically for-profit schools offered a general curriculum. Non-profit and for-profit forms of organisation co-exist in other sectors such as health care and the provision of social services.

- Southern Cross Healthcare is a non-profit friendly society owned by its 800,000 members. It runs hospitals under a trust and a profit-making arm runs travel and workers' compensation insurance. In contrast, Ascot Integrated Hospital is a profit-making company.

Just as transaction costs explain how schools are structured, they also help to explain school practices .

Transaction costs underlie a number of the behavioural characteristics of schools, such as the use of compatible qualifications, the grouping of students, the provision of multiple services within the school, the multiple uses to which school facilities can be put and the location of schools. Other factors that are important include economies of scale and economies of scope.

Schools face incentives to standardise their qualifications and make them compatible.

The tendency for students to move between schools is made easier if schools adopt compatible qualifications that reflect an agreed standard of achievement. A common, standardised system of examinations can promote interaction between schools by providing information on the educational achievement of the student and by reducing the transaction costs of shifting students between schools. It can also allow schools to take advantage of economies of scale in the preparation of the curriculum. Three basic forms are possible: an external organisation that franchises or sells the curriculum to independently owned and operated schools; a consortium of schools that have a common philosophy of education or horizontal integration to form a chain of schools.

- The TOEFL is an example of an external independent system of examinations that is used as a common measure of English language proficiency. It is an internationally recognised standard that allows students to move between countries without having to undergo more testing.

There are advantages in grouping students together for instruction.

Schools group students together to take advantage of economies of scale where teaching a number of students at once is effective. In other circumstances, for example, piano teaching, one-on-one teaching is more appropriate, but the costs per student are likely to be higher. Groupings of clients are common in other businesses, where individual attention often involves higher costs.

Schools might also try to take advantage of the fact that students learn from one another.

Students affect each other, so that good students can improve the learning of less able students, thus improving the overall observed quality of the school. Schools take advantage of these positive peer effects by offering scholarships to bright students. These peer effects pervade service industries, which typically manage them through differential pricing.

- Airlines typically reward customers who pay additional costs for business or first class seats, or for 'club' membership fees with access to special airport lounges. This partly reflects opportunities to 'network' in business lounges (ie, peer effects) which may increase customer loyalty.

Schools tend to cater for the diversity of student needs by specialising in certain subjects or approaches to education.

Students have a wide variety of tastes and needs. Different schools will specialise in meeting different needs, from schools specialising in surfing to drama. Language, culture and religion are particularly important in shaping the demand for specialised schooling. Socio-economic factors may also be important, as parents often select schools where students are similar to their own children. The differentiation of goods and services by type, quality and price is a defining characteristic of all markets, from cars to clothing.

- There are many different ways of travelling between Wellington and the South Island. Options include flying, or travelling by a variety of means of sea transport. Some modes are restricted to freight only. All could be expected to be of the quality demanded by discerning purchasers. But each mode of transport differs in its type or characteristics. Some enable a vehicle to be transported, while the time taken to make a crossing varies according to which mode is used.

Schools' facilities might be used in increasingly diverse ways for longer periods of the day.

The capital assets of schools, such as land and buildings, can be costly. This is a typical feature of many businesses who respond, for example, by making more intensive use of their facilities by running multiple shifts or by leasing facilities. Since school facilities are not highly specialised (ie they are not highly asset specific), premises could be leased and fitted out for schools in the same way as they are for other businesses.

Schools might be used to provide multiple services.

The provision of academic instruction is complementary to many other activities directed at children and young people. Schools could offer services in addition to the core provision of education. For example, they could offer health care or related family social services. These services could be provided simply as part of the overall package of services, or they could be provided under contract by specialists who leased facilities from the school. The leasing of facilities for the provision of complementary services is common in business, for example in shopping malls.

- Ascot Hospital both leases facilities to surgeons and consultants (who are paid for their services by patients) and provides accommodation and nursing care to patients.

The location of schools is likely to reflect changes in technology.

Schools are generally located close to a child's home. Like other businesses, schools are likely to site themselves close to the demand for their services, but demand at that location must be sufficient to justify the provision of a service. Technology is likely to become increasingly important in delivering education since it can separate location from the provision of services. Technology is increasingly being relied on to provide services in small or remote communities.

- Bank Direct has no branches but offers a full range of banking services from its premises in Auckland. Most of its customers are high level users of technology, and a lack of physical branches does not hinder the provision of services to this market.

While many of these responses by schools are common to businesses, two features distinguish schools from other businesses;

- *the heightened difficulty of measuring the quality of educational services they provide; and*
- *the custody of children.*

While many of the above responses by schools reflect the commonality of the issues faced by schools and businesses, schools differ from businesses in two important respects (as always, leaving aside the more pervasive role of the government in funding and providing for schooling compared to other businesses). The first is the difficulty of measuring the quality of educational services provided by schools. This gives rise to systems for measuring educational achievement. Typically these involve a system of examinations and the granting of qualifications in order to facilitate the movement of students between schools. They also provide a signal of school quality to prospective students and to the prospective employers of graduates.

The second unique feature of schools is their custody of children on behalf of parents, and that students between certain ages are compelled to attend. This feature is addressed through the provision of truancy services to ensure attendance.

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1 Introduction

The genesis of this review is the debate that often occurs about the extent to which the educational sector, and formal schooling in particular, is inherently different from other activities. While this is obviously true in some ways, education is likely to exhibit many characteristics similar to other industries. The intention is to enrich the understanding of education and its inherent characteristics that determine the structure and performance of schools in an increasingly diverse and dynamic schooling sector.

The focus of this report is on comparing and contrasting the provision of education through formal schooling with the provision of goods and services through firms. As forms of organisation, schools and firms could be expected to exhibit different characteristics in response to the demands and constraints they face. The provision of goods and services through firms, and of formal schooling through educational institutions is pervasive. At the most general level, firms and schools transform inputs via a process that produces goods or services. Useful insights can be gained by examining differences and similarities in how these institutions respond to variations in the 'raw material' they seek to transform, to constraints and opportunities in ways in which those inputs can be 'combined' or processed, and to difficulties in measuring the nature and quality of the 'raw material' and of the final outputs.

Variations in inputs, the quality of 'production processes' or the quality of outputs alone do not give rise to contracting or incentive problems. Difficulties arise when one party to a transaction is aware of variability and the other party is not. Much of this report focuses on parallels in the commercial world where these information asymmetries arise and how these problems are ameliorated through contracting or other solutions. Many of these solutions revolve around issues related to measurement.

The report identifies potentially relevant analogies between the commercial world and formal schooling. This should not imply, however, a stark dichotomy between the two realms. Even a cursory analysis of the education and commercial sectors indicates a continuum between schools and businesses. In New Zealand and elsewhere, some schools run activities that are at the margins of commercial businesses. Likewise, some businesses are closely involved in the provision of education. Accordingly, several of the business analogies highlighted in this report span the spectrum between schooling and business as traditionally understood.

The conclusions of the report are not intended to be prescriptive – indeed, the complexity of the educational and commercial world is such that prescriptive remedies to problems faced in education are unlikely to be viable.

The report is organised as follows. Section 2 provides a context for the review by identifying in broad terms the current regulatory

environment of schools in New Zealand. This description is not exhaustive but instead focuses on those aspects that have implications for considering parallels between schooling and other sectors.

Section 3 outlines key characteristics of education and schooling. This section provides the framework for Sections 4 and 5. Section 4 focuses on parallels between the organisational nature of schools and of firms, and how these reflect responses to particular problems raised by co-ordination, long-run relationships and quality assurance mechanisms. The focus of this section is to document the types of institutional arrangements that have evolved in the business sector to ameliorate problems that are similar to those faced by schools.

The focus in Section 5 shifts from how schools are organised to how they interact with each other and with their clients (broadly understood) to provide educational services. In particular, we discuss ways in which the sector has responded to measurement and agency problems through compatible qualifications and sorting of students. The implications of the provision of multiple services and the location of schools to respond to client demands are also noted. Parallels with responses by businesses to similar measurement and agency problems are outlined and their relevance assessed. The conclusions to the report are set out in Section 6.

2 The Regulatory Environment for Schools in New Zealand

This section outlines the principal features of government involvement in education as a background to the report. Since the focus of the report is identifying the inherent features of education and schools, it is helpful to appreciate how government policies currently affect the structure and performance of schools.

Schooling in New Zealand is characterised by a high degree of government involvement. The state is involved in education at two conceptual levels, in the inputs to the educational process, and the educational process itself.

2.1 Regulation of Inputs

Regulation of education is carried out under the Education Act 1989. The principal features of the regulatory environment are that attendance at a school is compulsory for all children between the ages of 6 and 16. The Ministry of Education sets the education requirements for teachers, and requires that all teachers be registered. School buildings and the equipment they contain must meet guidelines set by the Ministry. In fact, the majority of schools are owned by the state, so the nature and quality of buildings is controlled largely via ownership.

State owned schools dominate the school sector. The extent of the ownership interest of the state is indicated in Table 1. In 1997, just over 25,000 or 3.5 percent of students attended independent schools out of a total of more than 712,000. A further 9.5 percent attended integrated schools. These are schools where the premises are privately owned and the schools receive similar levels of funding for tuition, but must fund their own capital expenditures, and are permitted to do so through charging fees. The predominance of state ownership of schools is a characteristic of all OECD countries, although New Zealand's state ownership is particularly high.

2.2 Regulation of the Educational Process

State schools are regulated in most aspects of their operations such as their governance arrangements, curriculum, employment of teachers, terms and hours of operation. Independent schools, in contrast, are lightly regulated, but must provide facilities and services comparable to state schools and must employ registered teachers except in narrowly-specified circumstances. Integrated schools are subject to similar regulation to that of state schools.

Table 1 - Number of Students Attending Schools, 1997

Type of School	State	Integrated	Independent	Other*	Total
Full Primary	132,843	14,100	6,351	0	168,322
Contributing	210,072	6,840	0	0	216,912
Intermediate	56,168	0	98	0	56,266
Composite	12,042	3,808	11,904	0	27,754
Year 7-15	18,360	18,176	3,036	0	39,572
Year 9-15	177,790	10,166	3,580	0	191,536
Special Schools	1,774	0	80	157	2,011
Correspondence School	9,903	0	0	0	9,903
TOTAL	618,952	68,118	25,049	157	712,276

* Consists of schools in Social Welfare Institutions, Homai Vision Education Centre, and Glenburn.

Source: Ministry of Education

The state has a substantial financial investment in education as indicated in Table 2. The Education Act 1989 gives every child between the ages of 5 and 19 the right to a free education at a state school. The meaning of 'free' is not defined in the legislation. Schools receive funding via the Ministry of Education from general taxation. The level of funding is determined by the type, class, location and size of school that students attend. Funding is not uniform. In general, state schools receive more public funding per student than integrated schools which get more funding than independent schools; smaller schools get more funding per student than larger schools; and low decile (with low socio-economic status) schools receive more funding per student than higher decile schools (although almost all of this difference is accounted for by higher per-student operations grants rather than differences in the funding of teachers' salaries or school facilities). Partial additional funding is available for students who are more difficult to educate.

Table 2 - Real Resourcing per Student: State Schools, 1996

Decile	Number of Schools	Number of Students	Operations Grant	Salaries	Land and Buildings
1	234	63,358	1,173	2,307	6,059
2	224	60,197	1,048	2,450	5,980
3	237	70,440	943	2,415	5,558
4	220	72,747	936	2,507	6,143
5	210	67,816	873	2,582	5,735
6	218	62,009	891	2,585	5,911
7	220	56,957	864	2,681	6,065
8	228	62,686	799	2,340	5,494
9	219	53,049	752	2,191	5,379
10	231	80,421	721	2,273	5,689
TOTAL / AVG	2,241	649,680	896	2,430	5,808

Source: Ministry of Education

State funding does not reflect the real resources available to schools. For example, boards of trustees are not funded for the management services they provide; nor do state schools face the cost of capital, which is met separately by the state.

Funding is provided to schools under the categories of 'operations grants', 'salaries' and 'land and buildings'. Staffing levels at many state

schools are set according to a predetermined formula (central resourcing), while directly resourced schools receive predetermined levels of funding to meet the costs of teachers' salaries but have the discretion to decide the mix and numbers of teachers employed.

2.3 Regulatory Features of Schooling

The level of government involvement gives rise to a number of features which characterise schooling in New Zealand. Some of the more obvious ones are listed below:

- most independent schools that offer the 'core' curriculum are not for profit, although there are a number of specialist schools that operate for profit, for example teaching music or swimming;
- the curriculum taught by both independent and state schools is largely similar, although state schools can tailor the curriculum within regulatory guidelines to their own needs;
- there is little specialisation among schools, and most schools attempt to cater for a diversity of needs among students within the school;
- all state schools and most independent schools use the state system of examinations and qualifications. There is very little use of external examinations in the core curriculum, although external examinations are used in areas such as music; and
- schooling is compulsory, so students are legally required to attend school;

The business sector offers services that have characteristics that in several respects are similar to education, and the structure of firms and their behaviour is influenced by these characteristics. The remainder of this report identifies business analogies that can be used to explain how inherent characteristics of education influence the structure and performance of schools.

3 Education and Schools

The focus of this report is on the performance and structure of schooling, and how analogies from the businesses world can be used to predict and explain how the inherent characteristics of schools affect they way they are organised and how they behave.[1] The role of the government in the education sector is pervasive as shown in the New Zealand context discussed briefly in Section 2, and strongly influences the observed organisational structure and performance of schools. Therefore imagining how schools the inherent characteristics of schools affects their structure and performance involves two issues.

The first issue is related to the service provided by schools. It involves identifying the nature of education and its demand characteristics. This issue is important because the nature of the service can influence how it is provided. For example, petrol retailing is driven by a demand for transportation and a derived demand for fuel for motor vehicles which means that petrol retailers are conveniently located along major roads, often in conjunction with other motor services such as vehicle repairs. At the same time, economies of scale and transaction costs lead to vertical integration in the industry and strategic co-operation among competitors in the use of facilities such as refineries.

The second issue is how schools are organised to provide the service, and how lessons can be drawn from businesses about they way they function. We thus distinguish between education (the service) and schools (the form of service delivery). Each has different characteristics. For example, education is widely thought to have some public benefits in addition to the benefits to the individual student, although they can be hard to measure. Schooling produces a different type of public benefit from the effects of peers on each other since students who learn together often teach each other. Although schools are the predominant form of delivering formal primary and secondary education, we acknowledge that education more broadly involves significant informal and self-directed learning.

The major role of the state in education worldwide is relatively recent. Two hundred years ago, children in Europe and the United States were predominantly schooled by church schools, private tutors or by private schools. The institution of state schooling however has spread over the last two centuries.[2] Over the last 150 years the state has become the major supplier of schooling worldwide. The state not only provides schools, but also provides funding for schooling and regulates education. The pervasive phenomenon of government intervention in schooling raises several questions.

First, why does education typically take place in schools? In other words, what are the forces at work that make the school the preferred organisational form for delivering education? Most of these forces arise in the presence of imperfect information about the quality of education and uncertainty about student ability and future employment prospects.[3] The school may be seen as an efficient arrangement of

contracting between parents and teachers for the delivery of educational services to students.

The second question is related to the conduct of schools toward one another. What are the forces that drive schools to co-operate and co-ordinate their activities on the one hand and to compete with each other on the other? State schooling systems are often characterised by centralised administrative systems that limit the scope for decentralised decision-making, foster a perception of uniformity (such as a standardised curriculum) and limit the forms in which competition among schools occurs.[4] In the absence of regulation, however, it is likely that schools would function much like other businesses that strategically co-operate where it is in their interests to do so, but compete in other circumstances.

To address these issues we must identify the inherent characteristics of education that affect both the structure and behaviour of schools. The principal characteristics of education and schools are set out in Figure 1.

Figure 1 - Characteristics of Education and Schools

Education Characteristic	Schooling Characteristics
Investment	Curriculum and subjects
Complex	Teachers and students
Heterogeneous	Specialisation and grouping
Measurability	Qualifications and examinations
Cumulative	Long term relationship

3.1 Characteristics of Education

The characteristics of education that we consider to be relevant in helping to explain the nature and behaviour of schools are its investment nature, its complexity and cumulative nature and problems of measuring its quality. In addition, the students who are an input into the process of education are highly heterogeneous. Of course, education has many additional characteristics that are important in other contexts. For example, parents may not act in the best interests of their children in ensuring that they receive an education. However, this is an issue for government intervention rather than the structure and behaviour of schools.

Education is an investment. Like many activities, education is an investment which involves a cost in the present and an uncertain future payoff. The payoff occurs not only from the content of what has been learned, but also from the process of education itself, which makes it easier for educated students to learn new skills and tasks in the workplace. The enhanced knowledge and skill gained from education is valuable to the student. It can enhance his or her employment prospects and lifetime welfare. There are also intangible benefits which can be termed 'participation in society' that arise from a broad understanding of subjects such as history, geography and science. The benefits of education create a demand for learning that students (and their parents) consider to be relevant and valuable. The expected payoff to education will affect the demand for both the type and

duration of education, and will be affected not only by the quality of the education received but also by the supply and demand for the skills acquired. The expected benefits of education determine to a large extent what is taught. While mastery of core areas such as the '3 Rs' is a necessary foundation at the primary school level for further learning, more applied subjects are offered towards the end of secondary schooling. Education itself offers consumption benefits. That is, students can enjoy learning quite apart from the instrumental value of what they learn. This consumption can drive the demand for certain types of educational activity such as sport, especially at the senior secondary level.

Education involves children. Education is not independent of the student. Education typically (but not always) involves children who cannot be relied on to make rational decisions about their future. Parents generally act on behalf of their young children to ensure that they receive an education in order to reap the future benefits. The demand for education therefore arises from parents. Part of the demand for schooling may also be driven by the custodial services offered by schools.

Education is complex. The process of education is complex, and its quality depends not only on the ability of the teacher, but also on the ability, aspirations and background of the student. Importantly, education occurs to varying extents through informal learning activities often carried out in the home. The benefits of learning therefore arise not only from formal schooling but also through the time, effort and money that parents and other family members invest in their children. These factors are often influenced by a culture and its attitude toward learning. The process of learning is thus complex, and it is hard to separate the marginal effect of formal education from other learning activities. Education is also influenced by peer effects, since students can learn from one another. So, educational outcomes are a function of multiple inputs, only one of which is school or teacher quality. Also, education is multidimensional and covers a wide range of subject areas. Parents and individual teachers are not generally equipped to teach the range and depth of all the subjects demanded by students. Education therefore typically involves the interaction of a student with several teachers.

Education is heterogeneous. As noted above, students differ from one another in ability, family background, educational achievement and aspirations. Parents and students display a wide range of preferences about education. Some may prefer traditional methods and subjects, while others may prefer a more liberal approach. Each student has different learning needs. Some may require remedial teaching while others may need more advanced opportunities for learning. A wide range of educational services is required to address those needs, and so education is very diverse. At the same time, it is difficult for schools to deal with such heterogeneity among students. Customised one-on-one teaching is costly. As a result, schools both specialise in serving niche markets such as gifted children and group students together in classes.

The quality of education is hard to measure. An important result of the complexity and heterogeneity of education is that the quality of education is both variable and hard to measure. It is hard to measure not only the intellectual endowment and prior educational attainment of the students, but also the quality of the educational process and the educational outcome. It can be hard for students and their parents to measure the effectiveness of teaching and its contribution to the education of the student. Even so, parents seek information about the quality of the education provided by schools and schools have incentives to signal their quality. Examinations and qualifications are mechanisms for doing this.

Education is cumulative and sequential. What a student learns depends to a large extent on what has been learned before. For example in studying Shakespeare, the ability to read is important. Mastery of calculus depends on a good knowledge of basic algebra. Schooling therefore typically takes place in the context of a long term relationship between the student and the teacher or school where teaching builds on what has been learned before.

It should be noted that some of these characteristics are not unique to education. They occur in other professional services such as health care and law. For example:

- health care is an investment that can generate a payoff in terms of improved quality and length of life;
- health care is complex, and depends not only on the services provided by the professional, but also on the patient's own behaviour and previous state of health;
- patients are heterogeneous in their needs;
- the quality of health care is hard to assess before it is used; and
- health status depends to a large extent upon prior behaviour and health care decisions.

This resemblance suggests an immediate analogy between education and other professional services in the market, structure and performance of their organisational arrangements. However, government regulation may distort these arrangements (for example prohibitions against multi-disciplinary practices in law) and reduce their usefulness as analogies.

3.2 Characteristics of Schooling

Just as the process of education has certain characteristics, so too does schooling possess certain characteristics that influence schools' organisational form, the way that schools function and the market environment in which they operate. It can be too easy to infer that schools have certain characteristics, just because they are commonly observed. What is observed may simply be the consequence of government policy.

The following characteristics of schools therefore describe briefly what is typical about schools. They arise largely from the characteristics of the educational services that schooling provides. Once we have identified the essential features of schools, it is then possible to identify what makes them what they are. Their organisational form and the way that they function can then be compared with other firms which may have similar characteristics in Section 4, and the way that they function in Section 5.

3.2.1 The Structure of the School

The structure of a typical school has a number of features which arise from the characteristics of education:

Schooling involves a teacher(s) each with a number of students. A school is an institution that offers educational services to students. The parents or guardians[5] engage the school to provide education, while the school employs teachers to instruct the students. A school typically involves one or more teachers and a number of students but in very small schools, there may be only one teacher. It differs from tutoring because it typically does not involve one-on-one learning. Teachers generally teach many students at once in a classroom setting. Although some learning may be self-directed, especially at a senior level, most schooling involves both teachers and students. This characteristic of schools arises principally because of the complexity of education, since a single teacher cannot typically cover the range of subjects required by students, particularly at the secondary level. In fact, many parents who home school their children through the primary years send them to secondary school, at least in part for this reason. The school as a nexus of relationships between parents, students and teachers is discussed in Section 4.3.

Schools involve long term relationships. Schools typically enrol students for a long period, generally for at least a term, but often for several years or even a student's entire school career. They also engage teachers for long-term contracts of at least a term. The long term nature of the school relationship between students and teachers arises because of the cumulative and sequential nature of education. The long run relationships that are characteristic of schools are explored in Section 4.4. The sequential nature of learning means that it can be difficult for students to shift easily between schools. Examinations are one way of obtaining information about the educational attainment of students that makes it easier for them to transfer between schools. The mechanisms used by schools to co-operate and facilitate movement between them are discussed in Section 5.2.

3.2.2 The Market Behaviour of Schools

Schools offer qualifications and examinations. Schools typically offer their students qualifications to indicate their level of educational attainment. Often they do this through external examinations that are also common to other schools. Examination systems and qualifications are a response to the difficulties of measuring the quality of education. They

also provide a signal about the quality of the services offered by the school, but are an imperfect measure of performance because they do not separate the effects of the natural ability and previous educational attainment of the student. The use of examinations as one of a range of quality assurance mechanisms used by schools is discussed in more depth in Section 4.5.2.

Schools offer a range of subjects. Schools generally offer a range of core subjects, such as language and mathematics, together with more specialist subjects from the bagpipes to Arabic. The curriculum offered by schools reflects the demand for education which derives from its expected benefits. The range increases at the secondary level, whereas primary schools typically focus on core subject areas.

Schools divide students in various categories. Schools typically divide students into different groups, generally on the basis of ability and past educational achievement. Although students are very heterogeneous, there can be economies of scale in grouping students and teaching them together. Classrooms are a defining characteristic of schools, even expensive private schools. There are additional benefits of teaching students in groups because they can learn from one another directly and indirectly. The tendencies of schools to group students are explored in Section 5.3.

Schools offer many services. Schools can serve a custodial function. Most schooling involves students who are taught away from their homes. Schooling also typically, but not always, involves children or adolescents, and teachers are *in loco parentis*. Part of the demand for schooling may therefore be derived from the benefits that they obtain from being temporarily relieved of the custody of their children by the school. The multiple services provided by schools are discussed in Section 5.4

3.3 Variation and Measurement

The characteristics of education and schooling are important in determining both the organisational form and market behaviour of schools. The most important of these are that education is heterogeneous and complex, but the effects are hard to measure. Educational outcomes differ for each student, yet are hard to control as they are affected not only by the quality of the inputs, but also by the process of schooling itself.

The structure and performance of schooling can be viewed as a response to the existence of this inherent variability. The principal sources of variation are shown in Figure 2.

Figure 2 - Sources of Variation in the Schooling Process

Factors	Sources of Variation
Exogenous Factors (Inputs)	Prior educational experience
	Intellectual endowment
	Parental values and expectations
Endogenous Factors (Process)	Quality of education inputs
	Individual effects
	Peers

The principal input into the schooling process is the student. The quality of this 'raw material' depends on the child's intellectual endowment or native ability. The greater that ability, the easier it is for the child to learn, and the greater his or her educational achievement, all other things being equal. It is affected by the child's prior educational experience as well.[6] Both these factors are measurable sources of variability in the quality of the outcome of education, although actual measurement may be difficult. Parents are likely to know more about factors such as natural ability, motivation and personality than teachers are, at least at the outset.

A more complex factor is the value that parents place on education.[7] This factor is fundamentally important yet inherent and unmeasurable. Parents who value education are likely to invest time and effort in encouraging pre-school children to learn the alphabet and sign their names for example. They are also likely to take an ongoing interest in their child's achievements and to support the teaching efforts of the schools by supervising activities such as homework.

The process of education is complex, and depends on the interaction between the student and school. Schooling quality depends on the quality of the teachers, the curriculum, physical plant, class size and the teacher's knowledge of the prior educational attainment of the student. It is hard for parents to obtain information about the quality of these factors, and schools are likely to know more about them and their effects on education than parents. As a consequence information on the school's contribution to educational attainment is not easily verifiable.

Each student responds to teaching and learning differently. Even students with identical backgrounds and abilities will have differing responses. Students are also affected by the behaviour and abilities of other students.

Schooling simultaneously provides an academic outcome, custodial services, socialisation and interaction as well as signals about the ability or social status of the student. All of these outcomes are hard to measure separately, let alone together.

Other forces are also at work. Economies of scale are important in determining how schools group students together in classrooms for instruction and are also related to the optimal size of schools. The impact of these forces on schools are examined in the remainder of the paper.

The variation in educational outcomes, and the inherent difficulties of measuring the value added by schools and separating that from other influences on educational outcomes is a profound factor in schooling. The difficulties of measuring the contribution of each of these sources of variation in educational outcomes underlies a good deal of the way that schools are structured and behave. For example, the adoption of a system of standardised qualifications is a response to the problem of information about the student's prior educational experience. At the

same time examinations and the qualifications of students can be used to signal the quality of the school to prospective students and their employers. These effects are explored in more detail in Sections 4 and 5.

3.4 Conclusion

Education is a service whose inherent characteristics affect how schools are organised and how they function, since the nature of a product or service can influence how it is provided. The principal features of education are that:

- it is an investment which involves a current cost and a future and uncertain benefit;
- it is a complex process that depends not only the ability and past education of the student but also on the quality of teaching;
- the needs of students are heterogeneous, and each student has different needs and capabilities;
- the quality of the service is hard to assess before it is used and the effects of poor teaching may only become apparent after some years;
- education is cumulative and sequential, so that what can be learned depends on what has been learned before; and
- education at the primary and secondary level involves children, whose parents act on their behalf in choosing to educate them.

These characteristics of educational services are similar to those of many other professional services such as health care or legal services. For example health care is an investment that can improve the length and quality of life; the benefits of health care depend not only of the quality of the care, but also on the patient; the needs of patients are diverse; the quality of the service is hard to assess before use; health status often depends on past lifestyle decisions and activities, and not all patients (such as the mentally ill or comatose) are capable of making their own decisions about the care they need.

Schools have certain inherent features that arise from the nature of the educational services they provide. Schools are a typical organisational form for providing educational services. It can be too easy to infer that schools have certain characteristics, just because that is what is observed, whereas they may simply be the result of government policy. Schools typically:

- involve a teacher or teachers with a number of students;
- involve long term relationships between students, staff and the school;
- offer qualifications and examinations;
- offer a range of subjects of instruction;
- divide students into various categories; and

- offer other services in addition to education.

These features of schooling arise from the inherent characteristics of education. Both the structure of schools and the way they function are largely determined by the transaction costs of providing educational services. An important factor that determines these transaction costs is that education is variable and the quality of educational services provided by schools is hard to measure. The organisational nature of schools is explored in Section 4, while the performance of schools is examined in Section 5.

4 The Organisational Nature of Schools

4.1 Introduction

The way in which schools are structured is a response to the nature of the educational services they provide. Education involves transaction costs for both providers and consumers. Of particular importance is the fact the education involves a complex process in which the student is an essential input, so that the value added by the school is hard to assess. This feature makes identifying potential providers, negotiating the transaction and monitoring the results costly. Schools respond by devising a range of ways to assure the quality of the services they provide, such as the formation of chains and franchises as discussed below.

This section explores the ways that the inherent characteristics of schools affect their structure by abstracting from the effects of government involvement. Of course, it is hard to envisage what does not currently exist, so that businesses which deal with similar situations are used as analogies from which the structure of schools can be inferred.

It should be noted that this report does not evaluate the desirability of the structures which might emerge. Rather, the emphasis is on exploring the range of organisational forms that would be likely to arise by drawing lessons from existing business structures.

4.2 The Transaction Cost Approach

The firm is often at the heart of how buyers and sellers of goods and services arrange their affairs. The economic analysis of the firm has centred on two important questions; is the firm a substitute for the market, and why does the structure of the firm vary? The answers to these questions emphasise that the firm involves a set of contracts between the owners of inputs and that it replaces market exchange with a hierarchy.[8] The firm acts as an intermediary between the inputs required to produce goods and services and the buyers of the goods.

For example an entrepreneur contracts with a labourer to provide a specified type and quality of labour for a certain period in return for a given payment. During the period of the contract, the ability of both the labourer and the entrepreneur to vary the contract in response to future events is limited by the terms of the contract. The contractual relationship between the labourer and the entrepreneur substitutes management for a spot marker in labour. This form of relationship continues for as long as the expected benefits exceed the expected costs. They arise because each party seeks to economise on the costs of interaction with one another. In this example, it is likely to be more costly for the entrepreneur to negotiate a new contract with a different labourer each day, when it is hard to measure beforehand the quality of the work, when there is some skill acquired from learning on the job and labour is required each day. These aspects of the contract are

known as transactions costs, and arise principally from the frequency of transactions, the asset specificity involved (such as the skill required to do this particular job) and the uncertainty of future events which can affect the contract.

The existence of transaction costs underlies the structure of schools in much the same way as it explains the existence and structure of firms. Transaction costs are all those costs that surround economic activity and exchange. They encompass a spectrum including the costs of information, of negotiation, of drawing up and enforcing contracts, of defining and enforcing property rights, of monitoring performance, and of changing institutional arrangements. In short, they comprise all the costs that are not simply the costs of physical production.

Transaction costs are ubiquitous and significant, and involved in any organised activity. The very existence of organisations is a response to transaction costs. The objective is to minimise their total costs (transaction costs plus production costs) for a given level of output. Individuals make conscious choices to arrange their affairs in ways that deliver the greatest net benefits to them, and so try to reduce the costs of transacting with one another. The transaction cost approach has been used to explain the existence and variation of a wide variety of organisational forms, from firms to department stores, franchises and share contracts.[9]

The structure of schools can also be examined as a response to the nature of transaction costs. Williamson suggests that institutional arrangements arise from the characteristics of exchanges which give rise to three critical sources of transaction costs: asset specificity, uncertainty and frequency.[10] These sources of transaction costs are examined below as ways of explaining why schools have the structures they do, and how they are similar to or differ from other forms of business organisation that have similar types of transaction costs.

4.3 Co-ordination and Specialisation

Parents typically make decisions on behalf of their children in sending them to school. This relationship in which parents act on behalf on their children can be seen in economic terms as an implicit 'contract' although it is recognised that there is of course no such explicit contract. Parents can generally be assumed to be acting in what they perceive to be the child's best interest. It must be recognised that parents sometimes do not act in the interests of their children, as evidenced by child abuse and cases of neglect. It is notable that despite the fact that the net value of education is well recognised, it is nowadays almost universally the case that education is compulsory, at least at the primary school level, although there was, for example a high demand for schooling in Great Britain in the 18th and 19th centuries, (before the advent of compulsory elementary schooling in 1880), that was met by the private sector.[11]

Parents can choose to provide these services themselves within their own home.[12] By doing so, no educational contracts are needed, and a

demand for educational institutions does not arise. Yet schools do exist, and not all parents elect to educate their children at home. The question is, why do schools exist and take the form they do?

Even if parents do choose to provide educational services to their children within their own home, they may seek the skills of educational specialists for a number of reasons:

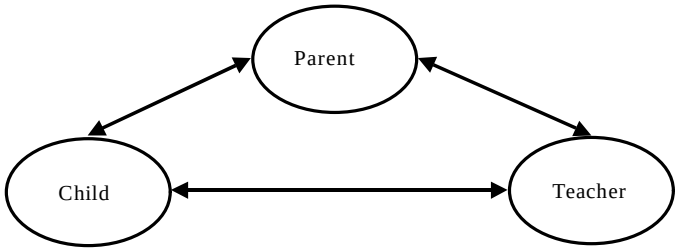
- they do not possess all the skills necessary to educate their children;
- while they possess the skills, they can purchase the educational services of the specialist at a lower cost than the parent's after-tax opportunity cost of time;
- the educational specialist is likely to be more effective than the parent would be;

For example, parents may seek the services of a music teacher if:

- they do not have the musical skills themselves;
- they can employ a music teacher at a lower opportunity cost than doing it themselves; or
- they may consider it simply too ineffectual to attempt to teach their own child music.

The result would be an educational contract between a parent and an educational specialist, but it would not give rise to school organisations. The three way contracting relationship is shown in Figure 3. The parent (on behalf of the child), contracts with a teacher to teach the child.

Figure 3 - Three Way Contracting



However, contracts between a parent and an educational specialist, such as the music teaching example above, create a number of problems. First, the parent has difficulty ascertaining the quality of each potential music teacher before entering into the contract, although it is easier to find out after lessons have begun. Even so, teachers themselves have an incentive to provide information to parents and their students. Individual music teachers signal their quality to parents through their reputations, their own music qualifications and the performance of their students in external music examinations such as Trinity College and concerts performed by students which parents attend. Second, once a music teacher has been selected, the teacher

must be encouraged to act in the best interests of the parent and student. Faced with these problems, what does a parent do? Asking friends about teachers could filter out teachers with a poor reputation, but is costly in terms of time and effort. A long-term contract could be useful to allow the parent to find out the quality of the teacher over time.[13] However, this solution is also costly because while it could assist in the future selection of music teachers for younger children, time has been lost with the first child's musical education.

A school is an alternative that reduces these costs. Parents contract with a music school to provide musical instruction to their children as shown in Box 1.

Box 1 - The Yamaha Music School

The Yamaha Music School provides for a method of learning to play the piano which defers the need to learn to read music until the student can play tunes. The school caters for beginning ages of 4-6 years old and provides tuition for a maximum period of 4 years. The school is open to children of any ability who wish to learn to play the piano. Numbers are not sufficient to warrant streaming of children by ability. There are generally 8-12 children in each class of different levels. Parents play an active role in the child's learning by being required to attend training sessions.

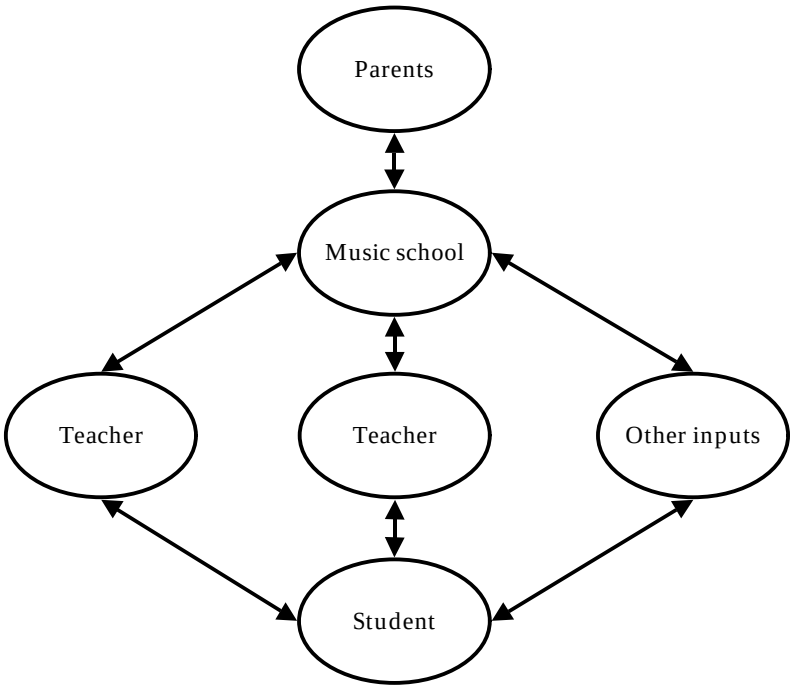
Teachers are recruited through advertising or referrals from current teachers. Applicants are initially considered though qualifications and then subjected to a thorough selection process. Current teachers have either a Bachelor of Music or a Royal College of Music Diploma. Referrals have historically been for students from the College of Education who have training in teaching. At the initial interview, applicants are tested for singing and piano playing ability. Applicants then attend a 3-day introductory seminar where they are observed for communication and teaching skills. Applicants are then encouraged to observe classes over the following few months and then attend another and final seminar before being selected and beginning to teach soon after. Following selection, any teacher who fails to meet expectations is given specific attention in an attempt to remedy problems.

The school only incurs the costs of gathering references on potential music teachers once, thus avoiding the inefficiency of every parent engaging in this exercise. It can also observe the measured achievement of teachers it employs. A school can therefore reduce the costs to parents of obtaining information about teacher quality. The relationship is shown in Figure 4. Under a school arrangement the school has an incentive to monitor the quality and performance of teachers and to establish a reputation for providing high quality music tuition overall as discussed in Section 4.5.6. Parents are therefore likely to select a school based on its reputation.

This pattern of choice is similar to other services from hairdressers to doctors. Groups of professionals co-ordinate their activities and brand themselves to signal the quality and availability of their services to prospective clients. But the actual quality can only be ascertained once the service has been provided – education, like medicine and hairdressing is an 'experience good'. Actual teaching quality depends on the particular teachers that students learn from. Parents will monitor the performance of individual teachers and attempt to change them if the quality of instruction is unsuitable.

The transaction costs of search are not the only factors that determine the existence of a school. Economies of scale are also likely to affect the organisational form of instruction. In music tuition economies of scale may be limited. It may be feasible to learn some types of music, such as choral singing in a group situation, but other types of music, such as piano, may require individual attention from the teacher. As a result, a mix of arrangements is likely to arise that includes private individual tutors as well as schools.

Figure 4 - A Hierarchy of Contracts



The transaction costs of co-ordination and the benefits of synergy are also likely to lead to the development of schools of music. This is likely to be especially true at more advanced levels of instruction, where students expect to be trained for a career in music and require training in various aspects of music such as performance and theory, often across several instruments. In these schools instruction is likely to involve a combination of individual and classroom instruction, as appropriate. Specialist schools such as these are likely to focus on music and also offer instruction in core subjects such as language and

mathematics, thus reducing the transaction costs to students of attending conventional school and receiving specialist music training.

Another reason that schools exist is that the hierarchical relationships provide one party with formal control of both sides of a transaction. This is useful where it is difficult to contract regarding all aspects of a transaction, and it is desirable that a single party be able to deal with unforeseen circumstances and to evaluate performance. In the above example, the Yamaha Music School has control over both the provision of musical education services and the purchasing of musical tuition from teachers. Thus, purchase and sale of this service has been internalised within an organisation so that the management of the school could, for example, arrange for a refund of fees to the customer in the case of gross non-performance of duties. While such central control has these advantages of providing flexibility in contracting through internalisation, it does have costs. It often gives rise to a taxing behaviour, where the central control implicitly pursues an equity objective. Less able music teachers are likely to be subsidised in subtle ways by more able music teachers. Business experience indicates that central control works best when there is homogeneity of demand, and therefore homogeneity of product or service. Where a product or service must be tailored to the particular needs of customers, central control is likely to be less efficient than decentralised control closer to the customer.

Music is obviously not the only aspect of education. Parents could arrange their child's education by purchasing a range of activities from different teachers or schools. They could separately buy sports coaching, language tuition, computer-based mathematics tuition, careers advice, music or dance lessons. While such an approach to schooling is not impossible, and in some sense parallels that of parents who choose to 'home school' their children, it is not common. Co-ordinating these multiple arrangements can be very costly.

Schools are an efficient response to the problem of co-ordination. Schools assemble the educational skills of both generalists and specialists together with administrative skills to provide parents with an educational package for their children. There are likely to be several reasons for this:

- schools provide economies of scale since the organisational cost of co-ordination can be spread across many children, rather than across a single family or child;
- there are additional economies of scale because a single teacher can supervise the learning of many students simultaneously;
- schools provide economies of scope, since it is relatively inexpensive for them to offer a range of educational courses or programmes from a common infrastructure;
- parents may not possess the skills necessary to assemble an appropriate education for their children;
- schools may have bargaining power in purchasing educational inputs at a lower cost than a parent could; and

- schools as specialists can monitor the quality of their suppliers more readily than parents. Thus, parents are able to simply choose a school, and leave the school to manage the quality of various inputs.

Schools therefore arise for the same reasons as firms do, that is, to economise on the costs of co-ordination and to take advantage of specialisation.[14] Schools which do not have the usual apparatus of teaching, such as classrooms, are nonetheless schools since they carry out these functions. The Correspondence School, as much as any other, co-ordinates teaching and other inputs to provide education services to students. In certain circumstances, this can lead to the development of 'virtual schools' (see the discussion of school location in Section 5.5).

4.4 Long Run Relationships

A significant characteristic of schools is that they involve long term relationships between students and the school on the one hand, and between teachers and the school on the other. Teachers are slow to move from one school to another, even when doing so would increase their salaries. Employee turnover rates are around 10 percent for both primary and secondary schools, which is significantly below benchmark turnover rates for both public and private organisations.[15] Parents are reticent to move their children from one school to another, even when doing so would reduce fees or increase educational benefits.

These long-term relationships are similar to those of a firm which may have long term contracts with suppliers of inputs, as well as with buyers of the goods and services it produces. This type of organisational structure can be contrasted with the 'spot' market where labour is hired on a daily basis or where goods are sold to buyers who may never return. Clearly schools do not operate like this. The question is, why?

There is an element of durability or persistence in the decision to attend a school, just as there is, for example, in buying a house. A person does not shift houses every day in response to changes in the relative price of houses. The consumption of education can be said to be path-dependent.[16] There is an intertemporal relationship between the decision today and the decisions of yesterday. This phenomenon is extremely common and arises because of the presence of transaction costs and because some of the inputs to education cannot be adjusted readily.

There can be significant transaction costs for both teachers and students in moving between schools. These costs are likely to derive from factors other than asset specificity. In particular, they are likely to arise from the costs of obtaining information about the quality of education and the extent of past education. Parents must assess new schools and teachers, and schools must assess the past educational level of students.

4.4.1 Personal Relationships

Transaction costs also arise, potentially, from the direct and indirect costs of disruption of the personal relationship between students and teacher, or between teachers, and of the learning process.[17] These personal relationships are a part of schooling that can be very valuable to both students and teachers.

Primary and secondary education is a human process that generates inter-personal relationships that can be valued by both students and teachers. Students spend a significant portion of their waking day with their teachers, and do so five days a week. It is possible that students who attend a school spend more time interacting with their teachers and school friends than they spend interacting with their parents. Similarly, they interact significantly with other students. Bonds formed between students or between student and teacher at school can last a lifetime.

Moving between schools can be costly for students who have to leave their friends and make new ones.[18] As a result, parents may choose not to shift their children, even if they would be better off educationally, or as well off, but for lower fees. Similarly, a teacher may choose to remain at a school even if moving to another school were to provide greater remuneration for similar work, or similar remuneration for preferred work.

4.4.2 Information about Past Learning

Changing schools disrupts learning. The capacity of a student to learn depends crucially on his or her past education because education is sequential and cumulative. When students change schools, the new school must find out what they already know in order to teach them effectively. But it is hard to assess the quality of the student's past education and it can be costly for the new school to test each student individually.

There are two possible responses to this problem. The first is simply that students shift between schools less often than they would between other activities that do not have unobservable cumulative effects, such as say, sports. Holding sprint trials is easier than assessing what a child knows about history, for example. Another is that schools have an incentive to co-ordinate their activities in order to facilitate movements of students between them. All schools stand to benefit, being potentially both sources and destinations of students who move. Standardisation of teaching into 'units' can be helpful in determining what a student has already been taught. Another mechanism to reduce the costs of information is a system of examinations. The difficulties of moving between schools and the disruption to learning that results is most evident when students move internationally where these co-ordination mechanisms do not exist.

Professional bodies routinely facilitate the movement of professionals between countries through co-ordination agreements which recognise

equivalent standards of education and experience (see Box 2). These arrangements are typically multilateral rather than bilateral, enabling movement between a number of countries. A countervailing pressure in professional bodies, however, is that entry standards are used as barriers to entry by foreigners.

Similar problems arise in fields such as medicine where health status can be complex and even a full medical examination by a doctor may not reveal all the relevant information. It is therefore common practice for patients who move between general practitioners to have their notes transferred with them, facilitating the information gathering of the new doctor.

Box 2 - Institute of Chartered Accountants

Gary Smithson completed an Honours Bachelor of Accounting Science at the University of South Africa before taking up employment with an accountancy firm in South Africa. After fulfilling the practical experience requirement he obtained membership as a Chartered Accountant with the South African Institute of Chartered Accountants (SAICA). Gary immigrated to New Zealand shortly after and sought membership with the New Zealand Institute of Chartered Accountants (ICANZ). Gary found membership streamlined as a result of a reciprocal arrangement between the South African and New Zealand Institutes. To qualify for membership with ICANZ Gary was simply required to successfully complete two university courses, covering the country-specific regulatory environment; Company and Partnership Law and Taxation and Estate Planning.

4.4.3 Information about Educational Quality

The quality of the educational services offered by schools and teachers is hard to discern. It is a fundamental feature of education that explains a great deal about how schools are structured, and how schools, teachers and parents behave.

The problem of measuring educational quality is important in explaining the persistence of long term relationships in schooling. Although parents typically try to find out about the quality of a school before enrolling their children, once enrolled it may take some time to determine how well the school teaches their children. Of course, because each student is unique, the perceived quality of the teaching also varies: what suits one student may not suit another. Also, the effects of bad teaching may be cumulative and long term, so they may not become evident for a long time. As a result, bad teaching may not be immediately evident with the result that parents may not move their children to another school even if the move would be better for them educationally. Another reason that parents may be reluctant to move their children is that although one teacher may be bad, each school has other teachers as well who may be better. Because of the other

transaction costs of moving schools, parents may put more effort into moving their children to another teacher within the same school.

Once parents have established that their children are at a good school, they may be reluctant to move them to another school where they do not have good information about the quality of teaching because of the educational risks to their child. The trust that parents have in the quality of education offered by the school can create a long-term relationship with the school. Parents may decline to move house, just in order to continue their child's education at a good school. Students who attended a good school will often also send their own children there.

The problems of measuring the quality of other services also give rise to long-term relational contracting. For example, a person may continue to use the services of an auto mechanic even after moving across town from the mechanic's neighbourhood or a significant increase in the mechanic's charges simply because he or she trusts the mechanic to provide good service. Generally, this relationship lasts as long as the benefits to the customer outweigh the cost and inconvenience of using this particular mechanic.

Another reason why parents are not responsive to changes in the price of schooling is that, because it is hard to measure educational quality, parents may presume that 'dearer is better'. In other words, price is presumed to be a proxy for quality. It can also signal to others the wealth and status of the parents. This attribute of education is by no means unique. Part of the value of luxury goods such as cars, jewellery or designer clothes is their ability to signal superior wealth. The price of schooling can increase its value to parents and students if it places it further out of reach of those with lower net worth. However, this raises wider issues, outside the scope of this report, concerning the importance of ensuring adequate access by students from all backgrounds to quality schooling.

4.4.4 Asset Specificity

Asset specificity is a relatively weak explanation of long term relationships in schools, although it is a powerful factor in determining the structure of some firms. It is probably less important than other transaction costs arising from uncertainty.

It could be argued that long-term contracting is a result of asset specificity; that the human capital built up within the school is specific to particular contracts and, as a consequence, is specific to particular relationships. As a result, teachers and parents are unwilling to withdraw from these contractual relationships because the value of this human capital would be dissipated by doing so.

Williamson's approach measures asset specificity as the loss in asset value on separation of assets.[19] For example, assume V denotes the combined value of assets relevant to a contractual relationship, and V_A and V_B denote the go-alone values of assets controlled by the contracting parties, A and B. Asset specificity can be denoted as V –

($V_A + V_B$), which is a synergy concept. This synergy is a common attribute of a business, since it is in fact this synergy or asset specificity that forms part of the explanation as to why firms exist. We evaluate:

- the extent to which asset specificity is observable in school organisations;
- the nature of asset specificity;
- how asset specificity explains school organisation; and
- rational responses to asset specificity, as illustrated in businesses.

Separable assets comprising a school include the human capital of teachers and students, land, buildings, classroom furniture, educational aids, and other equipment.

Human Capital of Teachers and Students

Using the Williamson-style asset specificity definition above, it becomes evident that a teacher's human capital is not highly asset specific. While a teacher's human capital is specialised and significant, its value as part of a particular school is not significantly different from its value if separated from the school. The salaries teachers receive are not likely to reduce significantly if they transfer to another school, for example, even though some aspects of the teacher's human capital may be specific to the school, such as knowledge of individual students and community norms.

Other professions are similar in this respect. An accountant, for example, is likely to develop considerable human capital by specialisation within a professional accounting firm. However, these specialist skills, and their value, can be transferred to another professional accounting firm with minimal loss. That is not to say that there are no transaction costs associated with leaving a firm and joining another, but that the transaction costs do not arise out of a diminution in the value of human capital.

Even so, teachers may develop specialist skills or knowledge about a particular community that may take time and effort to replicate in another school. There may be some work asset speciality, but it is unlikely that the specific human capital of teachers is a robust explanation of the long-term relationships that exist in schools.

Students also acquire human capital through their schooling. They obtain skills, know-how, relationships and knowledge that may be quite specific to the school and the course of study. This asset specificity may make it difficult to transfer to another school if it is not easy to pick up a new course of study. There may therefore be a form of 'lock-in' to a particular school (or system of schools with a common curriculum) that accounts for the long-term nature of schooling relationships (see Section 4.4).

Land and Buildings

The most valuable physical asset of a school in monetary terms is the land and buildings. Both can typically be put to alternative uses without reducing their value substantially. However, these values could be significantly reduced in some cases. For example, if rural schools were to close, it might be difficult to put buildings to alternate uses of similar economic value. Thus the value of the school (V) is likely to exceed the stand-alone value of its parts, V_A and V_B.

In such cases of asset specificity, the potential for 'hold-up' arises, a problem that is clearly not unique to schools. The nature of the hold-up problem is as follows. If an input is supplied by one entity to another, and the supplier has had to invest in resources that are partly or fully unique to that contractual relationship, then that supplier is vulnerable. The purchaser can take advantage of the fact that the supplier's investment is now 'sunk' and is therefore irrelevant for decision-making. The purchaser could, in the absence of contractual or other constraints, force the supplier to price inputs at close to their marginal cost, ignoring the sunk investment.

Opportunities for such behaviour in school contracts are not plentiful. For example, it is unlikely to arise in contracts between a teacher and a school, since a teacher's human capital is unlikely to be highly specific to a contract with a particular school, as noted above. However, the value of land and in some circumstances buildings can be highly specific to its use by a particular school. Imagine a rural school with significant investment in permanent buildings. Imagine that the population of school-age children in that geographic region has diminished since the school was built. Imagine also that the next-best use of the school buildings has a very low economic value. The resources are essentially sunk and are therefore irrelevant to whether to continue operating the school. Thus, the community can validly point out that it is economically viable to retain the school, since the benefits obtained from keeping the school open exceed the unavoidable costs. In this way, the asset specificity problem has led to a situation where it is rational to operate the school, even though the total costs of operating the school exceed the benefits.

However, asset specificity alone is not sufficient to give rise to the 'hold up' problem, as Williamson explains:[20]

> "Of several dimensions with respect to which transactions differ, the most important is the condition of asset specificity. This has a relation to the notion of a sunk cost, but the organisational ramifications become evident only in an inter-temporal, incomplete-contracting context … a condition of bilateral dependency arises when incomplete contracting and asset specificity are joined.
>
> The joining of incomplete contracting with asset specificity is distinctively associated with TCE [transaction cost economics]. This joinder has contractual ramifications both in general and specifically with reference to corporate financing."

As discussed earlier in relation to the music schools example, a long-term contract is one mechanism for addressing this problem because it places costs on the party taking advantage of *ex-post* contracting uncertainty. Loss of reputation is an example of such a cost. If all outcomes or 'states of the world' could be contracted for, both parties could protect themselves against being taken advantage of as a consequence of the sunk nature of investment in specific assets. However, if contractual or relational solutions to this potential problem are not viable, then another solution is to form a hierarchy in which a single party is able to deal with both parties to a contract, if necessary modifying the contract after the fact to deal with unforeseen circumstances. This is part of the explanation why firms exist.

Business analogies for dealing with this asset problem abound. For example, contractual issues associated with providing services in rural areas where those services require sinking significant capital into physical plant are clearly not unique to schools. For example, forestry-related services are capital intensive and demand for these services varies significantly through time and can potentially cease. Similar issues arise with mining-related services and services allied to large civil engineering projects. Contractual solutions are likely to be sufficient in very few of these cases, due to the complexity of the contracts. However, in the case of a large civil engineering project it may be possible to contract for the duration of the project, so that neither party can take advantage of the other half-way through the fixed-term relationship. The repeated nature of these contracts and the resulting importance of reputation can act as a constraint on asset specificity-related problems. A solution that is observed with some frequency is the enfolding of both parties to the contract into a single hierarchy, as Box 3 illustrates. Although this example involves a government organisation, the provision of housing by firms operating large projects of long term duration in remote areas is common.

Box 3 - Twizel

The Electricity Division of the Ministry of Energy commissioned a significant investment in hydro-power generation infrastructure in the late 1960's and early 1970's. This generation investment centered on a network of lakes, canals and power stations in the Lake Tekapo, Lake Pukaki, and Lake Ohau area. As with all investment in electricity generation at the time, the Ministry of Works was commissioned to undertake these projects. Because of the length of time over which this work took place, and because of the number of workers required, a considerable amount of additional housing was required in the Mackenzie Basin in South-west Canterbury. It is conceivable that this housing could have been provided by organisations that specialised in providing residential housing, with Ministry of Works contracting with such an organisation for the provision of housing. However, such contracts were not entered into, perhaps because of their potential complexity.[21] Instead, Ministry of Works assumed control of both sides of this contract for provision of accommodation by building the entire town of Twizel, which remains to this day, despite the end of electricity development work in this area.

The above example provides a potential explanation for why a single organisation is often the owner of significant inputs to the educational process, as well as owners of the school organisations, and significant purchasers of educational services. This presumably allows contracts to be varied *ex post* to deal with unforeseen outcomes. Note that the single organisation need not be a government body. It could be a co-operative of parents, for example.

However, contractual, relational and organisational solutions are second-best to avoiding the problem in the first place. This can be done by converting highly specific assets into generic assets. For example, a firm could use relocatable plant or prefabricated, relocatable buildings. The firm could design plant in such a way as it has alternative uses. This solution is also demonstrated by the Twizel example above, where almost the entire town was designed to be relocated by road. Box 4 is a more recent example from the timber industry.

Box 4 - Blue Mountain Lumber

Blue Mountain Lumber operates a sawmill in Southland. They require additional steam to increase their timber's value-added component through kiln drying. However, their shareholder views the provision of steam as outside Blue Mountain Lumber's core activities, and wishes to purchase steam as it would any other service, thus precluding common ownership as a potential solution. Meridian Energy is negotiating to provide steam to Blue Mountain Lumber by installing, owning and operating a boiler at Blue Mountain Lumber's premises. However, Blue Mountain Lumber is unwilling to provide a guarantee to purchase steam over a significant portion of the boiler's life, thus precluding a long-term contracting solution. Nor are they willing to underwrite the investment in any way. In summary, Meridian Energy is investing in assets that are unique to its contractual relationship with Blue Mountain Lumber. The combined value of the sawmill and boiler (V) exceeds the stand-alone values of the sawmill and the boiler, V_A and V_B.

The way Meridian Energy intends to protect itself from hold-up problems is essentially to convert a contract-specific asset into a generic asset, as follows:[22]

- The boiler is designed to operate on any biomass fuel, and can also be operated on coal.
- All components of the boiler and its installation are modular and can easily be designed into other boiler applications
- Each modular component has been designed to facilitate relocation by road transport.
- The boiler is an outdoor, all-weather installation, so that it does not require a building around it. A concrete floor slab is all that would be left in the event of boiler relocation.
- An easement has been registered on the title to Blue Mountain Lumber's land, for the purpose of eliminating legal impediments to Meridian Energy removing its boiler.

Meridian Energy plans to enter into between 10 and 20 similar contracts, so that they can redeploy Blue Mountain Lumber's boiler to another customer's site.

Application of the above business analogy to schools is straightforward. If a school's owner wishes to ensure that investment in a school's resources will always be put to their best economic use, then in the absence of contractual solutions to potential 'hold-up' it is desirable to avoid investment in highly specific physical assets.[23] Thus, a school may be set up with a portion of its classrooms being easily relocatable if a significant lowering in enrolment is possible. In the extreme, if demographics could change such that a school may subsequently not be viable in a region, then it may be sensible to build a temporary school. It may in fact be rational to do so even if this alternative were to cost more than building a permanent school. Note that Meridian Energy will spend more on the Blue Mountain Lumber boiler than they would if they were to install a permanent boiler.

We readily acknowledge the limitations of such analogies. In the above analogy, the quality and volume of steam provided by a relocatable boiler is no different from that of a permanent boiler. This may not be the case when comparing relocatable and permanent schools. Education quality may differ, as might the perception of quality.[24]

In brief therefore, it is unlikely that the physical assets of schools are highly specific to the supervision of education. School buildings typically can be put to other uses. However, school land and buildings may be specific to education in some locations, especially in remote areas where alternate uses are not plentiful. In these cases a 'hold-up' problem could arise that is typically dealt with by firms owning all the inputs rather than contracting. An alternative solution to this problem is for firms to ensure that assets are generic rather than specific and so can be used in other activities or locations.

4.5 Quality Assurance Mechanisms

Measuring the quality of schooling is difficult and costly. Not only does the quality of teaching vary, but the impact of poor teaching may only be revealed many years later. Measuring the quality of schooling is difficult because it is hard to observe the ability of students and the quality of their effort and to separate these effects from the value added by the school. The value added by the school in one year also depends on what the student has learned in previous years, and thus may be affected by prior poor teaching. Measuring school quality is costly not only for the sellers, but also for the buyers. These measurement costs are important in explaining the organisation of the market for education.

Because measuring the quality of education is difficult and costly, a range of mechanisms arise which reduce the costs of doing so. It is hard to measure the quality of education, since it is intangible, varies from student to student, is not readily observable and the effects of education are cumulative and long-term. As is the case with other contracts, it is generally the party that can most influence the variability of quality who bears the cost of that variation.[25] In other words, schools, rather than parents, will devise ways of signalling their quality. These measurement difficulties also affect the market behaviour of schools, as discussed in the next section.

4.5.1 Variation and Asymmetric Information

The outcomes of many services vary. The variation arises not only from the variability of the quality of the service provided, but also from the variability of the inputs into the process. At the same time, buyers and sellers have different information about the underlying attributes of the inputs and the service. The existence of variations in the outcome, the asymmetric information of the buyers and sellers and the transaction costs of obtaining information give rise to a number of different ways of generating information about the quality of inputs and services. These range from pre-testing of inputs by sellers (where buyers know more about their own inputs into the outcome than the

service provider) to the use of branding and reputation (where the seller knows more about the quality of the service than the buyer). The nature of these information asymmetries in the presence of variation and their implications for devising quality assurance mechanisms are explored in the remainder of this section.

Imagine, for example, a landlord seeking to renovate a badly damaged residential rental property. The landlord seeks the services of a building contractor, who uses his own skills and those of subcontractors to renovate the property. It is clear that the building contractor is able to influence the quality of the finished dwelling to a far greater extent than the landlord is able to. This is the variation problem. Also, the builder knows more about his or her abilities and motivations than the landlord. This is the agency problem arising from asymmetric information about the quality of the builder's services.

In the absence of transaction costs, it is economically rational for the landlord to sell the dwelling 'as is' to the building contractor. The contractor will then renovate the property for himself, thus bearing the variation in quality of the finished dwelling. The contractor can then sell the property on an open market, and the landlord can purchase that property or some other property, where the dwelling's quality is largely observable.[26] Yet we do not commonly see this as a solution to the information problem, as the transaction costs are high.

Other mechanisms arise in order to overcome the problems of variation and asymmetric information. A more common solution to the problem is for the building contractor to invest in establishing a good reputation in order to provide information to the landlord about the quality of the services offered, to offer a guarantee or to become a member of an association, such as the Master Builders' Federation that acts as a guarantor of the quality of the services offered by its members. It is the builder, and not the landlord, who makes the investment in signalling quality (See Box 10).

Variation in outcome quality can also be constrained by generally agreed and observable standards of work. For example, a person may seek the services of a gib-stopper to bring walls and ceilings of a dwelling to a paint finish. In such circumstances, the variation in inputs becomes much more important than variation in outcome, and the nature of the information asymmetry changes. The gib-stopper knows more about how much work is required than the owner does even though it is their dwelling.

Personal services display the same problems of asymmetric information where quality is variable and are exacerbated where the quality of the service cannot be discerned beforehand. Such services are 'experience goods' where using the service (such as medical care or a restaurant meal) reveals its quality.[27] In contrast, it is relatively easy to find out the quality of 'search goods' such as clothing. Education is clearly an experience good.

Information asymmetry regarding input quality is the inverse of that exists in schooling. It is the parents who is likely to know more about

some aspects of their child than the teacher does and the student may know more about what he or she has already learned elsewhere than do teachers at a new school. In contrast, the provider of gib-stopping services knows more about the 'quality' of a dwelling's walls and ceilings than the owner is likely to know. This is a subtle but important distinction regarding the nature of information asymmetry involving schooling inputs. Not all information asymmetries are the same. Not only does it matter whether the supplier or the customer has superior information, but it also matters whether the asymmetry is about the customer's or the supplier's contribution to the contract because:

- multiple information asymmetries exist within schooling, and each needs to be analysed separately; and
- business analogies involving information asymmetries need to be chosen carefully so that they actually match the schooling information asymmetry being analysed.

To illustrate this, consider how a dwelling's owner would deal with the information asymmetry above; that the gib-stopper knows more about the state of the building's interior than does the owner. The owner can use competition in the market for gib-stoppers to effectively side-step this information asymmetry. The owner would obtain quotes from a number of gib-stoppers, thus leading the gib-stoppers to compete away their information advantage. Of course, this solution is of little benefit in contracting for schooling services, for two reasons. First, there is seldom a commonly agreed-upon standard to which the outcome of the educational service must attain. Second, not all school-related information asymmetries are characterised by superior knowledge on the part of the service provider.

Three information asymmetries are immediately evident in schooling:

- the parent knows more about endogenous inputs to the educational process, such as
  - the child's past educational experience;
  - the child's intellectual endowment;
  - the parent's values regarding education;
- the teacher knows more about their ability than their employing school does; and
- the school organisation knows more about the quality of the schooling they provide than a parent, student or employer does.

These information asymmetries are categorised and illustrated in Figure 5. The first of these information asymmetries can be placed in the top-left cell, while the second and third information asymmetries can be placed in the bottom-right cell.

Figure 5 - Information Asymmetries

PARTY WITH SUPERIOR INFORMATION	OBJECT OF UNCERTAINTY	
	The input provided by the purchaser of the service	**The quality of the service provided**
Purchaser of service	Patients know more about their own diet and exercise habits than the doctor. ➢ Pre-testing Students know more about what they have been taught at the old school than the new school does. ➢ Examinations	An art dealer commissioning a painting from an emerging artist.
Provider of service	Gib-stopper knows more about the state of the walls and ceiling than the owner does. ➢ Competitive Tendering A violin teacher providing tuition to a child is likely to know more about that child's ability to discern pitch than the parents do. ➢ Pre-testing ➢ Second Opinion	Building contractor knows more about the quality of the work than the purchaser does. ➢ Reputation ➢ Guarantees ➢ Certification A teacher knows more about the quality of their teaching than their employing school does. ➢ Certification A school knows more about the quality of its schooling than a parent does. ➢ Reputation ➢ Examinations ➢ Chains, Franchising

The costs of the variation in the quality of schooling due to poor teaching are borne by the student. If teaching is substandard, then the lifetime returns to education are reduced. The student also bears the costs of his or her own lack of ability or effort. At issue is how the variation in the educational outcome of the student due to information asymmetry can be reduced. In particular, what responses to similar information asymmetries arise in analogous businesses, and are they applicable to schools?

The examinations and qualifications which characterise schools can be viewed as an attempt to measure educational attainment in response to the problems of variation and asymmetric information. In particular, they provide information to a student's new school on what they have learned at the previous school, thus reducing the need for individual pre-testing. This feature of examinations is discussed in Section 4.5.2. Vertical integration of schools can also be viewed as a response to the transaction costs that arise with frequent transactions where there is uncertainty about the inputs, as discussed in Section 4.5.3. The certification of professionals as a signal of their quality to potential employers is a common device in many occupations and is likely to occur in teaching even without government intervention as discussed in Section 4.5.4. Rating organisations are frequent in a range of

industries as a means of providing information to potential buyers about service quality, especially for experience goods. The applicability of rating to schools is explained in Section 4.5.5. Suppliers of services have a strong incentive to invest in reputations and branding (see Section 4.5.6). Warranties and guarantees are common devices for suppliers to signal service and product quality to buyers altogether they may be less applicable in education (see Section 4.5.7). The use of chains of schools and franchises are mechanisms for using branding to signal quality to buyers (see Section 4.5.8. and 4.5.9).

4.5.2 Examination System

Pre-testing is an obvious means of dealing with information asymmetry regarding a child's educational experience and intellectual endowment. It is commonly used in the provision of personal services, such as medicine or fitness training (see Box 5).

Box 5 - Nick Tongue

Nick Tongue is a New Zealand representative swimmer. Part of his training routine is a thrice weekly workout at a gymnasium. To ensure he exercises in a manner conducive to maximising his swimming ability he employs the services of a personal trainer. The personal trainer cannot know Nick's physical condition prior to Nick approaching the trainer. Nick is therefore subjected to certain physical tests before the trainer constructs an exercise programme. Pre-tests include the measurement of cardio fitness, fat content, baseline strength and flexibility. Once Nick's current physical shape is ascertained and his target and goals are specified the personal trainer can implement the most suitable exercise programme.

Further tests are carried out during the course of the training period to compare physical attributes to those when he began using the programme. This verifies the effectiveness of the training programme and Nick's physical ability to the exercises.

Nick works for a swim school to help fund his travel expenses to competitions. Acting as an instructor himself, Nick faces the same problem as his personal trainer in that he has no knowledge of the ability of a potential swim student. Nick must evaluate the current ability of newcomers to the school by means of pre-testing. Students are tested for swimming ability by visual examination of their techniques and/or by an assessment of speed. Students are then sorted into streams of individuals with similar abilities.

Individual pre-testing can be used when the attributes being tested, such as vision, heart-rate or fitness, can be observed or discerned easily and cheaply (see Box 6). However, its usefulness depends on how precisely it can measure what is being investigated. In medicine, for example, patient examination may not be completely effective in revealing all the relevant information. It is therefore typically

supplemented by taking a history from the patient directly or by accessing the notes of previous doctors. The achievement or ability measured by examinations may be only a proxy for actual ability or achievement and may or may not be systematically related to the actual value.

Box 6 - Broadway Eye Clinic

The Broadway Eye Clinic operates in Vancouver, British Columbia, offering corrective treatment for those who are shortsighted. They use a computer-controlled laser to reshape a patient's cornea so that glasses or contact lenses are no longer required. Most of Broadway's business comes from the United States, with patients travelling across the border into Canada. Providing such services in Canada avoids or mitigates certain regulatory and litigation impediments. The correction required will affect the cost of the treatment, since people who use very high-powered corrective lenses may require two treatments.

Treatment cannot commence without accurate information about the state of the patient's eyesight which is tested prior to the procedure. Of course, this is necessary to quantify the exact nature of the myopia and astigmatism so that co-ordinates can be correctly entered into the computer.

The educational needs of students differ widely. They depend on the natural ability and past educational achievements of the student, and on the market for the skills acquired by education. Less able students may require remedial courses, while more able students may require extension classes. The way that students learn is also a factor that must be taken into account. The needs of a blind student, for example are somewhat different from those of sighted student.

Schools have a strong incentive to respond to the heterogeneous demand for their services. They could do so by offering a wide variety of programmes and methods of teaching or by specialising on a particular style or area of teaching such as drama, music or mathematics. Having a number of diverse providers is likely to be an effective means of meeting the range of needs of students. This is a typical business response to meeting the diverse needs of consumers.

The student's investment in education results in a future payoff in the form of enhanced earnings.[28] The fact that education is valuable undoubtedly drives its demand. The payoff arises not only from the substance of the education that has been acquired, but also from the signalling (or 'sheepskin') effect of the qualifications.[29] Yet, given the diversity of the demand for educational services, the quality of the education provided by schools is also likely to differ.

Because it is hard for employers to obtain information about what or how much the potential employee knows, they use the qualification as a proxy. This is because the educational achievement of an employee is

an experience good, rather than a search good.[30] Employers generally find out how much an employee really knows once he or she is employed. The quality of search goods can be established by inspecting them before buying, but the quality of experience goods can only be determined by actually using them. Clothing is a typical search good, but many personal services, such as hairdressing or medical services, are experience goods. Although the employer could test the employee on all the dimensions of knowledge acquired at school, such testing is likely to be costly and it is cheaper to rely on the qualifications which the school has an incentive to provide. At the same time, the employer may find it worthwhile to test particular attributes that are important for the job. For example, a librarian might be expected to have a certain level of literacy.[31] Employers also obtain information on other important intangible aspects of the employee, such as personality or attitude to work, from checking with referees.

The attributes of education are multidimensional, complex and not readily observable. It can be costly for a school to find out just how much a new student or a student transferring from another school knows by individual pre-testing. A standardised test could be used that provided comparable results across students. Each school could therefore set its own tests. However, the costs of developing such tests could be high for an individual school. Development costs are one of the factors encouraging the use of common tests across schools, especially if the tests are used to reveal how a student is performing relative to the population. A common set of standards for testing would reduce the costs of setting tests and the information needed about prospective students. A corollary could be the development of a common curriculum on which the students were examined. A common programme of instruction and examination would offer significant economies of scale, particularly to small schools. A common examination system would provide information about students entering a school and facilitate movement between schools among schools that were both sources and destinations of receiving students

A common examination system and curriculum is thus a response to the problem of asymmetric information. As discussed in Section 5, it underlies the tendency of schools to simultaneously co-operate with one another by offering broadly similar courses of instruction and to compete with one another by offering diverse courses.

A range of different organisational structures to provide examinations and curricula are possible. A specialist external organisation could develop that offered these services to schools on a commercial basis; schools could co-operate with one another on a voluntary basis; franchises could emerge or chains could form. External examinations have historically been more highly valued by students and employers than internal examinations conducted by the school because they offer an objective assessment of educational achievement that can be compared across schools.

Independent systems of examinations are not currently common in the schooling sector in New Zealand. However, the international baccalaureate examination is used by some schools in New Zealand

and its availability is marketed to potential students as a signal of the confidence of the school of the education it offers (see Box 7).

Box 7 - International Baccalaureate

The International Baccalaureate or IB, a diploma course for 6th and 7th formers, is an internationally recognised pre-university qualification. Established in 1965 as the International Schools examination Syndicate (ISES), the IB provided a common curriculum and university entry credentials for geographically mobile students, enrolled at international schools. The IB proved popular as a standardised qualification that was widely accepted by universities internationally.

Consequently, it evolved from its original purpose, as a service to the international community into a program that could be integrated into national education systems.

The IBO is a membership organisation and provides curriculum and assessment development, teacher training and information seminars, electronic networking and other educational services to participating schools. In return, schools pay a yearly subscription of over $10,000. IB candidates themselves are faced with fees of over $700.

A small number of independent secondary schools offer the IB in New Zealand with a significant minority of senior students in those schools electing to follow the program instead of 6th Form Certificate and Bursary.

External examinations are more common in specialist subjects such as music (for example the Trinity College examinations) and English as a second language (see Box 25). They are however commonly used in the USA, where special examinations such as the Scholastic Aptitude Test (SAT) must be passed in order to enter university. Admission to graduate school is based on the GRE (see Box 8).

An important feature of these external tests is that they are both independent of the school (and thus overcome any inclination that the school may have to inflate the grades it awards) and a common measure of educational performance, allowing comparability across students.

Box 8 - Graduate Admissions Tests

The Graduate Record Examination or GRE is a group of standardised tests used by many graduate schools as a part of the admissions process. Candidates are required to sit the exams at a central administration centre in their town or city. As all students take the same tests regardless of examination centre, the results provide a standard measure and the performance of students from any university can be accurately assessed. Similarly, the Graduate Management Admission Test (GMAT) measures general verbal, mathematical and analytical writing skills and is designed to help graduate business schools assess the qualifications of those who seek admission to study for an MBA or into another advanced business / management programme. GMAT scores are used in some way by more than 1,500 graduate management programmes around the world.

4.5.3 Vertical Integration

The vertical integration of firms is typically explained as the response to the costs associated with frequent transactions. It is common in many firms such as manufacturers which might integrate with suppliers of components as well as with distributors of the product in order to economise on the costs of negotiating and monitoring the quality of the inputs and services provided (see Box 9).

In the education sector students typically move between schools at different stages. They may move from pre-school to primary school to high school for example. In some cases, the majority of students will move from one school to the next. Most students from a particular primary school, for example, might attend the local high school.

As discussed above, there are significant disruption costs in changing schools. These disruption costs are especially significant if the schools are very different in their culture, courses of instruction and approach to teaching. In addition, as described above, it is necessary for the new school to find out what the student already knows in order to determine the course of teaching. A common examination system is one response to this problem, and can allow students to move between schools with some ease. The intangible costs of disruption can also be eased when students move between schools that are broadly similar in their curriculum and teaching philosophy. As a result, one observes students from preparatory schools moving on to similar high schools.

Box 9 – Fletcher Challenge

Fletcher Challenge Building is an example of a mature vertically integrated business. Quarries supply material to the plants operated by the aggregates business, which will supply some of its product to the cement mills. While a large amount of concrete in the form of cement and ready-mix concrete will be distributed to 8 customer service centres in New Zealand by the company's bulk cement vessel, a proportion of product is kiln fired to produce paving, masonry and pipes. Products from the Concrete as well as the Steel and Building Products business units are distributed through the company's 3 wholly owned retail chains, Placemakers, Scott Panel and Hardware and The Building Depot.

Fletcher Challenge Forests is moving closer to vertically integrated operations with increased expansion into downstream processing of logs. Traditionally an owner and manager of timber assets, Fletcher Forests is increasingly moving away from its core business as a commodity producer, harvesting and delivering logs. In an attempt to ride out the peaks and troughs of the commodity cycles, company focus is turning to adding value to the resource and producing a wide range of high value solid wood products. Of course, further vertical integration within the group is achieved through Forests' supply of timber to the Building and Paper businesses.

Vertical integration is a response to the transaction costs that arise when students change schools, and most students graduate from one school as new entrants into another. Schools that transact with one another frequently in this way are likely not only to adopt common examination systems, but also to co-operate and co-ordinate their activities in order to reduce the costs to students of educational disruption when they change schools. Various degrees of integration are likely to develop from informal co-ordination, to formal agreements and, with full vertical integration, to single ownership. Vertical integration can allow the schools to economise on other costs such as administration, branding and marketing. Vertical integration can also offer advantages to high schools which can lock in demand from students at primary school level by facilitating their entry into the high school.

4.5.4 Teacher Certification

Another information asymmetry shown in Figure 5 is that teachers know more about their ability than their potential employer does. This is not particularly different from a large number of labour market transactions, but it is exacerbated in teaching because it is hard to observe the quality of the educational outputs. Solutions observed in business include:

- reliance on academic or trade certification;
- applicant personality or aptitude testing;

- reliance on referees;
- trial employment periods; and
- signalling via attire, or education.

Certification is a way of reducing the transaction costs for schools employing prospective teachers, since it reduces the need for each to ascertain the quality of the teacher independently. Voluntary professional associations are likely to emerge in order to provide quality assurance to schools, but they also frequently seek government regulation of the industry, purportedly to enhance quality but also to create barriers to entry (see Box 10).[32]

Box 10 - Master Builders Federation

The New Zealand Master Builders Federation is a voluntary registered society, and represents all Registered Master Builders. Registered Master Builders are required to meet strict criteria in order to become members and then must continue to maintain the criteria, as they are subject to recertification each year. In addition Registered Master Builders must comply with the Code of Conduct of the New Zealand Master Builders' Federation. The status of 'Registered Master Builder' is valued by those builders who meet the criteria, as it gives them a competitive edge.

Registered Master Builder s provide a 5 year guarantee for residential work. The claims ratio to date has been low. The Master Build guarantee provides clients with 3 distinct benefits:

- That should the Registered Master Builder be unable to complete the works the company will appoint a replacement Registered Master Builder and will if necessary contribute up to 5 percent of the original contract price, if there is any price differential to complete the works.
- That should any materials fail prematurely within the 5 year guarantee period, they will be remedied promptly.
- That should there be any defective workmanship it will be rectified.

Source: http://www.masterbuilder.org.nz

Teacher certification is a cost-effective way for teachers to provide information to potential employers about their quality (see Box 11). Teacher certification is thus likely to continue in the absence of government intervention.

Box 11 - Teacher Registration

The Teacher Registration Board was established in 1989. Previously the Department of Education had administered a register of Teachers under the Education Act 1964. Registration is a mechanism for the Director General to remove unsuitable teachers. Registration for all teachers was made compulsory in 1989, and was then made voluntary in 1991 following a review of education agencies. Nevertheless, a large number of teachers remained members, suggesting that the profession saw registration as valuable. A reimposition of compulsory registration in 1997 saw membership increase by only 11 percent.

4.5.5 Rating Organisations

The third information asymmetry, that the school organisation knows more about its quality than the parent does, is again not uncommon in business. Customers rarely know more about a service's quality than the provider of a service does, yet have a strong incentive to obtain sufficient information about the service they intend to buy in order to make a decision. At the same time, sellers have an incentive to communicate the quality of what they offer. It is more efficient for sellers to provide the information that they have to potential buyers who do not have it. It is cheaper overall for sellers to provide information than for buyers to seek it. Service providers demonstrate considerable creativity and diversity in means of signalling their quality. Of course, poor quality service providers may choose not to take actions that reveal their type, but this very inaction is a signal.

League Tables

Parents typically have less information about the quality of educational services provided than the school. Yet they have strong incentives to obtain such information, often from 'league tables' which rank schools according to their external examination results. These league tables are often published in newspapers. Commercial firms commonly provide this type of information to prospective university students. These books are widely available in the USA and provide information such as the ranking of law schools in the 'Top 25', and the earnings differentials that accrue to qualifications from different universities.

This information, however, does not necessarily convey information about the quality of the educational services provided by the school because any educational outcome depends not only on the performance of the school, but also on the natural ability and home circumstances of the student. Schools which may appear to be performing well on the basis of examination results may simply enjoy the benefit of having students of high ability. In contrast, a school that has poor examination records may be performing well, given the poor natural ability of the students. Schools generally do not like to be assessed solely on these rankings and consider that they should not be used as a measure of

school or teacher quality because they take no account of differing abilities on entry.[33]

Yet the tables are often widely reported in the media and schools that are poorly ranked continue to feel cheated. Demand for the information conveyed in the tables suggests that it will continue to be supplied. Given the antipathy of schools to this sort of comparative information, it is likely to be collated and supplied by independent organisations, rather than the schools themselves. The information is likely to comprise data that is publicly available, such as examination results or obtainable by means of surveys of students or employers, such as earnings data for university graduates. A New Zealand example is discussed in Box 12.

Box 12 - A Guide to 300+ NZ

Last year a publication entitled A Guide to 300+ NZ came under sharp criticism from the rector of St Thomas of Canterbury, a school which ranked as one of the lowest in New Zealand with 7 percent for A Bursary. Brother Walsh commented that not only does the result achieved by each school make no allowance for the value added, with no mention of the percentage of Form 3 intake sitting external exams, but neither does it state the number of students involved at each school. Consequently, schools with relatively small rolls find themselves with a situation whereby each student represents a high share of the percentage total. Brother Walsh, highlighted another commonly stated shortcoming of league tables when he observed that, 'If we halved the number of students we let enter the exam, we would double our percentage pass, but this would reduce the number of students who would qualify to go to university.'

Value-Added Testing

Although examinations are a commonly used device for assessing student achievements and signalling school quality, they have several drawbacks. Average test scores are an unreliable indicator of school performance. They fail to reflect variation at the classroom or form level; they are often out of date; are affected by the mobility of students and fail to distinguish the contribution of schools to student achievement.

Rather than league tables, what is needed is a way of measuring the additional impact of the educational services offered by the school. The concept of 'value-added' has therefore been applied to schooling. It attempts to separate the effects of the student and the school in the attainment of educational outcomes.[34] However, simple pre- and post-testing may not accurately measure the effectiveness of the school since it does not correct for the underlying ability of the student, the impact of previous education that affects the rate of learning or the effects of the family environment on learning. Unlike the league tables, where buyers buy information about the school, the costs of value-added

testing are normally borne by the school because it is considered to convey better information than a simple system of examinations and league tables.

Rating Agencies

Similar to league tables for schools are organisations that offer independent rating of service organisations. The ratings typically apply to hotels and restaurants which are consummate experience goods. Take, for example, a motel providing lodging services. It is not uncommon for a customer to book a motel prior to travel. Because the patron has not inspected the motel at the time of booking, information asymmetry exists regarding the quality of the motel. Some motels will have an incentive to remove this information asymmetry, since they perceive that their quality is high relative to their tariff. These motels are likely to band together to form an association or rating agency, even though for credibility's sake the rating agency is likely to ultimately be a separate legal entity (see Box 13). This rating agency will assign some grade to motels, such as one star through to five stars. Similar rating organisations arise to evaluate hotels, cars, high fidelity stereo components, airlines, and restaurants.

Box 13 - The Qualmark System

Qualmark is an independent rating system which is a joint venture between the Automobile Association of New Zealand and the New Zealand Tourism Board. It operates a 1 to 5 star rating system for hotels and motels. Properties are visited annually by assessors who check and evaluate in detail the service quality and standards. A property owner can obtain a Qualmark quality rating for a fee of about $500 for 50 or more rooms, and the right to display the rating. Qualmark's rating system evaluates properties within three tiers; backpackers / holiday parks, motels, and hotels. Most Qualmark-rated establishments have a three-star or higher rating as establishments failing to obtain a three-star rating are unwilling to pay money to be labelled as below average. Properties display the rating on their properties and in their advertising, and it is also used in accommodation guides to help travellers choose where they want to stay.

Yet, when it comes to schools, society currently does not provide explicit ratings.[35] The possible reasons for this are (1) that schools are harder to rate than motels, (2) that all state funded schools are presumed to be equal, and that explicitly different ratings would raise issues of equity or (3) that features other than the quality of the school, such as location, are a determinative factor for parents in deciding where to enrol their children.

The efficacy of rating depends on the ease with which the quality and performance can be measured. It is difficult to separate the ability and background of the student from the quality of the teaching. Although

value-added testing can go some way towards doing so, it is hard for an independent agency to carry out tests of this kind. For some services, such as motels, there is a direct linkage between quantifiable information and the quality of the service – for example the availability of a TV in a room.

But because education is intangible, it is harder to measure the quality of schooling along one dimension, even if that quality is quantifiable. It may simply not be appropriate to award schools or universities stars like restaurants or hotels. The Good Universities Guide provides quantified information across a range of criteria allowing students to select among universities according the measures that best suit their needs (see Box 14). The multi-dimensional nature of education is explicitly recognised by awards by the publishers of the best university each year, according to different criteria. For example the University of Queensland was selected as the 1998 winner for 'outstanding graduate outcomes', with the best track record in delivering for graduates either employment or access to further education.

The second possibility is that since state schools tend to dominate the market for schooling, they act like a franchise in attempting to provide a uniform service across all locations in order to fulfil their obligation of providing equality of access to schooling. Standardisation of the curriculum and the regulation of the sector are means of achieving uniformity, but are likely to be weaker than the mechanisms used to ensure that franchisees offer a consistent service, as noted below.

The third possibility suggests that once parents have settled in a particular area, the additional cost of moving or transporting their child to another slightly better school further away may not be worth it. In other words, as long as the average quality of the local school is acceptable, parents will not find it worthwhile to seek more information about the quality of alternatives further away, although they may want to compare the quality of all the local possibilities. This effect is likely to be lesser for parents who value education more highly (and thus information about quality) or for older students who can travel further to school.

The tertiary sector in contrast, is comprehensively rated in countries such as the US and Australia by independent organisations. Guides to New Zealand universities, however are provided by universities themselves, and do not provide rating comparisons. One reason may simply be that New Zealand has relatively few universities, and potential students have other low cost ways of obtaining information about them, such as asking friends and colleagues about their experiences.

Box 14 - Good Universities Guide

The Good Universities Guide to Australian Universities[36] is an independent and authoritative guide to universities, campuses and undergraduate courses throughout Australia. This consumer guide to the quality of Australian higher education serves prospective Australian and international students by providing clear and accurate information about all Australian higher education courses and institutions.

It features unique star ratings and rankings which compare universities and undergraduate courses based on statistical data provided by the universities. The Guide's comprehensive mapping of the undergraduate terrain also includes comparative rankings and in-depth profiles of 39 universities and 21 other institutions accredited to offer bachelor degrees. Thirty fields of study are surveyed, including comparisons of which universities do best in which field. Special overviews of TAFE and private colleges which offer diploma courses are also reviewed. The ratings are based on statistics of the higher education sector in Australia, together with surveys of graduates.

In addition to describing the institutions and the courses they offer, it rates each institution and compares courses of study. Ratings are based on:

- Graduates' evaluation of courses
- Student / staff ratios
- Prestige
- Teaching quality
- Graduate employment success
- Graduate starting salaries
- Flexibility of entry

4.5.6 Branding and Reputation

Where sellers have little to gain from producing goods of high quality, they have little incentive to invest in their reputations. When this happens, low quality goods flood the market and drive out goods of higher quality. This is the 'market for lemons' problem.[37] Yet if there is a demand for high quality goods, both buyers and sellers have incentives to devise arrangements to ensure that they are produced and sold.

This can be achieved if the seller makes an investment that pays off only if it produces the quality of goods it promises. For this to work, buyers must be aware of this investment, and the fact that it is at risk if the sellers do not honour their commitments.[38] Investment in advertising or in a reputation for providing a certain quality are all ways for the seller to provide information about the quality of the goods on offer. Schools are generally 'repeat players' in the market. That is, they are long term providers of education and have incentives to continue to attract students.

Since the seller typically knows more about the quality of services it offers than the buyer, it has an incentive to provide the buyer with information. In addition, because it is harder and more expensive for the buyer to obtain the information, it is cheaper overall if the seller, who can also control the quality, can convey the information.

But the information provided by the seller must be credible for it to be effective in influencing the decision of the buyer. One way to promote credibility is for the seller to make an investment that is at risk if the information turns out to be false.[39] A trustworthy reputation for providing high quality goods and services is a valuable asset for any firm, as it reduces the transaction costs to the buyer of obtaining additional information about the seller and ensuring that the terms of the contract are fulfilled.

Schools, like other organisations, would have an incentive to develop and then protect their reputations, since a reputation for poor quality will affect the future demand for their services. Schools would therefore invest in activities which signal to both potential students and their subsequent employers that a qualification from that school is 'worth something'. Investments in reputation, branding, goodwill or specific or human capital are all means of providing information about the quality of education to potential buyers and are common in other areas of professional services (see Box 15). These tangible activities are proxies for the unobservable quality of the education on offer.

Box 15 - Law Firms

Legal services, like education are intangible experience goods. The function of a lawyer is to keep a client out of trouble, or to extricate the client who is in trouble. Like education, it is hard to separate the activities of the client from the efforts of the lawyer in the legal outcome. As a result, it is hard for the client to discern the quality of the services provided.

Legal firms thus typically focus on the observable and tangible aspects of their services as signals of quality. High prices are used as signals of high quality. Branding establishes the reputation of the firm through various channels. Investment in the recruitment of highly qualified, well presented and well-spoken staff; the quality and presentation of the beautifully decorated premises; glossy brochures and the high quality documents provided to clients are all signals about the services being provided.

Branding is often reinforced by seemingly minor aspects of a school's operation that seem to be at the margins of the main activity of teaching and learning. For example, some schools take care to maintain or enhance investments in specific assets such as stone buildings covered with ivy. Many schools also rigorously enforce uniform dress codes. These activities are intended to act as signals about the quality of the educational services provided.

An additional form of branding is provided by adherence to externally monitored quality standards. The ISO system for example, requires that firms adhere to certain procedures (see Box 16).

Box 16 - University of Waikato Executive Education Programme

The University of Waikato Executive Education programme has received ISO9001 accreditation. Accreditation provides an assurance that all appropriate procedures and processes are followed properly. The programme is audited annually to ensure ongoing quality. The Director, Ed Weymes, says that while the system helps to ensure that the programme runs smoothly, it does not ensure the quality of what is being taught. It must therefore be supplemented by procedures that focus on the academic programme, such as a rigorous hiring procedure and on-going training of staff.

Although ISO accreditation of the programme is mentioned in advertising, it is not a major feature. Its value lies principally in ensuring that proper procedures are followed, and so its impact on the quality of the academic programme is indirect.

Other educational organisations have also been ISO accredited. Waiariki Polytech, for example has had its entire programme ISO accredited.

4.5.7 Warranties and Guarantees

Warranties and guarantees are another way for firms to signal the quality of their goods and services. They represent a commitment to ensuring quality and involve a loss to the firm if the quality is not met. They are often used where goods are complex, where the quality is not easily discernible by the buyer beforehand, where defects only become apparent after some time, but are evident once they appear and where replacement, repair or a refund is adequate recompense (see Box 17).

But guarantees of goods such as cars and appliances have limited application to schooling, since it is rare that education failure becomes evident in a manner similar to the failure of a reconditioned engine. Also, getting a refund of school fees does not recompense the damage.

Box 17 - Engine Reconditioning

Reconditioned automotive engines vary in quality. A purchaser of an engine cannot tell the quality of the engine until they have bought it and installed it in their car. The reconditioner also has difficulty identifying which engines are good and which are not. The problem in this case is not so much that an information asymmetry exists, but that information regarding quality is difficult to obtain.

Let us assume that two out of every 100 reconditioned engines fail within 1,000km of reconditioning. If a customer purchases an engine, the possible outcomes they face include complete loss of their money. However, the engine reconditioner can diversify this risk across a large number of transactions. Thus, the observed solution in such businesses is that the reconditioner provides a guarantee for the first 1,000kms or so, long enough to identify whether the engine works or not. The price charged for each engine implicitly includes an insurance premium that covers the cost of the cases where the price of the engine must be refunded under the guarantee.

Diversification of risk by a supplier is a common means of dealing with variation that is unobservable at the time of a transaction, but is observable later.

Recall the laser eye procedure example (Box 7) above. That procedure has a two percent chance of resulting in a worse visual outcome than the 'corrected' vision prior to the procedure. This failure is reasonably easily measurable by simple eye charts. Yet, the eye clinic does not provide a guarantee in a similar way to the engine reconditioner. The reason for this is likely to be that if the procedure has worsened the customer's eyesight, refunding the money is not going to fix the problem, and in fact is likely to lead to litigation.

Similar difficulties would arise in schooling with money-back guarantees, even if it were possible to measure educational failure. Yet it is possible for provide guarantees of teaching quality where pre- and post-testing is used to measure the effectiveness of teaching and to separate it from the effect of the natural ability of the student. For example, Sylvan Learning centres provide a learning guarantee (see Box 20), as do some driving schools.

Box 18 - Sylvan Learning Centres

Sylvan Learning Centres provide personalised instructional services to students of any age and skill level. They provide tuition for children wanting to catch up, advance or prepare for university, tailoring each student's programme to their needs. Learning begins with assessing and evaluating each student using multiple indicators to identify academic strengths and weaknesses. These include several standardised tests using national norms and Sylvan customised tests, vision and hearing screenings, interviews and recent performance in school.

The Sylvan Skills Assessment facilitates an appropriate match from hundreds of available lesson plans. Sylvan measures progress by re-testing each student at appropriate levels.

With Sylvan's Personal Learning programme, students are guaranteed to improve at least one full grade level equivalent in reading skills or basic math skills after 36 hours of instruction, or 12 additional hours are provided at no extra cost. Measurement is based on a nationally recognised achievement test for improvement in academic reading of basic mathematics.

4.5.8 Associations

The costs to a single seller of establishing a good reputation can be high, particularly when purchases are intermittent. Co-operation with other sellers can reduce these costs and build up buyer loyalty to the whole group, thus increasing repeat business.

Associations of firms in the same sector can reduce the transaction costs to the buyer of using another firm. For example, a hotel that is a member of a marketing association can help the traveller to make a hotel booking in the next town with another member of the association. There are also economies of scale in marketing, and the reputation established for the group as a whole benefits each of the members.

The Independent Schools Association in New Zealand is an example of this type of organisation in the education sector. Although each member school is privately owned and operated, the association provides marketing and lobbying services to the industry. At the tertiary level, certain university groupings emerge which can be construed as mechanisms for signalling, and potentially encouraging, superior quality. Examples are the Group of Seven universities in Australia, and the Universitas 21 international grouping of universities.

These associations may also involve the use of a common curriculum and examinations or a common teaching approach. They can thus facilitate the involvement of students between schools. An association may represent one end a continuum of co-operation among schools with vertical integration.

4.5.9 Chains

The horizontal integration of firms into chains provides economies of scale in the purchase of inputs and in marketing expenditures. At the same time, the investment in the reputation provides information to potential buyers, particularly where the chain offers uniform services. A chain of motels, travel lodges or hotels tells a potential patron something of its quality, thus reducing information asymmetry. An organisation can develop or purchase a number of establishments, and manage them in a way that ensures homogeneous quality in line with patrons' expectations.

A chain has advantages over a mere membership of a rating organisation which focuses on observable and measurable inputs as proxies for information about quality. The chain's investment in branding establishes a reputation for quality of service which it can capture in repeat business (see Box 19). The chain involves some standardisation of services that acts as a signalling or branding device to potential clients.

The formation of chains of schools would be likely in an environment where the state sector did not dominate. A chain would offer significant advantages to schools in economies of scale in administration and marketing, as well as in the development of a curriculum and common approach to pedagogy. Similar chains already exist within school sectors elsewhere. For example, schools sponsored and owned by a single religious organisation could be viewed as a chain or network. The Edison Project in the USA runs a chain of schools (see Box 20).

Box 19 – Silver Oaks Group

Greg Wilson is Managing Director of Silver Oaks Group, owners and operators of motor inns. It is natural that he would know more about the quality of his properties than his potential patrons do. In fact, he makes it his business to know the quality of his properties. Approximately every three months, Greg personally visits each property and checks 100 quality aspects of 10 rooms chosen at random, and also reviews all systems. While it is desirable that a manager be informed about the quality of each property, it is also in Greg's interest to make sure that potential patrons of his properties can ascertain the quality of his properties prior to placing a booking.

While Qualmark rating appears to be an obvious solution for Greg, he does not perceive it as such. In fact, he is quite animated in his explanation of why Qualmark's testing and certification system is flawed. For a start, Greg's motor inns don't fit in any category. What is a 55-room property with its own restaurant and 24-hour room service? Are they five-star motels or two and a half-star hotels? The background colour of the rating sign indicates on what tier of establishments the rating is based. But a potential patron is unlikely to comprehend the importance of the background colour. On top of this, he is frustrated with the algorithmic testing procedure. 'They walk round with a clipboard counting coat-hangers and checking ironing boards, but they never check my systems. They don't check complaint procedures, for example. They don't ask patrons what they think of their stay. They don't have a meal in the restaurant, don't order pizza at 1:00am, don't ride in the shuttle bus …' Greg is wound up. What he sees as Qualmark's checking of inputs rather than outputs clearly frustrates him.

So how does the Silver Oaks Group provide a quality signal to potential patrons? Greg has found from experience that the vast majority of their bookings are based on relationships. For example, travel agents will recommend their properties. Companies such as airlines will contract for accommodation of flight crews on an ongoing basis. The group participates in a number of reward systems, which encourage loyalty to a subset of properties. For example, they participate in AMEX rewards, Fly Buys, Smart Buy and a corporate Travel Card. For him, reputation, repeat business from loyal customers, and relationships with travel agents and travel companies are far more effective solutions to signalling quality to potential customers than a rating agency.

Box 20 - The Edison Project

The Edison Project, founded in 1991, is the leading private manager of public schools in the United States. After engaging in three years of intensive research and development to design innovative schools that could operate at public school spending levels, Edison opened its first four schools in August 1995. Edison has now implemented its school design in 51 public schools, including many charter schools, which it operates under management contracts with local school districts and charter school boards. Approximately 24,000 students currently attend Edison partnership schools.

The Edison Project establishes partnership schools in contract with public school districts or charter school authorities within the local community. In either case, The Edison Project takes responsibility for implementing the educational program, technology plans, and management systems, and is accountable to a local authority for the performance of the school. Edison schools remain public schools, open to all students and funded with tax dollars.

Generally, students in Edison schools are representative of the communities in which the schools reside. Edison offers a comprehensive education programme designed to work for students of all types, from those who find school difficult to those for whom success comes easily.

In surveys of parent and student satisfaction conducted for The Edison Project by the Gordon S. Black Corporation, 90 percent of parents gave their schools A or B ratings, very high grades by national standards. Among students, who are tougher critics of their schools, between two-thirds and three-fourths gave their schools an A or B, with an A clearly the most popular grade.

Edison schools have strong parent involvement, as evidenced by a 94 percent attendance rate among parents at quarterly conferences to discuss their children's academic progress; a 94 percent student attendance rate; and a student mobility rate below 10 percent annually, a figure that is superior to rates in comparable schools.

Edison schools have long waiting lists. In Boston, Massachusetts, for example, more than 1,600 students are waiting to enroll in the Boston Renaissance Charter School; and in Wichita, Kansas, the Jardine-Edison Junior Academy has nearly 400 students on its waiting list.

Source: http://www.edisonproject.com

4.5.10 Franchise

An alternative to a chain of firms under single ownership is franchising. Franchising is different from a chain because it involves the individual ownership of a firm that buys a right to provide goods and services in a particular way from another firm. The franchisee is the owner of the firm and bears both the costs and the benefits of the operation. In a chain, on the other hand, the local manager is an employee who does not bear the costs or enjoy the benefits of the operation.

A particular characteristic of franchises is their uniformity. The processes and procedures are developed by the franchisor and the franchisee pays for the right to use them. Uniformity is ensured by the investment that the franchisee must make in specific assets (such as the design of the premises) or the penalty that must be paid if the standards of the franchisor are not met. Ensuring that service organisations provide similar quality therefore does not require that those organisations be owned in common.

Franchises are common in some service industries, such as hotels and accounting. They are less common in other industries such as law and medicine. The choice of organisational form, whether chain or franchise depends on their relative operational efficiency.[40] Franchising is often preferred to horizontal integration where firms are geographically dispersed and costly to monitor.[41] They allow the franchisor to draw on local knowledge and taste and market conditions in determining the goods and services to offer. The potential for franchising in the education sector is illustrated by remedial services (see Box 21).[42]

Franchising is a potential way for schools to co-operate with one another to provide a market signal of quality. As in the case of school rating agencies, the major impediment is likely to be societal expectations that state schools are of homogenous quality. We consider this a significant but not inherent impediment to schools developing economically rational responses to heterogeneity in school quality.

Box 21 - Kip McGrath Education Centres

Kip McGrath Education Centres involve franchised after-school tutoring of students from Std 1 to Form 4. They also provide school-based tutoring for schools which are bulk-funded and have the flexibility to contract these services.

The franchise has been operating in Australia for 20 years and expanded to New Zealand in 1990. David Wardell is the Master Franchisee and sells franchises throughout the country. Franchises are sold only to qualified teachers. The purchase provides an exclusive geographic zone, tutoring materials, an initial training course and ongoing conferences. The training course covers both business and education elements as it involves marketing, the overall culture of the organisation and educational approach to tutoring.

Quality assurance involves an exhaustive selection process and an extensive initial training course and on-going training, together with on-going monitoring and auditing of the franchisees. The franchise also relies on the market to ensure quality, since students only pay on a week by week basis. However, after a few weeks when they have built up some trust in the organisation, parents typically pre-pay for the tutoring.

Students are initially assessed to identify their strengths and weaknesses if they require tutoring with the core material between Std 1 and Form 4, but older students in particular already know the areas in which they need help. The centres do not provide explicit guarantees.

The franchisee has some flexibility in providing tutoring services within the overall approach and materials, reflecting the complexity of teaching and the diverse needs of students. The structure of the franchise is intended to allow centres to meet the diverse needs of students within a franchising framework.

Relationship Management

Yet another way that information asymmetries between a service purchaser and supplier are dealt with is demonstrated by the relationship developed between Japanese car manufacturers and their suppliers. Japanese component parts manufacturers encourage car manufacturers to place technical support engineers within the supplier's factory.[43]

An example that is more readily applicable to New Zealand is that of factory visits. For example, a vintner will generally pay much time and attention to showing a potential customer the care with which his or her wine is produced. Food processing factories typically have guided tours. A potential reason for such tours is to provide information to customers as to the cleanliness and care which is part of the production process. Organisations which pay very little care and attention to

cleanliness are unlikely to choose to conduct factory tours. Thus, the availability of a factory tour is a signal of quality in and of itself.

The parallel for schools is the active participation of parents in school activities. For example, parent-teacher associations (PTAs) can act to reduce asymmetries, as can open days, sports days, school concerts, and parent volunteer programmes. If parents can observe the educational process first-hand, information asymmetries regarding the quality of that process will be diminished. In fact, simply enabling parents to enter the classroom at any time would be a significant signal of quality.

4.6 Not for Profit?

While schools vary considerably in their ownership and control structures, one common characteristic is the absence of an explicit residual claimant. Unlike for-profit organisations, private schools as they are currently structured seldom have shares or other ownership rights giving owners a simultaneous share of both profits and control. Thus, the individuals running a school are typically not incentivised by a claim over any operating surplus. However, there is nothing inherent about primary and secondary education that precludes such an arrangement, as the Edison Project and examples from related sectors (such as post-school learning centres) would appear to indicate.[44]

The Edison Project illustrated in Box 20, is a private American manager of public schools. Edison operates 51 public schools serving more than 24,000 students in 26 communities across the United States of America. Edison is a for-profit company which plans to list its shares on a stock exchange in the near future. It is currently incentivising teachers by issuing them with options ahead of the public float. Thus, both a school's managers and teachers will have the common goal of maximising the market value of Edison's equity (see Box 22).

Box 22 - Employee Options: The Edison Project

Edison, Teachers Union, and School District Announce Innovative Stock Option Plan for Teachers

Officials from the Edison Project, Miami Dade County Public Schools (MDCPS), and the United Teachers of Dade (UTD) jointly announced today that the 90 teachers and staff members of Henry S. Reeves Elementary School will receive stock options in Edison, America's largest private manager of public schools. Edison officials noted that the company will make options available to any Edison school that requests them.
...
'This is the first time in the history of American education that teachers have become direct economic stake holders in the public schools where they work. Its about time,' said Pat Tornillo, Executive Vice President of the UTD.

'This is an innovative approach to teacher compensation that did not come in exchange for scaling back teachers' salary and benefits,' said Sandra Feldman, President of the American Federation of Teachers. 'It was done in partnership with the union. It should be interesting to see how it turns out.'

Tornillo and Chris Whittle, Edison's founder and CEO, both noted that the options plan will help reinforce the school's top priority-improved student achievement. Added Whittle, 'Until now, education has been one of the few sectors in the U.S. economy where the people doing the front-line work were not in a position to reap rewards from the enterprise's success, which in the case of schools is improved student performance. We want to help change that. Our curriculum and professional development are helping teachers succeed professionally. We hope our option plan will help them succeed financially.'
…
'Teachers and staff will continue doing exactly what they have been doing - helping children get a great education,' said Tornillo. 'The difference is they now have an ownership interest in success in the same way that millions of employees in the private sector do.'

Source: http://www.edisonproject.com/ October 22, 1998

For profit firms are common in other professional services, such as medical care. It is notable that the inherent characteristics of these health services resemble education in many respects. For-profit firms in health care take a number of forms, from individual medical practitioners acting alone, to partnerships and private companies (see Box 23).

Box 23 – Private Hospitals

Southern Cross Healthcare is a Friendly Society (governed by the Friendly Societies and Credit Unions Act 1982). In essence this means that they are a non-profit organisation, owned by its members. Started in 1961 by a group of community-minded individuals, its members numbered 900. Membership now stands at just over one million.

Southern Cross Healthcare is divided into (1) The Southern Cross Medical Care Society which is responsible for provision of insurance (2) The Southern Cross Hospital Trust which is responsible for the hospital network (13 in all, made up of 551 beds) and owned by the Medical Care Society and (3) Southern Cross Benefits - the profit-making arm that provides travel Insurance. Recently it merged with Royal Sun Alliance to create "Fusion" to look after the new @WORK workers' compensation.

Ascot Integrated Hospital is a profit-seeking company. It is organised along the same lines as the Southern Cross hospitals in that surgeons and consultants are clients that pay to use hospital facilities. The $47 million investment for land and buildings was put up by Calan Healthcare Properties Trust. Other capital was raised from investors some of whom are doctors and may or may not also be clients. The Hospital holds around 62 percent of the lease on the property. Other tenants spent a further $14 million on plant and equipment.

For-profit arrangements such as The Edison Project are not currently common in education. A fundamental question is whether this lack of a residual claimant is an inherent feature of schooling that would occur absent any government involvement in education. Regardless of whether this is an inherent attribute or a response to government intervention, it is clear that most schools are not run with the express incentive of generating an operating surplus. Instead, they dissipate any surplus that may arise through:

- expenditure to increase the quality of education provided;
- higher payments to suppliers of educational inputs;
- lower fees;
- activities associated with non-educational objectives, such as religious activities;
- benefits consumed by a school's management or trustees; and
- investments to cover potential future operating deficits.

Schools may select either for-profit or non-profit status. An examination of the tertiary education sector suggests that for-profit institutions may be efficient where the content of instruction is well-defined, high quality research is of little complementary value to teaching, students use education for learning rather than certification and there are independent means of certifying student quality. In

contrast, non-profit institutions are efficient at producing high quality research and academic status for both staff and students.[45] Schools typically do not involve research as a complement to teaching, curricula are often well specified, and despite the difficulties mentioned above of measuring the quality of educational outcomes, they are routinely assessed through mechanisms such as examinations.

In circumstances conducive to a for-profit form of organisation, such a business structure has a number of advantages for owners. A single objective of profit-maximisation creates clear incentives for owners and managers, and allows the performance of the school to be monitored by owners, creditors (such as banks) and suppliers. Consumers (current and potential students and their parents, as well as employers) are likely to monitor the performance of the school against other criteria such as examination results. These measures are also likely to be important for shareholders because of their potential impact on profitability. The for-profit form permits the school to raise equity capital in the market. It also creates strong incentives for performance to maximise profits and minimise costs, with threats of bankruptcy or takeover.

However, in practice, there would be significant risks to any operator of a for-profit school if the school relied on government subsidies for the bulk (or all) of its revenues. In particular, the funding source may be at risk of variable and unpredicted change. This may make the task of credible contracting between a for-profit school and the government quite difficult, although the scope of such difficulties is likely to be small if government ownership of schools continues to dominate the sector.

Quite apart from these considerations, there are a number of potential reasons whey running a school as a non-profit organisation might be preferred:

- people are likely to be more willing to donate money to a school if they are certain that their money is not going directly to the residual claimants. Similarly, they are more willing to donate time as volunteer assistants (eg, drivers, food preparers / providers, coaches);
- it is easier to make a case for government funding;
- tax benefits often exist for the organisation and its donors;
- other objectives can be made explicit and be consistently pursued. (eg, religious objectives); and
- parents may be more willing to trust the school's statements, believing that the school's managers are acting in their interest rather than in the interests of owners.

There are certain disadvantages in the non-profit form. The most significant is that the organisation often has mixed objectives, making it difficult to measure its performance and creating mixed signals for all its stakeholders. In addition, it is often not clear who the residual claimants are, and the staff become the *de facto* principal stakeholders in the school. Governance arrangements are often weak, and as described

above, there may not be strong disciplines on costs. It can be difficult for non-profits to raise equity capital, and shortfalls in revenues are often addressed through appeals for donations.

Non-profit organisations tend to have multiple objectives in the absence of an over-arching goal of maximising shareholders' wealth. We have discussed the problems inherent in simultaneously seeking multiple objectives. How do not-for-profit organisations deal with this problem? One solution is for the not-for-profit organisation to separate its trading activities from its philanthropic objectives.

For example, the founders of Kelloggs, the breakfast food company had objectives other than maximising shareholder wealth. The solution chosen by Kelloggs to deal with the debilitating effects of multiple objectives was to set up Kelloggs as a profit-seeking corporation and ascribe a large portion of its ownership interest to a philanthropic trust. Thus, Kelloggs has the sole objective of maximising shareholders' wealth, and the trust has the sole objective of distributing this wealth in accordance with the wishes of the trust's settlors. The Sanatarium Health food Company which also manufactures breakfast cereal, deals with the problem of multiple objectives by maximising profits which it uses for charitable purposes (see Box 27).

The application of the Kelloggs and Sanitarium business analogies to schools indicates that schools could have non-commercial objectives and be operated as businesses with clear goals to maximise the value of the school for residual claimants. In addition, a charitable trust could be allocated all or part of the residual claim, and provided with explicit directions as to how such wealth is to be spent. For example, the trust deed could specify that the proceeds were to be used to provide educational scholarships, support extra-curricular activities, facilitate social occasions, invite distinguished guests and so on. Of course, such a solution creates another problem; how to incentivise the trustees to act as committed owners of the school when their own wealth is not at stake. The Kelloggs example would indicate that this problem is not insurmountable.

Note that for-profit organisations are in some cases able to obtain some of the benefits of non-profit organisations, such as motivating donations and volunteer assistance. For instance, Auckland International Airport (AIA), a publicly-listed profit-seeking company, has a small army of dedicated volunteers who work at the International Terminal. These volunteers provide assistance to passengers; meeting disabled passengers at the gate, wheeling those in wheelchairs, and providing assistance to unaccompanied children, or a parent travelling with babies and young children. Presumably these volunteers are willing to provide such services free of charge because they consider they are providing an 'extra' service, rather than simply providing labour free of charge that AIA would otherwise have to pay someone for. AIA consider that their volunteers are motivated by a desire to project Aucklanders as caring people, and New Zealanders as friendly people. In essence, AIA has been able to ring-fence a part of its operations that (1) is seen as providing benefits for Auckland or New

Zealand primarily, and to AIA secondarily, and (2) would not occur in the absence of volunteered labour.

Box 24 - Sanitarium Health Food Company

Sanitarium Health Food Company manufactures and sells breakfast foods and a range of vegetarian health foods. It is owned by the Australasian Conference Association, which is wholly owned by the Seventh-day Adventist Church. Sanitarium has had a number of objectives, including:

- providing funds to support the charitable activities of the Seventh-day Adventist Church;
- providing a healthy range of foods for vegetarians, since a large proportion of the firm's constituency are vegetarian;
- providing employment opportunities in an organisation that is sensitive to the religious convictions of church members. eg., morning worship, early close on Friday afternoon, no Sabbath work, drug-free work environment, providing flexible work hours for theology and education students at church colleges; and
- increasing the general health of society, a goal of the Seventh-day Adventist Church.

Each of these objectives has changed in importance over the years. For instance, providing vegetarian food is less significant today than it was years ago when vegetarian alternatives were quite limited. Also, providing flexible work opportunities for trainee teachers and ministers is less important now that such studies are typically full-time and at least partially state-funded. For this reason, small Sanitarium factories situated near church colleges have closed and production moved to large, efficient factories.

These multiple goals naturally conflict, and it is not surprising that in the early 1990's Sanitarium provided minimal funds to its owners. Failure to provide surpluses for charitable activities was excused by the need to achieve other objectives. For example, 'desirable' product ranges were expanded with little concern with product profitability. Sanitarium has recently been reorganised along the lines of a modern, profit-seeking company, and, as a consequence, it again provides funds to its owner to support charitable activities.

In the same way, a hypothetical for-profit school, could presumably still motivate volunteer support for activities where (1) the students were seen as the beneficiaries rather than the school's shareholders, and (2) the activity is seen as 'something extra', beyond the core activity of the school. For example, students' parents might still be willing to operate a volunteer 'tuck shop', providing wholesome, low-cost food to students. They might be willing to provide after-school coaching for extra-curricular sporting activities. For profit schools are thus not inherently incompatible with donated input.

It is unclear whether the existing domination of non-profit schools is an indication that the benefits of such an organisational form outweigh the disadvantages, or that for-profit schools are currently precluded because of current state funding and regulation. We do note, however, that two observations indicate that schools are not inherently non-profit. First, schools have not always been run as non-profit organisations.[46] History indicates that the demise of for-profit schools is roughly co-incident with state adoption of educational responsibility. Also, we observe a large number of specialist schools that are run as for-profit organisations. Music schools, driving schools, dance schools, defence schools, and language schools are just a few educational establishments run with the intention of maximising shareholders' wealth. Of course, the skills these 'schools' engender are not part of the 'core' curriculum offered by primary and secondary schools which provide a universal service, under current legislation.

4.7 Conclusion

The structure of schools can be viewed as a response to the nature of the educational services they provide. The provision of education involves transaction costs for both buyers and sellers that arise from the inherent variation in educational outcomes. The variation arises because of the variability in the inputs into education (such as the natural ability of the student and his or her prior level of educational attainment) and the process of education (such as the quality of educational services).

The existence and structure of schools can be explained by the existence of transaction and nature costs, in the same way that transaction costs explain the existence of firms. Transaction costs are all those costs that surround economic activity and exchange. They encompass a spectrum including the costs of information, of negotiation, of drawing up and enforcing contracts, of defining and enforcing property rights, of monitoring performance, and of changing institutional arrangements. In short, they comprise all the costs that are not simply the costs of physical production. The very existence of organisations is a response to transaction costs. The objective is to minimise their total costs (transaction costs plus production costs) for a given level of output. The structure of schools can also be examined as a response to the nature of transaction costs. There are a number of existing features of schools that appear to be inherent, rather than reflections of government intervention. In addition, other aspects of schools (such as vertical integration or franchising) which are not currently observed, might arise as a consequence of these inherent features.

Schools are a form of organisation that economises on the costs of co-ordination and takes advantage of specialisation. If there were no schools, parents could contract with a number of individual teachers to provide instruction to their children. However, searching for appropriate teachers and monitoring their quality could be costly. The costs co-ordinating specialist teaching could be high, and a generalist teacher might not have the range of necessary skills. A school can be a less costly alternative as it assembles and co-ordinates the necessary

educational and administrative skills to provide educational services. A school can take advantage of economies of scale (teaching many students at once) or economics of scope (teaching a range of subjects). A school can also obtain information about the teachers it employs and assess their performance.

The structure of schools is likely to be diverse. Schools could take a number of organisational forms, from schools as corporate entities that employ a number of teachers, to schools that provide premises but lease them to individual teachers under contract. There is also likely to be scope for individual teachers to offer instruction to students as specialist music teachers do now.

A significant characteristic of schools is that they involve long term relationships between students and the school on the one hand, and between teachers and the school on the other. Schools do not operate on a 'spot' market. There is a durability or persistence in the decision to attend a school that does not involve very frequent changes between schools. The long term nature of these relationships arises because transaction costs make very frequent moves costly. There can be significant transaction costs for both teachers and students in moving between schools. They are likely to arise from the costs of the disruption of personal relationships between students and their teachers; the disruption of learning when it is hard to find out what a student has already learned and the costs of obtaining information about the quality of education provided at the new school. Students and teachers also acquire skills and knowledge that may be quite specific to the school and the course of study and which may make it difficult to transfer to another school.

Education is a complex product, making the assessment of teaching and school quality costly and difficult. Education, like many other services is an 'experience good' whose quality is not easily discerned before it is used. Measuring the quality of schooling is difficult because it is hard to observe the ability of students and the quality of their effort and to separate these effects from the value added by the school. The value added by the school in one year also depends on what the student has learned in previous years, and thus may be affected by prior poor teaching.

Schools use a range of mechanisms to assure potential students and employers of past students about the quality of the education they provide. The difficulties of measuring the quality of education provided by a school underlies the use of a range of mechanisms to signal the quality of the school. The parents of potential students have an incentive to obtain information about the quality of the school, and potential employers have an incentive to find out the level of education of potential employees. The school also has an incentive to provide information about the quality of the services it provides in order to attract and retain students. It is more cost-effective for the school to provide this information because it has better information than parents or employers about the quality of the services they provide and also controls the quality.

Examinations and other systems of measuring educational attainment are commonly used by schools to measure the achievements of students. Qualifications are granted to students on the basis of their educational performance, and are used by them to signal their value to potential employers. Employers use qualifications as a cost-effective way of finding, screening potential employees and out what they know. Examination systems are also used as measures of what students who are still at school have already learned, and so common curricula and performance measures (such as examinations) facilitate the movement of students between schools.

A number of forms of measuring performance are likely to arise. The information provided by measures of educational attainment is enhanced if the measures are comparable across a range of schools and if measurement is independent. Schools may develop a common system of examinations that they all use, or independent providers could develop and administer examinations for schools.

Vertical integration is a response to the existence of the costs of frequent transactions. When students move between schools (for example between primary and secondary school) there is likely to be some disruption to their education and the relationships they have formed with other students and teachers. Co-operation and the co-ordination of examinations, curricula, school culture and teaching approach between schools where most students move from one to another could reduce these costs. The relationship could involve informal arrangements at one end and full vertical integration under a single owner at another. Savings of other costs such as administration and marketing may also foster greater integration.

Teachers have an incentive to signal their quality to schools as potential employers. Teachers know more about their ability than do schools who are their potential employers. This informational difficulty arises in other employment situations, but is exacerbated in teaching because it is hard to observe the quality of the educational outputs. Certification is a way of reducing the transaction costs for schools employing prospective teachers, since it reduces the need for each to ascertain the quality of the teacher independently. Voluntary professional associations are likely to emerge in order to provide quality assurance to schools through teacher certification, as they do in other occupations.

Independent organisations are likely to rate school quality. Customers rarely know more about a service's quality than the provider does, yet have a strong incentive to obtain sufficient information about the service they intend to buy in order to make a decision. Independent organisations can provide information about service quality as they do for other services such as hotels and restaurants. However, the multidimensional nature of education and the diverse needs of students may make it difficult to provide a single measure of quality, such as a 'star' system.

Schools are likely to invest in branding by developing a reputation for providing educational services of a certain type and quality. Since a

school knows more about the quality of services it offers than students or their parents, and it is harder and more expensive for the buyer to obtain the information, it is cheaper overall if the schools provide information. But the information must be credible for it to be effective in influencing the decision of the buyer. One way to promote credibility is for the seller to develop a trustworthy reputation that is compromised if the quality is not met. Investments in reputation, branding and goodwill are all means of providing information about the quality of education to potential buyers, and are common in other areas of professional services. These tangible activities are proxies for the unobservable quality of the education on offer.

Chains of schools can economise on the costs of branding. A chain could be developed with a number of schools offering standard teaching approaches or curricula as a signalling or branding device that differentiate it from other schools. The chain's investment in branding would establish a reputation for a certain quality or type of service which it could capture in repeat business across the whole chain. Students shifting between schools would be likely to move to another school in the same chain, thus displaying some 'brand loyalty.' The branding would reinforce the 'lock in' of a long term relationship to the chain, but would facilitate movement between schools through common courses and performance measures. A chain would offer schools significant advantages such as economies of scale in administration and marketing, as well as in the development of a curriculum and common approach to pedagogy. Chains of businesses are common in other sectors.

Schools could operate as franchises. An alternative to a chain of schools under single ownership is franchising. Franchising would involve an individual school buying the right to provide a particular type of education from the franchisor which develops the curriculum and teaching approach to be used. A particular characteristic of franchises is their uniformity. Franchising is often preferred where firms are geographically dispersed and costly to monitor. Franchises are common in some service industries, such as hotels and accounting and already exist in some sectors of education.

5 The Market Practices of the School

5.1 Introduction

Just as transaction costs lie at the heart of the ways that schools are structured, they also help to explain the ways that schools may behave in the market. In Section 4 we described schools as a nexus of contracts between students, parents and teachers. In this section we focus on how transaction costs influence what schools do. Schools typically:

- offer compatible qualifications, courses and programmes of instruction;
- group students together;
- facilitate students learning from each other;
- cater for a diversity of student needs by specialising in niche markets;
- provide a range of services to students in addition to teaching;
- provide custodial services for children;
- use facilities cost-effectively; and
- take advantage of technology in providing education.

The focus of this section is on how schools might interact with one another and with their clients to provide educational services. Just as in the previous section (related to the structure of schools), this section emphasises the inherent features of education that affect the ways schools are likely to function. It draws on analogies from the business world in drawing inferences about the likely behaviour of schools.

There are two particular points of difference between schools and other business that give rise to unique functions that do not have precise parallels in other sectors.

The first is related to complex nature of education and the difficulties of finding out what students know. This is a problem not only for employers of graduates, but also arises when students move between schools. This problem is not evident in the current regulatory environment in New Zealand, largely because all schools share a common system of examinations and thus a compatible curriculum, but its seriousness becomes apparent when students move to other countries or even move between different states with different schools systems in countries such as Australia. Schools are likely to develop mechanisms to facilitate the movement of students and to provide credible signals to employers about the quality of the education they provide.

The second issue is the custodial nature of schools. Although it is not necessary for students to leave the homes to obtain an education (for example if they use distance learning), schooling that is not undertaken in the student's own home involves the custody of children. Again, it is

helpful to envisage a world in which the education of children was not compulsory. In this case, parents would contract with schools to educate their children, to provide a safe environment and to ensure that the children stayed at the school for instruction. Such a contract would be necessary simply because (as is commonly recognised in law) children are not necessarily the best judges of their own long term welfare, and might not wish to attend school. There are few parallels to this situation in business.

This section examines these features of education that give rise to unique functions among schools and also examines other functions of schools that have parallels in business.

5.2 Compatible Qualifications

A notable feature of schools is the fact that they offer broadly similar courses of instruction. While this phenomenon is largely the result of government regulation, the crucial issue is whether schools would offer comparable qualifications in the absence of such regulations.

There are important network effects in the operation of schools that underlie their tendency to become standardised. Network effects occur when the more consumers or producers there are of a product or service, the greater the overall benefits.[47] A familiar example is the internet. If only one person connects to the internet, it is not worth much, but if many people connect, then there are more opportunities to communicate with other people who have connections. Network effects result in the adoption of compatible or standardised systems to increase the number of participants and the overall value of the activity. Telephones and railways are other examples of standardisation to promote interaction.

Network effects also occur in the school sector. If a single school has a unique system of qualifications, it is hard for students to move to another school, which must assess the student's knowledge afresh upon enrolment. But if more than one school uses the same system of examinations, the easier it is for students to move among them. The greater the number of schools using a single system the greater the ease with which students can transfer between schools. The use of standardised examinations and accreditation are thus two possible responses to the existence of network effects to maximise the value of interaction and ensure compatibility. They also act as signals of quality as discussed in Section 4.5.2.

5.2.1 Examinations

Moving between schools can be made easier if schools negotiate with one another to adopt compatible qualifications that reflect an agreed standard of achievement. A common system of examinations can promote interaction between schools. This use of examinations complements its use as a device for signalling school quality discussed in Section 4.5. Schools could differentiate themselves according to the examinations they offered, so that a grouping of schools would develop

offering a particular examination. A competing grouping of schools would offer an alternative sort of examination. Some schools might offer highly academic examinations, while another set of schools could be more vocational. The adoption of common examination systems among competing groups of schools would simultaneously promote co-operation between the network of schools and facilitate competition among them.

The incentives to adopt common examinations to facilitate interaction between schools is strengthened by the need of schools to signal their quality, as previously discussed. While a single school can invest considerable resources in establishing a reputation for high quality, it is still difficult for potential employers, for example, to measure the differences between students. In other words, just having attended a school provides some information about the general level of education provided by the school, but not much about the actual educational achievement of a particular student. But measuring this individual achievement can be costly, even though the information it provides is valuable to both parties. It is typically more costly for the buyer to do so than the school. To minimise the costs to both parties, measurement of quality is typically carried out where it can be done most cheaply.[48] Schools are thus likely to measure educational attainment, for example through examinations and the award of qualifications.

However, even if a school invests in establishing a good reputation, examines its own students and awards qualifications, the buyer may be no better off in terms of evaluating the true quality of the education provided if the school is small and obscure. Imagine how hard it would be for an employer in Dunedin to obtain information about the quality of a student educated on the East Coast if each school were able to set its own examinations and issue its own qualifications.

It may therefore still be costly for the buyer to obtain information about the school and the quality of the qualifications it provides. One way for schools to overcome this problem is to join together with other schools to offer standardised qualifications. This standardisation could also involve the use of a common curriculum in order to economise on the costs of developing materials. The standardisation is a form of branding which allows all the schools using the examination to utilise the common brand. Of course, it is not necessary for schools themselves to develop a common examination system. With a demand for a common examination system, there is likely to be an incentive for an external agency to develop and sell it to schools. The advantage of an external system of this kind is that it offers an independent measure of educational attainment that is comparable across the range of schools that use it.

Employers might establish their own tests of educational attainment. They in fact often test potential employees on inherent characteristic such as their aptitude for a job and psychological profile. The results of these tests are likely to be highly specific to the particular employer and job, altogether general educational attainment has wider applicability. Employers are thus likely to measure only attributes that are of particular interest to them, whereas both students and schools

have an incentive to signal the totality of educational attainment. As discussed in Section 4.5.6, because the school and student know more about the quality of education than the employer, they will tend to provide such information.

Standardisation of measures of educational attainment has several benefits. In addition to economising on the costs of providing information to buyers, standardisation can allow schools to take advantage of economies of scale in the preparation of the curriculum and can reduce the transaction costs to students of shifting between schools. The combination of these factors which all serve to reduce transaction costs can affect the structure of the school as described above. Three basic forms are possible: an external organisation that franchises or sells the curriculum to independently owned and operated schools; a consortium of schools that have a common philosophy of education or horizontal integration to form a chain of schools. The system of examinations for English as a second language is an example of an external independent system of examinations that is used as a common measure of English proficiency (see Box 25).

Box 25 - English as a Second Language

Qualifications in English by native speakers of other languages are granted by private organisations. TOEFL is an examination developed by the University Testing Service in the US. IELTS is a competing examination offered by the University of Cambridge Local Examination Syndicate.

The industry teaching English as a second language is not vertically integrated. While the examinations are set by these organisations, there is a large industry that prepares materials for students who wish to sit the examination. Independent teachers select among these materials or develop their own in preparing students for the examination. There is thus considerable flexibility in teaching methods and the materials used in the classroom. Students pay for their tuition separately from the examination fee, which is split between the local examiners and the qualifying organisation.

5.2.2 Accreditation

A system of accreditation is an alternative to the use of standardised or common qualifications. It permits more flexibility than does the use of a standard examination and yet facilitates compatibility. An accrediting agency assesses the educational programme of institutions and provides an assurance of quality to both potential students and employers. Accreditation is commonly used in universities in the US (see Box 26). Accreditation is often used in conjunction with qualifications. Where the student has not yet received a qualification, accreditation allows the cross-crediting of courses between institutions.

Box 26 - AACSB

The International Association for Management Education is a not-for-profit corporation of educational institutions, corporations and other organizations devoted to the promotion and improvement of higher education in business administration and management. Organized in 1916, AACSB is the premier accrediting agency for bachelor's, master's and doctoral degree programs in business administration and accounting.

As of March 1999, there are 364 accredited programs— 352 in the U.S., seven in Canada, three in Europe and two in Mexico.

The AACSB membership consists of over 670 U.S. educational institutions, over 140 international educational institutions and approximately 60 business, government and nonprofit institutions. AACSB U.S. educational institutions annually award over 85 percent of all the degrees awarded in business and management education. The AACSB accredited schools annually award over 55 percent of all the degrees awarded in business and management education.

AACSB also is the professional organisation for management education. In addition to its accreditation function, the organisation conducts an extensive array of development programs for faculty and administrators; engages in research and survey projects on topics specific to the field of management education; maintains relationships with disciplinary associations and other groups; interacts with the corporate community on a variety of projects and initiatives; and produces a wide variety of publications and special reports on trends and issues within management education. AACSB also maintains close relationships with its counterpart associations worldwide.

Source: http://www.aacsb.edu

5.3 Grouping

Schools are characterised by the grouping of students together in various ways:

- classes are typically organised to teach students of similar experience and ability together in peer groups, for example into Standards or Forms;
- classes are often grouped in ways that are (presumably) intended to improve educational achievement, for example in mixed ability classes;
- teachers tend to provide classroom instruction to groups of students;

- schools are often differentiated on the basis of the socio-economic status of students; and

- schools may specialise in providing educational services to a particular sort of student, such as students at risk, or musically talented students.

The question here is whether firms in the business sector operate in similar ways, and whether these grouping tendencies are an inherent characteristic of schooling that would continue in a less regulated education environment.

5.3.1 Peer Groups

Parents are generally interested in obtaining the best possible education for their children, and do not consider the possible effects on other students. Yet students affect each other, in both positive and negative ways. Less able students can learn from better students, so that having good students in a classroom has a positive spillover benefit for the less able, but in contrast, has little, if any, educational benefit to the better students. Poorly behaved, violent or disruptive students on the other hand can harm learning.

These peer effects are an endogenous factor in determining the outcome of the educational process. A child's interaction with other students affects his or her own educational outcomes and those of the other students. This synergy can be both positive and negative, both individually and in aggregate. Individually, some students will be better off because they are part of a class than they would be on their own and other students will be worse off. In aggregate, classes will vary in the magnitude (and sign) of synergies between students.

These peer effects pervade service industries, where the service is provided to a number of customers at once. For example, airlines typically reward customers who pay additional costs for business or first class seats, or for 'club' membership fees with access to special airport lounges. While enhancing revenues for the airline, these services partly reflect opportunities to 'network' in business lounges (ie, peer effects) which may increase customer loyalty. However, the differential pricing used by business to capture peer effects may not provide a complete solution to the problem in the school sector on equity grounds.

Similarly, a passenger's enjoyment of a long flight will be affected by attributes of passengers seated nearby. Fellow passengers may provide positive peer effects such as business contacts, stimulating conversation, or a sense of elitism or fame by association. They may also provide negative peer effects such as noise (eg, crying babies), body odour, or unwanted political or social commentary. As in the case of restaurants, airlines manage these peer effects by price differentiation. They create various classes of travel; F-class (first class), B-class (business class) and Y-class (economy class), plus a number of cut-price classes of tickets, typically allocated to seats such that cost is successively lower as row number increases (and engine noise

increases). Thus, passengers are separated on the basis of their ability to pay, which presumably sorts them in such a way as the flight's peer effects are maximised. Like passengers are more likely to be seated alongside like. Experience indicates that willingness to pay is related to certain externalities. For example, families with babies are unlikely to be flying business or first class.

Box 27 - Petit Lyon

The Petit Lyon restaurant in Wellington has three different restaurants, each catering to different clientele and with different prices and menus. Downstairs is the Oyster Bar, which is casual, although it does serve some business lunches. It offers an a la carte menu where mains cost $22, as well as a set price 3 course menu for $50. Upstairs is the Solo restaurant which is more formal. Mains on the a la carte menu are $35 and the 6 course set menu is $65. The Salon restaurant, also upstairs is more formal still, and offers a 6 course set menu of New Zealand food for $150 and an exotic food menu for $250.

Airlines value differential pricing as a means of maximising peer effects. However, at the same time they would not wish to dissuade frequent business flyers from travelling with them as a consequence of price differentiation. Frequent business travellers are likely to provide high positive externalities and low negative externalities on a flight. Thus, the airlines have devised upgrade programmes to optimise peer effects through differential pricing, without dissuading business from passengers that they want to keep.

While the examples from the food and transport sector may appear trivial, they illustrate that the presence of peer effects (however insubstantial) can be beneficial to patrons, and that businesses will attempt to assist them to realise these benefits.

The responsiveness of educational organisations to peer effects is highlighted in the university sector in the US. Setting high fees for prestigious graduate educational programmes serves a number of purposes. Such a strategy provides a signal of quality in a market where quality can be hard to observe. However, a problem is that it may preclude very able students likely to contribute strong peer effects, simply because they or their parents cannot afford the fees. The solution chosen by these graduate programmes is to provide scholarships and / or fee waivers to those whose intellectual abilities indicate are likely to provide synergistic interaction with other students.[49] Independent schools in New Zealand often adopt a similar approach (see Box 33).

Box 28 - Scots College

Scots College is an independent boys' school in Wellington. It offers three scholarships for boys entering the Third Form. The scholarship is awarded strictly on academic ability in open competition and amounts to two thirds of the annual fees. The school has found that part-payment of the fees by parents encourages greater participation in school life by the scholars.

In addition, the school awards bursaries at the total discretion of the headmaster. These are generally awarded to boys who will contribute positively to the school in some way, not necessarily on academic merit. There is no competition for these bursaries.

Source: Interview with Giles Moiser, Deputy Headmaster, 19 March 1999.

A school's response to peer effects, paralleling that of businesses would involve either:

- a single school setting different fees for different qualities of education; or
- different schools attracting different types of students on the basis of fee level.

The first of these options is likely to be less viable than the second option. However, certain schools in New Zealand currently implicitly recognise and use differential pricing to realise the benefits of peer effects by charging significant attendance fees (the second of the above approaches). The role of differential pricing of access to schooling raises important equity considerations, in particular the implications for students who would be denied access to schooling that would enable them to achieve their full potential because of inadequate resources. Accordingly, for the bulk of schools, differential pricing (at least in terms of fees paid by students and the families) is not a viable option to address peer effects.

5.3.2 Classes

Students are typically grouped together to be taught, generally by topic and (to varying extents) ability level. This grouping arises because of economies of scale in the process of teaching. It can be efficient for a single teacher to instruct a group of students at once. Economies of scale also affect the size of the school. However, the intimate nature of many personal services diminishes the effects of economies of scale, since certain services are provided individually. But some services, such as exercise classes, can be offered to a number of people at once (see Box 29). Differential prices reflect the inherent economies of scale. As discussed in Section 4.3, different types of tuition may be amenable to classroom or individual teaching.

Box 29 - Majestic Club on Willis

The Majestic Club is a gymnasium in Wellington that offers, among other services, aerobics instruction. Aerobics classes, with about 15 participants, cost $98 for 10 trips of one hour each or $13 per class. Individual instruction is much dearer at $40 per hour for a personal trainer.

5.3.3 Schools

In any market a wide variety of tastes and needs is catered for. Motor vehicle manufacturers produce saloon cars, utility trucks, motorcycles, vans and trucks for example. Each meets a different consumer need. This characteristic of any competitive market is equally true of schools. Different schools are likely to specialise in addressing different student needs. For example, sports academies could specialise in sports coaching and dance schools teach dancing in addition to the regular curriculum (see Box 30). Students with particular needs are therefore likely to attend the same specialist school. Language, culture and religion are particularly important in shaping the demand for specialised schooling.

Box 30 - Raglan Surfing Academy

Raglan is a surfing town. Raglan Area School has started New Zealand's first Surfing Academy and now has a dozen students. After a typical high school day, academy students travel to Manu Bay which is internationally recognised as having one of the world's best left-hand breaks. The Academy offers both serious surfing instruction and a full academic programme. Teacher, Dean Hishon, gives equal weight to academic and surfing achievements. He knows that if it were not for the surfing options, some of the students would not even be in high school.

Source: North and South March 1999, pp 22-23

Another factor which determines the grouping of students is that parents often prefer to have their children attend a school where the students are similar to their own children. The result is stratification of schools, often by socio-economic group or religion. One reason for this demand is that interaction with students from a similar background and with similar experiences reduces the transaction costs of relationships between students.[50] Another is that there may be externalities from attending these schools, such as the common culture and values that are inculcated in the students or the 'peer networks' that can be useful in later life. This is part of the peer effect discussed above. Parents will invest in their child's education to the point that additional cost outweighs any resulting scholastic benefit. Thus, parents' schooling decisions will reflect both their:

- perception of education's benefit; and
- financial capabilities.[51]

The differentiation of goods and services by quality and price is characteristic of all markets, from cars to clothing, food and medical services. Accordingly, in a less regulated market for schooling, these parental choices are likely to lead to greater stratification than currently. Such an outcome, however, raises significant equity implications which have been noted previously.

5.4 Multiple Services

A school provides several services to students and their parents simultaneously. For students it provides:

- academic instruction which is likely to be the principal service provided by the school;
- additional services such as participation in sports, music or drama;
- common values such as the school culture or respect for democracy that are inculcated in students either indirectly though interaction or directly though instruction;
- custodial services since students, particularly young students are not in the charge of their parents while they are at school;
- social interaction with teachers and other students, the development of personal relationships, and the ability to interact effectively with others, and
- signalling which provides information to others about the educational, social and financial status of the student and his or her family.

The multiplicity of services provided by schools gives rise to a number of issues. The first is the question of measuring the performance of schools when there are multiple objectives, and how this problem is dealt with by firms. The second issue is that the custodial services provided by schools are an inherent part of the provision of schooling, and occur more infrequently in the business environment. How do firms ensure that their customers or clients are safe on their premises? Another issue is whether services are provided as part of the core business of the school or whether they are contracted out to independent service providers.

5.4.1 Performance Measurement

A particular problem facing schools is that they provide multiple services simultaneously. For example a school might offer academic instruction and participation in sporting or cultural activities. Students and their parents may have vastly different objectives from one another. One student may wish to excel at sport, while another may want to do well academically. The diversity of services provided by

schools gives rise to multiple objectives for teachers and the school. Because schools offer a range of services, teachers are faced with multiple objectives, which is a significant impediment to performance contracting. Jensen states that "multiple objectives is no objective".[52]

The problem with multiple objectives is that each objective provides an excuse for non-performance regarding all the other objectives, since the objectives inevitably conflict. For example, a person who acts on a school's board of trustees must simultaneously seek to do what is best for the school and what is best for the public they represent. It is inevitable that these two objectives will come into conflict. A typical business solution is to separate these objectives so that a person, division or organisation is charged with achieving a single objective. This solution is well illustrated in the restructuring of New Zealand government departments as state-owned enterprises. Trading, regulatory, educational, social, ecological, and funding functions were separated so that each organisation could be evaluated as to whether it achieved its objective.

Separating these functions is difficult, since together they comprise what society perceives as education. This is not to say that these functions cannot be separated. For example, correspondence schools illustrate that custodial and academic functions are separable. However, a typical school combines these functions. Milgrom, in a seminar presentation of his academic work on optimal contracting provides the following business example.[53]

Box 31 - Milgrom's Kitchen

Milgrom was having an Italian kitchen installed in his home. He sought to bring his skills to bear as an expert in efficient contracting in the way he structured the contract between himself and the kitchen installer. There were two things Milgrom was interested in; the quality of the kitchen, and the time the installation took. Milgrom sought to incentivise the installer to complete the kitchen as fast as possible, so as to minimise disruption to his household. He also wanted to make sure the installation would last and that the cabinets would not fall off the wall. But the problem he faced was that one objective was measurable and the other was not. The time the installation took to complete could be measured, but quality could not. Contracting on the measurable objective alone would have led the installer to finish the installation work within the time allotted, but may also have led to a sacrifice in quality. He decided to contract on performance of neither attribute.

Focussing on the 'wrong' objectives can distort incentives. In 19th century England and Wales, teachers received government grants on the basis of an inspector's examination of the students on strictly set down criteria. While the objective was to ensure the accountability of schools for the use of public funds, teachers had incentives to drill

students only in what was examinable, rather than instruct them more widely.[54]

The implication for schooling is that if one outcome is measurable and another is not, then it is problematic to contract on the measurable outcomes alone, as it may lead to non-measurable outcomes being sacrificed. For example, if teachers were incentivised on the basis of increases in measurable mathematics skills, then there is a possibility that teachers may concentrate on developing these testable skills to the exclusion of less-testable skills. A business solution to this problem would be the contracting of mathematics education to a single educational specialist organisation, assigning that organisation a single objective, and holding it accountable for achieving that objective. The school would then have the task of making sure overall objectives are achieved.

5.4.2 Safety and Security

An inherent part of formal schooling is the passing over of temporary custody of children by parents to the teachers and administrators of a school. This implies two things. First, it implies that the school will respond to the trust placed in it by taking reasonable steps to ensure the physical safety of the children.

Second, the custodial function also implies that the school will take steps to ensure that the child remains at the school when the parent expects it to be there.

The passing over of temporary custody of children is not unique to schooling. Parents will often leave children at an ice rink or movie theatre during school holidays, weekends or after school, in the expectation that safety and security is an inherent feature of the entertainment provided by the venue. This is essentially the same as parents' expectations regarding schooling. A significant point of difference between entertainment establishments and schools is that entertainment establishments do not have an explicit responsibility to keep the child on the premises. For example, if children wish to leave an amusement park, they simply do so.

This contrasts with a school which has the responsibility of ensuring not only that children do not leave before the end of the school day, but also that in the absence of an excuse, they arrive at school after leaving home in the morning. Schools could, as part of their contract with parents, provide truancy services that ensured that students attended the school. This feature of schooling arises because education at primary and to a lesser extent at secondary levels, involves children who cannot be relied upon to make decisions in their own long term interest. Parents are expected to make decisions on their behalf, and in fact children are legally prevented from entering into contracts (except for certain necessities such as food) for this reason.

There are few counterparts to the custodial nature of schools in business, where clients are prevented from disengaging from the service provision contracted for. Indeed, all business relies on

voluntary exchange. Perhaps the closest analogy is in the provision of care for the senile elderly, overseas countries, where residents enjoy custodial care. Self-binding contracts are rare in business, although some contracts impose penalties if clients withdraw. For example clients who pay subscriptions to a gymnasium and then do not attend, forgo the money. Infrequent attendance at a school may cause the school to suspend the child permanently which is a sanction akin to a self-binding contract, although the costs of breach fall mainly on the parents.

5.4.3 Service Provision

Schools are likely to provide services complementary to their principal teaching function such as careers advice, health care and school cafeterias. Schools could also offer non-core teaching activities (such as ballet or guitar lessons) in this way.

A range of organisational forms is likely to be used for these activities. Some could be contracted out to providers who leased space and charged students separately for the use of their services. This response is common in organisations such as clubs which contract out services such as catering. Members pay fees to the club for the main activity (for example golf) but pay separately for the ancillary activities (for example the bar).

An alternative arrangement would be if the club carried out its own catering. The principal disadvantages of in-house provision compared with the contracting out option are that costs might be higher and the level and quality of service lower. On the other hand the costs of monitoring quality may be lower.

The choice of in-house provision of services versus contracting out is an important decision in all businesses. It occurs for example in the provision of medical services where facilities are leased to specialists (see Box 41). Perhaps the most obvious dichotomy is the department store and the mall. A department store provides a range of services within a single ownership structure which might lease or own the premises, while a mall owner leases sites to independent store owners but exercises some choice in determining a desirable mix among them.

The question for schools is whether they would operate more like a department store or a mall. In other words could school simply consist of an owner of the land and buildings, with independent teachers contracted to provide instruction in a range of subject areas?

Box 32 - Ascot Integrated Hospital

Ascot Integrated Hospital is a for-profit company that leases its facilities to surgeons and consultants who provide a range of services to patients. The patients pay the surgeons directly for their services, but also for any additional hospital services that they use. The hospital also leases space to other tenants, such as the pharmacy. The core business of the hospital is thus the provision of facilities to medical practitioners and other service providers and accommodation and nursing care to patients.

A number of factors are likely to influence the choice of in-house provision and contracting out. The first is related to information; who monitors performance and how it is measured. The second question is who bears the benefits of good performance and the costs of poor performance. The third issue is how to ensure the commitment of the parties to deliver. Finally transaction costs (which arise, of course, with issues such as information) are important.

The core services of schools, such as teaching the basic curriculum (which might differ between schools as they cater to differing student needs) are likely to be provided in-house. Teachers of these subjects would be employees or contracted to the school. In contrast, non-core services could be provided to students by independent teachers who simply leased the school facilities and contracted directly with students and their parents.

This pattern is likely in the first place because of the transaction costs of co-ordination and specialisation discussed in Section 4.3. Co-ordination of core subjects in a curriculum is carried out more easily and cheaply in house than through individual service providers contracting with parents. In addition, the quality of the services provided by the school as a whole is likely to be monitored by prospective students and their employers on these core services, rather than on ancillary areas of instruction. The rewards of providing good quality education in these areas are likely to fall on the school as a whole, which has an incentive to invest in activities such as establishing a good reputation and in branding to signal its commitment to high performance.

In contrast, ancillary services are likely to be provided directly to students by service providers. These services are likely to be those that do not require high levels of co-ordination with the core curriculum, and where students and their parents can readily monitor quality. Prospective clients are likely to select providers of these extra-curricular activities on the basis of their individual reputations. The rewards of good performance fall on the individual provider, but some of the penalties of poor performance fall on the school, which thus has some incentive to monitor them.

The arrangements that schools make for providing services to students are thus likely to vary between those that are provided in-house by the school and those that are provided by contractors who lease school facilities. This pattern of provision already occurs within schools, for example where music teachers offer specialist tuition to students using school premises and are paid directly by parents. Without a specified curriculum or the regulation of employment relations between teachers and schools, a variety of arrangements is likely to arise to meet the demand for a diverse range of services provided through schools.

5.5 Multiple Use

Schools are costly to build. Yet, in New Zealand they are generally only used for teaching from 8:30 to 3:30, five days a week, thirty-two weeks or so a year. It would appear that capital investment in a school's land and buildings is under-utilised. Businesses with similar resource usage patterns through time are be likely to seek to use their assets more effectively through:

- running the business for multiple shifts;
- encouraging peak-period customers to move patronage to off-peak times through time-of day / week / year pricing; and
- providing other services to new customer groups during times when the main customer group is not using the resources.

Responses such as this which can be observed in the school sector include the use of schools in the summer as youth hostels or camping grounds, running night classes or summer schools, letting school halls to private groups such as churches or aerobics class operators (see Box 33).

Box 33 - The Use of School Facilities for the Millennium

In addition to the Gisborne City Council's plans to turn much of its free land and parks into camp grounds to accommodate the influx of tourists expected in the region over New Year 1999, Lytton High School will hire out its main playing field to a caravanning club. Providing that Council grants resource consent, the school will receive rental revenue over the period from the group. Other schools in the region are expected to follow suit.

5.6 Location

Schooling generally occurs within reasonably close proximity of a child's home. Boarding schools would be the exception, where a student's home may be in a different town, province or country from the school. Such an option is costly to the student and parents, both in financial and non-financial terms. Even where a student lives in the same region as the school they attend, the location of a child's home,

relative to the school's location, gives rise to costs borne by parent and child. Examples of these costs include the obvious time and other costs of commuting, along with additional costs such as the relative inability to participate in extra-curricular activities, and the relative inability to feel part of the community to which other students belong. If all schools are perceived as equal by parents, then minimising these costs implies attending the closest school, and locating the child's home as close to the school as wealth and non-educational personal preferences allow.

Observation indicates that not all parents view all schools as equal, since not all children attend their closest school. Parents may send their children to a school other than the closest school if they consider that, overall, it has more desirable qualities, including positive peer effects, ancillary services (such as religious instruction or emphasis on arts or sports) and the type and quality of education that is provided. In fact, a potentially measurable quality indicator for a school is the proportion of parents voluntarily incurring additional costs to attend that school. For instance, if 50 percent of children could attend a school closer to their home, but choose not to, then we can infer that parents prefer this particular school.[55]

Willingness to have children commuting long distances clearly has some practical limits, the more so the younger a child.[56] However, the location of a child's chosen school is not the only location decision that a parent makes. The parent can also move the family home. As in the case of commuting, this decision gives rise to additional costs. The willingness for parents to locate their home close to a preferred school is again another potentially measurable quality indicator for a school. For instance, if a school is so desirable that dwellings nearby are highly sought-after, this would be reflected in real estate prices, relative to the cost of similar dwellings that are not as close to the preferred school. Of course, the willingness of parents to bear this cost has practical limits also. Parents will trade off the cost of greater commuting times with the increased cost of real estate in closer proximity to the school. It is self-regulating; if real estate costs get 'too high', parents will move further away, substituting commuting costs for real estate holding (or renting) costs. Real estate prices will fall as a consequence of the reduced demand.

Relocating the family home for educational reasons is clearly costly. These costs can be considerable where the livelihood of family members is integrally related to the location of their home. An obvious example is that of a farming family, where the family home is also the family livelihood. Changing one's livelihood to move close to a preferred school for one's children is likely to be prohibitively costly. In the case of remote, high-country properties, for example, even commuting to the nearest school may be prohibitively costly, let alone to preferred schools beyond the closest one. Where the cost of relocating the home is very high, parents will seek alternatives such as home schooling, correspondence schools, and boarding schools.

Decisions regarding the location of the family home relative to the location of other organisations is clearly a common problem. People

choose to be close to their place of work, their place of worship, ethnic centres, their preferred recreational pursuit, shops, and commuter lines. These are preferences, to a greater or lesser degree that reflect personal choice and would occur with regard to school in the absence of government regulation of the location of schools.

Businesses respond to the demand for their services in their decisions to locate, and often take into account sophisticated demographic analyses of the market. Business are thus most likely to site themselves where there is a sufficiently high demand for them to make the investment in physical facilities worthwhile. However, where demand is sparse and does not justify significant investment in premises, plant and equipment, often solutions can be devised that serve the market at a lesser cost. Most of these alternatives revolve around increasing use of technology that decouples location from provision of service. Banking is an obvious example (see Box 34 and Box 35). Banking is seldom a large enough part of life that people locate their homes with direct reference to the availability of banking services. People who live in locations where population density is low are likely to face large commutes to undertake banking services. One solution is for banking systems to allow remote transactions. They will do it as long as the benefit (either direct or indirect) is greater than the overall cost of providing the service.

Box 34 - Tairua

Tairua is a small a coastal town on the Coromandel Peninsula near Auckland. The town does not count a bank among its services, due to its small population, surrounding low population density and its population seasonality. However, it does have a number of high volume cash businesses such as the petrol station. The station's electronic funds transfer machine allows it to 'bank' sale proceeds at point of sale, and to provide cash withdrawal services to customers. As the proportion of patrons willing to pay by means of electronic transfer increases, the need to deposit the station's revenue diminishes. The service station will of course take in cash. However, because there is no bank in the town, many people rely on the service stations till as a means of withdrawing money from their bank account. The station manager provides people with cash and debits their account for the amount withdrawn, and the bank credits the station's account.[57] The station manager may charge a fee for this service, depending on the demand for withdrawals, relative to his or her need to deposit cash efficiently.

Box 35 - The Bank That Never Closes

BankDirect, ASB's Internet and telephone-based subsidiary opened its virtual doors for the first time in October 1997. With no branches and only 30 staff, BankDirect received 40,000 phone calls and over 475,000 hits to its web-site in the first 6 months of operation. While this may well be a function of its widely advertised lower bank charges, the launch of New Zealand's only virtual bank signalled a new direction in banking services. One year after BankDirect entered the market, almost every other bank in the country was offering some form of Internet banking.

BankDirect offers a full range of banking services out of its single-floor premises in Auckland's Ponsonby. Most customers are high users of technology and have Internet access at home or at work. For this market, lack of physical branches is not a cause for concern or anxiety.

Source: Young, C. (1998)'Finalist Case Study' NZ Marketing 26 October:36.

In a similar manner, technology such as telephone, fax and radio have been used to decouple the location of home and work (see Box 36). The computer industry is one industry at the forefront of 'tele-commuting' or working from home. This technology allows the separation of teacher and student, and its effect is likely to be strengthened by future developments. For example, teleconferencing and the internet allow teachers to transmit ideas through media other than the written and spoken word (see Box 37 and Box 38).

Box 36 - Whitefish/Kalispell

The Whitefish / Kalispell area of Montana, near Glacier National Park, is close to some of the most beautiful scenery in the world. However, employment opportunities have been limited in this area. Until recently. A number of computer programming companies, and computer software and hardware mail-order companies have located in the Whitefish / Kalispell area. These companies reason that they will be able to hire employees at a lower cost if they can provide them with a higher quality of life through low smog, small commuting times, and tremendous recreational activities nearby. The nature of these businesses is that through reliance on technology they can be located without reference to their customers. For example, '800' numbers can be answered anywhere in the United States. Shipping can be electronically arranged to originate directly from the supplier's warehouse to the customer.

Box 37 - School of the Air

Alice Springs School of the Air is a correspondence school for primary school aged children, that utilises various communications technologies to have daily contact with students, supervisors and teachers. Many of the students live on cattle stations, while a significant number come from Aboriginal communities, camel farms, national parks, mining camps, mission stations or remote police stations. The broadcast area is 1.3 million square kilometres. In addition, telecommunications technologies (phone, fax and computers) represent invaluable resources. Electronic mail has become a significant tool in distributing and receiving course work.

Box 38 - Long Distance Degrees

There are many degrees and diplomas that can now be obtained over the Internet or by distance learning. While some may be of questionable quality, there are many reputable universities such as MIT, University of Pennsylvania, Harvard, Cornell, Brown and Stanford Universities offering distance-independent educational programmes and making use of technology in offering a geographically diverse student body a wide range of courses. Students, in addition to using traditional delivery mechanisms such as books and video tapes, can participate in classes through interactive talkback systems, video conferencing, satellite TV and communicate with faculty and staff by phone or electronic mail. In other situations, lectures may be recorded and made available along with course materials shortly after the class using web-based multimedia technology.

The extent to which technology will decouple the location of teachers and students is yet to be seen. Certainly, the loss of peer learning effects is an impediment to such separation becoming widespread. There are also advantages to face-to-face teaching such as the development of personal relationships that cannot be replicated by technology. However, such costs may be lower than the costs of relocating the family home, selling the family's livelihood, or sending a child to a boarding school.

In these cases, technology may provide a solution to the problem of location. This is more likely for older students. In fact, internet-delivered courses are already being provided by universities. Distance-learning Masters of Business Administration have been provided for many years.

While technology is likely to increasingly provide alternatives for older school children, home schooling by parents often using distance learning materials is a potential alternative for younger children to the costs of relocation or commuting. A business analogy is provided by electricity reticulation (see Box 39). Where the cost of putting an electricity line into a rural home is high and is borne by the home owner, the owner is likely to seek alternatives such as solar panels, generators, water wheels or wood stoves

Box 39 - Waiheke Island

Waiheke Island in the Hauraki Gulf has had mains electricity for many years, provided from the North Island electricity grid via a submerged cable. The fully allocated cost of electricity via that cable was in the vicinity of 40c per unit, which was much higher than the cost per unit charged at the time. This had the following effects at the margin, relative to what would have occurred in the absence of cross-subsidisation:

- increased population of Waiheke Island,
- increased value of Waiheke real estate,
- increased demand for mains electricity, thus
- accelerating the capital requirements for further uneconomic investment in the cable, and
- decreasing the use of solar panels, wood-fired heating, and generators.

Other electricity consumers were compelled to subsidise a lifestyle choice, with resulting distortions not just in the electricity market.

Because school location and family location decisions affect one another, homogeneity of a school's student body can be increased in a particular area over time. Seattle, Washington, provides an example in Box 40.

Box 40 - Mercer Island

The existence of Jewish schools, synagogue and Jewish community centres has attracted a Jewish community to settle on Mercer Island. The Jewish community has in turn encouraged the establishment of Jewish organisations on the island. At the margin, movements on and off the island serve to reinforce this separating equilibrium over time. Mercer Island's population is currently 25 percent Jewish. Because of the Jewish community's focus on education, both the private and public schools on Mercer Island are of high quality and are highly regarded. This has the effect of attracting non-Jewish families that value education similarly. As a consequence, the peer effects of similarly motivated students in the same classroom increases the perceived quality of Mercer Island schools, attracting more families for whom education is important. Some of the resulting demand for Mercer Island's schools has fuelled its relatively high real estate values. The effect has been an increase in the homogeneity of Seattle area classrooms. Critics of this process point to the fact that while this homogeneity in Mercer Island classrooms is clearly of educational benefit to Mercer Island students, the homogeneity engendered in non-Mercer Island classrooms is potentially detrimental to learning for non-Mercer Island students.

A particular issue related to the location of schools is the number of schools that arise in a metropolitan region. With significant economies of scale in schooling why doesn't one single school develop in each metropolitan centre? While the existence of economies of scale serve to increase the size of a school, other factors obviously serve to reduce school size. In the first place, while returns to scale exist, they become exhausted beyond a certain size. Second, the costs of the majority of a city's school-age population commuting to a single location at the same time of day would be substantial.[58] Third, having a number of different schools in the same metropolitan area serves to provide benchmarks and means of useful comparisons regarding quality. Fourth, it also serves to facilitate specialisation that increase homogeneity in the classroom, and therefore enhance peer effects.

The optimal number of schools in a metropolitan area will be determined by the opposing effects of increasing economies of scale, and (a) increasing commuting costs and (b) decreasing opportunities for choice and comparison. This is not substantially different from the forces that determine how many supermarkets are provided in a metropolitan centre. More than one supermarket is clearly efficient, despite the obvious economies of scale in retailing food and household items. Multiple supermarkets reduces shoppers' commuting time, allow different stores to service clientele with different preferences, and increase the ability to compare both price and quality.

It is possible that schools would develop multiple campuses in response to demand. A single school with multiple campuses would

allow it to economise on administration costs and the costs associated with developing its unique 'brand' such as its teaching approach, school culture and curriculum. The expansion of a school to multiple campuses is likely if a successful school faces a demand that it cannot meet with its existing facilities; where there are greater rewards from expansion than from simply increasing its prices and where the quality of the services proved by the school can be duplicated effectively in another location.

5.7 Conclusion

Just as transaction costs explain how schools are structured, they also explain how schools behave in the market. Transaction costs underlie a number of the behavioural characteristics of schools, such as the use of compatible qualifications, the grouping of students, the provision of multiple services within the school, the multiple uses to which school facilities can be put and the location of schools. Other factors that are important include economies of scale and economies of scope.

The business analogies explored in Chapter 5 suggest a number of inherent behavioural features of schooling and education. Many of these characteristics are reflected in the existing practices of schools, suggesting that they are inherent characteristics that arise from the nature of educational services.

Schools would tend to standardise their qualifications and make them compatible. The tendency of students to move between schools is made easier if schools adopt compatible qualifications that reflect an agreed standard of achievement. A common, standardised system of measuring educational quality can promote interaction between schools by providing information on the educational achievement of the student and reducing the transaction costs of shifting students between schools. It can also allow schools to take advantage of economies of scale in the preparation of the curriculum. Three basic forms are possible: an external organisation that franchises or sells the curriculum to independently owned and operated schools; a consortium of schools that have a common philosophy of education or horizontal integration to form a chain of schools.

Schools are likely to group students together for instruction, to take advantage of economies of scale where teaching a number of students at once is effective. In other circumstances, for example, piano teaching, one-on-one teaching is more appropriate, but the costs per student are likely to be higher. Groupings of clients are common in other businesses, where individual attention often involves higher costs.

Schools might try to take advantage of the fact that students learn from one another. Students affect each other, so that good students can improve the learning of less able students, thus improving the overall observed quality of the school. Schools currently take advantage of these positive peer effects by offering scholarships to bright students and these or similar practices could be expected to continue. These

peer effects pervade service industries, which typically manage them through differential pricing.

Schools are likely to cater for a diversity of student needs by specialising in certain subjects or approaches to education. Students have a wide variety of tastes and needs. Different schools will specialise in meeting different needs, from schools specialising in surfing to drama. Language, culture and religion are particularly important in shaping the demand for specialised schooling. Socio-economic factors may also be important, with parents likely to select schools where students are similar to their own children. The differentiation of goods and services by type, quality and price is a defining characteristics of all markets, from cars to clothing.

Schools would provide a safe environment and custodial services for children. An inherent part of schooling is the passing over of temporary custody of children by parents to the school. The school would respond by taking steps to ensure the safety of the children and to ensure their continued presence there during school hours. The explicit custodial care of children is not common in business outside the education sector, since children can leave places such as cinemas voluntarily. However, businesses that cater to children will try to ensure their safety and security because of the intrinsic importance of doing so as well as the severe negative impact on the demand for their services if accidents occur.

School facilities might be used more intensively. The capital assets of schools, such as land and buildings, can be costly. This is a typical feature of many businesses, which respond for example by making more intensive use of their facilities by running multiple shifts or by leasing facilities. To the extent that school facilities are not highly specialised (ie they are not highly asset specific), which will vary among schools by location and specialisation, premises could be leased and fitted out for schools in the same way as they are for other businesses.

Schools might be used to provide multiple services. The provision of academic instruction is complementary to many other activities directed at children and young people. Schools could offer services in addition to the core provision of education. For example, they could offer health care or driving instruction. These services could be provided simply as part of the overall package of services, or they could be provided under contract by specialists who leased facilities from the school. The leasing of facilities for the provision of complementary services is common in business, for example in shopping malls.

The location of schools is likely to reflect changes in technology. Schools are generally located close to a child's home. Like other businesses, schools are likely to site themselves close to the demand for their services, but demand at that location must be sufficient to justify the provision of a service. Technology is likely to become ever more important in delivering education since it lowers the cost of separating

location from the provision of services. Technology is increasingly being relied on to provide services in small or remote communities.

Overall, schools are likely to function in much the same way as other businesses. However, there are two fundamental features of education that make the provision of education different from other services.

The first is the complexity of the educational process that makes it difficult to assess educational outcomes. One effect of this characteristic is that it is difficult to assess what students have learned. This is a particular problem when students shift between schools and for potential employers. The response is a typical characteristic of schooling – the development of compatible qualifications that provide information (however imperfectly) about educational attainment. This activity has few counterparts in business. Another effect is that it is difficult to separate the contribution made by the school to the education of the student (the value-added). One response to this is the use of the examination system to signal (albeit imperfectly) school quality, as discussed in Section 4.

Another characteristic of education at primary and secondary school level is that it involves children. Parents typically make decisions on behalf of their children in education as they do in health and nutrition, because young children are not capable of making them. Clearly, this effect lessens as children get older. Schools usually involve the attendance of students for instruction (although children can be educated at home by their parents or through distance learning). The school thus acts *in loco parentis* and has effective custody of the children. Parents who expect a school to teach their children will also expect it to take steps to ensure that once at school, students stay for instruction. Schools thus provide security and truancy services that have no apparent counterpart in the business world.

6 Conclusion

The government currently strongly influences education in New Zealand. As is the case in most other countries, education is compulsory. Education is free if students attend state schools, but students at integrated and independent schools are subsidised. State schools dominate the sector, with only 3.5 percent of students attending independent schools. State schools are regulated in most aspects of their operations such as governance arrangements, hours of operation and employment of teachers. Independent schools are lightly regulated, but must provide services similar to state schools in order to receive government funding. The schools sector is thus characterised by great similarity in their operations and the use of a common curriculum framework and examination system.

However, the observed characteristics of schools do not necessarily imply that they are an inherent feature of education. For example, the fact that most private schools are non-profit does not necessarily mean that schools are inherently non-profit. It might simply be the case that government policies, such as tax arrangements that encourage donations, might favour this form of organisation.

This report attempts to identify the inherent features of education and schooling that make schools similar to, or different from, other activities. The observed structure and behaviour of schools explicitly and implicitly reflects the influence of government policies. This report identifies the intrinsic features of education and of schooling in order to examine how the affect the way that schools might be structured and how they might function. It then sees how other businesses with similar features respond to them in the way they are structured or the way they perform.

Education is a service whose inherent characteristics affect how schools are organised and how they function. The principal features of education are that:

- it is an investment which involves a current cost and a future and uncertain benefit;
- it is a complex process that depends not only on the ability and past education of the student but also on the quality of teaching;
- the needs of students are heterogeneous, and each student has different needs and capabilities;
- the quality of the service is hard to assess before it is used and the effects of poor teaching may only become apparent after some years;
- education is cumulative and sequential, so that what can be learned depends on what has been learned before; and
- education at the primary and secondary level involves children, whose parents act on their behalf in choosing to educate them;

These characteristics of educational services share many common features with other professional services such as health care or legal services. For example health care is an investment that can improve the length and quality of life; the benefits of health care depend not only on the quality of the care, but also on the patient; the needs of patients are diverse; the quality of the service is hard to assess before use; health status often depends of past lifestyle decisions and activities and not all patients (such as those who are incapacitated) are capable of making their own decisions about the care they need.

Schools have certain inherent features that arise from the nature of the educational services they provide. Schools are a typical organisational form for providing educational services. They typically:

- involve a teacher or teachers with a number of students;
- involve long term relationships between students, staff and the school;
- offer qualifications and examinations;
- offer a range of subjects of instruction;
- divide students into various categories; and
- offer other services in addition to education.

The way that schools are structured and function arises from the inherent characteristics of education. They give rise to transaction costs in obtaining information, in negotiation and in monitoring contracts to which schools respond through their structure and performance.

Transaction costs underlie the organisational form of schools in the same way that they determine the structure of firms. Schools economise on the costs of co-ordinating all the inputs required to produce educational services, such as teachers and materials, and they also take advantage of specialisation. Schools therefore typically involve one or more teachers and a number of students.

Transaction costs also arise in determining the quality of the educational outcomes of schooling. Education is a complex process – it depends both on the student as an input as well as on the process of schooling itself. Measuring the quality of schooling is difficult and costly because it is hard to observe the ability of students and the quality of their effort and to separate these effects from the value added by the school. It is costly not only for the sellers, but also for the buyers. In addition, buyers and sellers have different information about the factors that affect educational outcomes. For example, schools know more about the quality of their educational services they provide than do parents.

These measurement issues and the transaction costs they generate are a fundamental feature of education that determines a range of responses by schools in their structure and performance. Similar issues arise in the business sector and give rise to analogous responses.

Variation in factors exogenous to the schooling process give rise to an information asymmetry where parents know more about their child's intellectual endowment and prior educational experience than the school or teachers do (see Figure 6). When students move between schools the students and the previous school know more about the student's educational achievement than does the new school. This information asymmetry is dealt with in business through pre-testing.

Schools respond to this information asymmetry by providing measures of student achievement that are comparable between schools and across students, typically through systems of qualifications and examinations. They also have the advantage that they provide a signal of quality as discussed below. It is noteworthy that this characteristic of schools has few direct parallels outside education. For students who move between schools, the use of common systems of examinations and curricula allow the new school to assess the educational background of the new student. In cases where students routinely graduate from one school to another at a higher level, vertical integration could further facilitate movement between them.

Figure 6 - Input Variation and Responses

Nature of Variation	Measurement Issues	Business Response
Each child has differing • Educational experience • Intellectual endowment	Parents have better information about their child as a new entrant than the school Old school and student have better information about the transferring student than the new school	Pre-testing of customers' attributes prior to service delivery, to (1) tailor service to particular client, and (2) facilitate measurement of value added by service
Each parent has differing • Values regarding education	Parents know more about their valuation of education and their support of learning in the home	Customer's valuation is inferred by willingness to pay

Variation in factors endogenous to the schooling process gives rise to an information asymmetry in the opposite direction as shown in Figure 7. The school is likely to know more about its quality than potential students and their parents. Yet schools have strong incentives to provide potential students and their parents with information about the quality of the services they provide. They will use a range of measures in order to do so. This form of information asymmetry is very common in business.

Business responses address this measurement issue through development of reputation and branding, chains, franchises, long-run relationships and/or repeat business. All of these responses already occur in the school sector, and would be likely to strengthen in the absence of sector-specific government involvement. Systems of qualifications are also used to provide information about the quality of educational services. Other business responses, such as guarantees are less likely to be applicable, given the nature of education, but are likely to be limited to instances where success or failure is clearly identifiable,

such as driving tests. Another business solution to this type of information asymmetry involves the customer visiting, or participating in, the production process. In a similar way, parental involvement in the educational process will serve to mitigate information asymmetry regarding schooling process quality. Rating schemes, franchises or industry associations are other business responses to similar information asymmetries. While uncommon in schooling, such responses are potentially applicable means of reducing information asymmetry. Even information asymmetry between a teacher and school regarding the teacher's quality is addressed in a manner similar to that of the asymmetry between the school and the parent.

Variation in educational output as a result of exogenous and endogenous factors is central to the difficulties in evaluating performance of schools and teachers (see Figure 8). The multi-dimensional aspect of educational outcomes is central to this difficulty. A business response to multiple outcomes is to provide a business with a single objective and separate out other objectives into other organisations. This is, of course, not possible if the multiple objectives and outcomes are integrally related, as would appear to be the case with schooling.

Other features of education are also important in determining the structure and performance of schools. The positive benefits of the presence of others on students can lead to differential pricing and the use of scholarships and bursaries to attract more able students or those who would benefit the school in other ways. The transaction costs of moving between schools will lead to the adoption of comparable measures of student achievement either through the use of common systems of examinations and qualifications or through the use of accreditation systems. Economies of scale lead to the teaching of students in classes, rather than individual instruction. Tradeoffs between economies of scale and transport costs lead to decisions about the optimal location of schools. Schooling produces both multiple services and spillover effects. This multiplicity of services gives rise to problems in prioritising school objectives and in measuring performance relative to those objectives. The custodial nature of schooling requires mechanisms to ensure the safety and security of students.

Figure 7 - Process Variation and Responses

Nature of Variation	Measurement Issues	Business Response
Schooling quality will depend on the quality of • Teachers • Curriculum • Physical plant • Class size • Peers	The school knows more about the quality of the educational process than parents	Businesses rely on reputation, long-run relationships and repeat business to reduce information asymmetry Businesses provide warranties and guarantees Businesses encourage visits or participation by their customers. Businesses voluntarily participate in rating schemes, commercial associations or franchising schemes.
	The teacher knows more about his or her quality than the school does	Professionals form or join associations which, among other things, seek to maintain quality, and enhance the perception of quality through disciplinary procedures for removal from the profession.
	An inability to fully specify schooling contracts gives rise to the hold-up problem if assets are highly specific	Businesses seek to convert highly specific assets into generic assets or seek contractual or relational solutions.
Schooling quality will depend on a student's idiosyncratic response to the schooling process	Natural variation regarding how two similar children will respond to identical education makes it difficult to infer linkages between the educational outcome and the quality of the educational process in any one case	Performance evaluation is based on statistical averages rather than on individual outcomes, thus diversifying away idiosyncratic variation
Schooling quality will depend on the synergy of interaction between students	Peer effects can be enhanced through ability and willingness to pay Peer effects are difficult to measure	Peer effects are maximised through differential pricing, using willingness to pay / ability to pay as a means of increasing homogeneity of clientele

Figure 8 - Output Variation and Responses

Nature of Variation	Measurement Issues	Business Response
The schooling process simultaneously produces • An academic outcome • Custodial services • A social outcome • A signal of intellectual ability and / or social status All of these are difficult to measure individually, let alone collectively.	Failure to achieve one outcome is excused by the fact that other outcomes were being sought simultaneously If one output is measurable and another is not, measuring that output may lead to the non-measurable output being ignored A school's outcomes cannot be evaluated by observing the fees they are able to obtain for their services in cases where education is provided free of charge	Businesses separate objectives wherever possible Businesses ring-fence charitable activities wherever possible Businesses avoid measuring one outcome if another important outcome is impossible to measure Businesses measure their outcome by their net worth and / or the price which they can sell their goods or services Businesses independently test their output, compare it with input quality to ascertain value added Successful businesses publish statistics disclosing their success, or seek external ratings. Less successful businesses do not make similar disclosures, thus implicitly signalling their relative failure

Drawing parallels and distinctions between business and schools has the capacity to provide useful insights and to expand the set of potential solutions to contracting and evaluation problems inherent in schooling. This report can also be seen as a step toward useful dialogue between business and the school sector, using a common language and framework. While schools have a number of unique, inherent attributes, there are very few aspects of schooling that in isolation do not have their counterpart in business. The most important of these are the use of systems for measuring educational attainment, most commonly examinations and assessment, and the custodial nature of schools.

It is impossible to know exactly what a school system might look like in the absence of the effects of government involvement. But it is important to describe how such a system *might* function when considering any changes to government policy, since the parameters of government intervention can have a significant impact on the incentives of all those involved and thus on the how schools are organised and function. Based on the business analogies described in this report, it is likely that:

- a diversity of organisational forms of schools would arise, with different forms of ownership, governance and objectives;

- the organisational form would change and evolve over time as an efficient and effective mechanism for providing educational services;
- schools would specialise in addressing the diverse needs of students, providing a range of courses, teaching approaches, educational quality and price;
- schools would use a range of means for providing information on their educational services; including the measurement of the educational achievements of students; and
- schools would continue to provide custodial services to ensure that students at school remained for instruction.

Overall, it is likely that schools would function much like other businesses whose products and services have characteristics similar to education. However, the difficulty of measuring the quality of educational services they provide and the custody of children distinguishes education and schooling from other services, and gives rise to systems for measuring educational achievement and ensuring that students attend and remain at school.

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Endnotes

[1] As noted in the foreword, this assumption is for the purposes of drawing out inferences and insights about how businesses respond to similar problems faced by schools. This does not imply that the absence of any school-sector interventions is an appropriate public policy benchmark.

[2] For the background to education in New Zealand see Bailey, C.L. (1989) "A Documentary History of New Zealand Education Part I: The Imperial Background to New Zealand Education: British Tradition, Government Policies, Colonial Experience 1400-1870." New Zealand Council for Educational Research, Wellington.

[3] Brown, B.W. (1992) " Why Governments Run Schools." *Economics of Education Review* 11(4):287-300.

[4] Competition among schools is often irrepressible, even if schools are passive participants in the process, since caregivers with the means of doing so will generally seek to select preferred schools for their children. If certain dimensions of competition are constrained, for example, because children from particular residential areas are given priority access to schools in their locale, competition among schools will be exhibited through the operation of the housing market.

[5] From this point on, we refer to a parent or parents as the party contracting for their child's schooling. We recognise that in some cases this decision will be made by guardians other than the child's parents.

[6] Ashenfelter, O. and C. Rouse (1998) " Schooling, Intelligence and Income in America: Cracks in the Bell Curve." Working Paper No. 407, Industrial Relations Section, Princeton University.

[7] Maynard, R. and M. Kelsey (1996) " Public School Partnerships: Community, Family and School Factors in Determining Child Outcomes." In E.A. Hanushek and D.W. Jorgenson (eds) *Improving America's Schools: The Role of Incentives.*. (Washington DC: National Academy Press).

[8] See for seminal work on transaction costs and organisational form Coase, R. (1937) The Nature of the Firm." *Economica* 4: 182-188; Williamson, O. (1975) *Markets and Hierarchies* . (New York: Free Press); Cheung, S.N.S. (1983) " The Contractual Nature of the Firm." *Journal of Law and Economics* 26:1-21.; Alchian, A. (1985) Specificity, Specialization and Coalitions." *Journal of Institutional and Theoretical Economics* 140(1):34-39.; Klein, B., R.G. Crawford and A.A. Alchian (1978) "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process." *Journal of Law and Economics* 21(2):297-326.; Alchian, A.A. and H. Demsetz (1972) " Production, Information Costs and Economic Organization." *American Economic Review* 62(5):777-795.; Jensen, M.C. and W.H. Meckling (1976) "Theory of the Firm: Managerial Behavior, Agency Costs and Capital Structure." *Journal of Financial Economics* 3(4):305-360.

[9] Holmström, B. and J. Roberts (1998) " The Boundaries of the Firm Revisited." *Journal of Economic Perspectives* 12(4):73-113.

[10] Williamson O.E. (1985) *The Economic Institutions of Capitalism*. (New York: Free Press).

[11] For historical evidence of the private supply and demand of schooling see Coulson, A. (1996) "Markets versus Monopolies in Education: The Historical Evidence." Education Policy Analysis Archives 4(9) http://olam.ed.asu.edu/epaa/v4n9.html

[12] At 1 July 1998 the Ministry of Education held records on 5,274 students who were being home-schooled. These students belong to 3001 families. The 5,274 home-schooled students represent less than 1 percent of total school enrolments. This indicates that while exemptions from 'out of home' schooling are permitted (under section 21 of the Education Act 1989), they are not common.

[13] Parents remain uncertain regarding the distribution of all music teachers' skills. For example, a chosen music teacher may be observed by a parent to be adequate even though the teacher is in the lower half of the distribution, which is something the parent does not get to observe, regardless of the length of the relationship with the music teacher.

[14] Alchian, A.A. and H. Demsetz (1972) " Production, Information Costs and Economic Organization." *American Economic Review* 62:777-795.

[15] The InfoHRM Australasian Benchmarking Report for the 1997 calendar year estimates a 17.4 percent turnover rate for participating New Zealand organisations. The employee-initiated separation rate is 14.4 percent overall, and 14.0 percent for professional staff. A report was recently tabled in Parliament which put the public sector employee turnover rate at 20 percent. Both public and private benchmarks are significantly above the following state teacher loss rates (Ministry of Education (1997):

Year	Primary	Secondary
1993/94	10.1 percent	8.8 percent
1994/95	11.3 percent	9.8 percent
1995/96	9.8 percent	10.0 percent

[16] Liebowitz, S.J. and S.E. Margolis (1995) "Path Dependence, Lock-in and History." *Journal of Law, Economics and Organization* 11:205-226.

[17] Student turnover rates are extremely high in some areas of New Zealand, such as the East Cape and Northland.

[18] Not all student-to-student relationships are valuable. Students and/or their parents may wish to break these relationships because of bullying or undesirable influences.

[19] Williamson O.E. (1985) *The Economic Institutions of Capitalism.* (New York: Free Press).

[20] Williamson, O.E. (1988) " Corporate Finance and Corporate Governance." Journal of Finance 43(3)571-572

[21] Also, the political climate of the time may have necessitated the residential construction work remaining with Ministry of Works as part of a 'jobs scheme'.

[22] We recognise that the nature of the asset specificity problem here is one of bilateral dependency; both parties can potentially hold each other up. This business analogy only evaluates the response of one party, Meridian Energy. Blue Mountain Lumber is presumably taking steps to ensure that they are not subject to exploitation once they are reliant on Meridian Energy for the steam that feeds their timber-drying kilns.

[23] Of course, a donor or donors may establish a school in a geographical region with the express intention that it will always remain in that region, whether or not the school's benefits exceed its full cost. In that case, donors would not have an interest in avoiding these hold-up problems, and, in fact, would view asset specificity as a useful means of ensuring their intent is implemented. This may lead them to specifically employ permanent building materials and techniques, and to design the school in such a way as to make alternative uses difficult.

[24] While it may initially appear evident that a permanent school is educationally preferable to a partially or fully relocatable school, the reverse may be possible. For example, technological advancements may be difficult to implement in old, permanent schools. On the other hand, relocatable, modular schools may be more easily modified to take advantage of new technology, thus potentially providing educational benefits.

[25] Barzel, Y. (1985) "Transaction Costs: Are they Just Costs?" *Journal of Institutional and Theoretical Economics* 141(1):4-16.

[26] It could be argued that landlords have an incentive to manage renovation work themselves so that they can ensure its quality, and that they would be less certain of a dwelling's quality if it had already been renovated by someone else. Choice of alternative predictions of behaviour hinge on whether it is easier to (1) ensure that renovation is completed by a contractor to a required standard, or (2) assess the quality of renovation after it has been completed. Payment regimes also affect behaviour. Incentives would change if a percentage of the fee were retained until the job was completed to an acceptable standard.

[27] Nelson, P. (1970) " Information ands Consumer Behavior." *Journal of Political Economy* 78(2):311-329.

[28] For an example of the returns to education in New Zealand see Maani, S.A. (1997) *Investing in Minds: The Economics of Higher Education in New Zealand.* (Wellington: Institute of Policy Studies); Maani, S. (1996) " Private and Social Rates of Return to Secondary and Higher Education in New Zealand: Evidence from the 1991 Census." *Australian Economic Review* 113: 82-100.

[29] Jaeger, D.A. and M. Page (1984) " Degrees Matter: New Evidence on Sheepskin Effects in the Returns to Education." PSC Research Report No. 94-307, Population Studies Centre University of Michigan, April.; Blaug Mark, (ed). (1992) *The Economic Value of Education: Studies in The Economics of Education.* International Library of Critical Writings in Economics, vol. 17, (Aldershot, U.K.: Elgar).

[30] Nelson, P. (1970) " Information and Consumer Behavior." *Journal of Political Economy* 78(2):311-329.

[31] The quality of medical services may, in the extreme, never be observed by the recipient.

[32] Leland, H.E. (1980) "Minimum Quality Standards in Licensing with Asymmetric Information." In S. Rottenberg (ed) *The Professions and Public Policy*. (Toronto: University of Toronto Press).

[33] See, for example, Williams, M. (1997) "New Zealand: Ranking Schools by Quality" , *The Dominion*, 4 July.; Burge, K. (1997) " New Zealand: Does Your School Pass or Fail?". *The New Zealand Herald*, 27 September.

[34] Meyer, R.H. (1996) " Value-Added Indicators of School Performance." In E.A. Hanushek and D.W. Jorgenson (eds) *Improving America's Schools: The Role of Incentives.* (Washington, D.C.: National Academy Press): 197-224.

[35] Note that ERO could be viewed as a rating agency. However, it differs in two important ways. First, it does not explicitly rate the quality of all schools, but, instead, works on an exception basis. Second, it is a regulatory rather than market solution. Schools wishing to lower information asymmetries are not able to separate themselves from lower quality schools by voluntarily joining ERO. Schools are rated as decile-one through decile-ten, according to the socio-economic circumstances of the families to which the students belong.

[36] Ashenden D. and S. Milligan (1999) *The Good Universities Guide to Australian Universities* (Subiaco, WA: Ashenden Milligan).

[37] Akerlof, G. (1970) "The Market for Lemons': Quality Uncertainty and the Market Mechanism" *Quarterly Journal of Economics* 84:488-500.

[38] These are the 'hostages' in the terminology of Williamson, O.E. (1983) " Credible Commitments: Using Hostages to Support Exchange." *American Economic Review* 73(4):519-540.

[39] Williamson, O.E. (1983) "Credible Commitments: Using Hostages to Support Exchange." American Economic Review 73(4):519-540.

[40] Dnes, A.W. (1996) "The Economic Analysis of Franchise Contracts: Survey Article." *Journal of Institutional and Theoretical Economics* 152:297-324.

[41] Rubin, P.H. (1978) " The Theory of the Firm and the Structure of the Franchise Contract." *Journal of Law and Economics* 21:223-233.; Norton, S.W. (1988) An Empirical Look at Franchising as an Organizational Form." *Journal of Business* 61:187-218.

[42] For a discussion of the importance of franchising in education, see Tooley, J. (1999) *The Global Education Industry: Lessons from Private Education in Developing Countries.* Studies in Education No. 7. (London: Institute of Economic Affairs).

[43] Holmström, B. and J. Roberts (1998) "The Boundaries of the Firm Revisited." *Journal of Economic Perspectives*. 12(4):73-113.

[44] For a examples of for-profit and non-profit schools in developing countries, see Tooley, J. (1999) *The Global Education Industry: Lessons from Private Education in Developing Countries.* Studies in Education No. 7. (London: Institute of Economic Affairs).

[45] Cowen, T. and S. Papenfuss (1999) "The Economics of For-Profit Higher Education." Working Paper, Department of Economics, George Mason University, May.

[46] May, D.B. (1993) "Contracting out Instructional Services: Education's New Frontier" . Independence Issue Paper, Independence Institute, Golden, Colorado.

[47] Liebowitz, S.J. and S.E. Margolis (1994) "Network Externality: An Uncommon Tragedy." Journal of Economic Perspectives 8(2):133-150.

[48] Barzel, Y. (1982) "Measurement Costs and the Organization of Markets." *Journal of Law and Economics* 25:27-48.; Barzel, Y. (1985) "Transaction Costs: Are they Just Costs?" *Journal of Institutional and Theoretical Economics* 141(1):4-16.

[49] Winston, G.C. (1999) "Subsidies, Hierarchies and Peers: The Awkward Economics of Higher Education." *Journal of Economic Perspectives* 13(1):13-36

[50] Becker, G. (1971) *The Economics of Discrimination.* 2nd Ed. (Chicago: University of Chicago Press).

[51] These two factors are not independent.

[52] Jensen, M. (1998) "Co-ordination, Control, and the Management of Organisations: Course Notes." Harvard Working Paper #98-098.

[53] Holmström, B. and P. Milgrom (1991) "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design." *Journal of Law, Economics and Organization* 7(3): 24-52.

[54] Rapple, B.A. (1992) "A Victorian Experiment in Economic Efficiency in Education." *Economics of Education Reform* 11(4):301-316.

[55] This is an example of the economic concept of revealed preference. Regulatory policies such as bussing and zoning clearly limit the extent to which parents' preferences can be inferred from their location and the location of their child's school.

[56] In fact, the difficulty of transporting young children large distances to school is explicitly recognised in New Zealand legislation. Children under seven years of age need not attend school if the nearest school is more than three kilometres walking distance from the child's home.

[57] A symmetry of solutions, where one party's solution gives rise to a solution for another party, is possible in the case of rural education. If a parent or group of parents seek to provide their own education, it is likely to provide employment opportunities for adults in that rural area, especially in the absence of regulatory requirements such as teacher registration. Requiring a particular skill level for all teachers in all locations is likely to preclude informal arrangements where adults in the region assist in providing educational co-operatives which may be closer to home schooling than to formal schooling.

[58] As an aside, a business solution to the congestion problems of all patrons and / or employees arriving and departing at the same time is reasonably straightforward. The business staggers its starting and finishing time so as to spread the impact on infrastructure. For example, Boeing, a significant employer in the Seattle area, staggers its starting and finishing times so as to minimise the impact on the city's highways. This solution is unlikely to be feasible for schools. For example, if a parent is collecting two children from the same school, and one child is in a grade finishing at 3:00pm and another is in a grade finishing at 3:15pm, waiting costs are imposed on the family.

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