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**J. N. Lye and J. G. Hirschberg**

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Department of Economics  
The University of Melbourne  
Parkville VIC 3010  
[www.economics.unimelb.edu.au](http://www.economics.unimelb.edu.au)

# What is a high school worth?: A model of Australian private secondary school fees

J. N. Lye and J. G. Hirschberg<sup>1</sup>

## Abstract

Over the last few decades there have been significant increases in student enrolments in Australian non-government schools. It has been suggested that this growth has been the outcome of government subsidies to non-government schools. Despite this significant funding school fees have also been increasing. In this paper we examine these changes for Victoria and look at a number of comparisons between government and non-government schools. In addition, rather than examining the determinants of school selection we examine the determinants of fees at non-government schools by estimating a hedonic price model.

We conclude that the characteristics of the schools such as university entrance performance do have a positive impact on the fees. In addition, we determine that the socioeconomic status of the other students has a positive impact as well as the scale of the school as measured by the number of staff, the variety of the offerings and the age of the school all have a positive impact.

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<sup>1</sup> Department of Economics, University of Melbourne, Melbourne, Vic, 3010.

## **1. Introduction**

In most of Australia parents have three options for their children's secondary school: government, Catholic and independent. In this paper we examine the characteristics of the non-government schools in the Australian state of Victoria to establish to what extent the characteristics of the school are important to the parents and how they are valued. In order to do this we estimate an hedonic price model for the fees paid for senior school (usually the last 3 years of high school).

Government schools, also known as state or public schools are administered by the state or territory government and are free for all Australian citizens and permanent residents, although many ask parents to pay a quasi voluntary contribution fee and some schools are selective in their intake. Catholic and independent schools usually charge tuition fees in addition to receiving some level of support from the government. A portion of the Catholic schools are Systemic schools that make up a part of regional network that is operated by the Catholic Education Offices. The fees these schools charge tend to be modest. Their mission is to provide Catholic education to all Catholic students regardless of their means.

Independent schools are non-government institutions founded by religious or other groups in the community and are registered with the state. Traditionally, schools in the independent sector charged higher fees, but the recent growth in this sector has been of low-fee schools. Whereas some independent schools belong to small systems that share educational and/or religious philosophies, 80% of them are administered as individual schools and 84% have a religious affiliation (Wilkinson et al. 2004). There are a few independent Catholic schools that were established in the past by various religious orders such as for example the Christian Brothers and fees at these schools can vary from low to high. In 1986 the Hawke Government introduced the New Schools Policy with the purpose being to constrain the creation of new private schools in locations where demographic need could not be established. However, it was abolished by the Howard Government in 1996 to give parents more options.

Since then, a number of new, often small and not necessarily traditional schools have been formed.

Australia has one of the largest non-government school sectors (OECD 2011). The share of students attending Catholic schools has been steadily increasing. In the 1950s, 17% of people who turned 15 were educated in a Catholic school while in 2009 around 22% of students were educated in Catholic secondary schools. However, over time, the share of students attending independent schools has fluctuated. Of those turning 15 in the 1940s and 1950s about 13% attended independent schools but this share fell in the 1970s to 8%. Since then the share has been constantly increasing and in 2009, 18% of students were attending secondary independent schools. It has been suggested that this growth has been the outcome of government subsidies to non-government schools over the last 3 decades. Ryan and Watson (2010) conclude that these subsidies have been used by schools to increase the quality of their services, such as reducing staff to student ratios, rather than reducing fees as was the intention of the policy.

Socio-economic factors including parental higher occupational status and education and higher household income have all been shown to be important determinants of school-sector selection (Le and Miller 2003). Education is a complex good and numerous factors have been shown to influence parental choice of school. An Independent Schools Council of Australia survey (ISCA 2008) identified a number of common factors that affect parental school choice. The most advantageous aspects of independent schools were that they employed good teachers, offered a disciplined environment and had good facilities. Other reasons included factors such as academic excellence, moral values and smaller class sizes. Beavis (2004) reports on a survey of 609 households and identifies the strongest effect of selection of a non-government school was the perception of the school having traditional values. For parents of students attending a Catholic school, discipline and religious values were also considered to be important.

Despite significant Government funding to non-government schools, school fees have been increasing. Ryan and Watson (2010) show that since the 1980s there has been a growth in real fees in both the Catholic and independent sectors. In this paper, we examine these changes for Victoria and look at a number of comparisons between government and non-government schools. In addition, rather than examining the determinants of school selection, we examine the determinants of fees at non-government schools. The approach taken is similar to Hartford and Marcus (1986) who investigated the effects of various features of US colleges on their tuition. They found that private school tuitions correspond to the quantity and quality of the faculties, facilities and student bodies. Dimkpah, Eseonu and Akpom (2004) and Schwatz and Scafidi (2004) also examine the relationship between US college tuition rates and college quality.

In Victoria the school education system consists of primary schools from prep year to year 6 (5-12) and secondary schools from year 7 to year 12 (age 12-18). Most students complete 13 years of school and attain a year 12 certificate. The proportion of secondary school children enrolled in Catholic systemic and independent schools in 2009 was reported as over 40% of the 385,667 secondary students in the state. Using data for a cross-section of 171 non-government schools from Victoria, we estimate a hedonic price model for secondary education. We explore the relationships between school fees and the observable characteristics of private schools considered to be important. These factors include student-staff ratios, co-curricular activities, affiliations, boarding facilities, age of school, gender composition, academic merit and measures of socio-economic status of students enrolled. The hedonic approach allows the estimation of the marginal values that are implied for these types of characteristics and reveal what parents are willing to pay for.

The rest of the paper proceeds as follows. In Section 2 we present a background of important features of the school system in Victoria including the amount per student federal government funding to non-government schools and also per-student tuition fees and how they

compare with other States. We also present a number of comparisons across the school sectors. In Section 3 we estimate a hedonic price model of tuition fees for secondary education and in Section 4 we present conclusions.

## **2. Schools in Victoria**

Over the last 20 years, there has been a notable shift in enrolments towards non-government schools away from government schools. A number of reasons have been suggested including changes in federal policies towards funding and in parental expectations on taking responsibility for their child's education (Buckingham 2010). In this section, we present a history of government funding to non-government schools. School fees at non-government schools are the most significant parental expense. We show how they have changed over time and compare those in Victoria with the other States. We also present comparisons across the school sectors. On the basis of school numbers, student enrolments, standard Year 12 statistics, socioeconomic status, net recurrent income per student and student-staff ratios.

### **2.1 Government Funding**

By the 1860s various religious denominations were typically responsible for providing schooling. It was subsidized by the state and there were a few state-run schools. However, the Education Act (1872) introduced free, compulsory and secular education in a centralised system of state-run schools. It was argued that secular education would help avoid religious conflict. At this time, state aid to those schools that chose to remain independent to the state-run school system was abolished. This led to a dual structure of school system with government and non-government schools operating in parallel. To keep costs down, Catholic schools relied on religious orders to staff their schools. The non-Catholic non-government

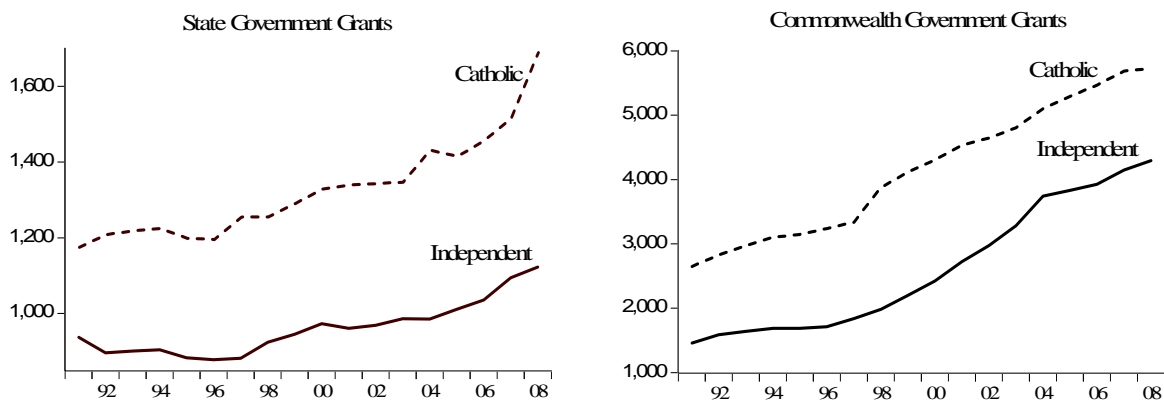
schools did not have the same capacity to do this and consequently were forced to charge higher fees (Cahill and Gray 2010).

In 1967, Victoria was the first State Government to provide uniform recurrent grants for both primary and secondary students attending non-government schools. Funds from the Commonwealth Government first began flowing into non-Government schools during the 1970s. Prior to this, Catholic schools in particular were struggling to survive. High-fee schools were out of the reach of most Australian families. Those children who did attend low-fee schools did so primarily due to religious or philosophical reasons (Cahill and Gray 2010).

Today the Commonwealth Government is the main public funding source for non-government schools. To receive funding, non-government schools must be not-for-profit organisations. That is, while they are allowed to generate a surplus and retain excess funds, the surplus is not allowed to be distributed to owners or members. In 1973 the Commonwealth Government introduced a needs-based program to provide financial aid to schools. Since this time successive Commonwealth and State Governments have steadily increased the amount of funding they have provided to these schools. In 2000, the Socio-economic status (SES) funding scheme was introduced. Under this scheme, non-government schools are allocated a proportion of Average Government School recurrent Costs (AGSRC) to each student they enrol depending on their SES status. An SES score is derived for each non-Government school which places it on a sliding scale of funding entitlement. However, not all non-Government schools are funded in this way. There are two other categories, funding maintained and funding guaranteed as the Commonwealth Government promised that schools would not be disadvantaged by the new funding system, known as the “*no loser*” policy. Non-government schools also receive funding from the State which in Victoria is allocated to schools based on the Financial Assistance Model (FAM) which includes a mix of core per capita funding and a needs-based funding.

Figure 1 plots the average per student grants in \$2008 from 1990 for Catholic and independent schools. It illustrates that the average per student grants have been increasing with the Commonwealth grants being higher than the State grants and Catholic schools on average receiving more per student than independent schools.

**Figure 1: Per Student Grants to Non-Government Schools (\$2008)**

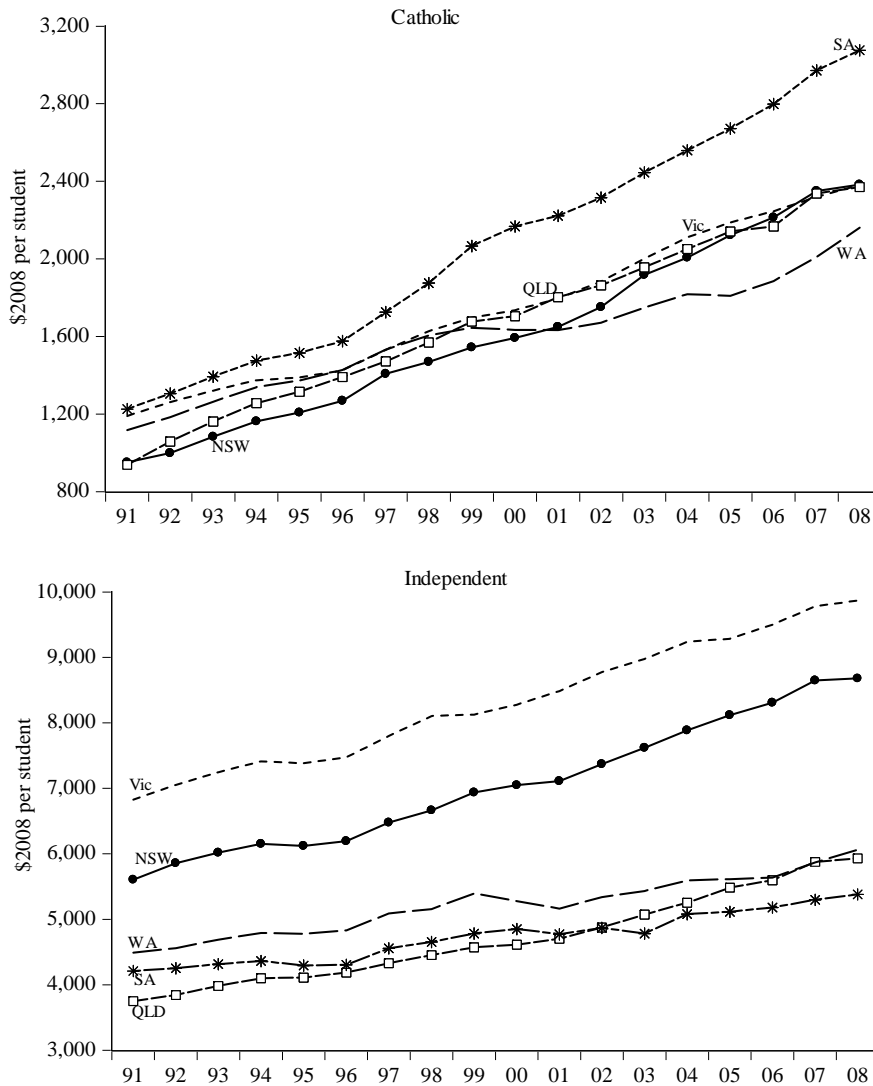


## 2.2 School Fees

The Commonwealth Education Minister David Kemp introduced the Socio-economic status (SES) funding scheme to “*make independent schools more accessible, keep fees lower...*” (Feb 17 2008). Tuition fees are the most significant expenditure for parents of children attending non-government schools. In most, school fees vary depending on the year level of the student and typically the last two years of school (Years 11 and 12) are the most expensive. Figure 2 plots the average per student tuition fee in \$2008 for Catholic and independent schools for all States and despite increases in Government funding there has been a growth in real fees for both school types. However, per student Catholic fees are lower on average than those for independent schools. In Victoria, the per student fees for Catholic schools are similar to those in other States. However, for independent schools Victoria has the highest average per student fee across Australia.



**Figure 2: Changes in Fees (\$2008)**



Source: National Report on Schooling in Australia [www.nceecdya.edu.au](http://www.nceecdya.edu.au)

### 2.3 Comparisons across Schools by Sector

Table 1 shows how the proportion of students attending different types of schools in Victoria has changed over time. There has been a decline in the share of students attending Government schools. In the secondary sector, there has been a rise in the proportion of students attending both Catholic and independent schools whereas in the primary sector the increase has predominantly occurred in the independent sector. Table 2 concentrates on this distribution of students across school types for the final year of school – Year 12. While the proportion of students in Year 12 attending Catholic schools has been steady over the last

decade we see that the fall in the proportion of students attending Government schools is offset by the increase in the proportion attending independent schools.

**Table 1:** % of students attending different types of schools in Victoria<sup>2</sup>

	<i>1970</i>	<i>1980</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>
<i>Sector</i>	<i>Primary</i>				
<i>Government</i>	76.3	76.2	69.8	69.4	67.7
<i>Catholic</i>	21.0	19.8	23.8	22.6	22.1
<i>Independent</i>	2.7	4.0	6.5	8.0	10.2
	<i>Secondary</i>				
<i>Government</i>	73.9	70.1	63.9	61.4	58.1
<i>Catholic</i>	16.8	19.2	21.3	22.1	22.9
<i>Independent</i>	9.3	10.7	14.7	16.5	19.0

**Table 2:** % of Year 12 Victorian students attending different types of schools.

<i>year</i>	<i>Government</i>	<i>Catholic</i>	<i>Independent</i>
<i>1996</i>	59.7	22.3	18.0
<i>2000</i>	58.2	22.6	19.1
<i>2004</i>	57.4	22.1	20.6
<i>2008</i>	55.0	22.8	22.2
<i>2010</i>	55.7	22.6	21.7

There has also been a change in the composition of the types of schools as is illustrated in Table 3. Corresponding to a fall in the percentage of schools that are Government run, there has been an increase in the percentage of schools that are both Catholic and independent.

**Table 3:** % of Types of Schools in Victoria<sup>3</sup>

<i>year</i>	<i>Government</i>	<i>Catholic</i>	<i>Independent</i>
<i>1970</i>	79.2	17.4	3.4
<i>1980</i>	77.3	17.6	5.1
<i>1990</i>	74.0	18.4	7.6
<i>2000</i>	70.1	21.1	8.8
<i>2010</i>	68.8	21.7	9.5

Victoria is the second largest state in Australia with a population of over 5.5 million and over 80% live in metropolitan Melbourne. Table 4 shows that the majority of student

<sup>2</sup> There is no distinction between those attending systemic and independent Catholic schools in this Table. Source ABS 4221.0

<sup>3</sup> There is no distinction between those attending systemic and independent Catholic schools in this Table. Source ABS 4221.0

enrolments in non-government schools and the number of non-government schools are in metropolitan Melbourne rather than regional Victoria.

**Table 4:** % of Student Enrolments in non-government schools by location in 2007<sup>4</sup>

	<i>Independent</i>		<i>Catholic</i>	
	<i>(%) of Students</i>	<i>(%) of Schools</i>	<i>(%) of Students</i>	<i>(%) of Schools</i>
<i>Melbourne</i>	78.6	67.3	75.3	67.1
<i>Regional</i>	21.4	32.7	24.7	32.9

The Victorian Curriculum and assessment Authority (VCAA) manages and awards school qualifications. It administers and awards two senior school secondary qualifications known as the Victorian Certificate of education (VCE) and the Victorian Certificate of Applied Learning (VCAL). The majority of students complete a VCE program which includes a number of different VCE subjects, the majority of which have 4 units available over a 2 year period (Year 11 and Year 12). To complete, students must complete a minimum total of 16 units over the two years plus 3 units from the English field. A study score is awarded to each student for every unit 3 and 4 completed. The top mark is 50 and the mean across the state is 30. Scores above 40 represent high achievement in specific subjects. The VCAL is essentially a work and employment orientated program. An alternative to either of these is the International Baccalaureate (IB) and a small number of schools, mainly private, offer the IB diploma.

Table 5 reports some standard VCE statistics across the different school types for 482 secondary schools from which complete data is available. These statistics are often reported to indicate a typical level of achievement within a school. Schools are allocated a median study score which is the middle score of all eligible students. This is highest on average for independent schools and lowest for Government schools. Also reported in Table 5 is the average for each school type for the percentage of students with study scores of 40 or more.

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<sup>4</sup> Source: [www.independentschools.vic.edu.au](http://www.independentschools.vic.edu.au); Catholic Schools Enrolment trends 2007 Report from the Australian Catholic Education Statistics Working Group 2008.

For this statistic, a big difference across the school types is observed with again the independent schools outperforming the other types.

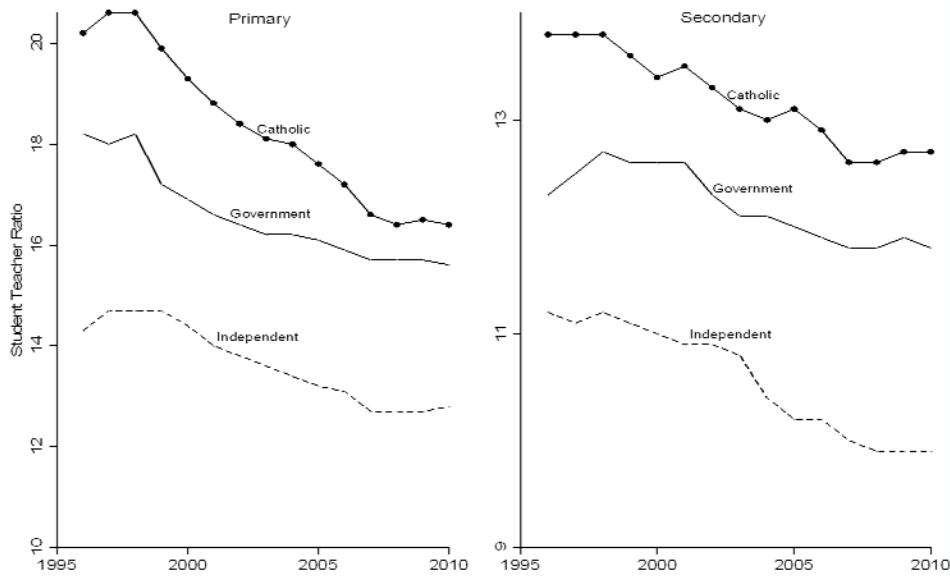
Studies have shown that schools that have a higher mean socioeconomic status (SES) differ in multiple ways from those schools that have a lower mean SES. For example, schools with a lower mean SES often have fewer material and financial resources, may have more discipline problems, less qualified teachers, lower teacher expectations and offer a less academic rigorous curriculum. On the other hand, in higher mean SES schools there may be more of a culture of achievement because students attending these schools may have higher expectations of academic success (Perry and McConney 2010). One measure of SES is the Index of Community Socio-Educational Advantage (ICSEA) which takes into account factors including parental education and occupation, remoteness of the school, proportions of indigenous students and students with a language background other than English. The average ICSEA value is 1000 and the lower the value the more disadvantaged is the school.

**Table 5:** Comparisons across Secondary School Types

<i>Sector</i>	<i>Median VCE Score</i>	<i>% study scores 40+</i>	<i>Avg. ICSEA</i>	<i>Avg. NRIPS</i>	<i>Number of Schools</i>
<b><i>Government</i></b>	27.8	4.3	998.3	12,486.1	271
<b><i>Catholic</i></b>	30.6	8.0	1046.7	11,114.8	86
<b><i>Independent</i></b>	31.8	12.9	1181.4	14,396.2	125
<b><i>Overall</i></b>	29.4	7.2	1054.4	12,736.8	482

Table 5 indicates that for our sample of secondary schools, independent schools attract the more affluent families with the highest ICSEA on average followed by Catholic and then Government schools which have minimal fees consequently family income is not a barrier to enrol. Average School's net recurrent income per student (NRIPS) across the school types is also given in Table 5. This includes income from the Australian Government, State Government, fees, charges and parent contributions and other private sources. On average, per student this is highest for independent Schools followed by Government School students and then Catholic school students.

**Figure 3: Student-Staff Ratios**



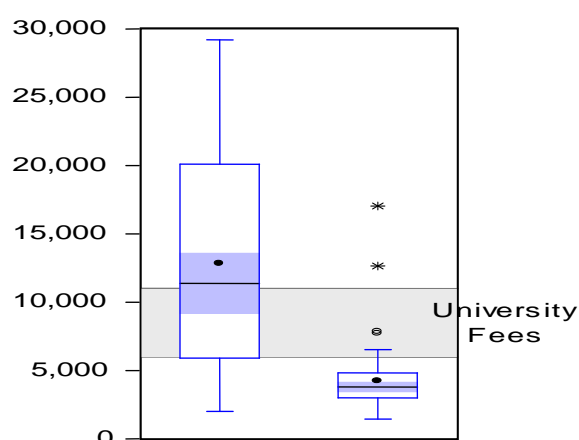
Full-time equivalent student to teaching staff ratios are calculated by dividing the number of full-time students by the number of full-time teaching staff. They are used as an indication of the level of resources available in schools (ie not a measure of class size). Ryan and Watson (2010) conclude that increases in Government funding to non-government schools has primarily been used to improve the quality of the learning experiences of students as measured by improvements in student-staff ratios. Figure 3 plots student-staff ratios for all school types for both the primary and secondary sectors. The student-staff ratios are lowest for the independent school sector. However, while Catholic schools still on average have higher student-ratios than the Government sector we see that there has been a significant fall in their ratios over time.

### 3. Hedonic Price Model

In our analysis we use data from the Australian state of Victoria for 2010 for a cross-section of 171 non-government schools from Victoria. We explore the relationships between school fees and the observable characteristics of private schools considered to be important. The data used comes from a range of sources which is outlined in Appendix 1.

Figure 4 illustrates the range of tuition fees within our data set and also highlights the comparison with university tuition fees. Except for a small number of professional institutions almost all tertiary education in Australia is government funded. Unlike the US where university tuition education has a wide range of price levels in Australia the current annual domestic undergraduate university tuition range from \$6,000 for Arts to \$11,000 for Medicine. These fees are set by the Australian Commonwealth and are charged at all non-private tertiary institutions.

**Figure 4:** Fees for Systemic and Independent Schools in Victoria 2010

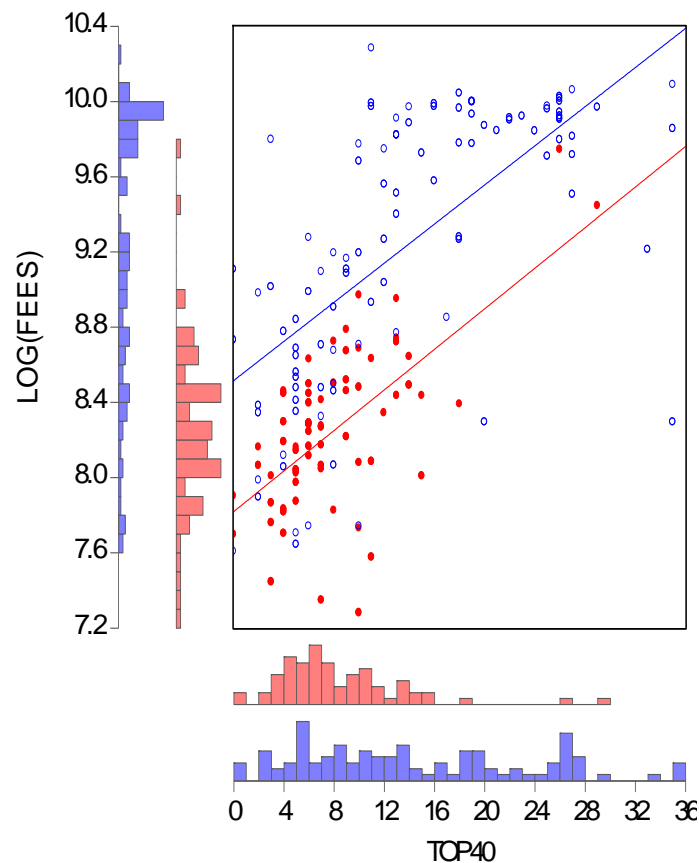


In general, hedonic price models provide an indication of the impact of various characteristics for goods and services on their market clearing price without regard for the market power exerted by the buyers or sellers. In the models estimated below we assume that the fees paid for year 12 high school are indicative of the value placed on the high school education provided by the school. This market is subject to a number of characteristics that restrict entry for suppliers due to limited places and restrictions on new schools. Buyers in this market have a limited time for choice given that a child will only require this service for a period and most school choice decisions are made prior to entry to year 10. Entrance after year 10 is quite uncommon in the schools in our sample.

### 3.1 Simple Hedonic Model

As a preliminary analysis we fit a descriptive model in which we demonstrate the degree to which the fees can be explained by the VCE performance. Here we assume that log fees are only related to VCE performance as measured by the percent of study scores of 40 and over for each school in the sample. Figure 5 shows the estimated relationship as well as the sample points distinguished between systemic and independent schools. Except for a small number of outliers the relationship for systemic schools is lower than for independent schools. In addition, for independent schools there appears to be a nonlinear relationship.

**Figure 5:** A bivariate Relationship between fees and VCE performance (red for Systemic and blue for Independent).



### 3.2 Multivariate Regression

The difficulty with the simple analysis shown above is that it does not account for a number of other features of the schools that may also influence the fees. Note that the model presented above does not fit perfectly and that in a number of cases the predicted fees are much

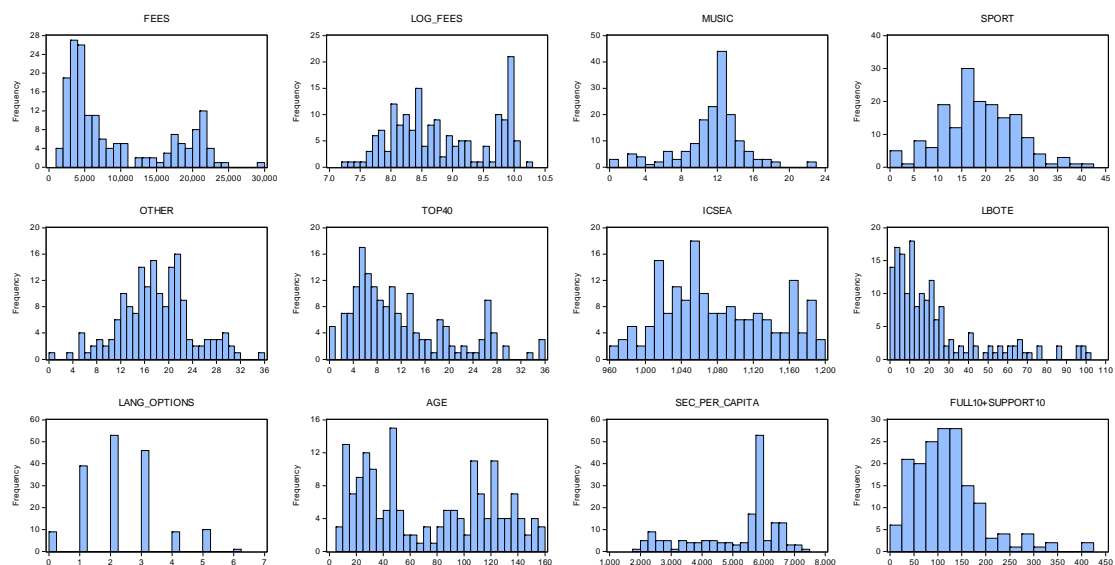
higher or lower than the actual fees. In order to account for these we perform a general multivariate regression:

$$\mathbf{Y}_{T \times 1} = \mathbf{X}_{T \times k} \boldsymbol{\beta}_{k \times 1} + \mathbf{u}_{T \times 1}$$

where  $\mathbf{Y}$  is the vector of  $T$  observations on the fees for the non-government schools in Victoria, the  $k$  columns of matrix  $\mathbf{X}$  are the characteristics and the vector  $\mathbf{u}$  represents the errors in the specification are the observations.

The log of the fees defines the dependent variable. The regressors are characteristics determined by various aspects of the school and are defined as the percentage VCE scores of 40+ ; the number of music, sport and language offering; the religious affiliation; the membership of the school in sporting competitions (as described in Appendix 2); the socio-economic indicator of the parents (ICSEA); the proportion of students from non-English speaking families (LBOTE); if the school is a single sex school; the age of the school; and the level of commonwealth (federal) funding the school receives per student.<sup>5</sup> Figure 6 presents a histogram for the dependent variable and each of the regressors and illustrates the variation in each of these variables.

**Figure 6:** Distribution of regressors used in this analysis.



<sup>5</sup> The systemic schools receive between \$5,856 and \$6,920 per student from the federal and state governments while the other independent school's payments are between \$1,882 and \$7,453 per student per year.



The model was estimated using two different strategies. In the first approach the model was estimated using standard least squares. However, a potential specification issue concerns the socioeconomic status as measured by ISEA may be endogenous to the amount that can be paid for the school fees. That is, higher socioeconomic households can afford to pay higher fees and thus there is a possibility that *ICSEA* is related to the error in the equation. In the second approach we use an instrumental variable for *ICSEA* to allow for the possible simultaneity bias and the generalized method of moments for the estimation. The instrument we used is the average *ICSEA* of the five schools that are in closest proximity to the school under consideration. The correlation between this value and the actual *ICSEA* is .78.

Regression results for both approaches are reported in Table 6.

**Table 6:** Regression results

<i>Variable</i>	<i>OLS</i>			<i>GMM</i>		
	<i>Coef.</i>	<i>t_stat</i>	<i>P&gt;t</i>	<i>Coef.</i>	<i>t_stat</i>	<i>P&gt;t</i>
<i>Intercept</i>	6.21512	6.54	0.000	4.37383	2.91	0.004
<i>girls_only</i>	-0.03760	-0.47	0.637	-0.02952	-0.36	0.717
<i>boys_only</i>	-0.18466	-1.85	0.066	-0.21698	-2.56	0.012
<i>Music</i>	0.01970	2.02	0.046	0.02546	2.07	0.041
<i>Sport</i>	0.00462	0.97	0.334	0.00648	1.58	0.116
<i>other excurricular</i>	0.00287	0.01	0.640	0.00316	0.46	0.645
<i>boarding</i>	0.20134	2.83	0.005	0.20045	3.62	0.000
<i>Regional non-metro</i>	-0.22661	-3.25	0.002	-0.27551	-4.39	0.000
<i>top40</i>	0.01006	1.85	0.067	0.00551	1.06	0.290
<i>Systemic</i>	-0.63913	-7.24	0.000	-0.63573	-6.85	0.000
<i>Jewish</i>	-0.39885	-2.24	0.027	-0.40748	-1.81	0.072
<i>VCAL</i>	-0.12907	-1.83	0.069	-0.08484	-1.10	0.273
<i>APSV</i>	0.29399	2.54	0.012	0.27354	2.71	0.008
<i>AGSV</i>	0.14811	1.35	0.178	0.14628	2.10	0.038
<i>ACC</i>	0.30503	2.49	0.014	0.26962	2.58	0.001
<i>ICSEA</i>	0.00222	2.77	0.006	0.00377	2.93	0.004
<i>LBOTE</i>	-0.00369	-3.03	0.003	-0.00299	-1.99	0.049
<i>lang_options</i>	0.06238	2.13	0.035	0.04300	1.48	0.142
<i>Age</i>	0.00697	2.44	0.016	0.00518	1.61	0.110
<i>Age<sup>2</sup></i>	-0.00004	-2.17	0.032	-0.00003	-1.45	0.149
<i>sec_per_capita</i>	-0.00007	-2.28	0.024	-0.00004	-0.85	0.397
<i>Number Staff</i>	0.00348	2.88	0.005	0.00342	2.78	0.006
<i>Number Staff<sup>2</sup></i>	-0.00001	-3.66	0.000	-0.00001	-3.97	0.000
	<i>R<sup>2</sup></i>	.90		<i>R<sup>2</sup></i>	.89	

We find that the results of both models are very similar. Common results indicate that single sex girl's schools do not attract a premium while single sex boy's schools tend to be cheaper. Catholic systemic, Jewish schools and regional schools also attract lower fees while schools that have boarding facilities have higher fees in general. The higher the proportion of non-English backgrounds within a school and lower socio-economic households also seem to be associated with lower fees. However, more music offerings approximately double the premium of more sports. The size of the school as measured by the total number of teaching and support staff appears to have a non-linear impact on the fees. Fees are higher only until around 165 full-time equivalent teaching and support staff are employed. There are positively significant school associations with ACC, APSV and AGSV all being significant in the IV model. We also have discovered that the impact of the age of the school has a non-linear impact on fees and that the fees rise for older schools until the school is approximately 100 years old.

#### **4. Conclusions**

The fees charged by non-government schools in Victoria have been increasing at a very high rate along with the number of students attending these schools. This has led to more and more of the expense for secondary school education in Victoria to be borne directly by the parents of the students. The ratio of the cost of secondary education to the cost of university education is significantly higher than observed in other OECD nations due to the combination of higher fees and a higher proportion of private school attendance. Thus the determinants of these higher fees are an important subject for investigation.

From the hedonic price study we have found that private school fees are a function of performance as well as the spread of offerings. We find that higher fees are charged for schools that have higher numbers of staff, with better university entrance scores, more music

and language offerings, are older, have other students from a higher socioeconomic background and fewer students from non-English speaking backgrounds.

Future research planned with this data involves the research into possible implications of the spatial aspects of the phenomena under study. We already observe that these schools have a tendency to cluster in certain locations and we are now in a position to determine if their relative positions can be used to model other aspects of the fee structures.

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## Appendix A: Data Descriptions

	Mean	Std. Dev.
GIRLS_ONLY	0.2426	0.4299
BOYS_ONLY	0.1361	0.3439
MUSIC	10.9053	3.6827
SPORT	18.2722	7.6405
OTHER	17.4083	5.9356
BOARD	0.1420	0.3501
REGIONAL	0.2663	0.4433
SYSTEMIC	0.3965	0.4906
JEWISH	0.0296	0.1699
VCAL	0.4201	0.4950
APSV	0.0769	0.2673
AGSV	0.0533	0.2252
ACC	0.0651	0.2474

**Table A.1** Descriptive statistics for the discrete variables used in the analysis.

Fees – Year 12 VCE-Options based on number of VCE studies offered at unit 3 and 4 level at school campus(es) in 2009: 1 up to 28 studies; 2 29-41 studies; 3 42-48 studies and 4 49 or more VCE studies Number students IB available Boarding available Boys only Girls only Catholic Islamic Jewish Creek Catholic Sport options Music options Other options Destinations: Uni, Tafe, Work (%) Year 7-12 Year prep-12 Year past prep – 12 Year 10-12	Good Schools Guide Victoria 2011
University offers (2009/10) Tafe/VET offers (2009/10) University offers (2008/09) Tafe/VET offers (2008/09)	On Track data (VTAC)

Number of Students enrolled in at least one VCE unit at level 3-4 in 2010 Number of Student enrolled in a VET certificate in 2010 Percent of study scores of 40 and over Median VCE study score	<i>www.exfin.com</i>
Percent Language other than English Attendance ICSEA Number of Teachers Number of Support Staff Read7 Write7 Spell7 Grammar7 Math7	My School 2
<i>School Associations:</i> ASPV AGSV GV ACC ACOED BAS CAS Sandhurst EID GIS SIS	
<i>Region:</i> Cental East Melbourne North North-East North-West Regional South-East South-West West	
<i>Other data:</i> Age of School Post Code Accredited for Overseas Students VCAL is offered	School websites

## Appendix 2: Membership in School Associations

### **Associated Public Schools of Victoria (apsv)**

The association was established in 1908 so that students of the member schools could compete against each other on the sporting fields.

Brighton Grammar; Carey Baptist Grammar; Caulfield Grammar; Geelong College; Geelong Grammar; Haileybury; Melbourne Grammar; St Kevins; Scotch; Wesley; Xavier

### **Associated Grammar Schools of Victoria (agsv)**

Established in 1920 for the purposes of playing sport.

Assumption College; Camberwell Grammar; Ivanhoe Grammar; Marcellin College; Mentone Grammar School; The Peninsula School; Penleigh and Essendon Grammar School; Trinity Grammar; Yarra Valley Grammar.

### **Girls Sport Victoria (gv)**

Established in 2001.

Camberwell Girls; Fintona Girls; Firkbank Grammar; Genazzano FCJ College; Ivanhoe Girls; Korowa Anglican Girls; Lauriston Girls; Loreto Mandeville; Lowther Hall; Melbourne Girls Grammar; Mentone Girls Grammar; MLC; Our Lady of Mercy college; PLC; Ruyton; Sacre Couer; St Catherines; St Margarets; Shelford Girls; Sienna College; Star of the Sea; Strathcona; Toorak College

### **Associated Catholic Colleges (acc)**

Established 1948 to provide boys' colleges inter-College sport competitions.

Christian Brothers college; De La Salle College; Mazenod College; Parade College; Se Bedes College; St Bernards College; St Josephs College; Emmanuel College; Salesian College; Simmonds Catholic College; Whitefriars College

### **Association of Co-education Schools (acoed)**

Formed in 1997.

Loyola College; Overnewton Anglican; St Leonards; St Michaels; Thomas Carr; Westbourne Grammar

### **Ballarat Associated Schools (bas)**

It is a group of schools in Ballarat, that provides the basis for interschool sporting competition Ballarat and Clarendon College; Ballarat and Queens Anglican Grammar School; Ballarat High School; Damascus College; Loreto College; St Patricks College

### **Catholic All Schools Sports Association (CAS)**

Formed in 1996 and provides the basis for interschool sporting and other competitions between a group of Catholic schools.

Academy of Mary Immaculate, Fitzroy; Aquinas College, Ringwood; Catholic Regional College, Drysdale; Catholic Regional College, Melton; Catholic Regional College, North Keilor; Catholic Regional College, St. Albans; Catholic Regional College, Sydenham; Emmanuel College, Warrnambool; FCJ College Benalla; Galen College, Wangaratta; Lavalla College; MacKillop College, Swan Hill; MacKillop College, Werribee; Marcellin College, Bulleen; Marian College, Ararat; Marian College, Myrtleford; Mater Christi College, Belgrave; McAuley College, Dooboobetic; Mercy Diocesan College, Coburg; Mercy Regional College, Camperdown; Mount Lilydale Mercy College, Mount Lilydale; Nagle College, Bairnsdale; Nazareth College, Noble Park North; Our Lady of Mercy College, Heidelberg; Penola Catholic

College, Broadmeadows; Sacred Heart College, Geelong; Sacred Heart College, Kyneton; Sacred Heart College, Yarrawonga; Santa Maria College, Northcote; St Augustine's College, Kyabram; St Brigid's College, Horsham St Joseph's College, Ferntree Gully; St Joseph's College, Mildura; St Joseph's College, Geelong; St Mary's College (Seymour); St Monica's College, Epping; St Patrick's College, Ballarat; St Peter's College, Cranbourne; Thomas Carr College, Tarneit; Trinity College, Colac

### **Sandhurst Secondary Schools Sports Association (part of CAS)**

Catholic College Bendigo; Catholic College, Wodonga; Notre Dame College, Shepparton; St Joseph's College, Echuca; St Mary of the Angels College, Nathalia; Monivae college

### **Eastern Independent Schools of Melbourne (*eisd*)**

Independent schools' sporting competition in the eastern region of Melbourne

Alphington Grammar School; Aquinas College; Bialik College; Billanook College; Donvale Christian College; Eltham College; Emmaus College; Huntingtower School; Kilvington Grammar; The King David School; <http://www.kingswoodcollege.vic.edu.au>/Kingswood College; <http://www.knox.vic.edu.au>/The Knox School; Luther College; Mt. Lilydale Mercy College; Mt. Scopus Memorial College; Nunawading Christian College; Oakleigh Greek Orthodox College; Oxley College; Plenty Valley Christian College; Rudolf Steiner School; St. Joseph's College; Tintern Schools

### **Gippsland independent Schools (*gis*)**

Gippsland Independent Schools is an association of schools in Gippsland, Victoria, Australia. The association organises many inter-school extracurricular competitions.

Beaconhills College; Chairo Christian School; Gippsland Grammar; Marist-Sion College; Mary Mackillop College; Regional College; Newhaven; Presentation; St Pauls Anglican Grammar School