THE ECONOMIC IMPACT OF EXPORT EDUCATION

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In 1999 the contribution of export education to gross domestic product (GDP) was estimated at $545m. By 2001 this had more than doubled to $1.3 billion.[1] In 2004 the estimated contribution had passed the two billion dollar mark, with the industry's value-added estimated at approximately $2.2 billion.

For these earlier estimates spending by foreign fee-paying students was derived from combining general surveys of tertiary student expenditure (with a small sub-sample of international students), surveys carried out at specific institutions, international visitor surveys and household economic surveys. None were based on a dedicated survey of expenditure by foreign fee-paying students and all excluded the offshore provision of educational goods and services by New Zealand companies and educational institutions. This report addresses both of those deficiencies.

The number of foreign fee-paying students has been on a downward trend since 2003. Nevertheless, over 2007/08 the export education industry generated around $2.3 billion of foreign exchange, of which $70 million came from offshore provision. The industry's contribution to New Zealand's gross domestic product is estimated at approximately $2.1 billion after allowing for flow-on effects to other industries and leakages offshore.

Summary of Economic Impact of Export Education

YEAR	ECONOMIC IMPACT INCLUDING OFFSHORE EDUCATION EARNINGS*	OFFSHORE EDUCATION EARNINGS
1999	$0.5 billion (estimated)	Not separately measured
2001	$1.3 billion (estimated)	Not separately measured
2004	$2.2 billion (estimated)	Not separately measured
2007/2008	$2.1 billion (estimated)	$70 million (estimated)

* Economic impact is the contribution to Gross Domestic Product. It includes tuition fees, living expenditure by students, offshore education earnings, and flow-on effects through the wider economy.

Most of the revenue from offshore provision comes from the sale of professional services such as teaching, training, curriculum development, quality assurance, consulting and advisory services. China is the main source of these earnings.

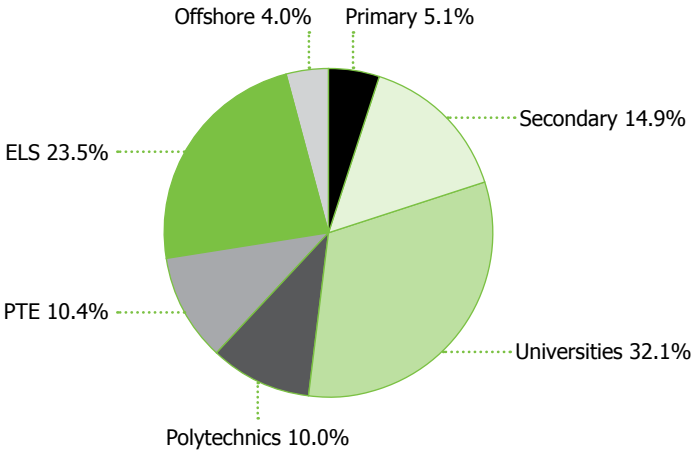
China is also the largest country of origin of foreign fee-paying students, accounting for 24,800 out of 91,300 students. South Korea follows with 17,900 students.

By sector, English language schools accounted for the largest group – 33,700, but many of the students are part-time. In terms of full time equivalent (FTE) students universities constitute the largest sector. This also makes university students the largest source of foreign exchange earnings – about 31% of the total.

For the export education industry as a whole (students plus offshore provision), the composition of its total contribution to gross domestic product is shown overleaf.

1 Infometrics (2000) *Economic Impact Analysis of Foreign Fee-Paying Students*, report to Education International Marketing Network & Asia 2000 Foundation. And Infometrics (2002) *Economic Impact of International Education,* paper prepared for EIMN.

Figure 1. Total Contributions to GDP by Export Education Sector



GLOSSARY

Throughout this report various measures of the size of the export education industry are used:

Total student spending – all spending by foreign fee-paying students in New Zealand on tuition fees and living costs.

Foreign exchange earnings – the gross amount of foreign exchange earned by the industry, comprising all spending by foreign fee-paying students that is sourced from offshore. Thus it excludes spending that is attributable to the New Zealand earnings of foreign students. It includes earnings from offshore education activities that accrue to New Zealanders or New Zealand entities.

Contribution to gross domestic product (GDP), or value-added – is the net contribution that the export education industry makes to New Zealand's GDP. It is equal to the gross foreign exchange earnings less direct imports (such as imported text books) and less indirect imports (such as the diesel used by transport companies to transport the goods that students buy from supermarkets).

Contribution to GDP is calculated by adding value-added (payments to labour and capital, and indirect taxes) of every industry that directly or indirectly supplies goods and services to export education. This strips out the double counting such as where the cloth used to produce a garment is counted by both the cloth manufacturer and by the garment manufacturer as part of their gross output. More detail is given in Appendix B.

2.1 STUDENT EXPENDITURE SURVEY

Data collected by the Ministry of Education in connection with the Export Education Levy provides estimates of:

- the number of FFP students by sector
- the cost of tuition by sector

Combining this with the results of the first dedicated survey of expenditure by FFP students yields the following estimates of expenditure on tuition and living costs. Details of the survey and its analysis are given in Appendix A.

Table 1 Expenditure by Foreign Fee-Paying Students (net of NZ earnings)

		SCHOOLS		PUBLIC TERTIARY		PRIVATE	ENGLISH	
		PRIMARY	SECONDARY	UNIVERSITIES	POLYTECHNICS	TERTIARY	LANGUAGE	TOTAL
Number of Students	No.	4,109	11,465	21,136	10,007	10,942	33,662	91,321
EFTS	FTE	2,391	8,401	16,218	5,575	5,858	8,119	46,562
Tuition	$m	22.6	95.7	273.7	64.4	58.7	81.9	596.8
of which levies	$m	0.2	0.5	1.2	0.3	0.3	0.4	2.9
Average tuition (excl levy)	$/cap	5,450	8,302	1,2892	6,405	5,335	2,420	6,504
	$/FTE	9,365	11,330	16,801	11,498	9,965	10,034	12,757
Average living cost	$/cap	22,144	18,243	19,364	17,873	17,262	15,688	
Second hand goods	$/cap	37	266	938	1,079	765	650	
Imports	$/cap	3,662	3,113	3,137	2,968	2,504	2,292	
Indirect tax	$/cap	2,290	1,867	2,017	1,822	1,803	1,583	
Net	$/cap	16,155	12,997	13,272	12,005	1,2191	11,163	
Total living costs	$m	91.0	209.2	409.3	178.9	188.9	528.1	1,605.3
Total Foreign Exchange	$m	113.5	304.8	683.0	243.3	247.5	610.0	2,202.1
	%	5.2%	13.8%	31.0%	11.0%	11.2%	27.7%	100.0%
of which Indirect tax & levies	$m	12.4	33.9	78.1	26.6	27.3	63.9	242.1

The direct foreign exchange earnings attributable to foreign students total an estimated $2.2 billion – that is nearly all of the $2.3 billion reported in the Summary, which included earnings from offshore provision. See Section 3. The $2.2 billion comprises tuition fees of just under $600m and expenditure on other goods and services (living costs) of $1.6 billion. High tuition fees mean that university students account for more than half of total expenditure on tuition, but English language students, by weight of numbers, account for almost the aggregate value of spending on living costs as university students.

The high living cost expenditure attributed to primary school students is caused by two factors: tuition costs over and above school fees such as for extra English, music lessons etc (which are included in living costs), and the requirement that foreign students aged 13 or under (with some rare exceptions for those over 10) must live with a parent or guardian, implying that many of the living costs for this group actually relate to two people.

Given the relatively short stay of English language students their average spending on living costs seems high. Some such students progress to tertiary education after attending and ESL, so it is possible that their living cost expenditure does not entirely pertain to their time at an ESL. Students are classified according to their self-selected main institution of study.

Note that there is no allowance for associated spending by visiting friends and relatives of students who may come for graduation ceremonies or to help students to set up at the start of the academic year. The survey suggest about 11.0 visitor nights per student, implying approximately 1.0 million visitor nights in total. At $129/day[2] the additional foreign exchange earnings is around $130m. This is counted in official statistics as revenue from foreign tourism.

2 Source: Ministry of Tourism *Key Tourism Statistics*, August 2008

2.2 ECONOMIC IMPACT BY TYPE OF STUDENT

The flow-on economic impacts of export education are estimated using the commonly accepted 'multiplier' approach. The concept of an economic multiplier is explained in Appendix B.

Multipliers for foreign fee-paying students in New Zealand are derived by weighting individual industry multipliers by the composition of expenditure, disaggregated by type of educational institution.[3]

Multipliers are not applied to the GST and education levy components of student expenditure. This is because the multipliers are not sophisticated enough to capture how the government allocates its tax revenue, nor the deadweight economic loss associated with taxation.

The results are shown in Table 2.

OUTPUT AND VALUE-ADDED

The base level of gross output, being expenditure less leakages in the form of direct imports and taxes, is $1.7 billion. This figure constitutes the basis of the multiplier analysis.

A further $1.3 billion of gross output is generated in upstream industries that supply inputs to the Export Education industries; for example inputs of energy to educational institutions. Another $1.0 billion of induced turnover is generated by the spending of wages and salaries earned by people employed in Export Education and those employed in the industries which supply Export Education. Note that the induced effect also subsumes all of the next and subsequent waves of indirect and induced effects which arise out of the first wave of induced effects.

Although the gross output multiplier for Export Education raises the initial effect from $1.7 billion to $4.0 billion, this does not equate to the effect on GDP. Stripping out the double counting leaves a total contribution to GDP of $2.0 billion (including $240m of taxes and levies). Conceptually this is identical to the $2.1 billion mentioned in the Summary, but it excludes the contribution from offshore provision.

This represents about 1.2% of total GDP. In 1999 foreign education is estimated to have accounted for only 0.5% of GDP.

Other industries with a comparable contribution to GDP are Horticulture at 0.8%, Dairy Farming at 1.3%, Wood Processing at 0.8%, Basic Metals at 1.0% and Personal Services at 1.3%. Education in total accounts for about 3.7%.[4]

3 The multipliers pertain to 2005/06 and were calculated by Butcher Partners.

4 Data is for 2005/06, latest available, Statistics New Zealand.

Table 2 Economic Impact of Foreign Fee-Paying Students

		SCHOOLS		PUBLIC TERTIARY		PRIVATE	ENGLISH	
		PRIMARY	SECONDARY	UNIVERSITIES	POLYTECHNICS	TERTIARY	LANGUAGE	TOTAL
Number of Students	No.	4,109	11,465	21,136	10,007	10,942	33,662	91,321
Expenditure (excl tax, levies & direct imports)								
Tuition	$m	22	95	272	64	58	81	594
Living Costs	$m	66	149	281	120	133	376	1,125
		89	244	553	184	192	457	1,719
Labour / Gross Output	No./$m	9.2	11.0	7.6	6.3	6.6	5.7	
Value-Added/Gross Output	$/$	0.47	0.52	0.46	0.42	0.42	0.39	
Employment	No.	816	2,697	4,212	1,163	1,263	2,606	12,759
Value-Added	$m	42	126	257	78	80	179	762
Multipliers - Type I								
Gross Output		1.71	1.66	1.77	1.78	1.80	1.81	
Employment		1.82	1.72	2.02	2.25	2.22	2.23	
Value-Added		1.71	1.64	1.73	1.79	1.81	1.86	
Multipliers - Type II								
Gross Output		2.32	2.29	2.37	2.33	2.35	2.31	
Employment		2.26	2.13	2.54	2.85	2.79	2.80	
Value-Added		2.27	2.19	2.31	2.33	2.36	2.38	
Activity by Type I Multipliers								
Gross Output	$m	152	404	977	328	346	829	3,036
Employment	No.	1,486	4,650	8,490	2,620	2,807	5,804	25,857
Value-Added	$m	71	207	445	140	146	333	1,342
Activity by Type II Multipliers								
Gross Output	$m	206	559	1313	430	450	1,057	4,015
Employment No.	1845	5,747	10,719	3,314	3,531	7,288	32,444	
Value-Added	$m	94	276	592	182	190	427	1,762
Indirect tax & levies	$m	12	34	78	27	27	64	242
Value-Added + tax & levies	**$m**	**107**	**310**	**670**	**209**	**217**	**491**	**2,004**
	%	**5.3%**	**15.5%**	**33.4%**	**10.4%**	**10.8%**	**24.5%**	**100.0%**

EMPLOYMENT

Employment directly attributable to foreign student expenditure is around 12,800 full time equivalent positions. Multiplier effects raise this to about 32,400. Of the direct effect, about 59% is accounted for by the education industry. Thus one could claim that for every job generated directly in the education industry (through having foreign fee-paying students in New Zealand) another 3.29 FTE jobs are generated elsewhere - approximately 0.69 jobs in industries which directly supply goods and services such as food and transport to students, another 1.73 jobs in industries which supply those industries and the education industry, and another 0.87 in the industries which benefit from the increased consumer spending power associated with all of the other new employment.

Employment in the education sector is calculated by applying labour-output ratios to the value of tuition expenditure. This will yield a reasonable estimate of direct employment only if a foreign student is not being asked to pay for more *per unit of service delivered* than government provides for a domestic student, and if the fee is based on average costs. The Italicised words are important. A higher fee may be charged without affecting the validity of the calculations if a foreign student actually costs more to teach, such as if language barriers require additional tuition for foreign students at secondary schools

2.3 ERROR MARGINS

Some conceptual issues around estimating living cost expenditure from a snapshot survey are discussed in Appendix A. Briefly these are:

- measurement of irregular expenditure and earnings,
- under-sampling of short-stay students,
- treatment of expenditure on second-hand goods,
- attendance at more than one type of institution in a twelve month period.

Sources of Error and Approximate Sizes

	EFFECT ON TOTAL SPEND	COMMENT
Irregular expenditure	<5%	±50% on irregular spending
Under sampling of short- stay students	<±4%	no adjustment raises spend by 12.2% ± 4%
Second-hand goods	±1%	4.0% of spending
Multiple institutions	≈3%	9.0% of students

Overall the error margin on total expenditure by foreign fee-paying students is most unlikely to exceed 5% and is probably much lower. In terms of total spending on living costs of $1.6 billion (refer Table 1) this translates into a likely maximum error of ±$80m. The implied effect on the estimated contribution to GDP by foreign fee-paying students of $2.0 billion is ±$74m.

Note that the above errors are not the usual random sampling errors that arise from using a survey to estimate parameters that relate to a larger population. For total expenditure a 95% confidence interval is estimated to be ±4.75%, assuming expenditure is distributed according to a Normal distribution.

2.4 ECONOMIC IMPACT BY NEW ZEALAND REGION

The expenditure survey was deliberately stratified to ensure adequate sample sizes in two dimensions; for the six types of educational institution and five regions, but the survey was not large enough to allow accurate simultaneous disaggregation in these two dimensions. Thus we cannot for example, obtain an estimate of expenditure on living costs by secondary students in Canterbury.

However, if one is prepared to accept a wider error margin, it is possible to disaggregate simultaneously by type of institution and by region using the methods outlined in Appendix C.

In contrast, expenditure on tuition fees is calculated from the Ministry of Education's database and so is available with a simultaneous cross-classification by region and by type of institution. Table 3 provides that information.

Table 4 combines the information from Table 3 with estimated expenditure on living costs in order to determine the total regional impacts of export education. Two caveats should be noted:

- Regional import coefficients are higher than the national import coefficients, so the regional sum of the initial economic impacts is less than the reported total for New Zealand (in Table 2). This leakage from any given region is not picked up as an injection in any other region. The same effect exists with regard to the regional multipliers. They take into account the flow-on effects in each region, but not the effects arising from activity that leaks from other regions. For example the multipliers for Wellington allow for the leakage that occurs if students buy wine that comes from Hawke's Bay, but this effect is not picked up in the multipliers for Other North Island. Hence the sum of the regional effects will not equal the total New Zealand effect.
- It is assumed that each region obtains back in government spending what it pays in indirect taxes and education levies. This may not be correct.

Table 3 Students and Tuition Fees by New Zealand Region of Study

		SCHOOLS		PUBLIC TERTIARY		PRIVATE	ENGLISH	
		PRIMARY	SECONDARY	UNIVERSITIES	POLYTECHNICS	TERTIARY	LANGUAGE	TOTAL
Auckland								
Number of Students	No.	2,554	5,595	9,263	3,722	7,645	20,850	49,629
Tuition	$m	13.9	51.6	110.9	23.4	24.6	66.0	290.3
of which levies	$m	0.1	0.2	0.5	0.1	0.1	0.3	1.4
Average tuition (excl levy)	$/cap	5,424	9,174	11,916	6,258	3,196	3,149	5,822
Wellington								
Number of Students	No.	114	711	2,829	761	504	268	5,187
Tuition	$m	0.6	5.7	29.7	11.7	1.6	0.7	50.0
of which levies	$m	0.0	0.0	0.1	0.1	0.0	0.0	0.2
Average tuition (excl levy)	$/cap	5,219	7,916	10,448	15,356	3,080	2,779	9,594
Other North Island								
Number of Students	No.	537	2,151	3,894	2,460	1,301	2,475	12,818
Tuition	$m	2.6	15.6	64.9	16.5	5.9	11.2	116.7
of which levies	$m	0.0	0.1	0.3	0.1	0.0	0.1	0.6
Average tuition (excl levy)	$/cap	4,829	7,217	16,590	6,691	4,498	4,501	9,063
Canterbury								
Number of Students	No.	851	1,738	3,239	1,500	1,385	8,072	16,785
Tuition	$m	5.1	14.8	38.5	8.1	3.6	21.0	91.0
of which levies	$m	0.0	0.1	0.2	0.0	0.0	0.1	0.4
Average tuition (excl levy)	$/cap	5,941	8,474	11,819	5,344	2,576	2,584	5,392
Other South Island								
Number of Students	No.	53	1,270	1,911	1,564	107	1,997	6,902
Tuition	$m	0.2	8.2	29.8	4.7	0.2	5.8	48.9
of which levies	$m	0.0	0.0	0.1	0.0	0.0	0.0	0.2
Average tuition (excl levy)	$/cap	4,019	6,387	15,521	2,969	2,122	2,904	7,050

Total foreign exchange (spending not sourced from income earned in New Zealand) is $2.36 billion, which is $159m more than in Table 1. The discrepancy comes about primarily because the survey is not simultaneously stratified by both institution and region, and because of the short-stay correction factors (see Appendix A). As the latter are more homogeneous for types of institution than for regions, the Table 1 estimate of $2.20 billion is more reliable than the $2.36 billion.

In terms of both student numbers and contribution to regional value-added (GDP) the Auckland region clearly dominates, with shares of 54.3% and 54.1% respectively. With above average spending on living costs and a greater than average concentration of university students, Wellington accounts for a larger share of value-added at 6.2% than its 5.7% of students might suggest. High living costs in Wellington could also be a factor. The converse of this result is that other students, notably those in Canterbury and the rest of the South Island spend less than the average.

It will be seen that total value-added (with Type II multiplier effects) across the five regions is $1.54 billion, compared to $2.00 billion in Table 2. The difference of $500m is the amount that is lost through our inability to track inter-regional trade. We can interpret this as being the collective contribution to regional GDP that originates from other regions. In other words, almost a quarter of expenditure by foreign fee-paying students benefits regions other than where the student is studying.

Table 4 Economic Impact of Foreign Fee-Paying Students by New Zealand Region of Study

		AUCK	WGTN	OTHER NI	CANT	OTHER SI	TOTAL NZ
Number of Students	No.	49,629	5,187	12,818	16,785	6,902	91,321
Average living cost	$/cap	21,207	16,256	16,802	17,253	17,709	
Second hand goods	$/cap	798	471	689	524	784	
Imports	$/cap	5,880	4,835	4,779	4,134	4,858	
Indirect tax	$/cap	2,160	1,710	1,722	1,771	1,832	
Net	$/cap	12,369	9,241	9,612	10,825	10,235	
Total Foreign Exchange	$m	1,342.8	134.3	332.1	380.6	171.1	2,360.9
Expenditure (excl tax, levies & direct imports)							
Tuition	$m	289	50	116	91	49	594
Living Costs	$m	614	48	123	182	71	1,037
		903	98	239	272	119	1,631
Labour / Gross Output	No.	/$m	7.0	8.2	8.0	7.3	7.6
Value-Added / Gross Output	$/$	0.41	0.46	0.45	0.42	0.42	
Employment	No.	6,275	798	1,916	1,981	906	11,875
Value-Added	$m	367	45	108	113	50	682
Multipliers - Type I							
Gross Output	1.55	1.50	1.51	1.59	1.49		
Employment	1.54	1.52	1.69	1.69	1.64		
Value-Added	1.51	1.44	1.49	1.59	1.49		
Multipliers - Type II							
Gross Output	1.93	1.87	1.87	2.01	1.83		
Employment	1.82	1.78	1.98	2.03	1.91		
Value-Added	1.88	1.79	1.83	2.01	1.82		
Activity by Type I Multipliers							
Gross Output	$m	1,396	146	361	434	178	2,515
Employment	No.	9,632	1,215	3,237	3,357	1,488	18,930
Value-Added	$m	554	65	160	181	75	1034
Activity by Type II Multipliers							
Gross Output	$m	1,744	183	449	548	219	3,143
Employment	No.	11,411	1,420	3,801	4,028	1,727	22,386
Value-Added	$m	690	80	197	227	91	1,286
Indirect tax & levies	$m	145	15	37	41	19	258
Value-Added + tax & levies	**$m**	**834**	**96**	**234**	**269**	**110**	**1,543**

2.5 ECONOMIC IMPACT BY REGION OF ORIGIN

Table 5 presents summary data for five countries/region of origin – China, South Korea, Japan, other Asian countries and all other countries.[5]

Table 5 Students and Tuition Fees by Region of Origin

		SCHOOLS		PUBLIC TERTIARY		PRIVATE	ENGLISH	
		PRIMARY	SECONDARY	UNIVERSITIES	POLYTECHNICS	TERTIARY	LANGUAGE	TOTAL
China								
Number of Students	No.	101	1,858	9,757	3,751	4,825	4,462	24,754
Tuition	$m	0.6	15.5	126.4	24.1	25.9	10.9	203.3
of which levies	$m	0.0	0.1	0.6	0.1	0.1	0.1	0.9
South Korea								
Number of Students	No.	3,028	3,938	1,240	865	1,572	7,261	17,904
Tuition	$m	16.6	32.9	16.1	5.6	8.4	17.7	97.2
of which levies	$m	0.1	0.2	0.1	0.0	0.0	0.1	0.5
Japan								
Number of Students	No.	61	1,715	1,050	959	813	7,638	12,236
Tuition	$m	0.3	14.3	13.6	6.2	4.4	18.6	57.3
of which levies	$m	0.0	0.1	0.1	0.0	0.0	0.1	0.3
Other Asia								
Number of Students	No.	130	1,341	761	2,291	2,870	3,770	11,163
Tuition	$m	0.7	11.2	9.9	14.7	15.4	9.2	61.1
of which levies	$m	0.0	0.1	0.0	0.1	0.1	0.0	0.3
Other								
Number of Students	No.	789	2,613	8,328	2,141	842	10,531	25,244
Tuition	$m	4.3	21.8	107.8	13.8	4.5	25.6	177.9
of which levies	$m	0.0	0.1	0.5	0.1	0.0	0.1	0.8

Analogously to the regional data, the survey was designed to obtain some degree of disaggregation of student expenditure by country of origin, but not simultaneously by type of educational institution (nor by New Zealand region of study).

The total number of students differs marginally from that in Table 1 due to some non-reporting of country of origin. Hence dollar totals are also slightly lower.

As expected China provides the single highest number of students by far, with the second largest market, South Korea, in turn having a substantial lead over Japan, the third largest market (at least in 2007). Students from non-Asian countries collectively total only a few more than the number from China alone.

While the Ministry's database can identify the number of students by type of educational institution cross classified by country of origin, tuition fees and levies cannot be simultaneously cross-classified as non-SDR providers do not report on those three dimensions (fee, country and number of students) simultaneously.

Consequently we assume that each student pays the average fee charged by each type of institution, irrespective of their country of origin. Obviously fees do not depend on country of origin, but the average fee by country of origin for any given type of institution could vary if different nationalities enrol in different courses or for different time periods.

Table 6 shows the results of this estimation, along with the estimated multiplier effects.

5 Other Asia is defined as Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, East Timor, India, Indonesia, Laos, Malaysia, Maldives, Mongolia, Myanmar, Nepal, North Korea, Pakistan, Philippines, Singapore, Sri Lanka, Taiwan, Tajikistan, Thailand, Vietnam.

Table 6 Economic Impact by Region of Origin

		CHINA	SOUTH KOREA	JAPAN	OTHER ASIA	OTHER COUNTRIES	TOTAL NZ
Number of Students	No.	24,754	17,904	12,236	11,163	25,244	91,301
Average living cost	$/cap	17,870	22,898	12,169	15,478	18,277	
Second hand goods	$/cap	931	500	380	574	893	
Imports	$/cap	2,710	3,495	2,150	2,709	2,688	
Indirect tax	$/cap	1,825	2,354	1,225	1,609	1,892	
Net	$/cap	12,403	16,549	8,414	10,587	12,804	
Total Foreign Exchange	$m	645.6	507.2	206.2	233.8	639.3	2,232.1
Expenditure (excl tax, levies & direct imports)							
Tuition	$m	202	97	57	61	177	594
Living Costs	$m	307	296	103	118	323	1,148
		509	393	160	179	500	1,742
Labour / Gross Output	No./$m	7.2	6.7	7.2	7.4	7.6	
Value-Added / Gross Output	$/$	0.45	0.42	0.44	0.43	0.44	
Employment	No.	3,687	2,652	1,155	1,322	3,779	12,595
Value-Added	$m	228	167	71	77	220	762
Multipliers - Type I							
Gross Output	1.77	1.78	1.76	1.78	1.78		
Employment	2.07	2.02	1.96	2.10	2.12		
Value-Added	1.77	1.80	1.77	1.80	1.79		
Multipliers - Type II							
Gross Output	2.35	2.33	2.33	2.35	2.35		
Employment	2.61	2.54	2.47	2.64	2.66		
Value-Added	2.34	2.35	2.33	2.36	2.35		
Activity by Type I Multipliers							
Gross Output	$m	902	700	282	319	892	3,095
Employment	No.	7,632	5,361	2,268	2,781	8,011	26,053
Value-Added	$m	403	300	125	139	394	1361
Activity by Type II Multipliers							
Gross Output	$m	1,198	918	373	420	1,178	4,087
Employment	No.	9,615	6,727	2,850	3,492	10,059	32,743
Value-Added	$m	531	392	164	182	518	1,787
Indirect tax & levies	$m	71	55	22	26	71	245
Value-Added + tax & levies	**$m**	**603**	**447**	**187**	**208**	**588**	**2,032**

Total foreign exchange earnings are estimated at $2.23 billion, which compares very favourably with the figure of $2.20 billion in Table 1.

Multipliers differ by country of origin not just because different nationalities may have different expenditure patterns, but also because different nationalities predominate in different parts of the education system. For example a much higher proportion of Chinese students attend university than is the case for South Korean students, who are more concentrated in schools. New Zealand region of study might also be a factor that affects the composition of expenditure.

In terms of contribution to national value-added (GDP) the Chinese is narrowly the largest with 29.7%, compared to its share of student numbers of 27.1%, reflecting higher than average expenditure per student. South Korea is in a similar position, accounting for 22.0% of value-added, but only 19.6% of student numbers. The high concentration of South Korean students in primary schools, and the implied higher spending because of the requirement that they live with a parent or guardian (see above), is likely to be driving this result.

Students from Japan and Other Asia spend less than average. Again this is likely to be caused primarily by differences in institutional composition and length of stay than by some inherent national differences in spending propensity.

Total value-added (after Type II multiplier) effects of $2.03 billion is just above the $2.00 billion estimated in Table 2, which is a very good result. That is, although the survey size was increased to produce reliable estimates of expenditure by region of origin and by type of institution, given the various procedures for adjusting for length of stay, undercount of short-stay students and so on, the correspondence is most encouraging. Note that the small number of students who did not record a country of origin would suggest that the difference (although extremely small) should be in the other direction.

3. OFFSHORE PROVISION

3.1 INTRODUCTION

In recent years there has been growth in transnational education activity in addition to the recruiting of learners who travel to New Zealand's shores. There can be little doubt that this is a reflection of a 'shrinking' world and wide recognition of New Zealand's expertise in pedagogy, curriculum, quality systems, learning resources and consultancy.

This activity has been researched with the object of quantifying its impact on the New Zealand economy. We believe this is the first such study. We encountered some challenges in definition, identifying participants and data gathering, but what has been derived is a start and contains much by way of learning for subsequent studies.

Our observation, not substantiated by empirical data, is that the first flush of enterprising and opportunist transnational education projects is now over. There appeared to be a circumspect attitude to developing new ones even though approaches from the likes of China and India abound. New Zealand may now be entering a phase of more strategic choices, based on feasibility studies, business case analyses and effective due diligence.

3.2 CONCEPTS

The classification system used internationally to record the Balance of Payments distinguishes four modes of trade in services:

- Mode 1: cross-border supply such as when suppliers of services in one country supply services to consumers in another country without either supplier or consumer moving into the territory of the other.
- Mode 2: consumption abroad, describes the process by which a consumer resident in one country moves to another country to obtain a service.
- Mode 3: commercial presence, where enterprises supply services internationally through the activities of their foreign affiliates abroad.
- Mode 4: presence of natural persons, where the producer moves to the country of the consumer to provide the service.

Foreign fee-paying students in New Zealand come into Mode 2. The offshore provision of educational services could be under any of the other three modes.

Statistics New Zealand undertakes an annual survey of exports of services supplied offshore, but no disaggregation with respect to type of mode is available. Estimated exports of educational services for the last six years are shown in Table 7, and comprise education consultancy services, correspondence courses and revenue from teachers/lecturers abroad for less than twelve months.

Table 7 Offshore Provision (SNZ)

	$M
2002	6.7
2003	10.2
2004	16.7
2005	21.3
2006	17.9
2007	25.5

3.3 PROVIDER SURVEY

DEFINITIONS

We define education export activity offshore as being that which earns foreign exchange returned to New Zealand, outside of recruitment of foreign students who are counted in Section 3. This does not preclude some contract work which is negotiated with, and billed to a foreign client as a commercial contract, but may be delivered in New Zealand.

A generic list of such activities encountered during this survey includes:

- Offshore delivery of teaching and learning, both in short term packages or as whole or part degree, diploma or certificate programmes.
- Distance delivery of the above via electronic or correspondence means (but non-EFTS generating).
- Sales of curriculum, intellectual property, systems, software and learning materials.
- Contracts to bring foreign groups to New Zealand for education and training including 'edutourism'.
- Educational consulting and advisory work.
- Research and commercialisation of education goods and services
- Audit, moderation, assessment and quality control work.
- Hosting of study tours, delegations and familiarisation visits.

Included in the survey were education-related entities including universities, institutes of technology and polytechnics (ITPs), schools, companies including private training enterprises (PTEs) and English language schools, industry Training Organisations (ITOs), trusts and not-for-profits (NFPs). Both state and private sector were included.

Many have activities that are based on personal or institutional relationships designed to foster easy articulation, scholarships, twinning and exchanges. In the majority of these cases there is cost, but no immediate revenue.

Articulation and twinning, as with scholarships and even exchanges, are seen as sound internationalisation tactics as well as a loss-leading international enrolment strategy. They are seen as stimulating regular and defined numbers of students to study with the New Zealand provider after an initial one or two years in the home provider institution. Such strategies are often focused on sourcing the most promising students both as lead-enrolments and as potential New Zealand residents.

SURVEY METHODOLOGY

Identifying businesses and institutions active in offshore work was a necessary prerequisite to surveying. In the absence of definitive records of active education exporters, a process of elimination was employed on a wide base of entities.

Over 1300 schools, especially those registered as signatories to the Pastoral care of International Students Code of Practice, post-secondary education institutions, public and private, companies, associations and professional collectives were asked to identify if they had offshore activity. Email requests were made to over 1800 recipients.

Mailing contacts were made available by the Ministry of Education, Education New Zealand, New Zealand Trade and Enterprise, personal knowledge and the databases of groups and associations like Book Publishers and NZ Association of Private Education Providers.

From those respondents there were 37 who sought clarification on their activities and the key criterion for inclusion was defined as whether gross foreign exchange was being earned by New Zealand from the offshore supply or delivery.

Some respondents opted into the survey only to find the subsequent questionnaire did not apply to what they did. Given that there was no process requesting a nil return, we cannot discriminate between no returns and nil

returns. Some respondents confused offshore revenue-generating activity with recruiting international students for New Zealand, but these were eliminated from this part of the survey. Extensive follow-up work was made with live interviews, email correspondence and telephone calls.

Reasons for non-response were given as:

- Confidentiality, although respondents were assured of confidentiality and aggregation of their data into larger sets to avoid specific recognition by the client or reader of the research report. Surprisingly, the private sector was generally less concerned about this than the state sector.
- Reluctance to interrogate an accounting system not designed to render such data easily.
- Being too busy.
- Having responded to four or five surveys recently and suffering 'survey fatigue.'
- No support for the research. (Researchers tried to explain the importance of New Zealand getting a measure of just how important export education is to the national economy, let alone an internationalising culture.)

Balancing these views, others went to great lengths to extract data from complex systems and to give the exercise some priority because they recognised the strategic value and intent.

Interviews, both live and by phone, were conducted with 27 active entities to expand on the generic nature of their activities offshore. The questionnaire may be found in Appendix D.[6]

Some entities returned data for projects just beginning, without having started trading or not completing a full year. Others cited previous offshore projects which had now ceased. As the survey was bounded by data for the most recent 12 month period available (most often calendar year 2007), a number of these returns were eliminated from the data set.

Of the 65 entities identified as having offshore earnings from one or more of the activities defined above, 37 provided data returns (57%).

Despite an exhaustive effort to identify all players it is entirely possible that others exist and were absent from the survey population. Even in the late stages of the survey new entities were emerging. These considerations, and because there is wide variation of scale within the sample and within the total identified population, mean that it is not considered valid to speak of a representative sample or to extrapolate gross earnings and other performance with any certainty.

FINDINGS

Because the sample is probably not exhaustive the results are likely to understate the extent of offshore provision. Nevertheless, our assessment is that our estimate is likely to be within 10% of the true figure. The error margin on the estimates provided by respondents is probably of a similar order of magnitude, and the different accounting years used by respondents means that anchoring accurate estimates in a particular 12 month period is impossible.

Hence the results should be interpreted as a reliable but imprecise estimate of the size of the offshore provision industry in 2007/08.

As shown in Table 8, the scale of offshore activity is over $100m, with net foreign exchange earnings of $70m. While SNZ caution that their estimate is likely to be an understatement, it is possible that minor timing differences could be capturing large one-off events, so the magnitude of difference between the estimates may not be representative of other years. Also some of the software and intellectual property is in the form of books, in which case SNZ would (theoretically) capture them as goods exports.

6 We originally envisaged a more detailed questionnaire, but pilot testing showed a clear need to keep respondent burden to a minimum.

Table 8 Offshore Provision ($m)

	GROSS INCOME	SOFTWARE & IP	PROF SERVICES	LICENCE ETC FEES	NET FOREX
Company	65.9	5.5	59.7	0.8	46.1
University	24.4	0.6	21.5	2.4	22.7
ITP	0.6	0.0	0.6	0.0	0.3
PTE	15.6	7.9	7.6	0.0	0.7
ITO	0.3	0.0	0.3	0.0	0.1
Total	106.9	14.0	89.7	3.3	69.9

Activities

Most offshore activity by far is in the supply of professional services. These range from teaching, training, curriculum development, quality assurance, consulting and advisory services. Next largest is the software and intellectual property category, which includes educational books; in particular those supporting reading and junior education.

In large organisations, notably universities, there is considerable research and consultancy work offshore. Our interviews ascertained that identifying such activity entailed analysis that no provider was able or willing to pursue.

Consulting can be a private arrangement between academic and client, and is often factored into the academic workload. It was found to be difficult to isolate and measure where it provided earnings to the entity or was credited to the individual. For these reasons such earnings are not identified for this work. Research involving surveying individual staff may be the only way of measuring this component.

Scale and Variety

The scale of operations varies widely, from small initiatives turning over a few thousand dollars, to multi-million dollar, multi-project ones. Just three entities account for just over half of the gross revenue calculated and six entities for 88% of that revenue.

Smaller project activity offshore was found to be seldom fully measured and monitored. Many projects are developed and administered within existing structures and resources, with associated costs not allocated to the project itself. Only in the larger and longer-running cases have projects reached the scale where they have an identifiable cost centre with costs being allocated to it.

Entity Types

The private sector dominates gross foreign exchange earnings. In universities most of the earnings are by wholly-owned enterprise subsidiaries. Crown-owned foreign exchange earning activity in offshore education is negligible.

Countries

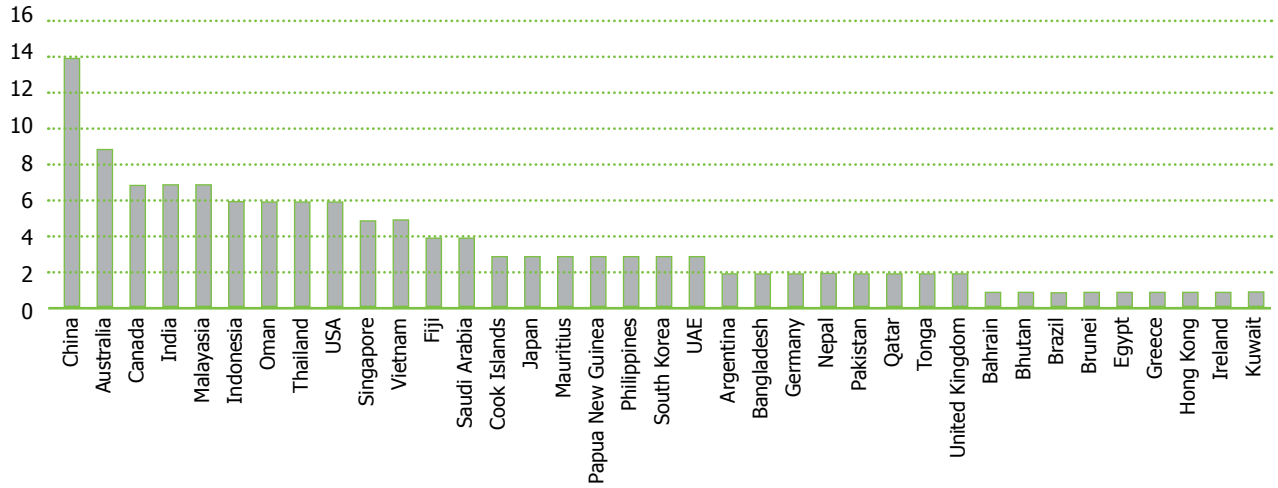
New Zealand is active in offshore goods and services delivery in a wide range of countries. Asia dominates the reported activity, but 19 countries were mentioned by respondents, reflecting considerable diversification in markets. See Figure 2.

Capital Investment

Just under $NZ2.5 million was invested offshore in capital assets amongst just four entities. It can be inferred that most other education delivery activity involved leasing, contracting or partnership for the use of land and buildings, equipment or other assets.

Only one New Zealand entity actually owned land or buildings offshore and had invested considerable capital in these assets. In most education delivery associations the foreign partner provides capital investment and the New Zealand component is likely to be 'soft' (expertise, curriculum, methodology, systems).

Figure 2 Number of Times Country Mentioned



3.4 ECONOMIC IMPACTS

Table 9 applies a set of economic multipliers to the net foreign exchange earnings from offshore provision. It is difficult to decide which set of industry multipliers is appropriate as the activity actually undertaken or provided offshore may not be the same as the domestic costs that are offset against the foreign exchanged earned. For example, an institution may sell educational software to another country, but the development costs incurred in New Zealand may look quite different from the cost structure of a typical polytechnic or university.

Given the error margins in the data, it would be easy to devise a set of spuriously accurate multipliers. Thus we have calculated a composite set of industry multipliers from three industries: Printing and Publishing, Other Business Services, and Non-compulsory Educational Services, with weights of 25%, 25% and 50% respectively.

The direct net foreign exchange contribution of $70m has a first round value-added component of $38m. Upstream production induces another $23m of value-added, with consumption induced effects generating another $22m. This brings the total contribution to New Zealand's GDP from offshore provision to $83m. Employment attribution is about 1200 FTE jobs.

Table 9 Economic Impact of Offshore Provision

		TOTAL
Gross Revenue	$m	
Software & IP		14.0
Professional Services		89.7
Licences & Royalties		3.3
		107.0
Costs		36.4
Gross Profit		70.6
Profit to offshore		0.7
Net Forex to NZ		**69.9**
Labour / gross output	No./$m	9.59
Value-Added / gross output	$/$	0.54
Employment	No	670
Value-Added	$m	37.9

		TOTAL
Multipliers - Type I		
Gross Output	1.69	
Employment	1.43	
Value-Added	1.60	
Multipliers - Type II		
Gross Output	2.34	
Employment	1.79	
Value-Added	2.18	
Activity by Type I Multipliers		
Gross Output	$m	118.3
Employment	No.	960
Value-Added	$m	60.7
Activity by Type II Multipliers		
Gross Output	$m	163.4
Employment	No.	1201
Value-Added	$m	82.8

4.1 FURTHER USE OF THE EXISTING DATASET

Two immediate uses of the existing survey dataset come to mind:

- Calculation of non-statistical error margins (short-stay undercount, treatment of second-hand assets and irregular expenditure) for the regional estimates (Table 4) of student expenditure. This might give some indication of whether it would be worthwhile to increase sample size to improve region-specific information on export education – assuming this is desired.
- Estimation of living costs expenditure cross classified by region of origin and type of institution, derived by methods analogous to those used to estimate living costs expenditure cross classified by New Zealand region of study and type of institution (refer Appendix C).

4.2 FUTURE SURVEYS

The timing of the survey at the middle of the year ran into the obstacles of school holidays, tertiary holidays and tertiary study leave. This spread the responses over a longer time period, which is inefficient from an analysis point of view.

Quite apart from the usual survey problems of poor recollection and estimation of monetary amounts, two other problems existed:

- Expenditure for the rest of year (from the survey date) had to be estimated. While this is a manageable problem it does raise error margins compared to having a full record.
- A snapshot survey undercounts short-stay students. To a large extent this was corrected for by using knowledge about institution of study – as a proxy for course duration, plus adjustment of weights, but this is imperfect. Either a larger sample is required enabling a fine classification of course type/length (in turn enabling population weights to be applied at an equally fine level rather than by just six institutional types), or the survey could be staggered over a twelve month period. The latter option might also yield more insight about irregular expenditure.

4.3 OFFSHORE PROVISION

This project obtained the most comprehensive measure of export education provided offshore that has ever been attempted in New Zealand. We were struck by the large number of academic and business entities involved in this activity, albeit that many are participating at low levels. We suspect that we did not uncover all participants, but it is most unlikely that we have overlooked any large players.

The fast growth of this aspect of export education suggests that a revised estimate of its size and nature in 2-3 years would be desirable. In preparation of this we recommend compiling an exhaustive list of educational and research institutions, companies and private individuals who are somehow engaged in offshore provision. The list drawn up for this project could be a useful starting point, but we would have to seek permission of those involved before names could be made public. An alternative option might be for New Zealand Trade and Enterprise to maintain such a list.

SAMPLING

Full details of the sampling processes and procedures are given in the accompanying document *The International Student Spending Survey*, by NRB, September 2008.

Tables A1-A3 show the sample size required for representative national coverage, plus the extensions undertaken in order to ensure adequate sample sizes for inferences about student expenditure for five study regions and five source regions.[7]

Sample sizes are insufficient to enable the simultaneous classification of expenditure by type of institution, region of study and source country, but see Appendix C.

Table A1 Original Survey with Establishment Type As Focus (1200 questionnaire issued, N=720)

TYPE	NO.	%	NO. FFP STUDENTS	% FFP STUDENTS	N=720 COMPLETE QUESTIONNAIRE		APPROX NUMBER SAMPLED
					Sample for %	Sample for Fixed Number	
University	8	0.86	20,502	27.34	197	120	8
Polytechnic	20	2.14	9,000	12.00	86	120	20
Primary School	355	37.97	3,259	4.35	31	120	30
Secondary School	325	34.76	11,558	15.41	111	120	30
English Language School	119	12.73	25,908	34.55	249	120	30
Private Training Establishments	108	11.55	4,759	6.35	46	120	20
	935	**100.00**	**7,4986**	**100.00**	**720**		**138**

Note: 1. This table is designed based on August 2007 data from Export Education Levy Key Statistics August 2003-2007 - Ministry of Education. Subsidiary Providers are excluded.

Table A2 Survey with Establishment Type and Regional Expansion (1450 questionnaire issued, N=870)

REGION	NO. FFP STUDENTS	APPROX INTERVIEWS YIELD BY 720 SAMPLE	DESIRABLE MINIMUM NO.BY REGION	BOOSTER SAMPLE REQUIRED
Auckland	40,658	380	120	Nil
Wellington	4,901	50	120	70
Rest of North Island	11,773	110	120	10
Canterbury	13,610	130	120	Nil
Rest of South Island	5,426	50	120	70
Total	76,368	720	--	150

Note: This table is designed based on August 2007 data from Export Education Levy Key Statistics August 2003-2007 - Ministry of Education. Extra-mural students are excluded.

Table A3 Survey with Establishment Type, Regional Expansion and Country of Origin Expansion (1650 questionnaire issued, N=990)

COUNTRY OF ORIGIN	% DISTRIBUTION	COMPLETED NUMBER BEFORE BOOST SAMPLE N=870	COMPLETED NUMBER AFTER BOOST SAMPLEN=990
China	31.3%	272	272
South Korea	19.5%	170	170
Japan	12.6%	110	>120
Rest of Asia	12.3%	107	>120

7 The full year figures used for post-sample weighting and presented in the body of the report were not available at the start of the project. In any case the 2008 profile is not the same as the 2007 profile.

Initial sample stratification was based on type of establishment which, as shown in Table A3, would likely lead to insufficient students from Japan and the rest of Asia. If this occurred coordinators were asked to undertake a second step to the sampling by choosing the next x FFP students. If those FFP students came from Japan or the rest of Asia they would be included, otherwise excluded. Thus, a total of about 120 Japanese students and over 120 other Asia students were surveyed. .

LENGTH OF STAY

The expenditure survey is intended to measure expenditure by students over a twelve month period, including expenditure by those who are in New Zealand for less than twelve months. Ideally each student would have perfect recall of expenditure and be asked what they had spent in the twelve months to 31 December. Of course recall is not perfect, but this may not be too important an issue if it is unbiased. The survey prompts students about spending on a wide range of goods and services, thereby reducing the bias caused by expenditure on some items being omitted.

A potentially more serious issue is the timing of the survey. It occurred in the middle of the year, so to obtain coverage of expenditure over twelve months there are two possibilities:

- Ask about spending over the previous twelve months.
- Extrapolate spending for the first six months of the year.

The first option seems to be preferable, but is valid only if the inflow and outflow of students is fairly uniform over the course of a year. Unfortunately this is not the case as most students arrive at the beginning of the academic year, albeit that many come for short courses throughout the year.

This is evidenced by the responses to various questions in the survey about when students arrived in New Zealand and their intended length of stay over 2008.

Measured over all students, the average length of stay in New Zealand over the last twelve months (up to the date of the survey) was 26.0 weeks. However, the average intended length of stay over calendar year 2008 (actual stay since the beginning of the year plus anticipated stay up to the end of the year) was 36.3 weeks. The latter figure is better suited to our purposes.

IRREGULAR EXPENDITURE

Having decided on the appropriate way to define length of stay, the next issue is what to do about irregular expenditure. For example, a student who has been in the country for only a short time (as at survey date) is unlikely to have made a trip back to their home country, implying that their expenditure since arrival, when extrapolated to their full (intended) length of stay, will underestimate their true total expenditure. On the other hand, they may have incurred some one-off set up costs (such as buying furniture) which, when extrapolated to cover their full length of stay, would lead to an overestimate of their true total expenditure.

The survey questions on irregular expenditure asked about spending over the last 12 months (or however long the student had been in New Zealand at survey date).

This gives us two main options for estimating actual irregular expenditure:

- Expenditure as reported.
- Expenditure as reported multiplied by the ratio of expected time in New Zealand in 2008 divided by total time in New Zealand over the last 12 months.

The categories of expenditure for which these assumptions generate the largest differences are text books etc, clothing, furniture and furnishings, international air travel for a visit home, cars and bikes, and extra tuition fees.

From the preceding discussion, we know that (1) is significantly biased downwards by the associated under-estimation of mean length of stay. Thus we select (2) for estimated spending on irregular items.

Arguably irregular spending could differ by type of student. School students for example may need to buy uniforms, thereby inflating their expenditure on clothing at the beginning of the year. We suspect, however, that further adjustment along these lines would rapidly become spurious.

Table A4 shows irregular spending calculated as in (2), as a share of total spending for each type of student. Changing irregular spending by ±50%, which is a large change, would change total spending by less than 5%.

Table A4 Irregular Spending as Share of Total Spending

INSTITUTION	%
Primary schools	17.6
Secondary schools	7.0
Universities	6.5
Polytechnics	12.4
Private tertiary establishments	9.0
English language schools	7.9
All students	8.5

MULTIPLE INSTITUTIONS

Some students attend more than one type of educational institution over a twelve month period. In the Ministry of Education's count of students, those who attend more than one type of institution would be counted more than once. There is nothing intrinsically wrong with this approach, but at any given point in time a student is at only one institution, so the population of students available for sampling is smaller than the total count of students that study in New Zealand over a twelve month period. (See also the next section.)

The difference can be accommodated simply by using the correct population weights when calculating expenditure for a given type of student. A potential source of bias, however, is that students who are surveyed while attending their second or subsequent institution within a twelve month period will have the wrong length of stay for that type of institution – and thus incorrectly weighted expenditure for that type of institution.

The survey asked students about the type of institutions attended or planned to be attended in 2008, as at the time of the survey. The question was not well-answered with many incorrectly classified institutions. Multiple attendances amounted to only about 9.0% of the total, implying an even smaller effect on estimated expenditure by type of institution. Reallocating 9.0% of students from the group with the highest average spending (primary school students) to that with the lowest average spending (ELS students), or vice versa, would change overall average expenditure by about 3%. As this is the maximum possible impact, we make no adjustment for it.

SHORT STAY STUDENTS

Because the survey is taken at a point in time, it completely omits students whose stay in New Zealand does not overlap with the survey period. This means that the survey is over-represented by longer stay students, implying over-statement of average length of stay and thus of average expenditure.

As most short stay students attend ELS, we automatically correct for the bias in average length of stay to a considerable extent, by classifying students by type of institution and then using the correct population weights to obtain total expenditure. This does not fully correct the bias as other institutions also enrol students for courses that last for only a few weeks or months.

As an example for secondary school students, 9.1% expect to be in New Zealand for less than 26 weeks. (Any longer than that and all such students would be in the survey sampling frame.) Their mean length of stay is 23.4 weeks. Assuming such students are approximately uniformly distributed throughout the year implies that our sample frame would pick up about 90% of short stay students who arrived between the start of the year and the middle of the year – when the surveying occurred. And of course, any short term student who arrives in the second half of the year is completely missed. Accordingly the proportions of students counted as short stay students is adjusted by increasing their weight by a factor of 2.23 (2/0.90).

Similar calculations for the other types of students generate the following adjustment factors:

Table A5 Adjustment Factor for Weight on Short Stay Students

INSTITUTION	% SHORT STAY	FACTOR
Primary schools	7.6	3.21
Secondary schools	9.1	2.23
Universities	4.2	2.45
Polytechnics	9.8	2.56
Private tertiary establishments	14.8	2.70
English language schools	20.2	3.10
All students	12.8	2.74

Not correcting for the undercount of short-stay students increases estimated average expenditure by 12.2%, as mean length of stay is longer. While our method of adjustment is not perfect, we think it unlikely that it is wrong by more than 20-30%, implying an error on total estimated expenditure of no more than ±4%.

SECOND HAND GOODS

Some goods purchased by students are second hand. Such expenditure still constitutes foreign exchange earnings provided any sale proceeds are not remitted back offshore when the student leaves New Zealand. However, they do not constitute a contribution to New Zealand's gross domestic product. Only the dealer's margin in such transactions is a contribution to GDP.

The most significant second hand goods purchased by foreign students are motor vehicles, probably followed by furniture. House purchases would of course be much larger, but survey pilot testing revealed that permanent house purchases by foreign students are so rare that the relevant questions were deleted from the final survey.

The question in the survey about the purchase of cars also covers the purchase of motorcycles and bicycles. Judging by the small amounts reported, most of the purchases are of used goods. We assume that the resale value of these goods is negligible or that any income from the sale of such goods is not remitted offshore.

The dealer's margin on these goods is low in the case of auction sites such as *Trademe*, but high on used cars bought through motor vehicle dealers. We assume that 20% of the expenditure on the cars and bikes constitutes a contribution to GDP. The results are not sensitive to this assumption.

Table A6 shows the estimated proportion of spending on second hand goods for each type of student. A dealer's margin of 40% would lower the 4.0% average for all students to 3.0%.

Table A6 Share of Spending on Second Hand Goods

INSTITUTION	%
Primary schools	0.2
Secondary schools	1.5
Universities	4.8
Polytechnics	6.0
Private tertiary establishments	4.4
English language schools	4.1
All students	4.0

EARNINGS IN NEW ZEALAND

Within limits, international students are allowed to work and earn income in New Zealand. As local earnings are not foreign exchange, they should not be counted as a net economic contribution from export education. Therefore earnings are subtracted from expenditure in our economic impact analysis. Mean earnings, estimated analogously to irregular expenditure are estimated to be as follows.

Table A7 Mean Annual Earnings

INSTITUTION	$/YEAR
Primary schools	$0
Secondary schools	$0
Universities	$1,702
Polytechnics	$2,679
Private tertiary establishments	$771
English language schools	$408
All students	$930

APPENDIX B ECONOMIC IMPACT ANALYSIS

INTRODUCTION

The economic contribution of an industry does not mean that the economy is better off by the full amount of the measured contribution. This would only be true if all of the resources involved in supplying the needs of that industry would otherwise lie idle. This is unlikely, but usually we have no idea of what the most plausible counterfactual would be.

However, measurement of the economic contribution of foreign students differs in one important respect from measurement of the economic contribution of say a new shopping mall. In the latter there is distinct shift in the spending of local consumers - towards the new mall and away from existing establishments. Thus there is a definite 'trade diversion' effect. With foreign students the demand comes from offshore (like an export) so there is no immediate 'trade diversion' effect emanating from the demand side. Hence we do not allow for such an effect in the economic impact analysis. Nevertheless, as stated above, this is not to imply that the relevant resources would be idle if there were no foreign students.

THE MULTIPLIER CONCEPT

Each dollar spent on the output of one industry leads to output increases in other industries. For example for a university to deliver education services to a foreign student it requires inputs of books, energy, communication services and so on. Part of the tuition fee is used to cover the cost of these items. Another part covers the cost of the buildings and equipment (spread over their useful lives) and there is a large portion for staff wages and salaries.

The supplying industries such as energy require inputs themselves, pay wages and salaries, and so on. The effect on these supplying industries is known as the upstream or indirect production effect and is commonly measured by a number called a Type I multiplier which is defined as the ratio of the direct plus indirect effects, to the direct effect.

The supplying industries pay wages and salaries, which are used to purchase household consumption goods. This effect is generally known as the downstream or induced consumption effect. Again the effect may be measured by a multiplier. The total or Type II multiplier is defined as the direct, plus indirect production, plus induced consumption effects, all divided by the direct effect.

Multipliers are typically calculated for three different measures of economic activity:

- gross output
- value-added
- employment

Each of these is further disaggregated into Type I and Type II multipliers.

However, multipliers need to be cautiously interpreted and carefully applied. When applied to gross output they lead to double counting. For example the value of food and drink supplied at a restaurant is counted as part of the gross output of both the Food and Beverage Manufacturing industry and the Restaurant industry. If one's aim is to measure overall business activity this double counting may be useful, but from the perspective of economic contribution it is value-added, or contribution to gross domestic product (GDP) which is of interest.

LINK TO NATIONAL ACCOUNTS

At this point one needs to be mindful of the definition of value-added and of the income-expenditure identity in the national accounts. If a foreign student spends $100 in New Zealand, that $100 is part of exports which is a component of final demand - the expenditure side of GDP. In this sense it represents 100% value-added. On the income side, however, only the part which is not spent on inputs from other industries is counted as direct value-added. The rest is progressively spent and re-spent upstream and, apart from spending on imports, is eventually entirely exhausted on inputs of labour and capital; that is value-added.[8] Thus the multiplier for the indirect upstream effects is just a representation of the process whereby the expenditure and income sides of the national accounts equilibrate. No additional value-added is created from this effect. All that we gain is knowledge about how the initial expenditure shock ripples through the various supplying industries and how much leaks offshore in the form of imports.

The more powerful effect is that of the induced consumption multiplier. The initial wage and salary payments and the subsequent rounds of wage and salary payments lead to an increase in private consumption; another component of final demand. This generates flow-on effects in an analogous manner to the original increase in exports and therefore does generate an additional gain in GDP. This gain may be legitimately attributed to the increase in exports, provided that resources have not been diverted from other productive uses. If they have, it is necessary to deduct the direct, indirect and induced effects of those resources in their alternative uses.

DETERMINATION OF MULTIPLIERS

Multipliers for the indirect production effect are easily calculated from standard input-output tables produced by Statistics New Zealand. Thus for a given increment to final demand (exports, consumption etc), we can determine the direct and indirect pattern of production needed to support that increment to final demand.

Consumption induced multipliers are more complicated to determine as they require some assumptions about the links between the Production Account and the Income & Outlay Account in the national accounts. In particular a link between private consumption (mostly household spending) and income from wages and profits needs to be established. Typically this is accomplished by treating inputs of labour as an intermediate input and then treating private consumption as the industry which produces labour. Enhancements to this approach include allowing for the distribution of operating surplus to households and for the leakage of household savings. This is the essence of the approach used by Butcher Partners (whose multipliers we use) to calculate the indirect production and induced consumption multipliers.

Other enhancements are possible:

- allowing for consumption financed from social welfare benefits;
- including the effect of government consumption, much of which, such as health, is actually consumed by individuals and paid for out of taxes;

8 In fact value-added also includes some forms of indirect taxation.

- including the effect of new investment which may be needed to expand output and may be financed out of operating surplus;
- acknowledging that exports may need to rise to finance the requirement for additional consumer imports.

Accounting for all of these effects requires the use of a multi-industry general equilibrium model. These types of models incorporate all of the key inter-dependencies in the economy, such as flows of goods from one industry to another, plus the passing on of higher wage costs in one industry into prices and thence the costs of other industries. They also ameliorate most of the other implicit assumptions that are commonly overlooked in the application of multipliers derived from static input-output tables, notably:

- not assuming that all factors of production are in excess supply,
- allowing for price changes (such as if a factor is in limited supply) which may lead producers to change inputs, thereby altering their production structure and hence the associated economic multipliers,
- not forcing average relationships to hold at the margin,
- automatically calculating net multiplier effects by reducing the gross effects to the extent that they pull resources out of other productive uses (that is, trade diversion).

All of these effects have the potential to undermine the result of multiplier analysis - the wider the attempted coverage of indirect and induced effects, the greater is the potential for miscalculation and error. Rather like a stone thrown into a pond; the more the ripples spread out, the more likely they are to encounter some form of obstacle - ripples from another stone, a cross current, the embankment.

Given the size of the export education industry a general equilibrium model analysis of the industry's wider economic impacts would seem worthwhile.

APPENDIX C ESTIMATING REGIONAL LIVING COST EXPENDITURE BY TYPE OF INSTITUTION

As noted above the student living cost expenditure survey did not have a large enough sample to permit the simultaneous disaggregation of expenditure by type of educational institution and region. However there are two ways of estimating such spending figures.

METHOD 1

i. Calculate the 'expected' expenditure on living costs by all students in region j assuming that students of a given institutional type spend the same in all regions, calculated by weighting national average expenditure for each type of student by the composition of students in region j.

ii. Calculate average expenditure on living costs by all students in region j, from the survey.

iii. Scale national estimates of expenditure by students of type i in region j by the ratio of (ii)/(i).

Mathematically:

$$L_{ij} = L_i * \frac{L_j^S}{L_j^E}$$

where

L_{ij} is expenditure on living costs by students attending institution type i in region j.

L_i is average expenditure on living costs by students of type i across the whole country.

L_j^S is average expenditure on living costs by all students in region j, as calculated from the survey.

L_j^E is the 'expected' expenditure on living costs by all students in region j assuming that students of a given type spend the same in all regions, calculated by weighting national average expenditure for each type of student by the composition of students in region j

METHOD 2

i. Calculate expenditure on living costs for students of type i in region j by assuming expenditure on living costs varies pro-rata with expenditure on tuition fees.

ii. Calculate the regional weighted average of the estimates in (i).

iii. Calculate average expenditure on living costs by all students in region j, from the survey.

iv. Scale the estimates in (i) by the ratio of (iii)/(ii).

Mathematically:

$$L_{ij} = \left[T_{ij} * \frac{L_i}{T_i} \right]$$

$$L_{ij}^{*} = L_{ij} * \frac{L_j}{L_j^s}$$

where:

L_{ij} is expenditure on living costs by students attending institution type i in region j based on relative tuition costs.

T_{ij} is expenditure on tuition costs by students attending institution type i in region j.

L_j is the weighted average of L_{ij}.

L_j^s is average expenditure on living costs by all students in region j, as calculated from the survey.

L_{ij}^{*} is expenditure on living costs by students attending institution type i in region j based on relative tuition costs, adjusted for survey results.

The results from both methods are shown below. They should be interpreted as containing a wider error margin than the aggregate regional figures. Clearly both sets of estimates are based on the implicit assumption that the survey results by region are unbiased, albeit that they have wide error margins.

Also, neither method leads to the correct NZ-wide figures for living cost expenditure by type of institution. For example, Method 1 implies nationwide average living cost expenditure by secondary students of $19,788, Method 2 yields $20,116, while the estimate from the survey (refer Table 1) is $18,243. These discrepancies arise because the survey-derived estimates of living costs by region (refer Table 4) do not necessarily have the correct institutional weights for each region. It might be possible to produce implied national figures that match actual national figures by an iterative process, but the only way to produce truly robust estimates of regional living costs cross-classified by type of institution is via a larger sample.

THE ECONOMIC IMPACT OF EXPORT EDUCATION'S OFFSHORE ACTIVITIES ON NEW ZEALAND

On behalf of Education New Zealand Trust and the Ministry of Education

Kindly complete the following questions either electronically or by printing and handwriting. Please appreciate that data as measured or estimated to the nearest $ thousand will be very adequate for the survey purposes. All data are confidential to survey staff and will be combined in the results so that no party or values can be identified. These data should not include activity related to the recruitment of students to come to NZ; just those activities where supply is offshore. Where the distinction is difficult, please estimate.

If you have any concerns over any aspect of the survey kindly phone 03 942 3126 or 029 940 8105, or email russ@skinnerstrategic.com. A return ASAP would be appreciated either by returning this file as an email attachment (address above) in MS Word or as a scan/pdf, or by fax to 04 473 0643 'Attn: AS'.

1. Entity – name your company, institution

2. Contact Person | Phone | Email

3. Brief Description of the Activity

4. Country(ies) of Operation

5. Total Gross turnover (sales) from your offshore activity in 2007 (or most recent financial year) A$

6. From what category of goods or services are your sales $A derived? Feel free to express these as % or $. Express these values as part of the total sales, or as parts of separate and different 'products' or projects (1,2 etc which you need not identify)if this is easier.

DIFFERENT PROJECTS OR PRODUCTS (IF SEPARATELY ACCOUNTED)				
	1	2	3	4
	%sales or $ value	%sales or $ value	%sales or $ value	%sales or $ value
Goods Supply e.g. books, software				
Professional Services e.g Teaching, Consulting				
Licence Fee//Royalties				
Other (Please state)				

7. Total operating (non-capital) costs expended offshore in 2007 (or most recent financial year) by your entity (not including offshore partner/company). B$

8. Gross Profit? C (= A - B) C$ 9. What % of the gross profit was returned to NZ? %

10. Was there any capital investment over 2007 (or most recent financial year) made by your entity (not including offshore partner/company) which was directly connected with your activities there? D$

11. Do you own any land or buildings offshore that are directly connected with your activities there? Yes No

12. Other Comments?

Thank you for your efforts

THE ECONOMIC IMPACT OF EXPORT EDUCATION

A REPORT JOINTLY COMMISSIONED BY
EDUCATION NEW ZEALAND & MINISTRY OF EDUCATION

Education NEW ZEALAND

MINISTRY OF EDUCATION
Te Tāhuhu o te Mātauranga