Enhancing Financial and Economic Yield in Tourism:

Analysing New Zealand's Tourism Satellite Accounts

for

Measures of Sector Performance

and

Business Benchmarks.

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1. Executive Overview

Over the period 1997 – 2004 the performance of tourism's characteristic industries (Accommodation, Transport and Recreation) as a value-creator and productive employer fell short of what was being achieved by tourism's related industries (Retail). Outputs from Tourism's characteristic industries displayed 1.2% real growth but succumbed to inflationary pressures; absorbing steadily rising costs and reducing production efficiency without adjusting prices so as to maintain value growth. This behaviour was not seen in tourism's related industries where real growth was almost 6% over the same period.

Throughout the same period New Zealand's labour productivity growth was relatively low at an annual average of 1.1% but tourism's characteristic industries fared less well - averaging negative growth, yet tourism's related industries averaged 1.7% annual growth. Tourism characteristic industry labour content rose and production efficiencies (technology, process improvement, etc) that may have occurred were masked by visitor arrival growth. New Zealand's visitor arrival growth averaged 6.55% per annum and was amongst the highest in the world. Should visitor volume growth decline, the degree to which tourism enterprises will be able to maintain their position in the labour market and invest in product leadership is questionable.

The over-compensatory performance of its related industries and the good fortune of strong visitor arrivals growth from traditional markets seeking safe destinations, contributed tourism's overall performance as a remarkable GDP contributor over the period 1999-2003.

2. Abstract

Establishing the economic contribution of visitor activities to national or local gross domestic product (GDP) has been the primary use of Tourism Satellite Accounts (TSA). Visitor consumption is distributed throughout numerous sectors of the economy where expenditure, value added and the financial yield of constituent enterprises provides a mechanism for comparing the performance of tourism's characteristic industries against the rest of the economy. The paper submits that measures of economic performance at sector level and financial yield at enterprise level are more reliable indicators of tourism's sustainability within an economy than volumetric measures such as visitor consumption or income. The concept of tourism yield is revisited, defined and measured in terms of enterprise-level economic performance. Furthermore, this paper outlines a methodology based on economic value measurements for determining the relative performance of sectors contributing to a TSA.

3. Introduction

As visitor numbers increase and tourism expenditure grows to levels that rival or exceed traditional sectors of an economy, there is an increased need to extract information from the public accounts and statistical data to inform the community about the ability of the visitor-based enterprises to sustain and grow their economic contribution.

There is a significant corpus of work on the construction and interpretation of Tourism Satellite Accounts mainly emphasising Tourism's economic contribution to national or local GDP and the degree to which other sectors of the economy benefit either directly or indirectly from visitor consumption.

The TSA supports public and private sector policy analysis for establishing strategies addressing tourism's infrastructure and labour market, but it can also be used to identify contrasting performances between traditional tourism service providers and other sectors of the economy that also derive significant economic benefit from visitors.

Inter-sector expenditure flows are the core of any TSA and it is this information, rather than simply the aggregate levels of visitor expenditure, that identifies the relative performance between tourism and non-tourism sectors of the economy. For example, in the New Zealand TSA, industries having in excess of 25% of income derived from visitor activity are known as 'Tourism Characteristic' industries, whereas those having between 5% and 25% are known as 'Tourism Related' industries. Those having less than 5% of their income derived from visitor activities are generically known as 'Non-tourism Related'. These distinctions provide the first level of comparison between the distributions of visitor consumption amongst industries and may inform on the relative successes particular industries have in competing for a share of the income arising from that consumption. Appendix 1 identifies the industry sectors in each of these categories.

There is also a need for meaningful metrics if comparisons are to be made at intra-sector level between tourism characteristic industry enterprises and others since TSA consumption or expenditure measurements are not disaggregated to that degree. Volumetric measurements such as income or visitor numbers are indicators of opportunity and market share but they do not inform on the economic value being generated at enterprise level. Even if the intermediate inputs used in the production of tourism goods and services (part of overall trading expenses) plus the imports sold directly to visitors are deducted from their corresponding income, the result is a form of gross profit that omits the impact of wages, financing, asset depreciation and taxation. Moreover, the value of assets associated with production is not included in TSA value added

measurements. This suggests that the TSA cannot be used to estimate 'enterprise value', a more complex concept that informs on the degree to which the monetary output from trading exceeds the monetary inputs of capital, labour and intermediate consumption.

The concept of 'tourism yield' has many different interpretations in the literature, but the importance of a metric that is not unique to the tourism industry and is generally accepted as a reliable indicator of genuine economic efficiency cannot be overstated. As global visitor numbers grow and the demand for increasingly complex services arise, tourism sector's resources must be funded by rational investors if the industry is to sustain itself. Tourism investment lies at the intersection of global funding sources and local trading opportunities. Sustainability is a local issue, since the long-term availability and quality of visitor services relies on investors (proprietors, funders, etc) being satisfied that the value of investments within local communities on tourism operations and infrastructure compare favourably with other opportunities available in capital markets - elsewhere.

TSA input data is generated from surveys and other official information (e.g. taxation statements) that contains financial position and performance information at enterprise level. Access to such data provides a basis to extend TSA analysis to enterprise level and enable comparisons of value-based indicators that are better informants of tourism's sustainability in the economy.

The value based metric that has been chosen for measurements of tourism yield at enterprise level is a modification of Stern-Stewart's Economic Value Added (EVA®) approach. Simply stated, tourism yield is the ratio of cash operating profit after taxation to assets employed. In practice, some adjustments to cash operating profit must be made to recognise the economic effects of asset depreciation along with other adjustments to eliminate any assumptions associated with enterprise funding and treatment of intangibles (e.g. asset lease versus purchase, amortisation of goodwill, expensing research and development).

Tourism yields measured in this manner reflect the degree to which the annual opportunity costs of the assets employed by an enterprise are exceeded by the cash flows generated from trading. An enterprise is rationally sustainable in the long term if its yield is greater than its cost of capital. Where an enterprise's yield is positive but chronically lower than could be obtained from the alternative use of its assets, two considerations arise. The first is its relative unattractiveness to capital market financing, and the second being an imperative for alternate use of its assets. In the first case, an enterprise would need to secure its funding from sources accepting that lower financial returns were counterbalanced by personal or social objectives – e.g. personal/family based funding. In the second case, an enterprise generating low yield will be pressured to relinquish assets (e.g. real estate) whose alternative use could generate significantly higher yield.

Data on the financial performance and financial position of entire sectors and the trading economy (with some exceptions) has been published by Statistics New Zealand under its Annual Enterprise Survey programme. This data has been examined for several tourism sectors (see Appendix 2) and the resulting aggregate financial yields led to the conclusion that there was a need to have a deeper understanding of yield at enterprise level.

Overall, the TSA can inform on the economic performance of tourism sectors, other sectors having strong dependency on visitor consumption and if detailed financial data is also available at enterprise level, the basis also exists for determining enterprise yield within those sectors. Enterprise level data has been made available to the author via Statistics New Zealand's Datalab facility – a recent service that enables access to unit record level data in a manner that preserves respondent anonymity yet enables bona fide research into public good issues.

4. Methods

Measurements comparing direct value added and tourism yield have been made at various levels of the economy. Direct value added comparisons between tourism characteristic, tourism related and non-tourism industries were made using published TSA data (Method 1) and sector-wide tourism yields have been calculated from unit record data obtained from official statistics – annual surveys or taxation records – of the enterprises within the TSA industry groups (Method 2).

4.1. TSA Analysis

Method 1 compares the direct value added-related performances of tourism characteristic, tourism related and non-tourism industries over the period 1997 - 2004.

i. New Zealand Tourism Satellite Accounts aggregate Total Tourism Expenditure from International and Domestic (business, government and household) expenditure. Consumption added taxes (in the case of New Zealand, Goods and Services Tax - GST) are subtracted from Total Tourism Expenditure leaving Direct Tourism Demand.

ii. Direct Tourism Demand consists of Direct Tourism Gross Output plus Imports directly sold to Tourism by Retailers.

iii. Direct Tourism Gross Output consists of Direct Tourism Value Added plus Direct Tourism Intermediate Inputs (flow-on effects to supplier industries – such as manufacturing and agriculture) or more accurately, the Indirect Tourism Demand.

iv. Direct Tourism Value Added (DTVAA) is the contribution to GDP from visitor consumption channelled through Tourism Characteristic Industries and Tourism Related Industries plus Non-Tourism Related Industries – i.e. All Industries.

v. The TSA disaggregates direct tourism value added into the contribution from tourism characteristic industries (DTVAC) and non-characteristic tourism industries (DTVAN) –which include tourism related industries and non-tourism related industries according to the level of production consumed by visitors[i]. It also identifies the Indirect Tourism Value Added (ITVA) – being the direct tourism intermediate inputs (flow-on effects to supplier industries) less imports used in the production of products sold to tourists.

vi. TSA data is unadjusted for changes in production input and output prices over time. Performance measurements are deflated to account for such changes otherwise comparisons may be influenced by economy-wide effects. Official deflators, the Producer Price Index (PPI), are provided by Statistics New Zealand to track quarterly sector and economy-wide changes in input and output prices.

vii. The relationship over time between the deflated (or real) DTVAC, DTVAN and ITVA illustrates the relative value share between the tourism industry and the rest of the economy.

4.2. Enterprise Analysis

Method 2 compares tourism yield at sector level using unit data from tourism characteristic and tourism related enterprises over the period 1999-2004. This data was assembled from two sources: Annual Enterprise Surveys (conducted by Statistics New Zealand) that captured the entire population of large enterprises and samples of medium and small enterprises, and taxation returns that captured samples of medium and small enterprises.

Overall, the tourism dataset contained the financial records for all or part of the period 1999-2003 from over 57,600 enterprises classified as being either tourism characteristic or tourism related.

i. Financial performance and position data from enterprises within the industry classifications identified in Appendix 1 were obtained via Statistics New Zealand's Datalab.

ii. Tourism Yield (after taxation) was established by applying the following relationship to enterprise records within the TSA data set:

$$TourismYield = \frac{(\,0.67*Net.Operating.Profit.Before.Tax+Finance.Expenses\,)}{(\,Assets\,)}$$

iii. Assumptions

- Net Operating Profit before Tax, adjusted for nominal tax if positive (at 33% company tax rate), otherwise unadjusted. I.e. no allowance is made for tax credits that might arise in future years from prior losses;

- Assets = Equity + Other Liabilities. Since asset types are not disaggregated and are often confidential in some industry groupings, the sum of Equity and Other Liabilities has been used instead;

- Salaries and Wages to Working Proprietors are not included as enterprise expenses in Statistics NZ's derivation of net operating profit. The reason is to maintain parity with the treatment of shareholders. This convention could overstate the yield of small enterprises in comparison with larger enterprises for two reasons: materiality and substitutability. Proprietor expenses have a greater effect on profit in smaller businesses and if labour was supplied by an employee (not a shareholder) it would be expensed.

- Identified finance expenses (those incurred as a result of servicing debt or leases) are added back to cash operating profit to remove financing assumptions. It is important to note that this does not affect cash taxes. Cash tax is calculated, nominally, at 33% of accounting profit according to taxation rules and is unaffected by the re-addition of finance expenses to cash operating profit. If the distortion of financing is removed from expenses it should also be removed from income (such as interest, dividends and donations received). A pilot analysis of this income stream on the accommodation sector showed that it had a minor influence and would have reduced the financial yield by a small amount. However the effect on tourism enterprises that rely heavily on donations (e.g. museums, art galleries, etc) would be significant. Accordingly, Net Operating Profit has not been reduced by the amount of income arising from financial transactions such as interest, dividends or donations.

- Taxation depreciation is deemed to reflect an asset's reduced economic utility and although not cash, is retained as an economic expense. The

gradual alignment of tax and economic depreciation rates reduces the materiality of this assumption;

- No adjustment is made to asset value to reflect the present value of leases (embedded in finance expenses). Ideally, all leased assets should be identified and the present value of leases added to total assets and lease charges removed from expenses. The rationale being that the method of financing an asset should not affect the value generated from its use. This may result in an overstatement of tourism yield – particularly with accommodation, utilities and transportation enterprises having significant assets represented as leases. Where such enterprises are publicly listed an adjustment can usually be made as leased assets are identified;

- Tourism yields lying outside the range ±30% were deemed to be outliers due to missing or zero data and were excluded from subsequent processing.

iv. The spectrum of Tourism yields within each key characteristic and related industry sector were compared using a variety of statistical measures over the period 1999-2003.

v. Note: the spectrum of yields informs on individual enterprises. Statistics such as the average yield or its variance relate to the set of individual enterprises and not their overall industry (ANZSIC Coding). To calculate the yield of an industry, the consolidated financial position and performance of its enterprises needs to be considered. This approach has been applied to the data shown in Appendix 2.

5. Results

The following results have been obtained from an analysis of the New Zealand Tourism Satellite Accounts with particular focus on the disaggregation of direct value-added into 'tourism characteristic' and 'tourism related' industry streams together with the overall performance at full-time equivalent staff member level for both tourism and the whole economy. In the following results, nominal data have been deflated using the all-industries producer price index for corresponding years.

5.1. Direct value addition growth performance

Economic data are more reliably compared in relation to overall changes in prices affecting enterprise inputs and outputs. The publication of quarterly purchasing price indices provides the means of relating tourism measures to real changes in economic climate. Figure 1 illustrates the movements in annual prices for "all industries" enterprise inputs and outputs from the base year (index=1000) of 1997.

NZ All Industries Purchasing Price Indicators (PPI)
1997-2003
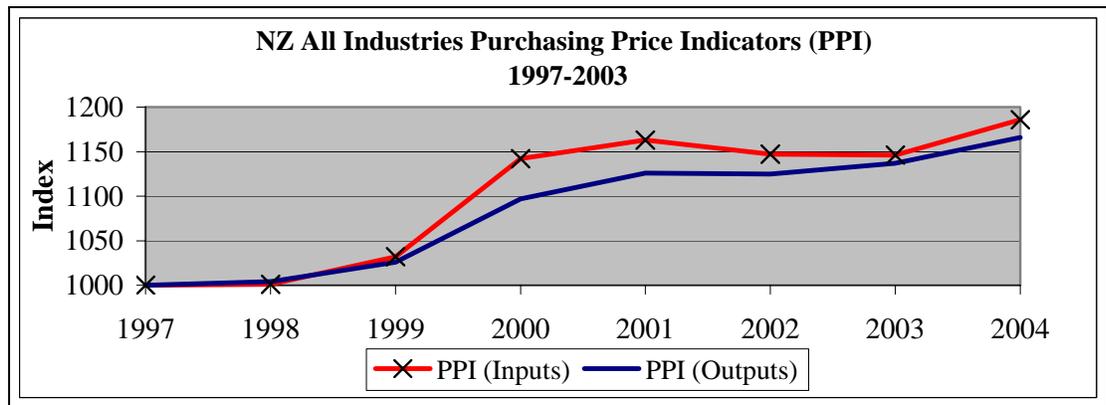
Figure 1: NZ All Industries PPI for YE March.

Since 1997, 'all industry' inputs have grown at the compound annual growth rate (CAGR) of 2.5% and outputs have grown similarly at 2.2%. The PPI is used to deflate nominal growth to real growth.

The changes in TSA reported direct tourism value added from tourism characteristic (DTVAC), all other tourism related industries (DTVAN) and the indirect tourism value addition (ITVA) arising from flow-on effects to supplier industries, allowing for output price inflation, are shown in Figure 2.

Real Direct Tourism Value Added Growth
1997-2004
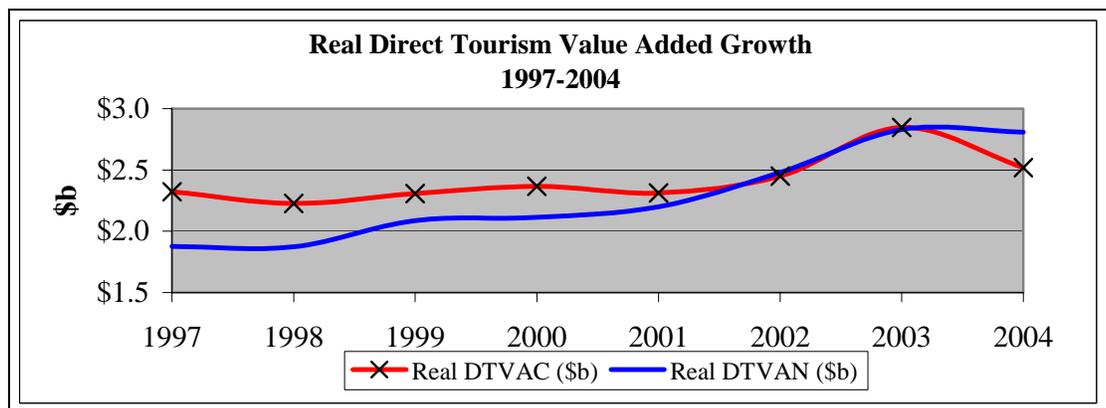
Figure 2: Real Direct Tourism Value Added Growth

The performance of each component of tourism related value added over the 1997-2003 period is shown in Table 1:

1997-2004	Nominal DTVAC ($b)	Real DTVAC ($b)	Nominal DTVAN ($b)	Real DTVAN ($b)	Nominal ITVA ($b)	Real ITVA ($b)
1997	$2.323	$2.323	$1.875	$1.875	$3.788	$3.788
1998	$2.235	$2.226	$1.880	$1.873	$3.777	$3.773
1999	$2.367	$2.307	$2.141	$2.087	$4.130	$4.001
2000	$2.597	$2.367	$2.319	$2.114	$4.616	$4.042
2001	$2.605	$2.313	$2.478	$2.201	$5.507	$4.735
2002	$2.755	$2.449	$2.789	$2.479	$5.671	$4.944
2003	$3.239	$2.849	$3.218	$2.830	$5.482	$4.783
2004	$2.936	$2.518	$3.276	$2.810	$5.756	$4.854
CAGR	3.4%	1.2%	8.3%	5.9%	6.2%	3.6%

Table 1: Real Direct Tourism Value Added Growth

5.2. Direct value added growth per Full Time Equivalent Staff (FTE)

TSA data also includes the relationship between staff employed and value added. In addition to reporting value added per FTE for the tourism characteristic and tourism related industries, it also reports the value added per FTE for the overall economy. Not all years are populated with official data as component level data beyond 2002 has not been finalised – although it has been revised and released at aggregate level up until 2004. Data currently unavailable at component level (2003-2004) has been forecast from aggregate level data and these elements are shown in Table 2 for 2003 -2004. The proportion of tourism characteristic and tourism related FTEs to total tourism FTEs have been forecast for 2003-2004 using the revised data available for total tourism FTEs. Figure 3 charts the relationships between the components of tourism value addition per FTE (characteristic DTVAC, non-tourism and tourism-related DTVAN and all – DTVAA) as well as the equivalent value addition per FTE from all New Zealand industries. These comparisons are also tabulated in Table 2.
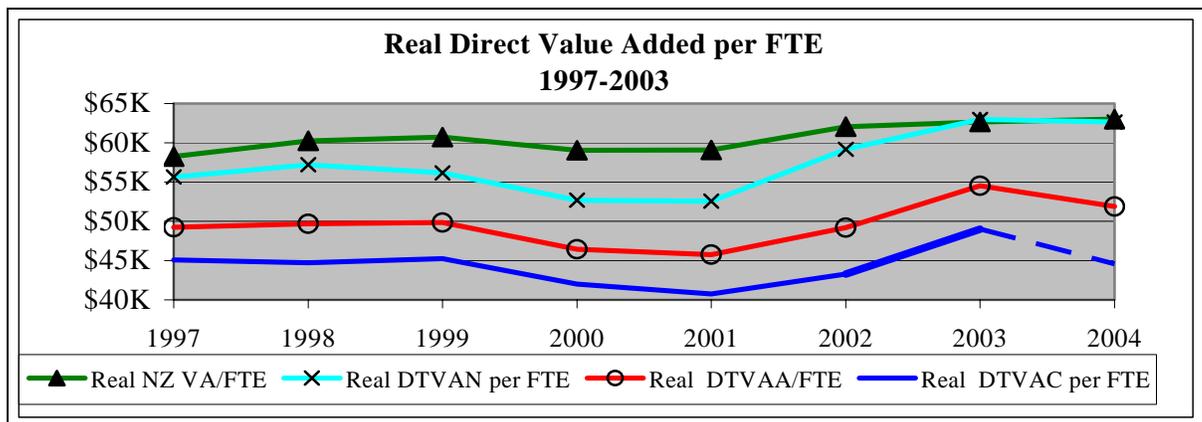
Figure 3: Real Direct Value Added per FTE. *Forecast data shown as '- - - - -'*

				Component Employment Productivity for Respective TSA Years			
YE	Characteristic Industries FTE	Related Industries FTE	NZ Industries Overall FTE	Real NZ VA/FTE	Real DTVAC per FTE	Real DTVAN per FTE	Real DTVAA per FTE
1997	51,534	33,709	1,539,859	$58,250	$45,077	$55,623	$49,247
1998	49,788	32,739	1,538,867	$60,230	$44,711	$57,195	$49,664
1999	50,985	37,166	1,524,898	$60,729	$45,249	$56,147	$49,844
2000	56,343	40,141	1,554,279	$59,051	$42,017	$52,663	$46,446
2001	56,780	41,858	1,600,900	$59,097	$40,745	$52,576	$45,765
2002	56,600	41,900	1,645,200	$62,021	$43,267	$59,167	$49,219
2003	58,125	44,948	1,688,200	$62,632	$49,010	$62,967	$54,501
2004	56,485	44,866	1,737,300	$62,983	$44,578	$62,622	$51,876
CAGR	1.3%	4.2%	1.7%	1.1%	-0.2%	1.7%	0.7%

Table 2: Employment Productivity. *Data forecast from total Tourism FTE are underlined.*

5.3. Comments on Visitor Activity

During the period 1997-2004 international visitor arrivals rose from 1,497,200 to 2,334,200: a rate of increase of 6.55% per annum. Visitor length of stay, represented by the number of nights spent in the country[ii], also increased from approximately 23 million to 49 million stay-nights: an 11% rate of increase per annum. Real international visitor expenditure also increased in line with visitor numbers from $3.8 billion in 1998 to $5.4 billion in 2004: a rate of increase of 6.21% per annum. These volumetric indicators of tourism performed extremely well. However, real overall expenditure per visitor declined from $2,535 in 1998 to $2,314 in 2004 – an overall rate of decline of -1.51% per annum. Similarly real visitor expenditure per night of stay declined at a faster rate of -5.39% per annum: from $153 per night in 1998 down to $110 per night in 2004.

During this time, the country sourcing the largest change in visitor numbers was Australia where numbers rose from around 447,000 in 1998 to over 769,000 by the start of 2005. Over the same period, the Japanese market was flat at around 150,000 visitors per annum; the United Kingdom market increased from 147,000 to 279,000 visitors per annum; the USA market rose from 151,000 to 198,000 visitors per annum; the German market rose slightly from 40,000 visitors to nearly 55,000 per annum and new visitor streams from Korea and China emerged with the combination of these two increasing visitor numbers from 23,000 in 1998 to nearly 183,000 by the end of 2004.[iii]

5.4. Tourism Yield

The following results have been obtained from an analysis of over 57,600 entities comprising Statistics New Zealand's tourism dataset. This dataset has been formed from annual enterprise surveys (AES) that include all businesses having significant income and samples from other businesses of lesser size as well as via taxation returns (Inland Revenue IR10: annual statements of financial performance and position furnished by businesses as required by law). In general, not all enterprises were sampled for each of the years 1999 – 2003 and the results are the aggregation of independent calculations on qualifying enterprises in each year. Yield data was also correlated with income where this could be done anonymously. Income ranges were chosen so as to provide a high level of detail whilst maintaining sufficient numbers of enterprises within each range to assure anonymity.

Many yields were discarded because of extreme values arising from missing or inconsistent data. Extreme values, mainly arising from data associated with very small businesses, were found to distort the overall mean and variance of yields to a degree disproportionate to materiality of their income and assets. In general, income without reported assets was the most common cause of extreme values. Only yields in the range ±30% were processed. In these results, all yields are 'after tax' and reflect the residual income generated by the individual enterprise. Approximately 35% of 'All ANZSIC' (57,600 entities) yields were discarded compared with 8% of Accommodation and 38% of Transport.

Reported results also include 95% confidence interval limits for average yield, together with variance and standard deviation. Although the distribution of yields was subsequently found to be better modelled using a logistic probability distribution function (see Appendix 3), initial decile levels were calculated and tabulated using a normal distribution based on the reported mean and variance. For deciles 5 and above, the discrepancy between the logistics

and normal distributions is about 5% or less. For deciles below 5, the percentage error could be very large – exceeding 100%. Even so, the normal distribution results provide reasonable estimates of decile ranges.

These deciles provide a means of comparison between sectors. Consider Tables 3 and 7. If the 'All TSA Characteristic and Related' sector reports average yield (decile 5) at 8.19%, this value in 'All TSA Accommodation' (whose average yield is 4.86%) would be a decile 6 performer. Conversely, the 4.86% average yield in 'All TSA Accommodation' corresponds to decile 3 in the 'All TSA Characteristic and Related' sector.

5.5. Financial Yield - All TSA Characteristic and Related Industries

All tourism characteristic and tourism related industries as specified in Appendix 1 were amalgamated for the purposes of obtaining the spectrum of enterprise financial yields associated with the value of direct tourism value added – all industries (DTVAA) in the TSA.

In each case, average yields were sorted into income ranges (in $000) by year as well as over the entire sample period. Tables 3 and 4 describe the yield statistics and distribution of yield with respect to income ranges. Figure 4 charts the distribution of yield by income and figure 5 charts the spectrum and cumulative distribution of yields for all samples over the period 1999-2003.

Yield Statistics	All Tourism Characteristic and Related Industries					
	1999	**2000**	**2001**	**2002**	**2003**	**All**
Samples	22532	22084	20161	18388	17538	
Average	8.16%	8.18%	7.97%	8.44%	8.17%	8.19%
95%Conf ±	0.15%	0.15%	0.16%	0.17%	0.17%	0.16%
Variance	1.31%	1.33%	1.34%	1.33%	1.37%	1.34%
Std Dev	11.46%	11.52%	11.56%	11.52%	11.71%	11.55%
Max	30.00%	30.00%	30.00%	29.99%	30.00%	30.00%
Min	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%
Decile 1	-6.53%	-6.58%	-6.84%	-6.32%	-6.84%	-6.62%
2	-1.49%	-1.51%	-1.75%	-1.25%	-1.69%	-1.54%
3	2.15%	2.14%	1.91%	2.40%	2.03%	2.13%
4	5.25%	5.26%	5.05%	5.53%	5.20%	5.26%
5	8.16%	8.18%	7.97%	8.44%	8.17%	8.19%
6	11.06%	11.10%	10.90%	11.36%	11.13%	11.11%
7	14.16%	14.23%	14.04%	14.49%	14.31%	14.24%
8	17.80%	17.88%	17.70%	18.14%	18.02%	17.91%
9	22.84%	22.95%	22.79%	23.21%	23.17%	22.99%
(Assuming a Normal Distribution of Yields)						

Table 3: Overall Statistics – All TSA Characteristic and Related Industries

Average Yield by Income		1999	2000	2001	2002	2003	All Years
Income Range ($000)							
>=$0	<=$50	4.73%	4.68%	4.43%	5.43%	5.01%	**4.86%**
>$50	<=$100	8.89%	9.14%	9.14%	8.94%	8.86%	**8.99%**
>$100	<=$200	9.75%	9.78%	9.34%	9.40%	9.06%	**9.46%**
>$200	<=$400	10.09%	10.15%	10.17%	10.45%	10.06%	**10.18%**
>$400	<=$800	10.46%	10.80%	10.96%	11.34%	11.25%	**10.96%**
>$800	<=$1600	9.05%	9.97%	9.24%	8.94%	10.04%	**9.30%**
>$1600	<=$3200	7.77%	6.34%	6.34%	6.46%	6.06%	**6.60%**
>$3200	<=$6400	7.73%	6.48%	6.46%	6.94%	5.53%	**6.63%**
>$6400	<=$12800	7.95%	7.26%	6.22%	7.73%	7.95%	**7.42%**
>$12800	<=$9999999	9.02%	7.40%	8.23%	9.37%	9.46%	**8.70%**

Table 4: Average Yield by Income – All TSA Characteristic and Related Industries
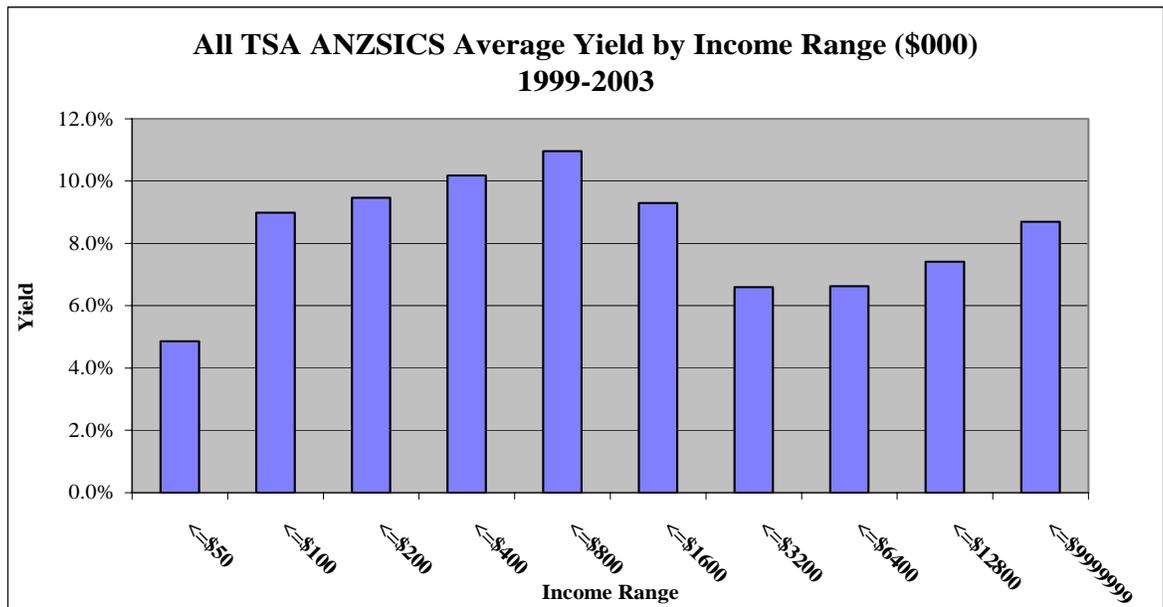
Figure 4: Average Yield by Income Range – All TSA Characteristic and Related Industries
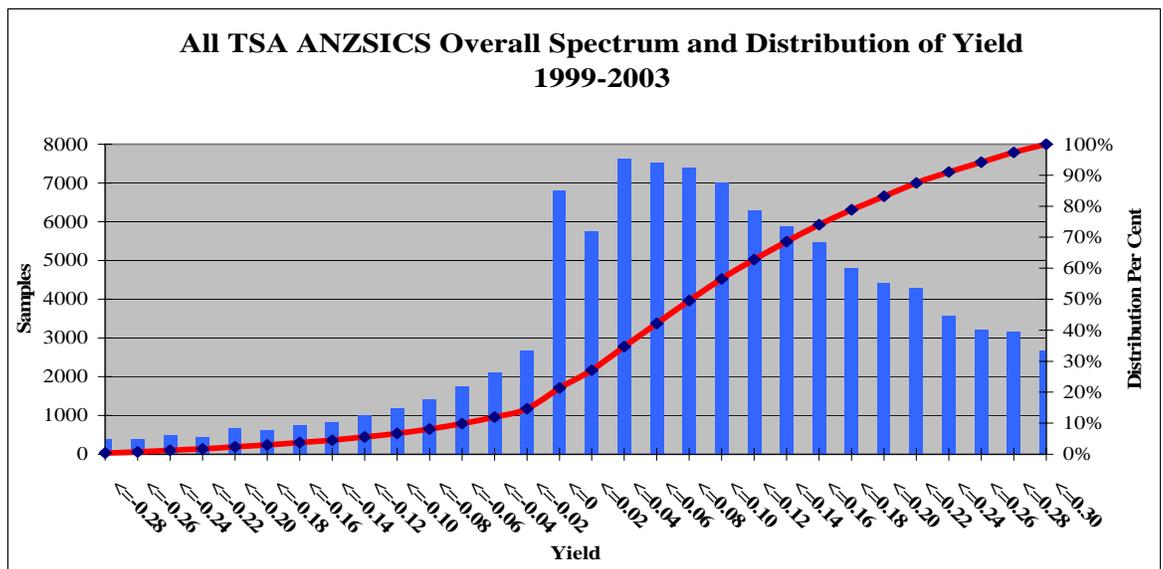
Figure 5: Yield Distribution – All TSA Characteristic and Related Industries

5.6. Financial Yield – All TSA Retail Industries (Tourism Related Industries)

Retail industries are New Zealand's tourism related industry grouping where direct tourism value addition and financial yield are benchmarks for performance. The following results relate to ANZSIC 'G' codes identified in Appendix 1.

Yield Statistics	All Retail Industries					
	1999	**2000**	**2001**	**2002**	**2003**	**All**
Samples	13013	12535	11426	10019	9248	
Average	9.40%	9.35%	9.13%	9.47%	9.55%	9.38%
95%Conf ±	0.20%	0.20%	0.22%	0.23%	0.24%	0.22%
Variance	1.38%	1.37%	1.40%	1.40%	1.42%	1.39%
Std Dev	11.76%	11.70%	11.85%	11.85%	11.90%	11.81%
Max	30.00%	30.00%	30.00%	29.98%	30.00%	30.00%
Min	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%
Decile 1	-5.66%	-5.64%	-6.05%	-5.72%	-5.70%	-5.75%
2	-0.49%	-0.49%	-0.84%	-0.51%	-0.46%	-0.56%
3	3.24%	3.22%	2.91%	3.25%	3.31%	3.19%
4	6.43%	6.39%	6.13%	6.46%	6.54%	6.39%
5	9.40%	9.35%	9.13%	9.47%	9.55%	9.38%
6	12.38%	12.32%	12.13%	12.47%	12.57%	12.37%
7	15.57%	15.49%	15.34%	15.68%	15.79%	15.57%
8	19.30%	19.20%	19.10%	19.44%	19.57%	19.32%
9	24.47%	24.34%	24.31%	24.65%	24.80%	24.51%
(Assuming a Normal Distribution of Yields)						

Table 5: Overall Statistics - All TSA Retail Industries

Average Yield by Income		1999	2000	2001	2002	2003	All Years
Income range ($000)							
>=$0	<=$40	1.74%	2.17%	2.31%	2.69%	3.85%	**2.55%**
>$40	<=$80	9.73%	9.75%	9.90%	9.53%	10.04%	**9.79%**
>$80	<=$160	10.88%	10.63%	9.80%	9.62%	9.57%	**10.10%**
>$160	<=$320	11.11%	10.83%	10.73%	10.92%	10.21%	**10.76%**
>$320	<=$640	12.03%	12.05%	11.54%	11.81%	11.76%	**11.84%**
>$640	<=$1280	12.26%	13.28%	11.95%	11.47%	12.21%	**12.24%**
>$1280	<=$2560	11.45%	9.63%	9.88%	10.11%	9.98%	**10.21%**
>$2560	<=$5120	8.06%	8.28%	7.45%	8.71%	4.37%	**7.37%**
>$5120	<=$10240	9.09%	7.33%	6.46%	8.99%	7.53%	**7.88%**
>$10240	<=$9999999	9.43%	7.68%	8.47%	10.18%	10.04%	**9.16%**

Table 6: Distribution of Yield by Income – All TSA Retail
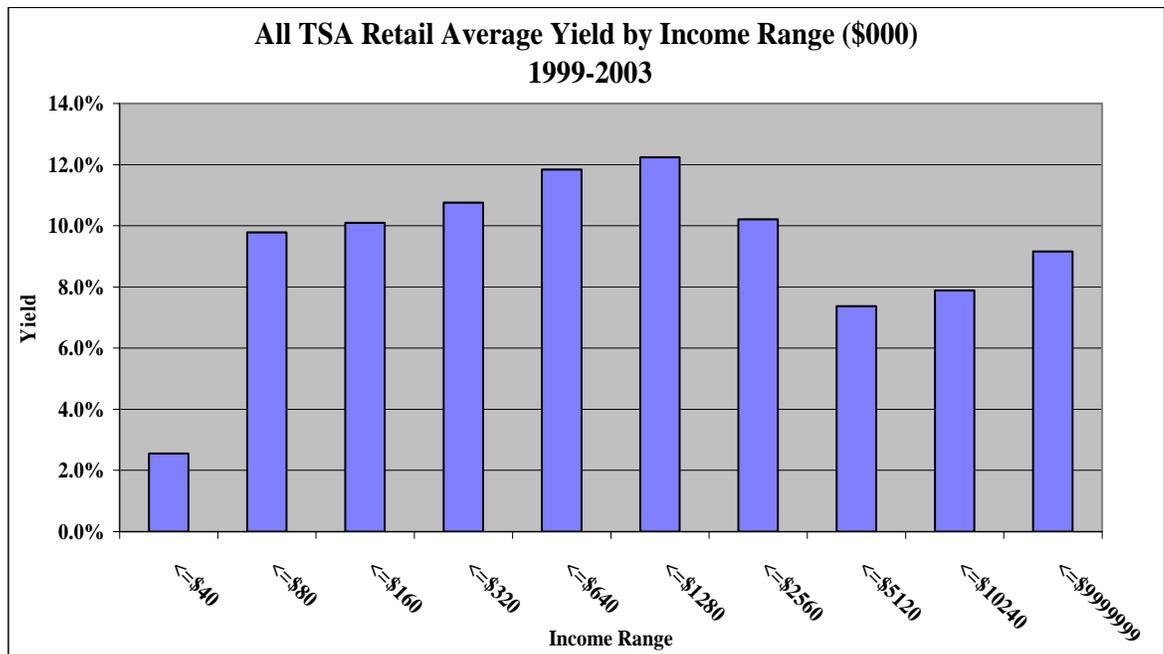
Figure 6: Average Yield by Income Range – All TSA Retail
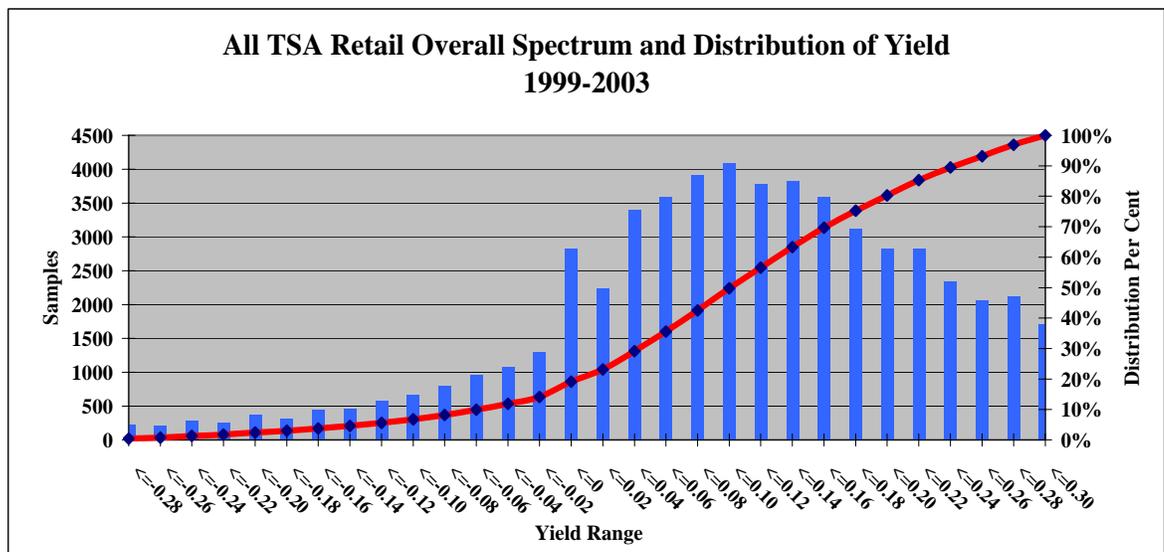
Figure 7: Yield Spectrum and Distribution – All TSA Retail

5.7. Financial Yield - All TSA Accommodation Industries

TSA Accommodation comprises 6 individual Australia and New Zealand Standard Industry Codes (ANZSIC). The following results aggregate Hotels (H571010), Motels and Motor Inns (H571020), Hosted Accommodation (H571030), Backpacker and Youth Hostels (H571040), Caravan Parks and Camping Grounds (H571050), Accommodation nec (not elsewhere covered) (H571090).

Yield Statistics	All TSA Accommodation					
	1999	**2000**	**2001**	**2002**	**2003**	**All**
Samples	1662	1685	1665	1632	1600	
Average	4.26%	4.59%	4.69%	5.52%	5.26%	4.86%
95%Conf ±	0.34%	0.35%	0.36%	0.36%	0.39%	0.36%
Variance	0.51%	0.53%	0.56%	0.55%	0.62%	0.55%
Std Dev	7.14%	7.28%	7.47%	7.40%	7.90%	7.44%
Max	29.76%	29.36%	30.00%	29.74%	29.94%	30.00%
Min	-27.88%	-26.15%	-30.00%	-28.81%	-29.69%	-30.00%
Decile 1	-4.89%	-4.74%	-4.88%	-3.96%	-4.87%	-4.67%
2	-1.75%	-1.54%	-1.60%	-0.71%	-1.39%	-1.40%
3	0.51%	0.77%	0.77%	1.64%	1.12%	0.96%
4	2.45%	2.74%	2.80%	3.64%	3.26%	2.98%
5	4.26%	4.59%	4.69%	5.52%	5.26%	4.86%
6	6.06%	6.43%	6.58%	7.39%	7.26%	6.75%
7	8.00%	8.41%	8.61%	9.40%	9.41%	8.76%
8	10.26%	10.72%	10.98%	11.75%	11.91%	11.12%
9	13.40%	13.92%	14.26%	15.00%	15.39%	14.40%
(Assuming a Normal Distribution of Yields)						

Table 7: All TSA Accommodation Summary Yield Statistics

Average Yield by Income		**1999**	**2000**	**2001**	**2002**	**2003**	**All Years**
Income range ($000)							
>=$0	<=$40	-1.18%	-1.52%	-1.37%	-1.00%	-1.48%	**-1.31%**
>$40	<=$80	2.15%	3.14%	3.09%	3.89%	3.30%	**3.11%**
>$80	<=$160	5.07%	5.49%	6.18%	6.28%	6.45%	**5.90%**
>$160	<=$320	7.02%	7.87%	7.81%	9.32%	9.27%	**8.26%**
>$320	<=$640	8.96%	8.21%	9.46%	10.11%	11.02%	**9.55%**
>$640	<=$1280	6.42%	9.63%	6.25%	8.18%	9.58%	**7.62%**
>$1280	<=$2560	4.99%	6.11%	7.99%	8.03%	5.44%	**6.51%**
>$2560	<=$5120	6.45%	4.74%	4.29%	3.56%	3.41%	**4.49%**
>$5120	<=$10240	2.10%	2.91%	3.43%	6.95%	5.91%	**4.26%**
>$10240	<=$999999	4.87%	6.66%	2.20%	3.85%	5.60%	**4.63%**

Table 8: Average Yield by Income - All TSA Accommodation

All TSA Accommodation Average Yield by Income Range ($000)
1999-2003

Figure 8: Average Yield by Income - All TSA Accommodation
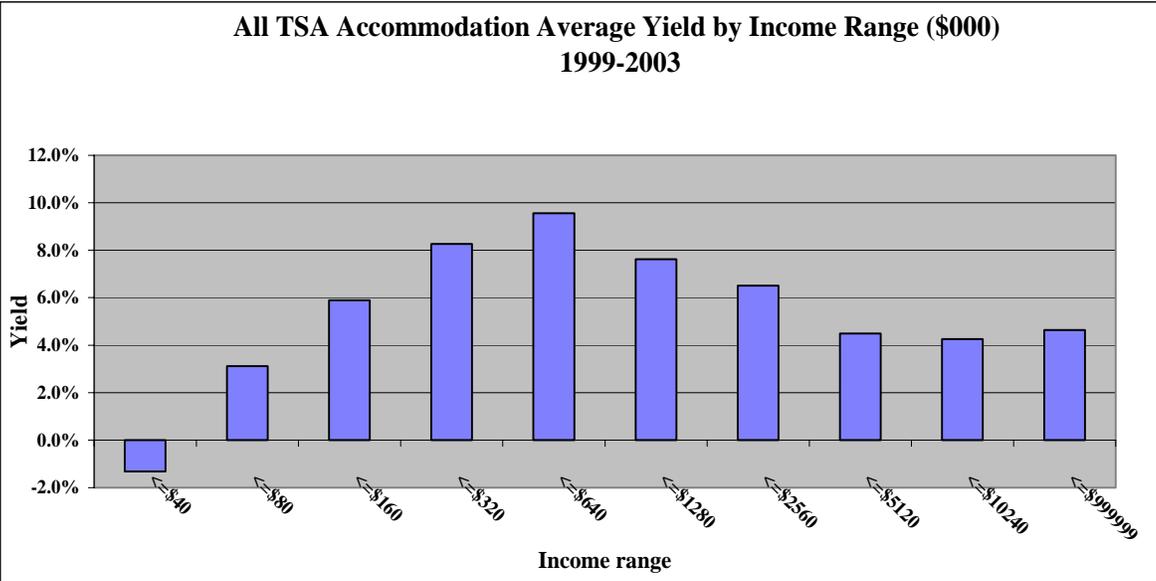
All TSA Accommodation Spectrum and Distribution of Yield
1999-2003
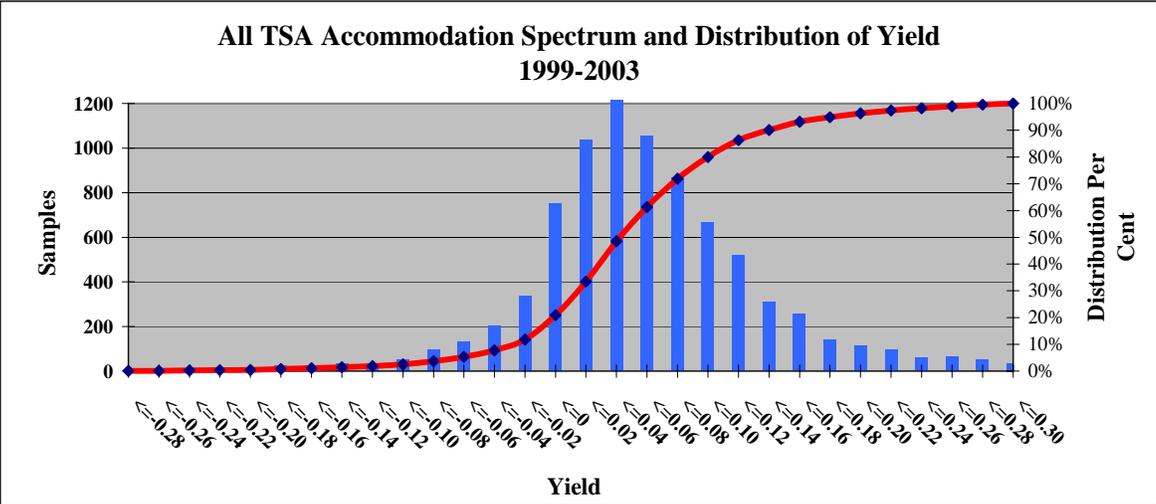
Figure 9: Yield Distribution - All TSA Accommodation 1999-2003

5.8. Financial Yield – All TSA Transport Industries

Transport reported here includes international and domestic air services, surface transport (land and sea) and all other services to transport such as ports (air and sea), taxis and travel agencies. This Division has a mixture of domestic utilities and transport operators serving both international and domestic visitors.

Yield Statistics	All TSA Transport Industries					
	1999	**2000**	**2001**	**2002**	**2003**	**All**
Samples	2055	2044	1902	1804	1751	
Average	10.41%	9.91%	9.61%	11.01%	10.10%	10.21%
95%Conf ±	0.52%	0.53%	0.55%	0.57%	0.60%	0.55%
Variance	1.43%	1.50%	1.49%	1.55%	1.63%	1.52%
Std Dev	11.97%	12.24%	12.19%	12.45%	12.78%	12.33%
Max	29.95%	29.83%	30.00%	29.94%	29.97%	30.00%
Min	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%	-30.00%
Decile 1	-4.93%	-5.77%	-6.02%	-4.94%	-6.28%	-5.59%
2	0.34%	-0.39%	-0.65%	0.53%	-0.66%	-0.17%
3	4.13%	3.49%	3.21%	4.48%	3.39%	3.74%
4	7.38%	6.81%	6.52%	7.86%	6.86%	7.08%
5	10.41%	9.91%	9.61%	11.01%	10.10%	10.21%
6	13.45%	13.01%	12.70%	14.17%	13.33%	13.33%
7	16.69%	16.33%	16.00%	17.54%	16.80%	16.67%
8	20.49%	20.21%	19.87%	21.49%	20.85%	20.58%
9	25.76%	25.59%	25.23%	26.97%	26.48%	26.00%
(Assuming a Normal Distribution of Yields)						

Table 9: All TSA Transport Statistics

Average Yield by Income		**1999**	**2000**	**2001**	**2002**	**2003**	**All Years**
Income range ($000)							
>=$0	<=$200	10.82%	10.40%	10.06%	11.54%	10.40%	**10.65%**
>$200	<=$400	6.99%	7.66%	8.13%	9.61%	9.70%	**8.42%**
>$400	<=$800	9.06%	6.85%	5.65%	9.10%	8.83%	**7.90%**
>$800	<=$1600	5.63%	1.58%	-0.18%	2.32%	5.85%	**3.04%**
>$1600	<=$3200	2.63%	-0.17%	4.07%	3.08%	0.92%	**2.10%**
>$3200	<=$6400	9.17%	5.37%	9.02%	6.62%	7.65%	**7.55%**
>$6400	<=$12800	6.35%	8.49%	8.04%	6.83%	9.72%	**7.89%**
>$12800	<=$25600	10.52%	4.16%	7.94%	14.05%	8.22%	**8.98%**
>$25600	<=$51200	10.21%	8.82%	13.04%	8.87%	7.26%	**9.64%**
>$51200	<=$9999999	6.87%	5.30%	6.32%	4.67%	9.44%	**6.52%**

Table 10: Average yields by income - All TSA Transport – 1999-2003
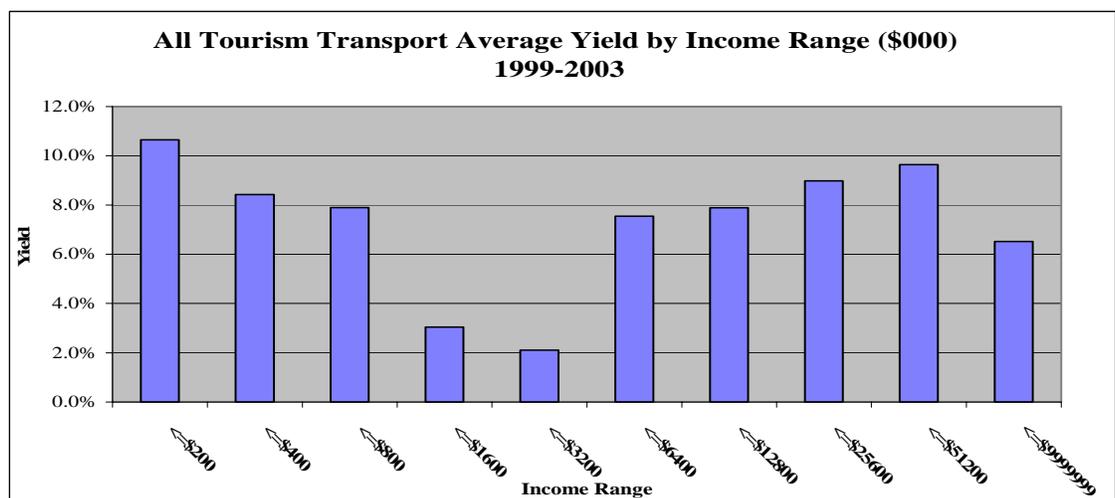
Figure 10: Average Yield by Income – All TSA Transport

All Tourism Transport Overall Spectrum and Distribution of Yield 199-2003
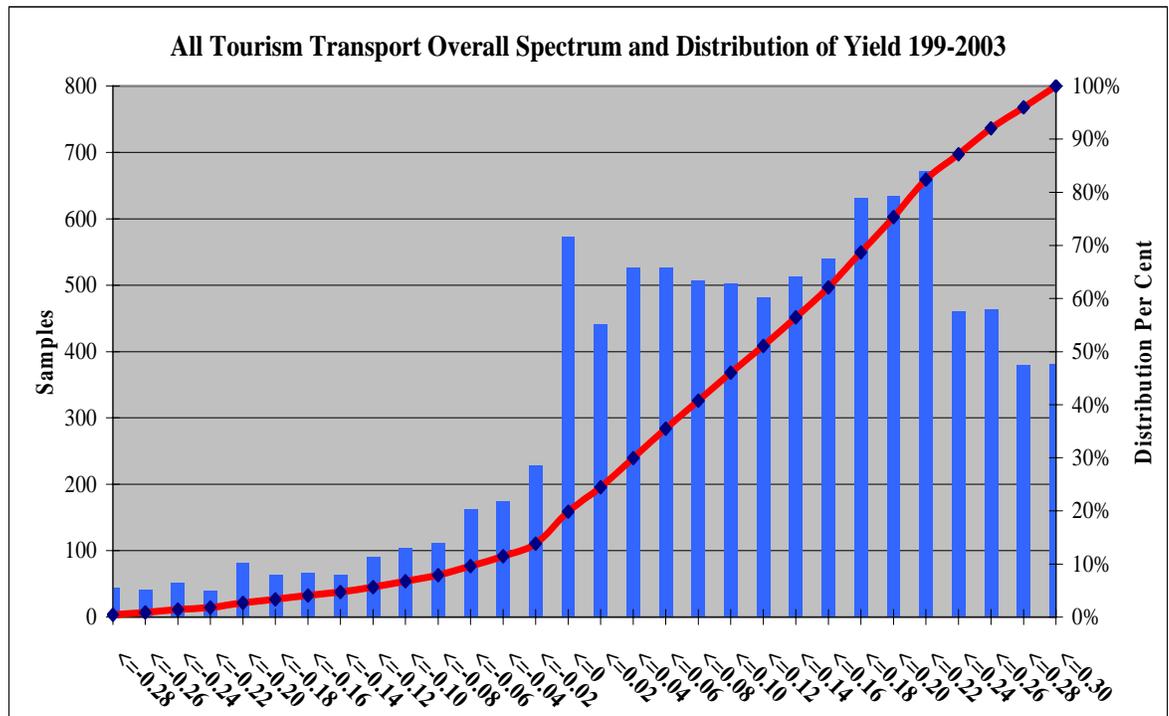
Figure 11: Yield Distribution – All TSA Transport

6. Commentary on results

6.1. Direct tourism value added growth

Over the period 1997-2003, New Zealand's Producer Price Index grew at an annual compound rate of 2.5% for inputs and 2.2% for outputs. Tourism Satellite Accounts have been deflated using annual producer price indices to report real growth in direct tourism value addition (outputs) and indirect tourism value addition (inputs).

Analysis of the separation of tourism's overall contribution to GDP into the components of characteristic (DTVAC), related (DTVAN) and indirect (ITVA) industries reveals each has grown at different rates over the period of analysis. In 1997, tourism characteristic industries generated about 24% greater value (in real terms) than related industries and 61% of the indirect value from intermediate suppliers. Contrasting this with 2004, when characteristic industries generated about 90% of the value of related industries and 51% of the indirect value. Figure 2 indicates that tourism related industries demonstrated a greater level of value addition in 2002 and 2004 and appeared to be more resilient to changes in demand. Comparison of real growth rates for value add over the 1997-2004 period shows that the tourism related industries and the intermediate suppliers (those benefiting indirectly from tourism) grew considerably faster than characteristic industries. The average annual growth rate of real value add for the tourism related industries from 1997-2004 was 5.9% and the corresponding rate for the intermediate suppliers was 3.6%.

In all cases, tourism value addition grew faster than inflation (as represented by the average PPI over the period) , but the contrast between characteristic and other industries is significant as it reflects a shift in value share in favour of industries that support rather than actively promote New Zealand as visitor destination.

Between 1998 and 2004 period the visitor mix changed with the greatest variation being the addition of 500,000 visitors from Australia, China and Korea. These countries accounted for over 60% of the overall increase in visitor numbers over the period. Whilst it is recognised that spending patterns and stay length of visitors from these countries are below average, the NZ tourism product has been built to service a much higher level of spend. The inability to maintain prices, evidenced by a real decline in both visitor expenditure (-1.5% p.a.) and overnight expenditure (-6.4% p.a.), has meant that value has arisen from visitor volume alone.

For the retail sector, the real decline in visitor expenditure has been outstripped by the gain in visitor numbers (7.8% p.a.) but for the accommodation sector, the situation is more complex. Visitor nights increased at the rate of 13.5% from 1998 to 2004 but visitor expenditure per night declined at the rate of -6.4% per annum providing the accommodation sector with increased competition, lower room tariffs and steadily increasing costs from tourism's intermediate suppliers. The supply of rooms was seldom a determining factor.

Air Transport, the largest of the tourism characteristic industries, has been extremely competitive over the period with particularly low fares between Australia and New Zealand and little ability to improve pricing on popular routes between Europe and USA as a result of fickle demand due to events such as September 11, 2001 and SARS. Low airline profitability is a matter of public record and effects of competition on product pricing for both air transport and the accommodation sector has severely impacted overall value add from tourism characteristic industries.

Clearly the degree to which pricing has influenced tourism characteristic industries in comparison to others trading with visitors or those supplying visitors indirectly, is significant. The effect is reminiscent of the gold rush where the fortune of miners was dependent on diligence and a degree of luck whereas the fortune of their suppliers was dependent on the certainty of supplying the essentials such as food and equipment (retail items) so long as there was a gold rush! Whereas tourism characteristic industries are both influenced and dependent on the trading behaviour of both international and domestic visitors, the retail sector is significantly less sensitive to visitor behaviour as their trading is primarily driven by domestic demand.

In summary, since 2001 the major share of direct tourism value addition has swapped from tourism's characteristic industries to tourism's related industries. There is also a significantly higher level of efficiency demonstrated by tourism's related industries whose ability to generate value is running at a rate of over twice that of inflation. This disparity may affect strategic factors such as the long-run maintenance of quality visitor experiences and tourism infrastructure.

6.2. Labour Productivity

Tourism is very dependent on labour and competes with other sectors to achieve the resources it needs to provide quality products. A measure of labour productivity is the annual economic contribution each full-time equivalent (FTE) generates. Table 2 shows the performance of the tourism industry in contrast with the overall economy.

In 1997, each NZ FTE produced $58,250 value add (to GDP) whereas each tourism characteristic FTE produced $45,077 value add. By 2004 little had changed with each NZ FTE producing $62,983 and each tourism characteristic FTE producing $44,531. Since 1997, the annual growth rate of labour productivity over the entire economy averaged 1.1%. For the same period, tourism's characteristic industries hired more staff but delivered less overall value per FTE hire culminating in a negative annual growth rate of 0.2%. Even though the tourism characteristic industries expanded their complement of full time staff at a comparatively lesser rate than that of the overall economy, they failed to generate as much value in doing so.

If careers are to be built within tourism's characteristic industry enterprises, negative productivity growth per FTE since 1997 is a serious obstacle to overcome. Even if characteristic industries maintained the same number of FTEs in 2004 as were employed 1997, its overall productivity growth rate would still not surpass the national growth rate of 1.1%. Even if it did, it would not be exemplary performance in comparison with USA, UK and Australia where in 2004 New Zealand was, respectively 57%, 66% and 76% as productive in terms of value add to GDP per hour worked[iv].

The recent industry leadership and focus on tourism workforce and skills development[v] is timely, but the generation of value is even more fundamental since the ability to recruit and retain staff is driven by industry prosperity. A cycle of contraction is the likely outcome if tourism's characteristic industries do not significantly improve their yield. Sensitivity to price, expense constraint, underdevelopment of human resource and reduced capital expenditure on innovation are all growth-limiting behaviours arising from poor yield.

In summary, the historical performance of tourism's characteristic industries as a value-creator and productive employer is below the national average. This performance represents an additional challenge to tourism's core service providers to create a vibrant and sustainable export industry despite receiving significant public sector support to promote its products. Were it not for the over-compensatory performance of its related industries and extremely strong visitor arrivals growth, tourism's overall performance as a contributor to GDP over the past 5 years would be unspectacular.

6.3. Financial Yield

Complementing the TSA is an analysis of the economic performance of tourism industries at enterprise level. All industry categories contributing to the TSA's treatment of tourism characteristic and related industries were sampled. Broadly, the characteristic industries are Accommodation (elements of ANZSIC Division H), Transport (ANZSIC Division I) and elements of Cultural and Recreational Services (ANZSIC Division P). Tourism related industries are grouped under Retail (ANZSIC Division G).

Throughout the analysis many tourism enterprises reported exemplary yields, but the proportion of them doing so varied significantly by industry. There will be reasons behind the disparity of yields between the tourism characteristic and related industries and also between sub sectors within accommodation, transport, cultural & recreational and retail. Business surveys will be conducted in 2006 to examine the parameters that contribute to the operations and performance of enterprises within the tourism characteristic and related industries.

It is also important to state that the inability to scrutinise statements of financial performance and position and discuss them with individual enterprises may lead to some distortion of enterprise yields. The financial yield metric chosen has limitations if asset rental (leases) cannot be distinguished from other financial expenses such as interest on debt. This analysis has treated all financial charges as debt and has incremented net operating profit after tax by the reported financial charge. If the expense were a lease, capital should also be incremented by the present value of the leased asset. Tourism financial yield may be *exaggerated* for an enterprise or ANZSIC group of enterprises if assets are predominantly leased. Examples of sectors with significant levels of leased assets include air and surface transport, hotels and motels.

6.4. All TSA Industries

Although many enterprises will have differing financial obligations and objectives, the overall ability of an industry to produce satisfactory returns on capital employed is one of the factors that appeals to investors. Over the analysis period, 1999-2003, the financial yield of the combination of tourism's characteristic and related industries averaged 8.19% (after tax). This yield is equivalent to a pre-tax rate of return of 12.2% and exceeds New Zealand's average base lending rate[vi] (9.65% pre tax or 6.47% after tax) over that period.
In Table 4, the distribution of yields by income shows that yields vary across the income spectrum. Very small enterprises having incomes under $50,000 per annum and a range of enterprises having incomes between $1.6 million and $12.8 million returned below average yields. Overall, 21% of enterprises returned negative yield in each of the sample years.

6.5. TSA Retail

In contrast, the tourism related industry enterprises (All TSA Retail) analysed in Tables 5 and 6 show an average post-tax financial yield of 9.38% or 14.0% before tax. This performance is well in excess of the base lending rate described above and has proven resilient throughout the sample period.

Again, there were income brackets that performed below average; in particular those with income levels under $40,000 returned very low yields (2.55%) and those with incomes in the range $2.56m through $10.24m returned yields between 7.4% and 7.9% and appeared unable to improve them over the sample period. Overall, 19% of retail enterprises returned negative yields in each of the sample years.

6.6. TSA Accommodation

Accommodation is a significant tourism characteristic industry and was described in Tables 7 and 8. Average enterprise financial yield for the sample period was 4.86% and income brackets between $160,000 and $1,280,000 reported average yields at levels above the base lending rate. The average yield for the Accommodation sector's consolidated financial performance and position between 1999 and 2003 is reported in Appendix 2 at 4.3% after tax. This suggests that the weighted average of enterprises in the income ranges above $1,280,000 determines the overall sector yield.

The Accommodation sector is also influenced by the price of real estate. The NZ Property Council Reports that the NZ Composite Property Capital Return averaged 2.04%[vii] after tax

over the period 2003 – 2004. In cases where accommodation enterprise is both owned and operated, capital returns crystallise at the time of sale. Proprietors or shareholders would certainly include capital growth of the real estate as a component of overall yield. In such cases, this could add approximately 2% to the average yield reported in Tables 7 and 8. Accommodation is also a sector that has leased assets. The proportion of leases has not been identified, but many major hotels, motels, lodges and holiday parks lease assets and have annual payments reported as operating expenses.

The reported yields for these sectors will be overstated compared with what would be the case if the leased asset were treated as capital and the lease payment discounted from operating profit.

Approximately 21% of accommodation enterprises returned negative yields throughout the sample period.

6.7. TSA Transport

Included in these results are elements of the transportation sector such as shipping ports, international sea transport, coastal water transport and some other minor non-tourism services. The principal contributors to transport income are Scheduled international air transport (I640100), Scheduled Domestic Transport (I640200) and Travel Agency Services (I664100) with a combined incomes in 2003 of over $12.3b. Interestingly, this cluster produced an extremely small overall operating surplus of around $112 million. In contrast, Services to Air Transport (I663000) together with Port Operators (I662300) reported combined incomes of $1.25b and operating surplus of $401 million.

There were over 5,950 enterprises in the sample resulting in an average of approximately 2,000 valid yields over the sample period. Transport includes some of the largest players in the tourism sector (airlines) but it also includes a large number of small and medium sized businesses. Even, so, the sector displays a spectrum of yields that are as good as the overall TSA, driven mainly by the myriad of small operators who appear to be high yielding.

The average yield of sampled enterprises was 10.21% after tax (15.2% before tax) – an extremely creditable value but believed to be in excess of what the entire sector would report if all enterprise incomes, expenses and assets were combined. Because of the financial significance of a few large enterprises, Statistics New Zealand does not publish Division I (Transport) financial information unbundled from Communications and Storage so as to preserve respondent confidentiality. The combination of Transport, Storage and Communications is given in Appendix 2. Whilst the aggregate result in Appendix 2 does not isolate Transport, the average yield over the period 1997-2003 was 9.2%. This sector contains many public listed companies and it is possible to estimate financial yields from their annual results, but such an exercise is outside the scope of this report.

Apart from businesses with incomes in the range $800,000 through $3,200,000, yields exceeded 6.5% after tax. Small businesses with incomes under $200,000 exhibited the largest range of yields at 10.7%. However, Transport is a sector where assets are frequently leased and overstatement of yields is possible.

7. Conclusion

Over the period 1997 – 2004 the performance of tourism's characteristic industries (Accommodation, Transport and Recreation) as a value-creator and productive employer fell short of what was being achieved by tourism's related industries (Retail). Outputs from Tourism's characteristic industries displayed 1.2% real growth but succumbed to inflationary pressures; absorbing steadily rising costs and reducing production efficiency without adjusting prices so as to maintain value growth. This behaviour was not seen in tourism's related industries where real growth was almost 6% over the same period.

Throughout the same period New Zealand's labour productivity growth was relatively low at an annual average of 1.1% but tourism's characteristic industries fared less well - averaging negative growth, yet tourism's related industries averaged 1.7% annual growth. Tourism characteristic industry labour content rose and production efficiencies (technology, process improvement, etc) that may have occurred were masked by visitor arrival growth. New Zealand's visitor arrival growth averaged 6.55% per annum and was amongst the highest in the world. Should visitor volume growth decline, the degree to which tourism enterprises will be able to maintain their position in the labour market and invest in product leadership is questionable.

The over-compensatory performance of its related industries and the good fortune of strong visitor arrivals growth from traditional markets seeking safe destinations, contributed tourism's overall performance as a remarkable GDP contributor over the period 1999-2003.

At enterprise level, the Accommodation sector exhibits a spectrum of yields that are relatively low in comparison with their related industries counterpart, Retail. The contrast between Accommodation enterprise performance and the rest of the tourism economy is significant and in keeping with earlier observations on direct tourism value addition for characteristic industries.

Although Transport sector enterprises exhibits a spectrum of yields that are relatively high, this sector's overall yield is influenced by a few very large visitor-driven enterprises – airlines- that have been subjected to intense competition which has affected their ability to produce high yields. Small and medium sized enterprises and utilities (such as sea ports) displayed yields well above the base lending rate.

Subsequent reports will examine each sub sector of the major characteristic and related industries in more detail.

Appendix 1. TSA Concordance.

Tourism Industry Concordance				
Tourism industry category– Provisional tourism satellite accounts	**Tourism industry category– Tourism satellite accounts**	**Tourism industry component**	**ANZSIC code**	**ANZSIC industry description**
Tourism-characteristic industries	Tourism-characteristic industries	Accommodation, cafes and restaurants	H571 H572 H573 H574	Accommodation Pubs, taverns and bars Cafes and restaurants Clubs (hospitality)
		Road passenger	I6121 I6122 I6123	Long distance bus transport Short distance bus transport (including tramway) Taxi and other road passenger transport
		Rail transport	I62	Rail transport
		Water transport	I63	Water transport
		Air transport	I64	Air and space transport
		Other transport, storage and transport services	I65 I66 I67	Other transport Services to transport Storage
		Machinery and equipment hiring and lea	L774	Machinery and equipment hiring and leasing
		Cultural and recreational services	P92 P93	Libraries, museums and the arts Sport and recreation
All other industries	Tourism-related industries	Retail trade	G511 G512 G521 G522 G523 G524 G525 G526 G53	Supermarket and grocery stores Specialised food retailing Department stores Clothing and soft good retailing Furniture, houseware and appliance retailing Recreational good retailing Other personal and household good retailing Household equipment repair services Motor vehicle retailing and services
	All non-tourism-related industries			All other ANZSIC industries

8.1. Sector Sample Sizes

The sample sizes of these industry groups within the overall samples used in this document (57,695) were:

Grouping	ANZSIC Range	Number of Entities
All TSA Retail	G5xxxx0	32,034
All TSA Accommodation	H571xx0	3,291
All TSA Pubs, Taverns and Bars	H572000	709
All TSA Cafes and Restaurants	H573000	5,075
All TSA Transport	I6xxxx0	5,953
Others not included above	H574xxx, L774xxx, P9xxxxx	10,651

It is difficult to dimension the tourism industry from the above as many enterprises may be more (e.g. souvenir retailers) or less (e.g. Sea Ports) involved in visitor activities than their ANZSIC code suggests.

Tourism Product Classification

Tourism product – Provisional tourism satellite accounts	Tourism product – Tourism satellite accounts	Includes	Excludes
Accommodation services	Accommodation services	Hotel and other lodging services	Accommodation for the elderly. Students' accommodation (e.g. student hostels) are excluded from tourism demand
Food and beverage serving services	Food and beverage serving services	Takings from meals (including takeaways), beverage serving services for consumption on the premises	
Air passenger transport	Air passenger transport	Scheduled and unscheduled air passenger transport. Rental services of aircraft with operator	Air freight transport
Other passenger transport	Road passenger transport	Bus and taxi passenger transport, other unscheduled road passenger services	Road freight transport
	Rail passenger transport	Passenger transport by rail	Rail freight transport
	Water passenger transport	Passenger transport by international and coastal sea-going vessels and inland water passenger transport	Water freight transport
	Travel agency services	Booking services, ticket selling	Freight agency services
	Motor vehicle hire or rental	Hiring of cars, trucks, buses and campervans	Taxis, hiring of motor vehicles with drivers, machinery hire
Retail sales – fuel and other automotive products	Retail sales – fuel and other automotive products	Diesel, motor oils	
Retail sales – other	Retail sales – alcohol	Alcoholic beverages purchased from liquor stores, supermarkets and other retail outlets	Alcohol sold for consumption on premises
	Retail sales – clothing and		

	footwear		
	Retail sales – food, beverages, tobacco and other groceries		
	Retail sales – retail medicines, toiletries		
	Retail sales – tourism consumer durables	Tents, sleeping bags, luggage, skiing equipment, climbing/tramping equipment, diving equipment, motor vehicles, pleasure and sporting boats	
	Retail sales – other shopping		

Tourism Product Classification

Tourism product – Provisional tourism satellite accounts	Tourism product – Tourism satellite accounts	Includes	Excludes
Other tourism products	Imputed rental on holiday homes	Imputed rental on second homes used only (or partly) by the owner. These may be made available to third parties for holidays, leisure and business activities	
	Libraries, archives, museums and other cultural services	Zoos, nature reserves	
	Other sport and recreation services	Recreational parks and gardens, services to the arts, horse and dog racing, golf course operation, swimming pools, ski-fields and other recreation services	
	Financial services	Issuing and negotiating foreign cash and non trade financial instruments	Financial intermediation services indirectly measured
	General insurance	Travel insurance, other general insurance	Life insurance, superannuation and health insurance
	Social and health related services	Health and medical services, social

		services
Gambling services	Gambling at the casino, other gambling services	
Other tourism related services	Telecommunications, postal and courier services and other tourism products, including spending on education by international students studying in New Zealand for less than twelve months	Health and medical services
Other personal services	Laundry services, film processing, hairdressing and beauty services	

9. Appendix 2. Summary of Selected Industry Incomes and Financial Yields

Published data from Statistics New Zealand's Annual Enterprise Surveys provides a statement of financial performance and position for numerous ANZSIC groupings over the period 1997 – 2003. In some cases, industry groupings are consolidated to preserve confidentiality, but in other cases, data are available at finer levels – e.g. the Accommodation sector is divided into 6 subdivisions; Hotels, Motels and Motor Inns, Hosted Accommodation, Backpackers, Caravan Parks and Camping Grounds and 'Other'. Table 11 has applied Financial Yield Method 2 to the industry-level (consolidated) statements of financial performance and position to obtain the following.

Industry	Summary of Income and Financial Yield						
	1997	1998	1999	2000	2001	2002	2003
All Industries *							
Income($M)	$254,064	$299,210	$308,538	$333,156	$359,296	$384,142	$398,386
Financial Yield (%)	6.2%	6.5%	5.1%	5.3%	5.1%	5.3%	5.2%
Retail Trade							
Income($M)	$32,249	$32,083	$33,693	$35,931	$38,025	$41,006	$44,381
Financial Yield (%)	12.2%	12.3%	12.2%	12.0%	11.8%	14.9%	17.0%
Accommodation, Cafes and Restaurants							
Income($M)	$4,376	$4,511	$4,879	$5,239	$5,358	$5,648	$5,732
Financial Yield (%)	5.9%	6.1%	6.5%	5.2%	6.0%	6.6%	6.2%
Accommodation Only							
Income($M)			$1,587	$1,613	$1,749	$1,796	$1,924
Financial Yield (%)			4.6%	2.8%	4.2%	5.0%	4.6%
Transport, Storage and Communication **							
Income($M)	$15,870	$16,004	$16,356	$17,531	$19,442	$19,941	$21,187
Financial Yield (%)	11.7%	10.4%	10.0%	9.2%	5.8%	6.9%	10.4%
Cultural and Recreational Services ** *							
Income($M)	$3,783	$3,949	$4,380	$4,643	$5,833	$6,527	$7,261
Financial Yield (%)	6.9%	6.9%	9.6%	8.0%	9.2%	10.5%	12.1%

* All Industries contains: ANZSIC = Divisions A-Q (Excluding Division M, Subdivision A01, Classes D3701, K7412, L7712, P9242, P9319, P9631, Q9632, Q9633 and Subclasses L771110, L771190)

** Transport, Storage and Communications grouped for confidentiality

*** Cultural and Recreational Services includes museums, casinos and many aggregated tourism services

Table 11: Summary of Sector Income and Financial Yield from AES Tables[viii]

Table 11 highlights the relatively low financial yields generated by All NZ Industries and Accommodation. One immediate comparison that can be drawn is between group-level financial yields and the average base lending rate for the period[ix] - 9.65% pre tax or 6.47% after tax. Both All Industries and Accommodation are clearly averaging after tax financial yields lower than the base lending rate. Another observation is that in many cases significant increases in volume (income) appear not be reflected in commensurate yield improvements.   Since the results in table 11 are consolidated for all enterprises within each industry, were there clusters of enterprises within that industry that contributed more than others to the overall result? These observations and questions lead to the examination of individual enterprise yields using data available from

Statistics NZ's Datalab facility to obtain further insight into the overall financial performance of the tourism sector.

10. Appendix 3. Probability Distributions and Derivation of Deciles for Sampled Data

10.1.   Probability Distribution Model for Yield

The Cumulative distribution of the spectrum of yields from All TSA ANZSIC industries in Table 3 has a mean and variance of 8.19% and 1.34% respectively. An expression that models this distribution is the Logistic Probability Distribution function. This model was chosen as having least error from a range of potential distributions using Palisade Corporation's 'Best-Fit' decision-support tools.

The Logistic distribution of yield is defined as:

$$F(yield) = \frac{1}{1 + e^{\left(\frac{-(yield-a)}{b}\right)}}$$

Where a = mean,

and $\quad b = \dfrac{\sqrt{3 * variance}}{\pi}$.

So for the distribution defining All TSA ANZSICS in Table 3,

$$a = 0.0819$$
$$b = 0.0638$$

The comparison between measured values charted in Figure 5 and the Logistics Distribution charted in Figure 12.
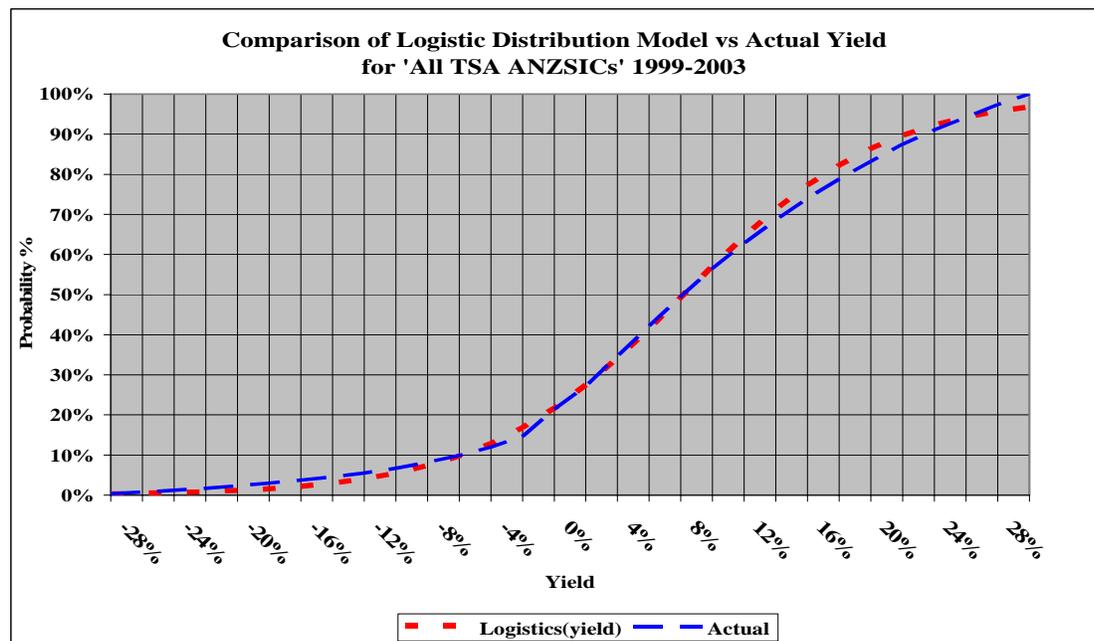

Figure 12: Modelling Yield Distribution for All TSA ANZSICs

10.2.   Decile Data for All TSA ANZSICs

Without a priori knowledge of the distribution of yields, a normal distribution was used to approximate decile ranges. For the Logistics function, the decile value is obtained from the expression:

$$\text{Yield} = a - b * \text{Ln}\left(\frac{1}{D} - 1\right)$$

Where D is (0.1 for Decile 1, 0.2 for Decile 2, and so on).

The Deciles and the discrepancy associated with using the Normal Distribution as an approximation is illustrated in Table 12.

Deciles	Logistics Distribution Model Yield	Normal Distribution Model Yield	Difference Delta %
1	**-5.83%**	-6.62%	13.53%
2	**-0.66%**	-1.54%	134.07%
3	**2.78%**	2.13%	-23.58%
4	**5.60%**	5.26%	-6.14%
5	**8.19%**	8.19%	-0.06%
6	**10.78%**	11.11%	3.11%
7	**13.60%**	14.24%	4.76%
8	**17.04%**	17.91%	5.12%
9	**22.21%**	22.99%	3.51%

Table 12: Decile Values for 'All TSA ANZSICs' using Logistics Function Model

For low deciles the error in using a Normal Distribution as an approximation for the distribution of yield is very large – the best case being 6.14%, but for deciles 5 and above, the approximation is reasonable with a greatest error of about 5%.

Glossary of Terms

Term	Definition
ANZSIC	Australia New Zealand Standard Industry Classification. A categorisation of industries into divisions[x] for the purposes of comparison. A Agriculture, Forestry and Fishing B Mining C Manufacturing D Electricity, Gas and Water Supply E Construction F Wholesale Trade G Retail Trade H Accommodation, Cafes and Restaurants I Transport and Storage J Communication Services K Finance and Insurance L Property and Business Services M Government Administration and Defence N Education O Health and Community Services P Cultural and Recreational Services Q Personal and Other Services R Not Elsewhere Included
Decile	The statistics any of nine points that divide a distribution of ranked scores into equal intervals where each interval contains one-tenth of the scores. In this paper, the frequency distribution provides deciles at 10%, 20%...90% probability.
DTVAA	Direct tourism value add – All Industries, the contribution to GDP from tourism characteristic, tourism related and non-tourism industries
DTVAC	Direct tourism value add from tourism characteristic industries
DTVAN	Direct tourism value add from tourism non-characteristic industries: those industries that are non-tourism related
FTE	Full time equivalent employee. This is a unit of labour. In tourism, one FTE might relate to several individuals working for part of the time.
Income	The sum of enterprise revenue streams
ITVA	Indirect tourism value add - the demand arising from flow-on effects to supplier industries supporting tourism minus the value of any associated imported goods and services.
AES	Annual Enterprise Surveys conducted by Statistics NZ and providing enterprise level data including Statements of Financial position and Performance.
PPI	Purchasing Price Indicators – an index of changes to input prices and output prices over time. PPIs exist for specific industry types or relate to 'All Industries' (since tourism is a composite of numerous industries, 'All Industries' was used in this paper).

11 References

[i] Statistics New Zealand, Provisional tourism satellite account 2000-2002, p21 ff.

> **"Categorising industries producing tourism products**
> A **tourism characteristic industry** is one where:
> at least 25 percent of the industry's output is purchased by tourists (i.e. the tourism industry ratio is greater than or equal to 0.25) or the industry's characteristic output includes a tourism characteristic product. For example, less than 25 percent of the water transport industry's output is consumed by tourists, but its characteristic outputs are water freight transport and water passenger transport. Water passenger transport is a tourism characteristic product, so the water transport industry is classified as a tourism characteristic industry, and a direct physical contact occurs between the industry and the tourist buying its products. Hence, manufacturing and wholesaling industries are not tourism characteristic industries**.
> A **tourism related industry** is one where:
> the industry is not a tourism characteristic industry and is between 5 percent and 25 percent of the industry's output is purchased by tourists (i.e. the tourism industry ratio is greater than 0.05 and less than 0.25) and where a direct physical contact occurs between the industry and the tourist buying its products (hence manufacturing and wholesaling industries are not tourism related industries).
> In practice, the retail trade industry is the only tourism related industry in TSA97-99.
> A **non-tourism specific industry** is any industry that is not a tourism characteristic industry or a tourism related industry. However, a non-tourism specific industry may still sell some of its products to tourists."

[ii] TRCNZ, International Visitor Survey, Nights Spent,
http://www.trcnz.govt.nz/Surveys/International+Visitor+Survey/Data+and+Analysis/Table-Total-Nights-Spent-by-Accommodation-Type.htm

[iii] TRCNZ, International Visitor Survey Database, Analysis IVA – Quarterly Demographics.
http://www.trcnz.govt.nz/Surveys/International+Visitor+Survey/Data+and+Analysis/Table-Visitor-Numbers-by-Origin.htm

[iv] OECD, INTERNATIONAL COMPARISONS OF LABOUR PRODUCTIVITY LEVELS - ESTIMATES FOR 2004, SEPTEMBER 2005.

[v] TIANZ, Tourism Workforce and Skills Projections, September 2004, www.tianz.org.nz

[vi] Reserve Bank of New Zealand, B3 Interest Rates on Lending and Deposits, Historical Series,
http://www.rbnz.govt.nz/statistics/exandint/b3/data.html
The base lending rate is a measure what financial institutions expect from borrowers so as to cover their cost of funds and administrative expenses. It is an approximate value for the minimum yield a borrower in a well run small or medium sized business needs to achieve to ensure long-term financial viability. It also assumes that there is no special trading risk profile associated with the borrower otherwise a much higher lending rate applies. Equally, large borrowers with low risk profiles might borrow at lower rates.

[vii] NZ Property Council Investment Performance Index Return Summary for YE 2004. For FY2003, the capital Return on NZ Composite Commercial Properties was 0.71% and 3.38% for FY2004.

[viii] Statistics NZ, AES Data Tables, http://www.stats.govt.nz/NR/rdonlyres/42F48D2B-7D49-4FD6-B30A-146DF7AAD1F8/0/AES.xls

[ix] Reserve Bank of New Zealand, B3 Interest Rates on Lending and Deposits, Historical Series,
http://www.rbnz.govt.nz/statistics/exandint/b3/data.html

[x]Statistics NZ, ANZSIC Structure Definitions, http://www.stats.govt.nz/NR/rdonlyres/732A87B2-4D00-471E-92FB-34DE95BFFD79/0/ANZSIC96Structure.txt