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THE ECONOMIC IMPACT OF TOURISM IN TAUPO

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of the requirements for the degree of
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	Page
Acknowledgements	
Abstract	
1. INTRODUCTION	1
2. FOCUS ON APPROACH	5
2.1. Frame of Reference	5
2.2. Objectives	6
2.3. Methodology	6
2.4. Methodological Development in Tourist Impact Studies	9
3. MULTIPLIER MODELS	11
3.1. Introduction	11
3.2. Economic Base Multipliers	11
3.3. Input-Output Multipliers	14
3.4. Applications of Input-Output in Tourism Studies	16
3.5. Econometric Multipliers	19
3.6. Weaknesses and Limitations	25
3.6.1. Data Deficiencies	25
3.6.2. Restrictive Assumptions	26
3.6.3. The Existence of Supply Constraints	27
3.6.4. The Use of Homogeneous Linear Consumption Functions	28
3.6.5. The Absence of a Repercussive Feedback Mechanism	28
3.7. The Sensitivity of Coefficients	29
4. THE MODEL TO BE USED	31
4.1. Regional Income Generation Model	31
4.2. Component Terms of the Model	33
4.3. Summary Assessment of Model	37
4.4. Regional Employment Generation Model	38
5. SURVEY DEFINED	41
5.1. The Study Region Defined	41
5.2. Tourist Expenditure Survey	43
5.2.1. Data Obtained from Businesses	44
5.2.2. Data Obtained from Tourists	44

9.2.	Income Generation	85
9.3.	Direct, Indirect and Induced Income	85
9.4.	Accommodation/Non-Accommodation Income	86
9.5.	Income Generation Per Tourist Night	87
9.6.	Employment Generation	87
9.7.	Direct, Indirect and Induced Components	90
9.8.	Accommodation/Non-Accommodation Employment	90
9.9.	Employment : Socio Economic Impact	91
9.10.	Comparison with Other Data	93
10.	CONCLUSIONS	97
10.1.	Summary of Main Results	97
10.2.	Utilising the Study Findings	98
10.3.	Uses of the Information	100
APPENDIX I	CALCULATION OF INCOME AND EMPLOYMENT	104
APPENDIX II	SENSITIVITY TESTS ON VARIABLES	117
APPENDIX III	SURVEY FORMS	

BIBLIOGRAPHY

LIST OF TABLES AND FIGURES

TABLES	Page	
1.1	Increase in Private Consumption and Employment Resulting from a \$100 million Increase in Exports	2
3.1.	Simplified Tourist Economy : Input-Output Table	16
3.2.	Sensitivity Tests of Changes in the Value of Z_i and c	30
5.1.	Distance from Taupo to Adjacent Towns	41
5.2.	Composition of Survey Population by Accommodation Type: General Survey	47
5.3.	Hotel/Motel Tourists : Questionnaire Data	49
6.1.	Taupo Borough - Changes in Employment Groups 1952-81	57
6.2.	Taupo Population Growth 1945-1982	58
6.3.	Retail Turnover per Capita and Restaurant/Hotel Employment per 1000 Population Selected N.Z. Urban Areas	61
6.5.	International Arrivals for Holiday Purposes New Zealand April 1981-March 1982	64
6.6.	Motel Occupancy Rates : Taupo 1979-80	64
6.7.	Hotel/Motel Tourists : Total Tourist Nights	66
6.8.	Total tourist Numbers 1981-82	68
7.1.	Tourist Expenditure Total by Tourist Type	73
7.2.	Tourist Expenditure Total : Tourist Type by Sector	77
7.3.	Tourist Expenditure Pattern by Tourist Type	78
8.1.	Income Multipliers by Tourist Type per \$1 of Expenditure	81
8.2.	Employment Multipliers by Tourist Type per \$100 000 of Expenditure	84
9.1.	Income Generated All Tourist Types by Sector	88

9.2.	Income Generated : Accommodation/Non- Accommodation Income	88
9.3.	Income Generated - Per Tourist Night	89
9.4.	Employment Generated by Tourist Type	89
9.5.	Employment Generated by Sector	91
9.6.	Employment Generated : Accommodation/Non- Accommodation	91
9.7.	Employment Generated : Unstandardised Jobs	92
9.8.	Employment of Persons in Fulltime Labour Force (A) Retail Trade; (B) Restaurants and Hotels	95
9.9.	Occupation Minor Groups in Fulltime Labour Force (A) Sales Workers; (B) Service Workers	96

FIGURES

2.1.	Resource Utilisation Decision-Making Process	8
4.1.	Data Flow Through Model	36
5.1.	Map of Study Area	42
6.1.	Geographic Location	59
6.2.	Taupe Meteorological Data	65
6.3.	Hotel/Motel Tourists : Monthly Tourist Nights	69
6.4.	Holiday Home Tourists : Monthly Tourist Nights	69
6.5.	Caravan and Camping Tourists : Monthly Tourist Nights	70
6.6.	Coach Tour Tourists : Monthly Tourist Visits	70
6.7.	All Resident Tourists : Monthly Tourist Nights	71
7.1.	All Resident Tourists : Expenditure Pattern	79

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ABSTRACT

Tourism in Taupo is almost as old as the town itself. During that time it has had a significant impact on the local economy and is recognised explicitly and supported as a growth industry of the region. For this same recognition and support to be afforded tourism at a national level the industry must show that it can compete effectively for the same human, physical and financial resources which are sought after by other sectors of the economy.

A prerequisite to formulating policies aimed at sound resource utilisation is information on the demand for and supply of those resources and the impact which their use has on the economy, environment and society. This thesis examines the economic impact of the tourism industry in Taupo through estimation of the income and employment generated by tourism spending. Detailed data is obtained through surveys of the tourist population and local businesses to reveal the size and pattern of spending and the way in which this initial injection is circulated within and leaked from the local economy. Multiplier values for various tourist types are estimated and these reflect the propensity for each tourist type to generate income and employment. Observations are made on the uses to which the information can be put and the limitations of both the model used and the information generated are also examined.

1. INTRODUCTION

Tourism in New Zealand is one of the growth sectors of the national economy. Central government recognises that the economic benefits of encouraging tourism are considerable. It has been identified as a strategy to counter balance of payments problems and to reduce unemployment and disparities in regional growth. (Quigley 1982)

For 1980 it was estimated that the industry contributed \$800 to \$1000 million towards the country's Gross National Product. Between \$500 and \$600 million of this amount coming from domestic tourism, the remainder being foreign exchange contribution or invisible exports. In 1980 just under one half of a million visitors came to New Zealand sustaining hotel chains, motels, transportation linkages, tourist attractions, restaurants, historic places, shops and travel agencies. In employment terms, the Tourism Advisory Council estimates that in 1980 some 55 000 jobs can be directly attributed to tourism. (All data Quigley 1982). Comparative data for 1976 estimated that tourism contributed \$150 million in foreign exchange earnings from 384 000 overseas visitors. (N.Z. Tourist and Publicity 1976)

While successive governments have recognised the benefits of the industry, tourism remains the cinderella of development portfolios. The commitment to tourism in terms of monies advanced, the status of the portfolio in government cabinets and the secondary role which tourism plays in the national growth strategy to what became known in 1980 as 'think big' projects all reflect this position.

Arguments for and against this strategy continue. Central to these arguments has been the implications for the best use of New Zealand's indigenous resources - physical, human and financial - on both intersectoral and intertemporal dimensions. Some of the energy projects which are part of 'think big' are in direct competition with tourism in the

use of physical (eg geothermal energy) and to a lesser extent human resources.

Almost certainly the financing of these projects will lead to some degree of 'crowding out' in the financial sector, making investment monies for tourism scarcer and more expensive. (See Blinder and Solow 1973) Why wasn't tourism included as a focal point of the growth strategy? It would appear to measure favourably using accepted growth yardsticks. For example the effect on private consumption and employment of an increase of \$100 million in tourism, agricultural and manufacturing exports has been estimated as follows :

Table 1.1 Increase in Private Consumption and Employment
Resulting from a \$100 Million Increase in Exports

	\$100 Million Increase		
Estimated Increase	Tourism	Agriculture	Manufacturing
Private Consumption (\$ million)	289	302	224
Employment	26 000	22 000	17 000

Source B.E.R.L. 1982b

The tourism product is home-grown and certainly no less indigenous than the development of our energy resources. Tourism also has the ability to earn overseas exchange while not making heavy demands on imports. (B.E.R.L. 1982b)

Environmentally tourism is a 'clean' industry and strong public support has been identified by one study for the continued growth of tourism. (Mings 1980)

Perhaps it is the nature of the industry itself which has kept it in its present position. Tourism is both ubiquitous and ill-defined. It is everywhere using a wide range of resources but at the same time it is difficult to distinguish many parts of the tourist industry as being

separate from their role in non-tourism economic activities. Our national parks, accommodation, restaurants, transportation and all those who are employed in these services are examples of the human and physical resources involved in tourism which have this dual function. As a consequence of this the investment in or promotion of tourism by the government at a scale necessary to make it a leading generator of national growth would involve the co-operation and organisation of thousands of people and hundreds of organisations. There is little wonder then that the choice has been to rely on the expertise of a few large companies to manage well-defined national resources and ten figure investment sum than to spread the use of a resource or investment responsibility over a wide geographic area and management system.

The nature of the tourism product has meant also that until very recently it has not been recognised as a sector in national economic modelling or national accounts. (Min. of Works & Development 1980; N.Z. Yearbook 1981)

Models have been applied to the national investment impacts of agriculture, forestry and energy development. While these models could be adapted for use in the tourism sector or for assessing the impact of a particular tourism injection or project no explicit mention is given to the industry. Neither do the national input-output tables customarily included in the New Zealand Yearbook exhibit tourism as a sector in its own right. However very recent work at Victoria University has sought to remedy this situation through a recomposition of the Official New Zealand Input Output Table 1976/77 which has been especially devised to accent tourism sectors. (B.E.R.L. 1982a)

The table is used to estimate capital requirements, employment generation, imports, foreign exchange earnings and the contribution to Gross National Product of foreign and domestic tourism output or exports. It also compares how these input variables compare with other sectors of the economy for a given change in output.

In undertaking this study it has been explicitly realised that in order for decisions on resource allocation to be made the relative contribution that each sector makes to the economy must be measured. Also recognised is that before the tourist industry can demand greater consideration by the government, quantitative evidence of tourism's potential contribution must be obtained.

It will be national decision making which gives tourism a greater share of national investment. However the impact of those decisions will not be evenly distributed and it is New Zealand's tourist regions that will enjoy or suffer the outcome. The ability of these regional economies to maximise the benefits of any tourism injection will depend on their self-sufficiency in all inputs to the tourism product. For the national economy the inter-regional flow of inputs necessary to sustain a local tourist economy are a desirable and expected part of income and employment generating multiplier process. But for a regional economy the primary objective is to maximise the circulation of the tourist injection within the regional economy.

This study seeks to measure how one tourism-oriented regional economy functions. It measures the initial receipt of tourism expenditure and follows the successive rounds of spending in the economy which create income and employment. At the same time it is established how tourism in Taupo benefits other regions through the inter-regional flow of certain inputs. Overseas, income and employment generation has usually been measured through the application of multiplier analysis at both national and sub-national levels. This form of analysis allows the estimation of both direct and indirect effects of a specified tourism injection. This study applies the multiplier technique to tourism in the Taupo urban area and estimates income and employment multiplier values.

2. FOCUS ON APPROACH

2.1. Frame of Reference

Several problems arise in choosing the most appropriate, useful approach to this study. These include :

- (i) the nature of the industry;
- (ii) the choice of study objectives made possible through the lack of similar research in New Zealand;
- (iii) the combination of disciplines involved;
- (iv) intended readership.

The ill-defined nature of the industry has already been referred to. Certain choices must be made to define the study region (see Section 5.1) and targets for data generation. The lack of any similar research on the industry in New Zealand meant that decisions are required on the most useful multiplier information to generate. The literature reveals considerable diversity in this regard, both in multiplier construction and in the choice of multiplicand. It is possible to produce multipliers for different types of tourists, different types of accommodation, different groupings of business activities, etc.

There is a combination of disciplines involved in the study and some degree of competency is therefore required in each. The study and analysis draws on both regional economics and economic geography. The main focus is on the former however there is much overlapping and exponents of the latter have been critical of the lack of attention paid to the space economy. (Richardson 1978) This study is also an industry study examining the operations of a particular business sector. Therefore due attention must be paid to the micro aspects of tourism industry operations. Of particular importance are the linkages which exist between parts of the industry and between local industries in general.

2.2. Objectives

The objectives of this study can be specifically stated as follows :

- 1 To define income and employment multiplier values for the tourism industry in Taupo;
- 2 To examine the efficacy of multiplier analysis in providing information necessary to making policy decisions on tourism development.

2.3. Methodology

Information on tourism falls into three broad categories: tourism inventory, tourism demand and tourism impact information. This study centres on the latter category although to fully describe tourism in Taupo, considerable attention must be paid to the other two categories.

What is an impact? Rajotte's impact evaluation methodology provides an exhaustive list of impacts for tourism in the Pacific. (Rajotte 1978). But for the purposes of this study an impact involves the utilisation, expending or alteration in form of resources which occurs due to an activity, event or continuing process. For example, land materials and labour are used in motel construction. During a Taupo January the appearance of the lake alters dramatically due to the numbers of tourists using it. At this time also, crowding causes stress to some local residents. These are all different kinds of impacts.

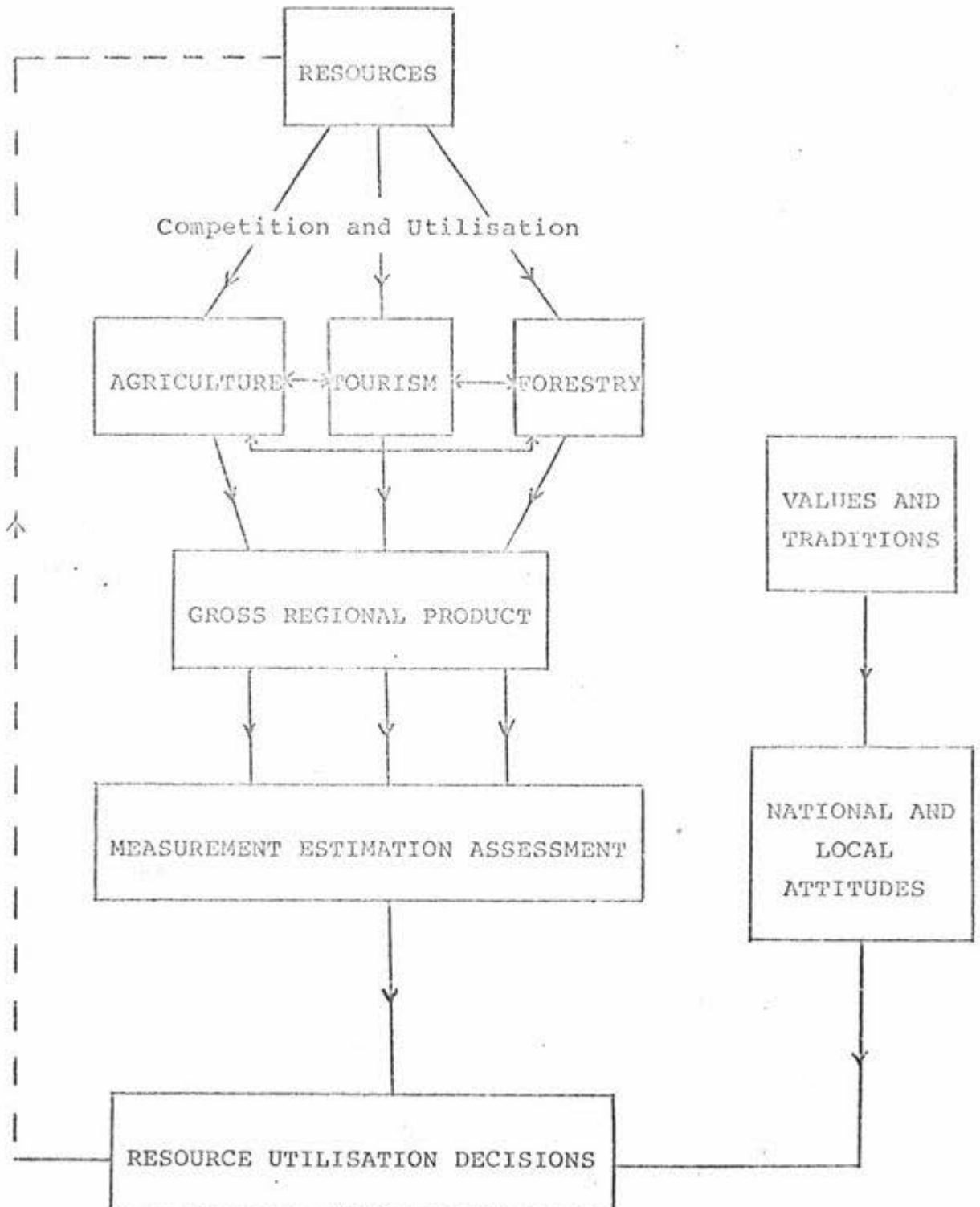
Why examine an impact? Impact measurement is necessary to make decisions on the future use of resources which determines the overall welfare of the people of Taupo. Impact measurement is carried out in a number of ways including subjective assessment, estimation and objective measurement.

Schematically this process could be represented for Taupo in Fig. 2.1 where agriculture, forestry and tourism have been identified as the economic base activities which compete for resources. Each sector uses certain resources and its output becomes part of the gross regional product. Each sector is assessed on its ability to generate income, employment and foreign exchange. To 'generate' foreign exchange can also mean to 'replace' imported items. It is therefore a nett concept. Objective measurement is undertaken, however national and local attitudes are affected by established values and traditions which may indicate a preferred activity. For example New Zealand has an established tradition in pastoral farming which determines resource utilisation decisions even where it has been demonstrated that afforestation could be more productive and have soil conservation advantages. On the basis of all 'measurements' resource utilisation decisions are made.

What is an economic impact? For tourism this is difficult to define because firstly like many other activities, tourism is a combination of men and environment. Therefore we have socio-economic impacts which include employment, changes to the occupational structure and not so readily measurable effects such as the attitude of host population towards tourism. We also have environmental impacts which if negative will detract from the tourist resource base itself and may threaten the future earning capacity of the area.

Secondly the economic impact of tourism must be measured as the effect of tourists and their spending over time. The impact changes over time and different methods of assessing that impact will be more favourable to certain parties involved in tourism or more useful for different kinds of policy analysis. To elaborate, tourism study methodology has been expanded or varied over the years so that evaluation is made on a different time frame or broadened field of measurement.

Fig. 2.1. Resource Utilisation Decision-Making Process



2.4. Methodological Development in Tourist Impact Studies

Initial research on the economics of tourism was concerned with documenting and describing economic benefits in tables of international travel statistics listing tourist numbers and estimates of expenditure. This emphasis reflected the confidence that government departments, development agencies and financial organisations had in the ability of tourism to yield considerable returns on investments and assist in economic development of certain areas. This research focussed on the accounting return and direct effects or receipts to the industry. Subsequently research went beyond this to examine secondary economic benefits which largely take the form of multiplier studies. While a multiplier study can be an accurate measure of total benefits it is essentially concerned with short term benefits and it takes no account of economic costs. A longer term approach would include feedback or accelerator effects which comprise investment stimulated by the growth due to the initial tourist spending.

For these reasons other research has turned to the application of cost-benefit analysis. Here the question is essentially: What are the long run gains from increasing the capacity of the tourism industry and how do these compare with equivalent investments in other industry? It is emphasised that 'gains' is a net concept and could be negative or positive, therefore including tangible costs such as the best alternative investment of capital and the use of land. Bryden has emphasised the inadequacy of the multiplier type analysis in prescribing policy because it is short run. (Bryden 1973). However Diamond makes the point that cost-benefit and multiplier analysis are addressed to different policy questions and thus "there is no antithesis between them". (Diamond 1976). It is necessary to examine both the present performance and long run gains of the industry.

Cost benefit analysis involves the summation of a stream of costs and benefits over time and in the absence of methods to evaluate environmental and social impacts in monetary terms it remains incomplete. Because of this and in response to concerns at new forms of 'imperialism' appearing through tourism other studies have turned to these matters. This imperialism materialises in the disparity of wealth and culture between the tourist, often white, and the host population usually black and post-colonial.

To summarise, the approaches that could be utilised in a tourism economic impact study are diverse and vary depending on the questions for which answers are being sought, the time frame adopted and the purpose for which the information is to be used. No one approach can satisfy all the various demands for information and a multiplier study is no exception.

3. MULTIPLIER MODELS

3.1. Introduction

Three main approaches have been utilised in the construction of multipliers for regional analysis. These are economic base type multipliers, input-output multipliers and econometric multipliers. Each approach has had many variations and a wide body of literature has been built up over the years. With special attention to tourism applications, Archer has put together an extremely useful review. (Archer 1977). The following discussion outlines each technique and examines its limitations. The objective of the present study which is to examine the impact of an injection of tourism spending. This objective together with the lack of regional accounts or ability of this study to generate such complete accounts necessarily lead to a choice of approach which has been called variously a modified input-output or econometric technique.

3.2. Economic Base Multipliers

The central hypothesis in economic base theory is that regional income is determined by a regions exports which would include the payments made by tourists for the goods and services of that region.

In effect the economic activities of the region are divided into 'export' activities and 'non-export' (or service or local) activities. (Andrews 1955) The reduction of all activities into two groups is a somewhat artificial dichotomy because the output of many economic activities is consumed or paid for both locally and in places external to the local economy. Tourism in Taupo is an excellent example with the composite tourist product of accommodation, meals, and tourist activities being consumed by local people as well as visitors. However the more minutely economic activity is broken down from sectors to firms to individual transactions the more valid this reduction into two groups becomes.

The economic base model assumes:

- (i) That there exists a stable relationship between the export and non-export sectors with the result that changes in the former lead to predictable changes in the latter. This assumption may also be applied to the other multiplier techniques but its implications are particularly evident in a base multiplier as described below.
- (ii) linearity in relationships between sectors. In simple terms this means that if the output Y of Industry A increased by a factor fY then inputs from all other local industries that are used in this output will increase by factor f also.
- (iii) the availability of unemployed resources to provide for the required level of production.

Using Keynesian type income definitions so that the model is comparable to those described later :

$$(1) \quad Y = (E-M) + X$$

By substitution:

$$(2) \quad Y = eY - mY + X$$

$$(2a) \quad \text{or} \quad Y = \frac{X}{1 - e + m}$$

where Y = regional income
 E = spending
 M = regional imports
 X = exports

and $E = eY$ where e = propensity to spend;
 $M = mY$ where m = propensity to import
 $X = X$ exogenous

Regional income is therefore a multiple of exports provided that the propensity to spend locally (e-m) is less than unity.

The stability of the base income:total income ratio clearly depends on the other variables e and m and in dynamic terms this has been found untenable by some authors. (Richardson 1978) In a study of regions of the United States it was found that the relationship between export and total income varied inversely to the size of the region (population or area). (Bolton 1966) One explanation proffered was that non-export incomes become larger due to import replacement associated with economies of scale. The way in which multipliers change over time is not a feature of the present study but the same feature is demonstrated by noting the different multiplier impacts associated with different compositions of tourist spending which ultimately bear different aggregate e and m values.

There are two main objections to the economic base type multiplier. The first is general to all multipliers but the second is particularly relevant to the possible use of the model in the present study.

Firstly, as stated above, the models assumption of unemployed resources and excess capacity, if wrong, means that a rise in tourism spending would lead to higher prices throughout the local economy rather than an increase in the level of real income.

$$\text{i.e. } X \uparrow \rightarrow y \downarrow = \frac{Y}{P \uparrow} \quad \text{instead of } y \uparrow = \frac{Y \uparrow}{P}$$

where y = real income

X = tourism spending

Y = nominal income

P = prices

Secondly, and more importantly, even if a base multiplier is obtained it may not work very well because of the heterogeneity of the base. The repercussions on local income may vary widely depending on the sector in which exports expand. The differences arise from variations in inter-industry linkages associated with particular export activities and variations in consumption patterns of workers employed in export sectors. To illustrate, the model would predict the same rise in income for Taupo whether the exogenous change was to originate in the forestry or tourism sector. Clearly the industries which service the forestry sector would vary from those that service the tourism sector in such determining factors as ownership and the source of other factor inputs. One solution to this problem is to develop a differential multiplier model. However by taking this to its logical conclusion an input-output model is arrived at.

One attempt at such a solution was undertaken by Garnick who produced multiplier values for sectors in Washington State and Nebraska by 'augmenting' the economic base method "such that differential multipliers are derived approximating most of the differential multipliers obtained from input-output matrices." (Garnick 1970) Multiplier studies in the tourism field take this differentiation one step further by producing multiplier values for different types of tourists or different types of accommodation. (Brownrigg & Greig 1975)

Economic base multipliers have not had a great deal of application in the tourism field and more generally they are rejected in favour of an input-output or a Keynesian multiplier formulation. (Archer 1977)

3.3. Input-Output Multipliers

More detailed and rigorous in its approach than the economic base multiplier is that derived from the application of input-output analysis to the measurement of tourism impact

on the local economy. This formulation of the multiplier can be best explained by outlining its application to a simplified tourist economy.

In Table 3.1. each row of figures represents the sales by each sector of the economy to other sectors. Each column of figures represents the inputs that each industry uses from other sectors in producing its final product. In this particular example it is evident that much of the output of the accommodation and transport industries are consumed by tourists.

Tourist spending is shown to enter the local economy in four sectors. This is the direct effect on the local economy. This initial income is then respent by the business sector in all other sectors including the households. This and further rounds of spending between business sectors is called the indirect effect. At each round of spending by businesses some income accrues to local households who then spend their income to have an induced effect on the local economy from the initial tourist spending.

At each stage some money leaks out of the economy as imports or is saved rather than spent. It is these leakages that determine the strength of the multiplier.

Note that for each sector total outputs equals total inputs. The sixteen cells representing transactions made between accommodation, transport, retailers/wholesalers and local households are called the domestic transactions matrix. This matrix is usually expressed in input coefficient form which uses percentages rather than absolute figures. This matrix (A) is as follows :

Table 3.1. Simplified Tourist Economy : Input-Output Table

	Accom.	Trans- port	R & W	Loc.Hse (spndg)	Tourist (spndg)	Total Output
Accommo- dation	100	150	50	-	700	1000
Transport	50	100	250	100	350	850
Retailer & Wholesalers	150	300	200	700	100	1450
Local Household (earnings)	300	100	400	100	150	1050
Imports	400	200	550	150	-	1300
Total Inputs	1000	850	1450	1050	1300	5650

$$A = \begin{bmatrix} 0.1 & 0.18 & 0.03 & 0.00 \\ 0.05 & 0.12 & 0.17 & 0.09 \\ 0.15 & 0.35 & 0.14 & 0.67 \\ 0.3 & 0.12 & 0.28 & 0.09 \end{bmatrix} *$$

* figures are rounded

The total output of these domestic sectors can be depicted in a vector (X), viz:

$$X = \begin{bmatrix} 1000 \\ 850 \\ 1450 \\ 1050 \end{bmatrix}$$

Tourist expenditure for each domestic sector can be expressed in another vector (Y) :

$$Y = \begin{bmatrix} 700 \\ 350 \\ 100 \\ 150 \end{bmatrix}$$

and A, X, and Y can be combined to describe an economic relationship in matrix algebra :

$$(3) \quad X = AX + Y$$

which states that total output is equivalent to domestic output (as specified in the transactions matrix) plus tourist expenditure.

By manipulation;

$$\begin{aligned} & X = AX + Y \\ (4) \quad & \text{becomes} \quad X(I - A) = Y \\ (4a) \quad & \text{or} \quad X = (I - A)^{-1} Y \end{aligned}$$

Where I is the identity matrix and the -1 denotes an inverse matrix. The similarity between this expression and the multiplier form has also become apparent. (see Eq. (2a).) It should be noted that the matrix A above has the local households as an endogenous variable so that after there has been an exogenous change (Y) the matrix includes both indirect output effects (the subsequent rounds of responding by the local economy sectors) and induced output effects (the spending of wages, dividends, interest etc. by local households back into local businesses).

3.4. Applications of Input-Output in Tourism Studies

An early tourism input-output study was carried out by Harmston in Southwestern Wyoming USA which was followed by another in Missouri. These models had 22 and 24 sectors respectively and in the latter study he treated households and local government first as being endogenous to the model, then as exogenous to distinguish between indirect and induced effects. He demonstrated that the latter were over three times as great as the former. The value of the multipliers he produced ranged from 0.389 to 0.528 for various sectors. (In Archer 1977a)

Gamble used a 29 sector input-output matrices to calculate multipliers for two counties in Pennsylvania. By the introduction of an additional row and column into the matrix he used the model to predict the effect of introducing new tourism activities into the economy. (In Archer 1977a)

Strang used a 19 sector model to calculate output multipliers for each sector of a county economy in Wisconsin. He later used this model to derive different multipliers for different categories of visitor. (In Archer 1977a)

Perhaps the most rigorous analysis undertaken using this approach has been that of Bryden in Antigua (Caribbean) in 1973. (Bryden 1973) Bryden's analysis illuminates several limitations of multiplier analysis which are elaborated on later. He used an existing 1963 input-output table but made various adjustments to the transactions matrix in its treatment of savings/investment and the final demand sectors (households, rest of the world, government and profit appropriation).

From the initial input-output table he produced a 13 x 13 matrix of coefficients plus an exogenous vector of final demand representing tourism expenditure. He produced estimates of the direct, indirect and input requirements of primary inputs and value-added needed to support the level of final demand.

Bryden's most valuable contribution was that he went on to examine supply constraints, particularly in local agricultural production under the assumption that in the short-run this sector would be unable to meet increased demand. The result of this he found would be that a greater proportion of additional purchases would be imports. Using these marginal coefficients in the matrix he reduced the value of the income multiplier by as much as one third.

The limitations of the input-output approach are dealt with following the next section. However as an introduction to considering the third approach, econometric multipliers, it is appropriate to note that the main limitation of the input-output approach is the large amount of primary data which is required. Econometric multipliers are far less demanding in their data requirements.

3.5. Econometric Multipliers

Regional econometrics has been a growth sector in regional economics since the late 1960's. (Richardson 1978)

Regional models have been adapted from national macro-economic models. The region is treated as a system and represented by a limited number of variables such as consumption, investment, output, employment and prices and a large number of equations all expressing regional values and economic relationships. The main predictions of the national model could be used as exogenous variables in this system so that regional models are 'driven' by GNP, central government expenditures, the price level and the rate of interest. (Klein 1969)

The central government vote on tourism promotion if spatially identified could become a crucial variable in a regional system applied to growth in the tourism sector.

The applicability of this approach is to be questioned as it applied the macro-economic theory of the 'closed' national economy to the relatively 'open' regional economy. In addition regional planning and development is essentially long-term because it addresses itself not only to the demand for but also the supply of resources and the impact of the utilisation by competing industries on the economy. National econometric models of the types being discussed are demand-oriented and short-term in their predictive ability.

Thirdly application of the approach is thwarted by the non-availability of social accounting systems at the regional level from which the required data base could be extracted. (Richardson 1978) [The systems of equations generated by this technique are also used more for forecasting purposes than for impact evaluation.

A simpler technique more suited to impact evaluation, or more strictly speaking measuring the change in income due to an initial injection, is the Keynesian income multiplier model. The model is still based on economic aggregates as with other econometric models and was also initially used at the national level.

Archer comments that this is an instantaneous multiplier (or impact multiplier see Theil 1971) because it does not take into account either :

- " (i) additional flows of exports induced by the rise in incomes in other areas as a result of their extra sales to the study region; or
- (ii) any extra investment which might take place in the study area as a result of its increased level of output." (Archer 1978)
(i.e. accelerator effects).

To illustrate, if it was assumed that the city of Hamilton was the supplier of many items consumed by tourists in Taupo then this would generate more income and employment in Hamilton, with consequent effects on the number of people and amount of money being spent by Hamilton tourists in Taupo. Secondly extra investment in tourist accommodation or attractions by investors external to the region might follow to cater for the increase in demand.

Archer goes on to show how the model can be adapted to account for such effects. However the model proposed for use in the present study does not take these longer run effects into account. Furthermore discussion in a later section questions the strength of such effects. (See Section 3.5.5).

Among those tourist regions to which a multiplier model of the Keynesian income form has been applied are the Bahamas (Checchi and Company 1969); Hawaii (Renaud 1972) and Southwestern England (Edwards 1976). However the most proliferate user and exponent of this model in the tourism field has been Archer who has developed and applied a model through several studies in the United Kingdom. (Archer 1977a-d) It is this multiplier model on which the present study is based.

The simple income model described previously is divided into two parts. Firstly the direct and indirect income generated in the study area by one dollar of tourist spending is expressed as follows :

$$\sum_{j=1}^N \sum_{i=1}^n Q_j K_{ji} V_i$$

where j is each category of tourist (1 to N);
 i is each category of business (1 to n);
 Q_j is the proportion of total tourism spending by the type of tourist
 K_{ji} is the proportion of spending by the j th type tourist in the i th category of business;
 V_i is the direct and indirect income generated per dollar of turnover by the i th type of business which receives tourism expenditure.

Secondly the induced income effects are found by applying a multiplier expression to the multiplicand (A) which is the sum of the direct and indirect effects, viz:

$$A \times \frac{1}{1 - c \sum_{i=1}^n X_i Z_i V_i}$$

where c = propensity to consume
 X_i = proportion of total consumer spending in the i th type of business
 Z_i = proportion of each type of spending which takes place in the study area.
 (See Appendix II for more detailed definition)

This model has also been applied to Greater Tayside (Henderson and Cousins 1975); Tasmania (Smith & Wilde 1977); and the Isle of Skye (Brownrigg & Greig 1975).

Henderson and Cousins produced very detailed tables showing the regional income generation coefficients for a range of accommodation types and businesses. For each category the direct and indirect Regional Income Generation coefficients were estimated at the local, regional and national (Scotland) level to illustrate the flow on from tourism spending in a local area. The induced effects were also estimated for the region.

Smith's study is notable as being one of the few, if not the only application of multiplier analysis to tourism in Australasia. Smith chose coastal Western Tasmania as his study area. This was a clearly defined region in which very little production of consumer goods occurs and for which flows of income in and out of the region were relatively easy to trace. Smith's major finding was that tourist spending in smaller locally owned establishments had a greater impact on the local economy than larger ones due to stronger local linkages and purchases.

Brownrigg and Greig disaggregated their multiplier also to obtain differential multiplier values for different types of accommodation. The authors found that due to the insularity of the accommodation sector and heavy leakages from other sectors receiving tourist expenditure the total expansion of regional income was less than the injection which was the origin of the expansion. Employment generation showed a similar result due to the limited generation of secondary employment.

Each of these studies point to the importance of local linkages and interaction between tourism and other sectors in the local economy. While tourism may be seen as a means of capturing the tourist dollar it is the respending of that dollar by the initial receiver and subsequently that ultimately determines the value of promoting various tourism sub-sectors or the industry as a whole.

3.6. Weaknesses and Limitations

In order to avoid the misuse of the results of multiplier studies it is necessary to understand the weaknesses of the method and limitations dictated by assumptions which are to varying degrees unrealistic. Other problems, which if not satisfactorily resolved will limit the validity of results, such as data deficiencies are also examined. Sections 3.5.1 to 3.6 discuss the weaknesses and limitations of multiplier studies but see Section 4.3 for a summary assessment of the model used in the present study.

3.6.1. Data Deficiencies

Many tourism researchers have been content to accept existing input-output tables, usually constructed for the national economy, on which to base their multiplier modelling exercises without making any attempt themselves to update or improve the data within the matrix. The generation of primary data is essential, especially in the case of regional studies where sectoral input coefficients are likely to differ considerably from their national equivalents. Generally the smaller the area under investigation the more important it is to undertake full surveys and generate meaningful local data. Further data problems arise out of the nature of tourism itself. Tourism is rarely identified as a sector in national input-output tables because it is essentially a multi-sector industry. Expenditure is spread across a wide range of activities and an accurate survey of visitors is needed to obtain an acceptable breakdown of this expenditure.

Other commentators in the field have made the point that tourists are notorious for having only a vague idea of how much they spend, on what and where. (Clawson & Knetsch 1966) It is argued that it is far better to collect information on spending patterns from a cross-section of local businesses who have comprehensive records and estimates of

tourist receipts. However for reasons explained later, the present survey does not adopt this approach (see Section 5.2.1).

3.6.2. Restrictive Assumptions

The simpler Keynesian multipliers fail to take into account the different input structures of the various sectors of the economy so that every autonomous injection whether it be for example the export of agricultural or forest products or increased tourism spending would produce the same multiplier effects. These models are too coarsely constructed to measure tourism multiplier accurately to say nothing of the different impacts of various types of tourists (e.g. accommodation type, nationality) which may be necessary to determine for tourism policy implications. The model used in the present study does not suffer from this limitation however and attention is paid in particular to first round leakages in the input structures of the initial receivers of tourism expenditure.

Other assumptions do however restrict the validity of the present study's results. Static and many dynamic models assume that each sectors production function is linear so that any further production undertaken by each of the sectors will use inputs in the same proportion as previously. This assumes the absence of any economies or dis-economies of scale and means that average rather than marginal propensities and coefficients are used in analysis. This includes the all important import propensities which Bryden examined in his study of Antigua. He demonstrated that as the occupancy rates in hotels increased and the extra requirements were met primarily through imports the multiplier value fell from 0.88 to 0.77. (Bryden 1973)

Wagstaff also highlights this problem of import variability stating by example:

"A manufacturer may buy from the local supplier when there is one, but expansion of his own plant or the development of an alternative input by a producer elsewhere may cause him to buy outside the region."

(Wagstaff 1973)

Another example of the non-linearity in factor inputs was noted by Lovegrove and Rohdy in Colorado, USA where excess capacity in many hotel establishments meant that as occupancy rates increased the under-utilised capacity became employed, economies of scale existed and the combination of inputs at the margin altered. (Lovegrove and Rohdy 1972)

3.6.3. The existence of supply constraints

Most multiplier studies assume that supply is elastic in all sectors of the economy, i.e. that increases in output required to service increases in final demand can be met by purchases from those same sectors which supplied the previous inputs. In practice there exists technical constraints and bottlenecks which prevent this. For example two studies have pointed to the severe restrictions that the foreign exchange constraint imposes on tourist development in the Caribbean and Turkey respectively. (Levitt & Gulati 1970; Diamond 1976)

Supply constraints can also arise through the inability of particular sectors to respond to increased demands for their product. Bryden demonstrated the effect of this on the value of the multiplier by excluding the agricultural sector from his input-output matrix and transferring the inputs to the import row.

The value of the multiplier dropped by 8%. The supply constraint can also affect prices, thereby forcing some local establishments to purchase less expensive imports rather than the inflated local products.

3.6.4. The use of homogeneous linear consumption functions

It is assumed in most multiplier studies that any increase in income will be spent on the same items and in the same proportions as previous consumption. In practice this is unlikely and as a household's income rises the pattern of expenditure can be expected to change in both quantity and quality or type. These effects have been taken into account in a study by G Richards in the United Kingdom and the Republic of Ireland. (In Archer 1977) By regressing time series data of consumption on income to produce income-consumption functions and applying these to his input-output model, he showed that the value of his tourism multiplier reduced by 5-7%. In an earlier study Sadler et al. used eighteen different patterns of consumer expenditure and as income increased households at the margin were switched into the next higher group. (Sadler 1973) As in Richards study the value of the multiplier reduced largely because higher income groups tended to spend a greater proportion of their income outside the study area and on imported items.

No attempt is made in the present study to allow for changing consumption patterns due to an increase in tourism expenditure. It is considered sufficient at this time that the reader be aware of this shortcoming in the model used.

3.6.5. The absence of a repercussive feedback mechanism (the accelerator effect)

It has been already mentioned that most multipliers are instantaneous in the sense that they do not take into account changes in tourist activity and the spending of another region or country where this region has benefited

from the imports required by the tourist region to service their tourist activities. The extension of regional income and multiplier analysis into inter-regional models has received early attention by regional economists. (Aira 1963) Currently it is not a fashionable topic (Richardson 1978) and in the tourism research field comments on the cost-benefit of estimating such effects have been varied. Lewes found that the addition of a repercussive feedback effect changed the multiplier value for a small economy in Southwest England by only 1%. (In Archer 1977) Intuitively such effects would seem to be more important in larger regions. One study on large regions in the United Kingdom concluded that the difference between the simple and feedback multiplier for certain regions was sufficiently great for feedback effects not to be ignored. (Steele 1972)

The present study is on a relatively small region and the above comments justify excluding any formal incorporation of such effects. However particular regions or towns who may benefit in particular from tourism spending in Taupo are identified. (See Section ?)

3.7. The sensitivity of coefficients

Archer states that "ideally a multiplier model should be robust enough to withstand quite substantial changes in the values of the coefficients yet sensitive enough to react to any changes in the pattern of tourism expenditure."

For example Table 3.2. depicts changes in the value of two subjective estimations c , the propensity to consume and Z_i , the proportion of each category of resident consumer expenditure which was spent in the study area.

Archer demonstrates that even with the most extreme change from $c = 0.8$; $Z_i = -25\%$ to $c = 0.9$ $Z_i = +10\%$ the change in the multiplier value was only 0.0182 (less than 2p in the pound). The model employed in the present study has been demonstrated as being robust yet sensitive to changes in the

pattern of expenditure. The main prerequisite is that the model be sufficiently disaggregated to accept the pattern of expenditure without compression into what in input-output terms would be too few rows in the table. Sensitivity tests on crucial coefficients are carried out in the course of analysis.

Table 3.2. Sensitivity Tests of Changes in the Value of Z_i and Value of c on the Value of the Multiplier
 Z_i = proportion of local residents expenditure spent inside the study area
 c = Propensity to consume

The Coastal Strip of East Anglia 1975

Value of Z_i	Propensity to Consume		
	0.9	0.85	0.8
+10%	.3349	.3323	.3287
+ 5%	.3323	.3299	.3270
Estimated	.3296	.3274	.3252
- 5%	.3276	.3255	.3235
-10%	.3256	.3239	.3217
-15%	.3239	.3218	.3200
-20%	.3217	.3200	.3183
-25%	.3198	.3182	.3167

Source: Archer et al. Tourism in the Coastal Strip of East Anglia 1977 (in Archer *ibid*)

This concludes a review of the weaknesses and limitations of the multiplier approach. The next section specifies the model used in the present study and states explicitly in summary form how the model used matches up against the various weaknesses and limitations.

4. THE MODEL TO BE USED

The model to be used in this study closely follows that devised by Archer and Owen for their study of tourism in Anglesey⁵⁰ and calls also on the work of Henderson and Cousins in Tayside. (Archer & Owen 1977; Henderson & Cousins 1975)

4.1. Regional Income General Model

It displays a number of characteristics which make it superior to many other models used and accounts for some of the criticisms of multiplier studies generally as previously discussed.

The tourist regional income multiplier for this study is :

$$\sum_{i=1}^n Q_i V_i \times \frac{1-L}{\sum_{i=1}^n X_i Z_i V_i}$$

where Q = proportion of total tourist expenditure on each type of accommodation outlet and consumer outlet

V = proportion of each recipients turnover which remains in the local economy

L = average proportion of an individuals income which is spent rather than saved

X = the expenditure pattern proportion among different sectors of the economy by consumers of goods and services

Z = the proportion of each sector in X which is local.

(See Appendix II and Section 4.2 for more complete definitions)

The first term ($\sum Q_i V_i$) represents the direct and indirect regional income multiplier. The fraction represents the summation of the rounds of consumer spending or the induced regional income multiplier.

The complete model to measure regional income generation would be expressed by the following adaptation :

$$R = NE \sum_{i=1}^n Q_i V_i \bigg/ 1 - L \sum_{i=1}^n X_i Z_i V_i$$

where R = total regional income generation

N = the number of days spent in Taupo by the average tourist

E = average total daily expenditure of that tourist.

However as this study is interested in the impacts of different types of tourist and their spending N and E can be disaggregated further thus :

$$R = \sum_{j=1}^N \sum_{i=1}^n N_j E_j Q_{ij} V_i \bigg/ 1 - L \sum_{i=1}^n X_i Z_i V_i$$

where N_j = the number of days spent in Taupo by the j th type of tourist

E_j = the average daily expenditure of the j th type tourist

Q_{ij} = the proportion of the total expenditure of the j th type tourist on each accommodation and consumer outlet.

4.2. The Component Terms of the Model

The first element to be known is the total numbers of tourists both international and domestic who visit the region for the study year (April 1981/March 1982). This needs to be generated for each tourist type (see Section 6.5). The methodology used in this study did not account for passers through or people who did not stay except for coach tour visitors. Without a cordon survey the inclusion of these groups was not possible. (See Var & Schwindt 1977) The tourist types identified were: motel/hotel guests, caravan and camping ground visitors, holiday home users, coach tour visitors. The person/night is the conventional unit for counting tourists, except for coach tour visitors where the visitor/day term is used. As it is necessary to weight the variables according to the different size and pattern of expenditures the total person nights for each type of tourist must be calculated.

Q : Pattern of Tourist Expenditure

The pattern of expenditure is expected to be different for each of the above tourist categories. For example visitors using motels or hotels may spend more on accommodation and less in supermarkets than campers. Holiday home owners alone spend money on repairs and renovations while coach tour visitors who are predominantly overseas tourists could be expected to spend more on souvenirs. The total amount spent on each category is expressed as a fraction of one dollar. As these distinctive patterns produce differences between the multiplier coefficients for the various types of tourist, Q is therefore one of the most sensitive elements in the model.

V : Income Generated by Each Business

Fundamental to the income multiplier is the income generated by each business. This includes not only income generated

exclusively within itself but also the income which is generated in other businesses by the subsequent flow of transactions.

The point has been made by Henderson and Cousins that since only tourist originating turnover is relevant, a distinction should be made between businesses whose existence depends on tourism and those businesses which, although benefitting from the tourist trade, have an existence independent from it. (Henderson & Cousins 1975) The former type, they state, should be analysed on an average basis (ie all receipts and expenditures should be included in the analysis) while the latter type should be treated as marginal (ie only the additional turnover and purchases arising from the tourist trade should be included). The approach of the present study to this question is covered in Section 5.3.

As the V value includes the subsequent generation of income by businesses which receive income from the initial receiver of tourist spending and to the extent that the sectors of the local economy as identified in the model are interlinked the V value for each sector will be solved through the simultaneous equations expressing these linkages for the defined system. Appendix I sets out a full working methodology and example for this calculation.

L : Average Propensity to Consume

As discussed above multiplier analysis can be seriously criticised for using average rather than marginal propensities. However there are some strong arguments for preferring the use of average figures and these are certainly easier to obtain. The present study utilises the national average propensity to consume figure in the absence of any regional measurement or estimates.

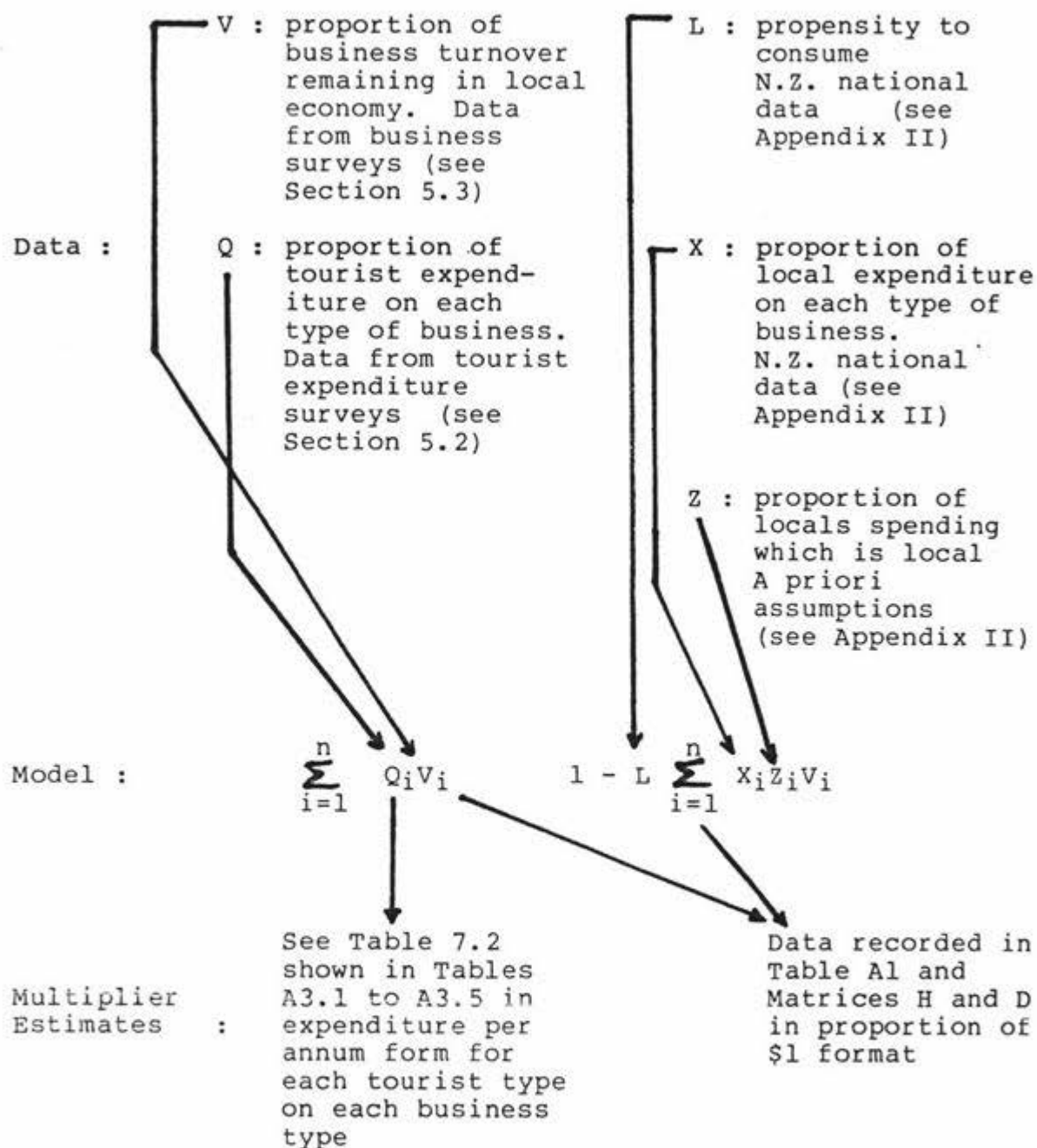
In a study of forestry multipliers for four New Zealand regions Aldwell found that questionnaire data in most cases returned a figure close to the national average. Also the propensity to consume figure has been demonstrated as not being a variable of the model to which the multiplier value is particularly sensitive. (See Section 3.6. and Appendix II). (Aldwell 1980)

X : The Local Pattern of Expenditure and

Z : The Propensity of Local People to Spend Locally

It was intended to generate these values through the application of a household survey of expenditure. However an extremely low response rate to the mailed questionnaire has forced the utilisation of national expenditure patterns for X and the estimation of Z. This approach was utilised in both the Archer and Owen and Henderson and Cousins studies. The sensitivity of the multiplier to quite large changes in the Z value has been demonstrated as being slight. (See Section 3.6). X values were extracted from the New Zealand Household Survey Report 1977-79 which provides a national expenditure pattern. This pattern was adjusted on the basis of data in this document and 1981 Census data for regional variation in income, household type and other socio-economic factors.

Fig. 4.1. Data Flow Through Model



4.3. Summary Assessment of Model

In applying an economic model and interpreting results it is important to be aware of the limitations and weaknesses of the particular model used. The following section sets out an assessment of the features of the model in summary form.

- 1) The model relies on the generation of considerable up-to-date primary data. In doing so it avoids much of the criticism of input-output multipliers which have commonly been derived from national tables for application at regional level.

Some degree of aggregation of the data is necessary to make survey application manageable and to this extent some sensitivity is lost. For example aggregation of a wide range of retail businesses was necessary to keep the number of sectors for which V values were generated to a minimum. The use of national statistics to estimate household spending behaviour has been necessary but it has been emphasised that these variables are not crucial to an accurate multiplier value.

- 2) The model is constructed to specifically measure the multiplied effects of an injection of tourism spending. In particular it takes account of first round leakages (i.e. the out of region expenditure of the initial recipients of tourist expenditure) from the region where the absolute amount of income is greatest and where leakages are therefore the most significant. It does suffer however from the restrictive assumptions of linearity in production and consumption. Considerable comment has already been made on the importance of these assumptions. It has been decided that no attempt will be made to formally incorporate any allowance for changed input combinations due to an efficiency choice

or forced by some supply constraint or for changed consumption patterns. The writer considers that this being a first attempt to quantify this sort of impact in New Zealand it is sufficient to be aware of the limitation and to be aware of the possibility of non-linearity during data generation and discussions with the business sector so that some comment may be made in the conclusions to the study.

- 3) No attempt has been made to include any accelerator or repercussive feedback effects in the model. The size of the region and the findings of other researchers justify this decision.
- 4) The model used has been demonstrated as being robust yet sensitive to changes in the pattern of expenditure which determines the multiplier value to a large extent. This means that the model can be used to differentiate between the income and employment generating capacity of various types of expenditure or businesses. (See Appendix II).
- 5) The multiplier is a method of assessing the current economic performance of the industry to which it is applied. However it does not provide all the information necessary for policy-making. In particular the long run gains and losses which may be revealed through the application of cost benefit analysis and some assessment of the intangibles and externalities would be needed in addition to the information generated by the present study.

4.4. Regional Employment Generation Model

By establishing a relationship between employment and turnover, it is possible to translate a regional income multiplier into a regional employment multiplier. This

multiplier is a summation of the employment which is created at successive rounds as the flow of tourist originated expenditure circulates.

The basic assumption that an increment in turnover leads to an increase in employment will not necessarily hold for any particular firm. (See Section 8.3). However the assumption is reasonable at an aggregate level.

(A) Direct Employment Generation

$$A = \sum_{j=1}^J \sum_{i=1}^I Q_{ji} E_{di}$$

Where E_{di} = increase in employment in the region per \$100 000 of turnover to the i th type of business generated exclusively within that business which directly received tourism expenditure.

(B) Indirect Employment Generation

$$B = \sum_{j=1}^J \sum_{i=1}^I Q_{ji} (E_i - E_{di})$$

Where E_i = increase in employment in the region per \$100 000 of turnover to the i th type of business generated within that type of business and in all other types which participate in the subsequent flow of transactions.

(C) Induced Employment Generation

$$C = (a+b+c) \sum_{i=1}^I X_i E_i$$

- Where a = direct regional income generation per \$1 of tourist expenditure
 b = indirect regional income generation per \$1 of tourist expenditure
 c = induced regional income generation per \$1 of tourist expenditure

The complete regional employment generation model may be expressed as follows :

$$S = \sum_{J=1}^N \sum_{i=1}^n N_j Q_j K_{ji} E_i + \left[\sum_{J=1}^N \sum_{i=1}^n N_j Q_j K_{ji} V_i \left(\frac{1}{1 - L \sum_{i=1}^n X_i Z_i V_j} \right) \right] \sum_{i=1}^n X_i E_i$$

where S = total employment generated within Taupo from tourism

E: Regional Employment Generation Coefficient

The E value for each business takes into account not only the employment generated within itself but also that created in other businesses to which it makes payments for goods and services. Once again therefore the resolution of these coefficients will be through solving a set of simultaneous equations.

5. SURVEY DEFINED

5.1. The Study Region Defined

The definition of a study area is critical in regional analysis. Where measurement of regional variables such as income and employment generated inside some arbitrarily drawn boundary is being performed. This is because this measurement has a spatial dimension and involves the flow of goods and services over that space. Therefore the placement of a boundary will determine what is an intra regional or inter regional flow and thus affect the value of the measured variable.

Taupo is fortunate in this regard because it is isolated by large areas of farmland and forests from the nearest adjacent towns. The following table and Fig. 6.1 demonstrate this isolation.

Table 5.1. Distance From Taupo to Adjacent Towns

<u>Town</u>	<u>Kilometres</u>
Tokoroa	66
Rotorua	82
Turangi	52
Napier	147

As tourism and not agriculture or forestry is the basis of this study, the study area can be well defined around urban Taupo without ambiguity as to whether the flow of a particular good or service is properly defined as intra- or inter- regional.

The study area chosen combines the local authority area of Taupo Borough Council with the Wairakei Tourist Park. The latter is included because it contains the important tourist industry assets of the Tourist Hotel Corporation, Wairakei Hotel, and the geothermal park area. However the inclusion of this extra area does not alter the applicability of demographic and economic data published for the local authority area which is used in this study. In all cases this data has been used as if it applied to the whole study area.



FIG. 5.1
MAP OF STUDY
AREA

5.2. Tourist Expenditure Survey

The object of this survey was to obtain information on the size and pattern of expenditure for the five different categories of tourists visiting Taupo. These categories were:

Motel/hotel visitors - overseas - motel/hotel visitors - domestic caravan and camping ground visitors, holiday home owners and other visiting users, coach tour visitors.

The basic characteristic of categorisation was therefore accommodation except coach tour visitors did not generally over-night in Taupo. The above categories do not include private motorists who do not over-night in Taupo. It is accepted that many such motorists are tourists as defined by the study and while not staying in Taupo, they nevertheless enjoy the tourist attributes of the study area and consciously chose their route through Taupo so that they may enjoy these attributes. However without the resources to conduct a cordon or exit type of survey, it was impossible to estimate the size of this category of visitor expenditure. The expenditure pattern of passing tourists was obtained from the visitor questionnaires applied in the town as part of the general survey. However without some estimate of the number of such tourists, the calculation of the multiplier was impossible. Traffic counters used by the Taupo Borough Council and Ministry of Works & Development plus a 1979 cordon survey by the Borough Planning Consultants provided figures but estimation of the year round passing tourists is still impossible without direct contact which would enable the researcher to ascertain the reason for the journey.

Several methods of obtaining tourist expenditure data have been utilised in other studies. They vary according to

the source of information and the way in which it is obtained. Briefly they are as follows:

5.2.1. Data Obtained From Businesses

This approach is held by some to be superior to those that obtained the data directly from the tourist. (Smith & Wilde 1977)

The reasoning is that businesses keep exact records and usually have a good idea of the amount of their turn over attributable to tourists. This may be so but, in the present study where the aim is to produce different multiplier values for various categories of tourist, the necessary breakdown is not available from business sources. In addition the method is only applicable where a near 100% business survey is conducted or a reliable, accurate grossing-up method can be applied so that the data obtained from a stratified sample of businesses is then extrapolated to produce tourist expenditure totals for all expenditure categories.

5.2.2 Data Obtained From Tourists

By obtaining data directly from tourists the expenditure pattern can be recorded for different categories of tourists. The personal interview approach is undoubtedly the superior method for obtaining this information. A fuller record is obtained through prompting by the interviewer and recording of information is more accurate. On the other hand the sample will not be as large as with a questionnaire completed as a current diary or in an ex-post recall manner by the tourist. The latter methods suffer however from poorer quality information and a low response rate. The present study in fact utilises both methods for obtaining data directly from tourists, the method varying for the tourist sub-group.

5.2.3 The Tourist Pattern - A Survey Consideration

While seasonal fluctuations in tourist numbers occur and the summer months are clearly the peak periods, Taupo is fortunate to have a combination of year-round and dual-season attractions. Thermal assets, trout fishing, the lake and inland scenery are year-round attractions while summer time water activities and the snow skiing season provide the two seasonal peaks. Therefore although the bulk of tourist spending occurs in the summer months and the expenditure pattern during this period has the greatest impact on the multiplier co-efficients, spending during the remainder of the year is still significant. It was considered outside the scope of this study to examine the seasonal changes in spending amount and pattern. However an attempt has been made to account for this variation by continuing the sample throughout the year. This technique also matched the writers constraint of working at this research on a part-time basis.

5.2.4. General Survey

A general survey was conducted during January and February at selected locations around Taupo. The principal aim of the survey was to gather as much data as possible during the peak tourist period. The survey locations chosen are all places where tourists come together in large numbers and provide a sampling population representative of the total population of tourists. These were as follows :

1. Taupo Shopping Centre
2. Taupo Information Centre
3. Lakefront
4. Local Tourist Attraction

It is recognised that each location may introduce some element of bias to the tourist population it attracts. For example sampling at Taupo shops may introduce some bias towards those people who do actually shop in Taupo. The

lakefront may have a demographic bias towards younger people or those who spend more on water oriented recreational activity. The local tourist attraction will most definitely have a bias towards higher expenditure for the entertainment category. However a priori the writer is confident that nowhere in Taupo could one obtain a more representative sample of tourists than at locations 1 or 2 above. A data check after surveying was completed revealed that the expenditure totals for each tourist subgroup varied by less than 10% between the sampling locations. In addition in a comparison between the data collected in the general survey and in the specific tourist sub-group surveys which were to follow the variance was 4%.

Surveying was conducted during late morning and mid-afternoon time periods at each of the selected locations. In all cases answers to the questionnaire were obtained for the tourist group rather than the individual. The group could have been a family group (75% of those sampled), a group of unrelated young people or a single person. During the interview it was necessary to be sure that recorded expenditure data was exhaustive of the group during the previous 24 hour period. This was relatively simple with young families where parents had control of their childrens expenditure and with childless or older couples and single people. It was more difficult and time-consuming to obtain accurate data for family groups with older children and groups of unrelated young people. In these circumstances it was necessary to ensure that when expenditure was given for one item, and this pertained to the consumption of that item by, say, 4 people, then all other expenditure data was for these 4 people. If the 4 were not all present at the time in the group then it was necessary to adjust the data downwards on-the-spot so that expenditure recorded related to those present or otherwise accurately supplied.

Different sampling techniques were applied depending on the nature of tourist movements at the sampling location.

In the shopping centre and at the information centre an interview position was maintained with the sample population moving past. The established technique of stopping the nth passing group was employed to avoid selection bias. In the shopping centre n=5 and at the information centre n=3, the count beginning at the end of each interview.

In aggregate the general survey is assumed to be representative of the tourist population in Taupo for the summer period in terms of accommodation type, the demographic character and most importantly the expenditure pattern. In total 326 interviews were conducted accounting for 1144 tourists. The breakdown in the specified sub groups is as follows:

Table 5.2. Composition of Survey Population
by Accommodation Type : General Survey

<u>ACCOMMODATION</u> <u>TYPE</u>	<u>NUMBER OF</u> <u>INTERVIEWS</u>	<u>AVERAGE NO.</u> <u>IN GROUP</u>	<u>TOTAL NO.</u> <u>ACCOUNTED</u> <u>FOR</u>
Motel-Hotel			
Overseas	22	2.8	62
Motel-Hotel			
Domestic	82	2.9	238
Holiday Home Users	132	3.8	502
Caravan & Camping	<u>90</u>	<u>3.8</u>	<u>342</u>
Totals	326	3.5	1144

5.2.5. Questionnaire Design

The general survey questionnaire was designed to achieve the following objectives.

- i) Screen out permanent residents and visitors to Taupo who had the primary purpose for their visit something other than tourism.

- ii) Identify the overseas tourists.
- iii) Identify travel mode and accommodation type.
- iv) Identify repeat tourists.
- v) Obtain elementary demographic data on family group and age.
- vi) Reveal how their stay in Taupo fitted into their holiday itinerary.
- vii) Record expenditure.

Some of the above objectives relate to general tourist information while others are directed particularly at the information requirements of the model. Selected expenditure items were required to be named so as to be recognisable to the tourist but at the same time able to be "plugged" into the model as a subsector in the economy.

5.2.6. Hotel/Motel Tourist Survey

Hotel/Motel tourists are present in large numbers throughout the year in Taupo. Therefore it was important for this group, more than any other, to obtain expenditure data from tourists staying at hotels and motels throughout the year. This was achieved through the application of a questionnaire left with selected hotels and motels in the study area. As the cost of the accommodation in which a tourist stayed may have had some correlation with his overall expenditure the hotel/motel population was first stratified by tariff then selection occurred at random within each strata.

The questionnaires were left with the proprietor-manager who then distributed the questionnaires to the rooms or to guests as they arrived. The response rate was 65% for 600 questionnaires delivered over a 4 month period from May to August 1982.

Table 5.3 Hotel/Motel Tourists : Questionnaire Data

<u>ACCOMMODATION</u> <u>TYPE</u>	<u>NO. OF</u> <u>QUESTION-</u> <u>NAIRES</u>	<u>NO. OF</u> <u>PERSONS</u> <u>ACCOUNTED</u> <u>FOR</u>	<u>AVERAGE</u> <u>NUMBER</u> <u>IN GROUP</u>
Hotel/Motel Overseas	53	149	2.8
Hotel/Motel Domestic	<u>334</u>	<u>778</u>	<u>2.3</u>
TOTAL	387	927	2.4

Expenditure data obtained from these surveys was combined with that obtained from the general survey in the summer months.

5.2.7 Holiday Home Tourist Survey

The data gathered from this group by direct interviewing was by a mail questionnaire during May. Use was made of the Taupo Borough Council's two monthly rating demand to send questionnaires to 400 randomly selected non-resident property owners.

Respondents were requested to send their completed questionnaire with their rates remission to encourage a good response. Of 157 returns, 94 were usable. The remainder of returns were from people who had not used their Taupo property for identifiable tourist purposes (i.e. investment, recent purchase). The holiday home user questionnaire included the expenditure categories of local authority rates, power charges, and expenditure on building services and materials. Expenditure was sought for the whole of the year 1981/82 financial year and so the data may suffer from incomplete recall. Nevertheless when this data was reduced to person/night expenditures and compared with the data gained in the general survey for the comparable items of food and vehicle expenses, the variation was less than 5%.

5.2.8. Caravan and Camping Tourist Survey

Survey work was carried out during January on users of the Municipal Camping Ground which provides for both caravanners and campers. Persons staying in cabin accommodation in the M.C.G. were also included in this category. A total of 89 interviews accounting for approximately 400 tourists were conducted to supply the required information. Interviews were carried out at spaced intervals during the month to avoid approaching the same tourists twice (although some were long-stayers) and all tourists present, able, and willing to answer the questionnaire were approached.

5.2.9. Coach Tour Tourist Survey

Coach tour tourists represent numerically the smallest group and are also the group which spends the least amount of money in Taupo. The single reason for this being that of the 1065 tours per year that pass through Taupo, only a very small number actually over-night. Nevertheless because they are a readily identifiable group and local interest was expressed during the time of the study in attracting more coach tours to Taupo, it was decided to evaluate the impact of this group spending.

No attempt was made to timetable the tours passing through Taupo during the study period. The total of 1065 tours was obtained by the writer for his employers in researching coach tour parking requirements. It was realised at that time from communications with inbound operators that it would be difficult to construct an exhaustive, or even satisfactory, timetable due to the uncertainty of published tour timetables of major operators and the large number of smaller operators and one-off charters. Therefore data was collected simply when a bus or buses were sighted in town.

5.3. Business Surveys

While the tourist expenditure survey together with the general tourist data establishes the size of the multiplier in the model, and the pattern of that expenditure, it is the income and employment generation coefficients which are derived from the business survey data which are so important to the strength of the multiplier.

The same business survey was applied to the accommodation, general retail, restaurant, vehicle oriented business and builders' sub-groups of the business sector. The survey objectives were to

- (i) identify employment, both base and seasonal; and
- (ii) to reveal the flow of expenditure from businesses that receive tourist expenditure through the rest of the local economy and to local households.

The survey was applied over the months June to September but in all cases the data relates to the 1981/82 financial year. Response from proprietors was generally good, even where it was not felt by the proprietor that tourism (or the study results) would be of benefit or interest to his or her business.

In all cases the questionnaire was delivered personally and left for the respondent to complete. In many cases the questionnaire was completed when the writer was present with the proprietor or manager consulting an income statement for the required information. Therefore much of the data is of a very high quality. In other cases the completed questionnaire was checked for omissions and inconsistencies while being collected.

5.3.1. Accommodation

The accommodation sector survey population was composed of a representative sample of establishments throughout the study area. These establishments can be variously described as motels, motor inns, tourist licensed hotels, public licensed hotels, private hotels and caravan and camping grounds. The original sample of 25 was randomly selected from the 49 establishments in Taupo. However due to some non-response or lack of ability to provide the required information (eg new owner) there were some defections from the original sample for which replacements had to be made.

5.3.2. General Retail

What has been called the general retail sector posed a far more difficult problem for survey population composition than the above. This was due to a broad spectrum of business establishments which were to be included. This sector could have been broken down into further subsectors but this would have entailed being far more specific with the tourist expenditure questionnaires in terms of actual expenditure breakdown. For the sake of keeping the model simple the one general retail sector was adhered to. The sector included all wholesaling and retailing functions whether "tourist related" or not and includes tourist attractions.

A search of the 'yellow pages' was used to compose the survey population. After excluding those businesses which fell into one of the other more specific categories (restaurants, vehicle or construction) a sample was selected so as to represent the range of goods and services available. In selecting these businesses attention was also paid to scale of operations and tourist appeal where these attributes were known to the writer. Forty businesses were finally selected for the survey and a replacement procedure was carried out for non-responses.

5.3.3. Restaurants

The restaurant sector includes all places where food is prepared for consumption, whether on the premises or as a takeaway food. There are 62 eating establishments in Taupo ranging from licensed restaurants through to takeaway bars. The sector is defined by the Major Group 631 of the NZ Standard Industrial Classification. (Dept. of Statistics 1977) Ten establishments were selected to represent this sector, and no replacements were required during the sample.

5.3.4. Construction Industries

Builders, or more appropriately, building construction and allied trades, as described in Major Division 5 of the NZ Standard Classification of all goods and services comprises a further study subsector. (Dept. of Statistics 1977) The study was not focussed on the whole of Major Division 5 but on those groups more particularly related to the tourist industry such as building contracting, brick and block laying, plumbing, drainlaying and other subcontractors.

In addition to the other above services, those businesses in the retail and wholesale trade which deal primarily in construction material and tools have been included in this sector.

There are no published economic statistics for building and construction industries and businesses that were disaggregated enough for application to the study area so the survey population was composed through a search of the "yellow pages" which revealed a population of approximately 55 businesses. Fifteen business were chosen selectively to provide a representation of the various trades and materials suppliers.

5.3.5. Vehicle Industries

Garages or more fully, vehicle related expenses were chosen as a separate business category because of the large amount of money spent by tourists on this category of expenditure. While vehicle repairs and maintenance is a greater generator of local income and employment per dollar than actual petrol sales it is by comparison such a small part of the total vehicle related expense that the survey in this category was concentrated solely on service stations. There are 8 service stations in Taupo and 3 were selected for the sample on the basis that these were more likely to be used by tourists.

6. TOURISM IN TAUPO

6.1. Brief History

It is likely that early travellers to Taupo were, as thousands still are today, attracted by the natural endowment of the region. However when the Tuwharetoa tribe moved into the area from the coastal Bay of Plenty in the 16th century it was not for a holiday as they gradually absorbed the original occupants by "diplomatic alliances and aggressive warfare". (Grace 1959) The original entry of the Europeans into the region appears to have been in 1839 with spasmodic visits being made by travellers and missionaries. The remoteness of the place from coastal areas kept the region isolated until Maori-European hostilities during the 1860's. At this time the construction of a road being constructed from Napier to Taupo was checked by threat of attack by Maori forces under Te Kooti. The European response was a line of redoubts including one at Taupo and the establishment of the Armed Constabulary resulted in a thriving little town with a general store and four hotels. After hostilities the population declined temporarily but the facilities, especially the hotels, remained and as word spread of the region's scenic, thermal and fishing attractions, Taupo became established as a holiday resort.

Hotel accommodation in the town was estimated at 120 beds in 1902 and this remained virtually the only activity in the town until state development of the land in both agriculture and forestry provided further economic bases for the Taupo region.

The first half of the century was an experimental time for land development in the central plateau. During this time only a small amount of land in the area was settled but farming techniques were adapted for the conditions and legislative and administrative machinery was evolved which would be used in the unprecedented post-1945 growth period.

This included state assistance to under-capitalised settlers, improvement of farming skills and the discovery of the cobalt deficiency in the volcanic soil which caused the bush sickness in cattle.

This slow start to land development had two identifiable effects on tourism. Firstly the absence of significant land development left Taupo relatively isolated - the tourism industry by itself did not command expenditure on roading links to the larger centres of population. Secondly tourism remained the only activity of real importance to Taupo. The increasing recognition of the fishing attractions of the lake resulted in the introduction of a distinctive type of accommodation - the fishing lodge.

6.2. Post-1945 Development

The commencement of investigations into the harnessing of geothermal steam at Wairakei, the introduction of several timber mills and the commencement of work on several land development blocks close to town began the three-pronged advance in the non-tourist functions of the town which Taupo exhibits today.

The relative shift away from an economy dominated by a single activity can be measured by the change in the number of persons employed in various sectors over the 1952-1981 period. (See Table 6.1)

Table 6.1 Taupo Borough - Changes in Employment
Groups 1952-1981 (Percentage Figures)

EMPLOYMENT GROUP	1952	1955	1960	1965	1970	1981
Industry	29	18	23	27	24	17.2
Building & Construction	5	14	13	11	14	10.1
Public Utilities	0	0	0	2	2	4.1
Transport	15	10	10	13	15	7.0
Retail	14	22	21	21	19	22.3
Personal Services	37	36	33	26	26	25.7

TOTALS 100% 100% 100% 100% 100% 86.4%

Source : 1952/70 Halverson 1971 : 1981 Department of Statistics
 1982. Note : 1981 data requires Agric.Hunting, Fishing
 etc 11.3% and Other Categories 3.3% to total 100%.

The major trend is the shift away from the accommodation sector as represented by personal services. This was due to both relative growth in the other sectors and in the movement away from the labour intensive hotels to the family operated motels.

The diversification which occurred led to infrastructural development which in turn augmented development of Taupo as a tourist resort.

Roading improvement has been of prime importance as it has reduced the effort, time and cost in travelling to and from Taupo. This "time space convergence" has resulted in Taupo's location becoming an increasingly central and focal one. (See Fig. 6.1)

Taupo is increasingly used for weekend visits from the main urban areas and 95% of the population of the North Island live within a 300 km radius of the town. Roothing improvements have also acted as a catalyst in the attraction of capital and labour to the town. (Halverson 1971)

The increase in population (see Table 6.2) and economic activities have lead to a significant rise in the revenue from rates which have been used to develop the infrastructure within the town, again promoting tourism. Power and water reticulation and sealing the 80 km of roads were early priorities. An on-going sewerage programme is today seen as essential in maintaining the high quality of the lake waters. A system of lakeshore reserves providing public access to the lake and the establishment of many sporting and recreational facilities have also resulted from the expansion of the town.

Table 6.2 Taupo Borough Population Growth 1945-1982

<u>Census Year</u>	<u>Population</u>	<u>Increase</u>
1945	723	
1951	1 358	635
1956	2 849	1 491
1961	5 261	2 412
1966	7 989	2 278
1971	10 563	2 574
1976	12 898	2 355
1981	13 655	757
1982*	14 150	495

Source : NZ Census of Population and Dwellings

* Dept. Statistics estimate post Borough/County boundary change

6.3. Tourism Resource Inventory

In order to appreciate the manner in which tourism spending occurs a complete inventory of Taupo's tourism resources is to be constructed. This inventory encompasses the spectrum of tourist activities from the basis of shelter and food through to expensive leisure options such as skiing, a fishing cruise and for completeness will include those resources for which no payment is made but are nevertheless used or appreciated. To begin, the resident tourist has a

KEY

DISTANCES IN ROAD KILOMETRES

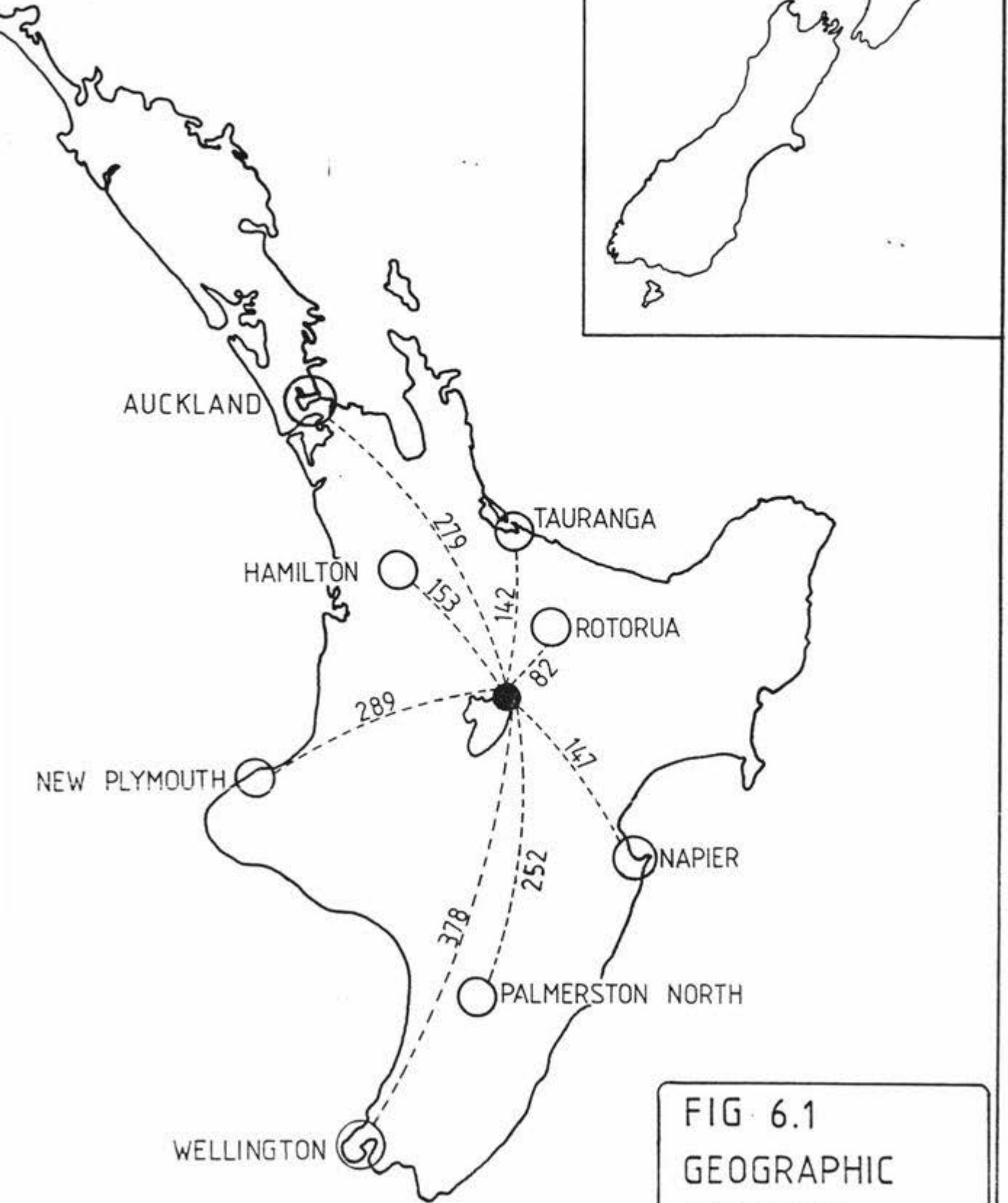


FIG 6.1
GEOGRAPHIC
LOCATION

choice of 36 motels, 6 hotels, 4 private hotels and 4 cabin, caravan and camping grounds. In 1978 there were 197 retail establishments in town with many having no direct relationship the tourism, while others would undoubtedly go out of business without it. A repeated comment during the retail survey was that tourist spending is the "cream" on top of the basically profitable business. In the retail sector for example this can be demonstrated by comparing Taupo's retail sales per head of local population with selected other New Zealand urban areas. The urban areas in Table 6.3 are a stratified group and enable a comparison with the Taupo data from a number of aspects. The first group are recognised tourist centres so Taupo's data can be compared with towns of a similar function. The second group are towns of similar size and this emphasises Taupo's specialisation. Thirdly the data for the three main centres has been added to enable comparison with towns with a more complex economy. (See Table 6.3.). A feature of Taupo retail activity is Saturday morning shopping which has been practised for over 30 years. There are some 62 eating establishments including 20 restaurants or dining rooms associated with accommodation establishments, 14 stand alone restaurants, 10 lunch or coffee/bar tearooms and 19 takeaway bars. Most of these are open for extended hours to cater for resident tourists and the passing traveller.

If the tourist seeks only liquid refreshments, in addition to the 16 private tourist bars, there are 4 public hotels with a selection of public and lounge bars. Taupo's only pure cabaret burnt down in 1981 and has not been replaced. Employment in restaurants and hotels is a significant feature of Taupo's employment structure and this is also demonstrated in Table 6.3.

Table 6.3 (1) Retail Turnover per Capita; (2) Restaurant/Hotel
Employment per 1000 Population
Selected New Zealand Urban Areas

<u>Urban Area</u>	(1) <u>Turnover/Capita \$</u>	(2) <u>Jobs/1000 Population</u>
Taupo Borough	3369	45
*Rotorua City	2973	40
*Queenstown Borough	3133	130
*Paihia Community	1797	78
#Whakatane Borough	3729	20
#Tokoroa Borough	2092	16
#Levin Borough	3305	13
#Blenheim Borough	3046	20
#Ashburton Borough	3858	22
+Auckland City	8556	37
+Wellington City	3095	33
+Christchurch City	2866	22
NZ Average	2112	18

* Tourist Centres

Centres with similar population to Taupo

+ Main urban areas

Source: Dept. of Stats Census of Distribution 1977-78 etc.
Restaurants & Hotels

For outdoor entertainment there are 75 holes of golf in the study area including the back to back 36 holes at Taupo Golf Club, 18 international holes at the THC Wairakei Course plus 9 more holes at Little Wairakei. There are 18 tennis courts, a mini golf course, a croquet and bowling green and many public reserves on and off the lakeshore to cater for both active and passive recreational pursuits.

Turning to the lake, the prime tourist asset of Taupo, tourists can enjoy round the world renowned trout fishing, boating and yachting. Other water sports such as swimming, water skiing and sailboarding are more seasonal. During the summer tourist season concessions on the foreshore provide small sail boats, canoes, sailboards, water bikes and powered dinghies for hire. The lake and surrounds can also be enjoyed from the air with four charter flight businesses currently operating.

Taupo's geothermal resources provide a distinctive attraction to the area although they are less well known than similar attractions at Rotorua. Within the study area there are the natural attractions of Wairakei Geothermal Park and Craters of the Moon. There are two commercial spas in the town, the Council operated Armed Constabulary baths of historic origins, and De Brett's Thermal Baths attached to the historic De Bretts Hotel on the Napier-Taupo highway. In addition for many holiday home owners, Taupo provides the opportunity of having their own personal thermal spa. This however is geologically confined to certain areas of the Borough.

Although not within the study area it is important to consider Taupo's role as an attraction base - a centre of population where tourists are based and from which they travel to appreciate various natural resources.

The prime resource in this case being Tongariro National Park which offers 3 commercial ski fields, Whakapapa, Turoa and the smaller Tukino for the July-October ski season. The Park is also widely used by trampers.

6.4. The Pattern of Tourism

Before enumerating actual numbers of tourists it is important for the reader to gain an understanding of the flow or pattern of tourism in Taupo. Unlike most other tourist towns in New Zealand, tourism in Taupo cannot really be described as seasonal. There is a continual if not constant flow of tourists through the town. If anything, there are two seasons, divided by the off-season/season months of June and November. The December/May season covers the summer months, tourist numbers dwindling into April but revived by the influx of the May school holidays. June and much of July are cold but often enough snow does not arrive for the ski season until August, whereupon tourist numbers increase once more. In November the snow is disappearing but summer has yet to appear. This together with New Zealanders' avoidance of November annual leave taking (in anticipation of the Christmas/New Year holiday break) provides another brief off-season.

A number of factors can be identified as affecting total tourist numbers at any one time. These include the weather, the influx of overseas tourists and public holiday long weeks which can produce peaks even during the off-peak months (eg. Easter in April, Queen's Birthday Weekend in June, and Labour Weekend at the end of October). Monthly weather statistics are presented in Fig. 6.2 and these figures represent averages for the past 20 years. Table 6.5 depicts the monthly influx of overseas tourists. No data is available specifically for Taupo but even given Taupo's year round attractions, the pattern is expected to be approximately the same.

During the peak tourism month of January the number of visitors is usually twice the size of the next highest month and January accounts for 70% of yearly visitor numbers. This peak is a product of the concurrence of all of the above factors, weather, overseas visitors and a holiday period. Motel occupancy is shown in Table 6.6 and the first 7 days in

January are habitually 100% occupied. Caravan and camping ground occupancy is even more seasonal as many New Zealanders enjoy the traditional camping-outdoor type holiday during January. During this period tourist groups tend to be larger as families caravan or camp and motels are occupied by family groups rather than the usual two persons.

Taupo's central location and natural attributes also make it a popular choice for "event" tourism. This may be active team sports, sporting events relying specifically on the region's natural attributes such as trout fishing contests or other interest such as car club gymkhanas and end of the year sports trips so common with New Zealand sporting teams.

Table 6.5. International Arrivals for Holiday Purposes

<u>New Zealand April 1981-March 1982</u>			
<u>Month</u>	<u>Arrivals</u>	<u>Month</u>	<u>Arrivals</u>
April	18 161	October	22 784
May	13 885	November	25 820
June	9 668	December	33 848
July	13 815	January	26 905
August	17 382	February	25 752
September	15 786	March	24 344

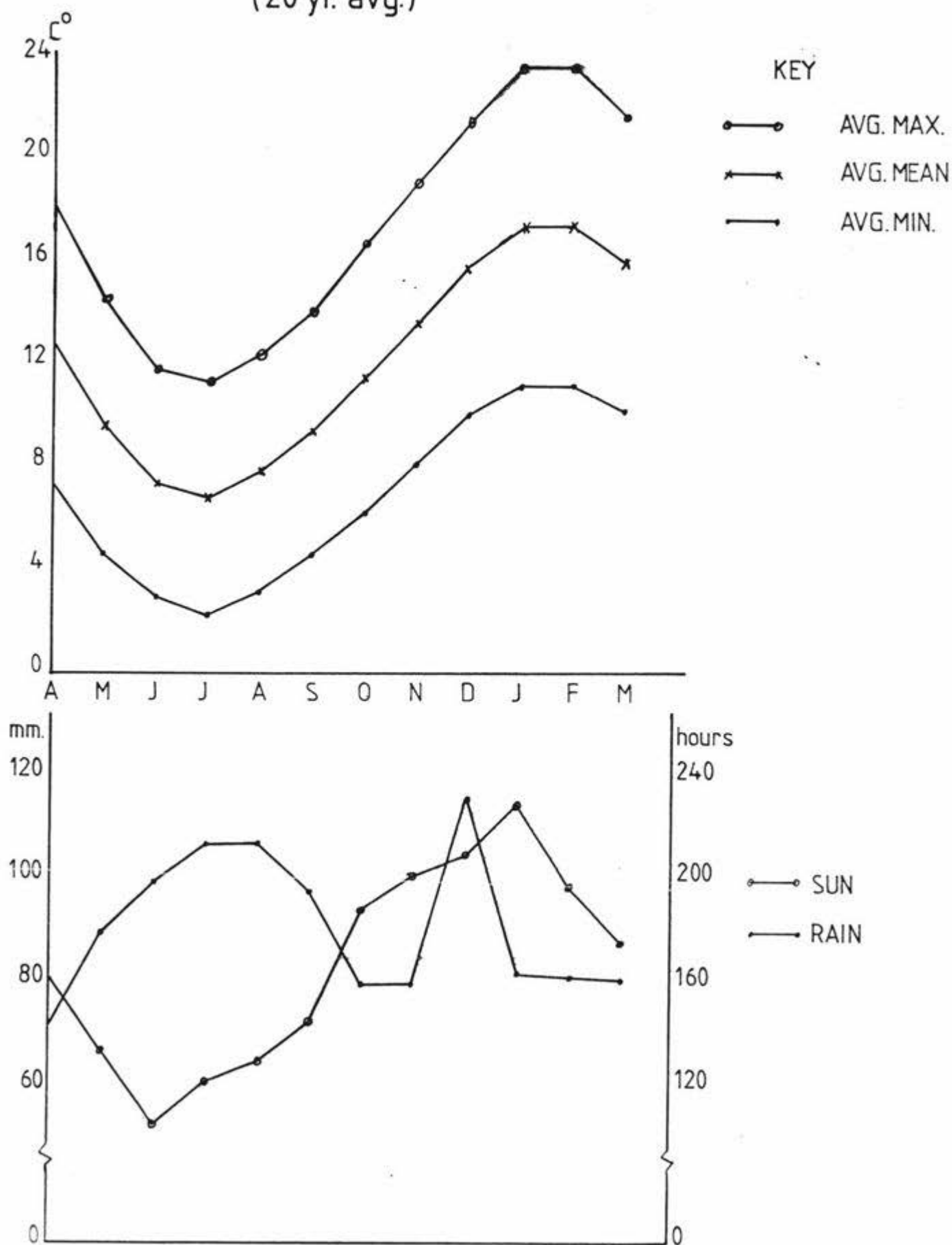
Source: NZ Tourist and Publicity Dept. New Zealand Visitor Statistics 1981-82

Table 6.6 Motel Occupancy Rates : Taupo 1979-80

<u>Month</u>	<u>Occupancy %</u>	<u>Month</u>	<u>Occupancy %</u>
April	65.5	October	62.1
May	66.1	November	59.9
June	54.3	December	59.0
July	47.8	January	91.4
August	68.9	February	76.4
September	60.9	March	76.9

Source: NZ Tourist and Publicity Dept. Motel Accommodation Survey April 1979-March 1980

FIG. 6.2 TAUPO METEOROLOGICAL DATA
(20 yr. avg.)



SOURCE: W. de Bont (Local Meteorologist)

6.5. Tourism in Taupo Today

The study is based on the tourism industry in Taupo of the 1981-82 financial year. During this year there were 773 399 visitor nights recorded in the study area. In addition there were several thousand tourists passing through either as day trip tourists or transit tourists. For reasons accounted for previously the only non resident tourist group enumerated were coach tour tourists who numbered 29 289. The resident tourist nights had the following composition.

6.5.1. Hotel/Motel Tourists

Total tourist nights for this group were calculated from published Tourist and Publicity Department data. In the study area there were 39 motels with 443 units. In addition there were 11 hotels with 252 rooms. The breakdown between hotels and motels and domestic and overseas tourists is as follows.

Table 6.7 - Hotel/Motel Tourists: Total Tourist Nights

Accommodation	Tourist		Total
	Domestic	Overseas	
Hotel	93 704	14 375	108 079
Motel	223 323	34 258	257 581
Total	317 027	48 633	365 660

6.5.2 Holiday Home Tourists

Holiday home tourists included all those who indicated in the general survey that they were staying in their own holiday home, renting a holiday home, or staying with friends or relatives. The assessment of total usage of tourists per year was made through the holiday home owner mail questionnaire as it was this survey that could be related to the total population of holiday home owners.

The data obtained from this survey was combined with data from an analysis of residential property in the Taupo Borough rating records. The results were as follows:

Percentage of Taupo Residential Property owned by non residents:	31%
Percentage of the above used for holiday purposes	60%
Therefore non resident property used for holiday purposes (0.31×0.6)	18.6%
Total number of residential rating assessments	4870
Total number of non residential properties used for holiday purposes ($.186 \times 4870$)	906
Number of nights in year in use by owners	54
Number of nights per year in use by other visitors	30
Average number of persons using	3.5
Total number of visitor nights per holiday home (84×3.5)	294
Therefore total number of visitor nights for all Taupo holiday homes (906×294)	= 266 364

The monthly breakdown for this total is depicted in Fig. 6.3.

6.5.3. Caravan and Camping Tourists

Caravan and camping ground tourists expectedly represent a far more seasonal tourist pattern. (See Fig. 6.4) The month of January alone accounts for 50% of all campers and 36% of all caravanners. In all, the 5 major Taupo caravan and camping establishments were utilised by 35 344 tourists with the average length of stay being 4.0 nights. Consequently the total tourist nights for this type was 141 375.

6.5.4 Coach Tour Tourists

Data obtained from communications with the major in-bound tour operators reveals a definite coach tour season lasting from October to April, peaking in March. During the peak months local people have seen as many as six or seven coaches in town at once. Occupancy rates and numbers were also obtained from operators and the figure of 27.5 tourists per coach was calculated for the 1065 tours. Consequently the total number of coach tour tourists was 29 289, 85% of whom are from overseas. (See Fig. 6.6)

Table 6.8 - Total Tourist Numbers 1981-82

TYPE OF TOURIST	NO. OF TOURISTS
Hotel/Motel overseas	48 633
Hotel/Motel domestic	317 027
Holiday home	266 364
Caravan and camping	141 375
Total resident tourists	773 399
Coach tour	29 289
Total tourists	802 688

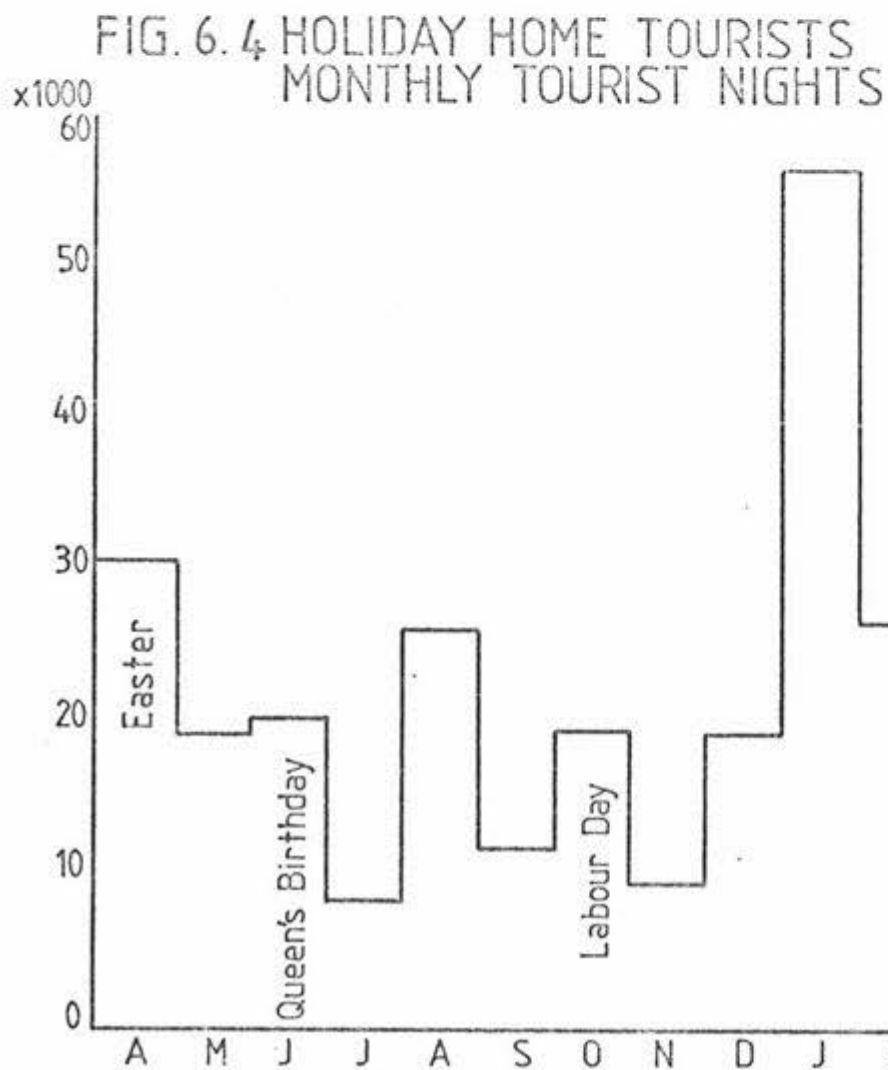
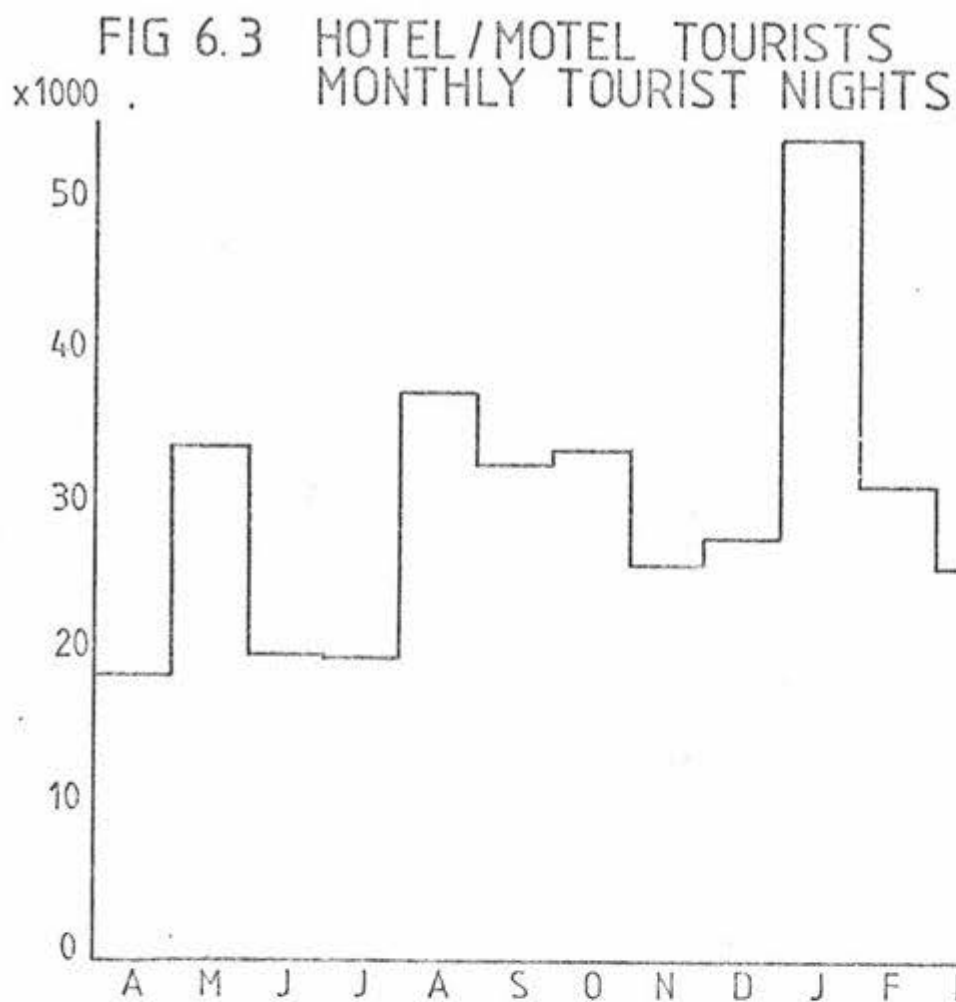


FIG. 6.5 CARAVAN & CAMPING TOURISTS
MONTHLY TOURIST NIGHTS

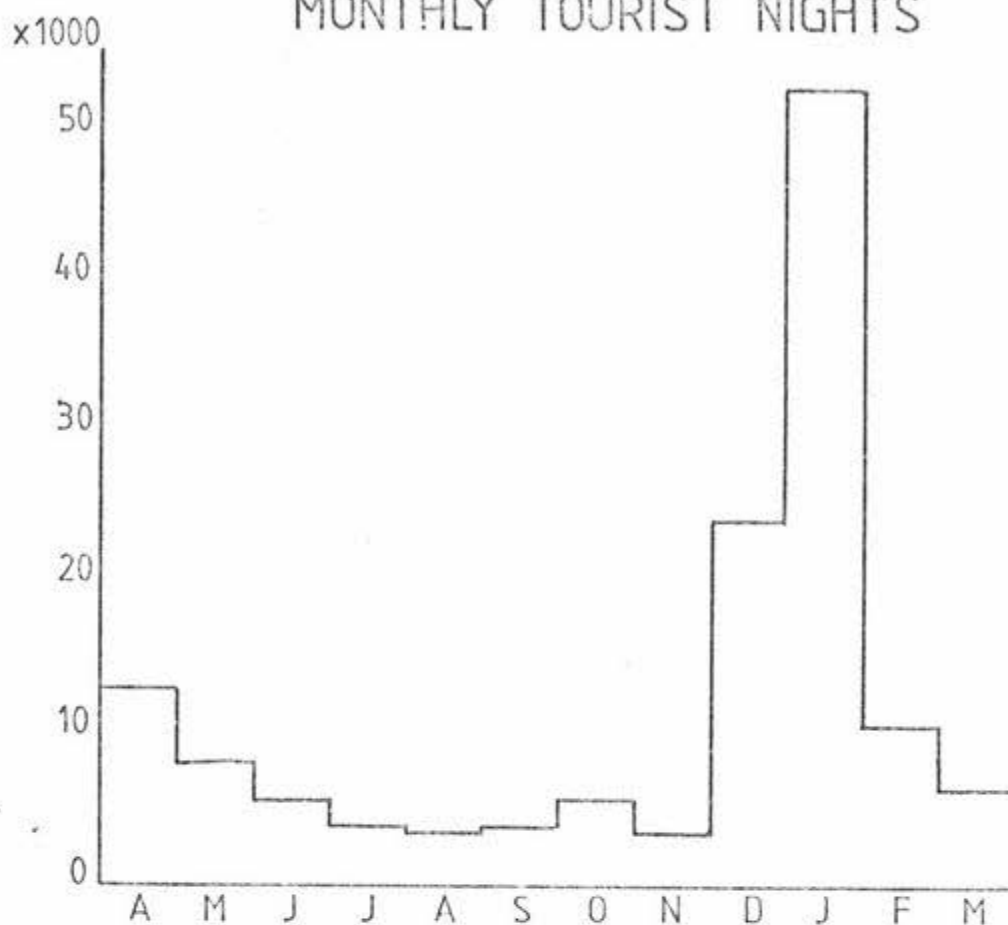


FIG. 6.6 COACH TOUR TOURISTS
MONTHLY TOURIST VISITS

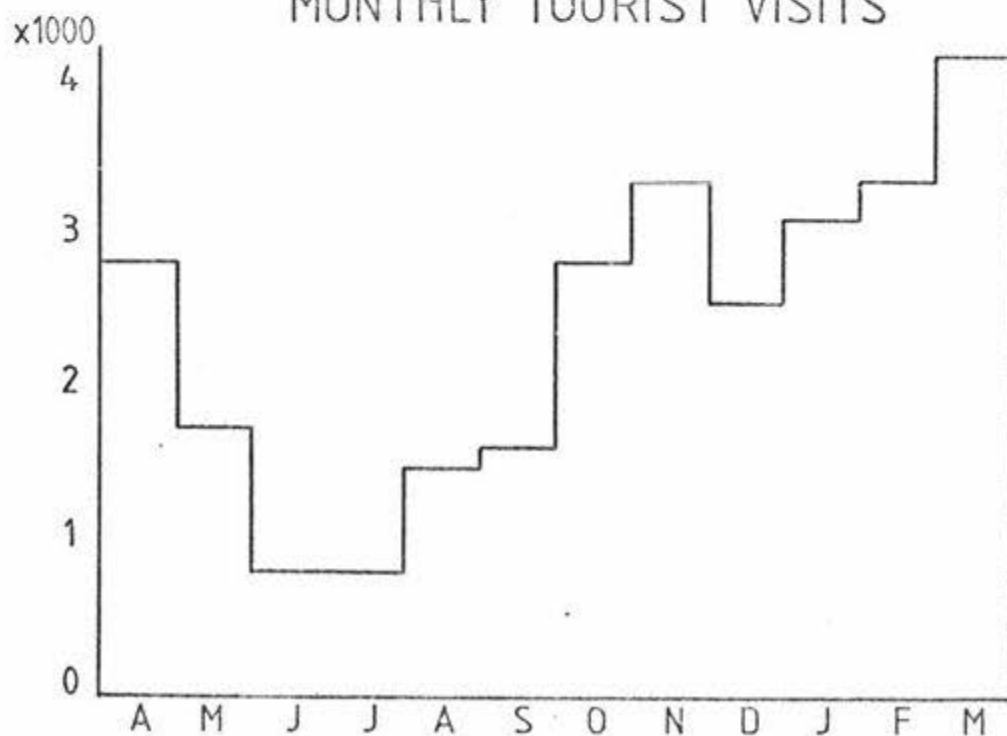
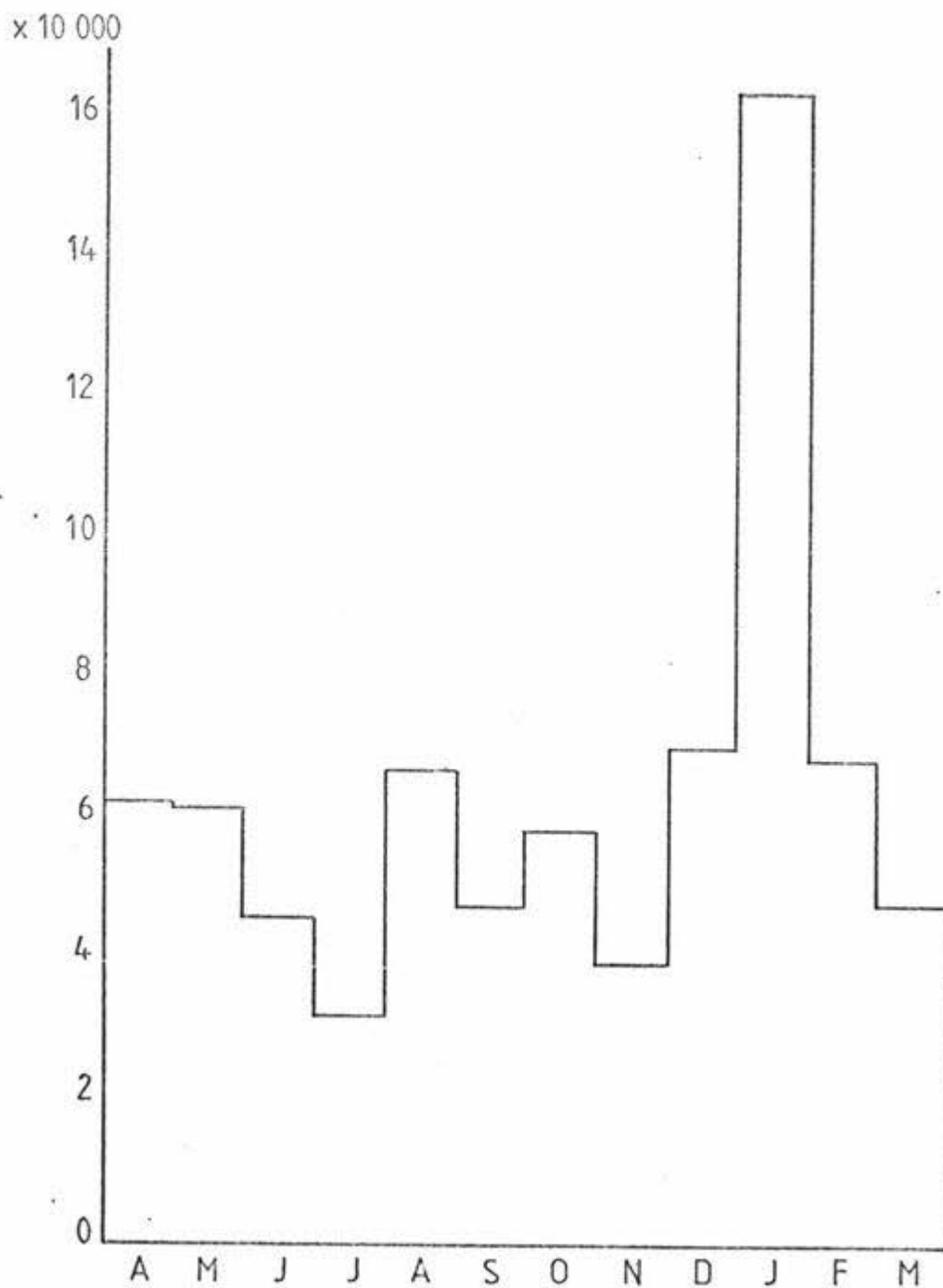


FIG. 6.7 ALL RESIDENT TOURISTS
MONTHLY TOURIST NIGHTS



6.6 Comparison with Other Data

A useful comparison and check on the above data can be made by examining the milk consumption data compiled by the Taupo Borough Council. Milk consumption is tabulated monthly and then divided by the national per capita milk consumption to obtain the average number of people in Taupo for each month of the year. National per capita daily consumption has been regularly updated as consumption fell with milk price increases.

The milk consumption data indicated that Taupo experienced 1.3 million "visitor nights". This is at considerable variance with the total in Table 6.7 but the larger figure measures several categories of visitors which are not included in this study. These categories include all day-trip and transit tourists and non-tourist visitors.

However the milk consumption data does place the study total within the context of overall travellers through Taupo. Day trip and transit tourists are clearly very significant in numbers but for reasons outlined previously their impact as tourists in Taupo has not been measured in this study. While significant in numbers, the actual expenditure of the tourist groups not measured is small compared with resident tourists, because they do not stay in town.

7. EXPENDITURE BY TOURISTS7.1. Total Spending

In this section the spending habits of tourists in Taupo are analysed to reveal the total spending pattern of each sub category of tourist. It is the spending pattern of tourists that determines the size of the multiplier although the total amount spent is likely to be the dominant factor in determining the total impact of each sub category. During the study period the estimated total spending of tourists in Taupo was \$22 888 900. This can be broken down into the tourist sub categories as shown in Table 7.1.

Table 7.1. - Tourist Expenditure Total by Tourist Type

<u>SUBGROUP</u>	<u>EXPENDITURE</u>	<u>NO. OF TOURIST NIGHTS</u>	<u>\$ PER TOURIST PER NIGHT</u>
Hotel/Motel			
Overseas	2 590 680	48 633	53.27
Hotel/Motel			
Domestic	12 712 783	317 027	40.10
Holiday Home	4 994 325	266 364	18.75
Caravan &			
Camping	2 444 374	141 375	17.29
Total ¹	22 742 162	773 399	29.41
Coach Tour			
Visitors	146 738	29 289 ²	5.01 ³
TOTAL	22 888 900		

- 1 Resident total
- 2 Number of visits
- 3 Expenditure per visit

Of the resident tourists above it is clear that tourism in Taupo is reliant on the patronage of the domestic hotel/motel tourist. Overseas hotel/motel tourists spend most on a per day basis but their small number when compared with the former group limits the total impact of their spending. Holiday home tourists are also responsible for a considerable amount of the total impact due to the numerical strength as a tourist sub group, numbering 266 364 tourist nights.

Caravan and camping tourists spend a similar amount per visitor night to the holiday home tourist but the seasonal nature of this type of visitor, limits their total number and therefore their total impact. Coach tour visitors spend relatively little in Taupo, principally because they do not stay overnight. In terms of both per person expenditure and total numbers, they are the smallest group.

7.2. Patterns of Expenditure

It is the disaggregation total expenditure into the various expenditure sub categories that allows quantification of the impact of spending to be calculated. This is because each tourist type has a different propensity to generate income and employment. Ideally a greater degree of disaggregation would have been employed but the time and cost involved becomes greater and the benefit in terms of greater accuracy of measurement was doubted.

Table 7.2. depicts how on average each tourist sub category allocated their daily expenditure among the various categories of businesses and the break down for all resident tourists is graphically represented in Fig. 7.1. The largest single item of expenditure was accommodation which accounted for 28.9% of the total. This was followed by meals out, 16.6%, petrol and garage expenses 15.8%, and other food and drink 12.2%. If the expenditure on alcoholic beverages is included with the above, it can be seen that the basic items of transport, food and shelter account for more than 80% of

total holiday expenditure. The more discretionary items of souvenirs, entertainment, and the other category make up the remainder.

The variation in expenditure pattern between subgroups is very revealing of the way in which these groups allocate their expenditure. In the main it is more realistic to examine the absolute amounts spent on various items although the percentages are illuminating when considering the requirements of holiday expenditure within the subgroup. For example the percentages of 23% and 26% for the respective expenditure of holiday home tourists and caravan and camping tourists are much higher than the percentages for the same item by hotel/motel tourists. However the latter group still spend absolutely higher amounts.

The same case is evident for other items. This characteristic is explained by the high amount spent by the hotel/motel groups on accommodation when compared with the holiday home tourist who spend nothing in this category. On the other hand, percentage figures depict graphically the higher vehicle costs for most tourist groups as part of their overall holiday expenditure. Any attempt to explain the differences between and similarities of the expenditure pattern of various sub groups would be informed guesswork at the best without further research. However the following points can be made with reasonable confidence.

- 1) The expenditure on accommodation by hotel/motel tourists is expectedly much higher than any other subgroup and very similar between the overseas and domestic subgroups.
- 2) Expenditure on food and drink (meals out, other food and drink and alcoholic beverages) also varies greatly between hotel/motel tourists and other resident groups. New Zealanders who holiday in a hotel or motel clearly

partake in meals out as part of their holiday, as do overseas tourists. Their purchase of other food and drink items is also higher which cannot in the writer's view be explained satisfactorily by more expensive tastes. Holiday home tourists in particular are just as, or perhaps more affluent, than hotel/motel tourists yet spend very little on food and drink by comparison. The explanation could perhaps lie in the practice of both holiday home and caravan and camping ground tourists of buying their necessary supplies at their origin town and bringing it with them on holiday. This may reflect perceived higher prices in Taupo for basic food items, however this is not easily verified.

Lower expenditure by holiday homes subgroups on meals out could reflect their tendency to stay at home on their holiday, enjoying surroundings, i.e. change of pace, place, view, etc. provided by their holiday home. For caravan and camping tourists, the answer here could be that theirs is a low budget and often a family holiday which meals out are not an affordable extra.

- 3) Expenditure on souvenirs are almost solely the preserve of the overseas hotel/motel tourist. Domestic tourists spending very little on this item, especially holiday home tourists who presumably have the highest rate of revisiting Taupo and therefore would have very little compulsion to buy souvenirs of their holiday. This pattern could be diluted to some extent by the fact that overseas tourists may class some items as souvenirs that domestic tourists would not, e.g. a sheepskin product.
- 4) Expenditure on petrol and other vehicle expenses are consistently high through all subgroups. This highlights the high and growing cost of travel as part of total holiday expenses and one that tourists the world over have experienced over the last decade.

- 5) Entertainment expenditure is generally low, accounting for only 3.8% of overall resident tourist expenditure.
- 6) The "other" category was unexpectedly high and could have in retrospect been reduced by the inclusion of one or two more specific categories, e.g. clothes. However this category can be interpreted largely as retail expenditure on items not mentioned specifically in other categories.
- 7) Household expenditure was sought solely from holiday home owners and was composed of rates, paid to the local authority, renovation and repair services and materials, household and professional services, power and general household items. Together these expenses made up the largest single item for holiday home owners, acting as a substitute for what other tourist subgroups spend on accommodation. Expenses such as rates, power, repairs and renovations were spread across the total users of the average holiday home, not just the users in the property owning families. The actual per annum per property expenditure for these items was as follows :
Rates \$357, power \$85, renovation and repairs \$460.
Many holiday homes had clearly undergone considerable improvements during the study year judging by the expenditure on the last item.

Table 7.2 - Tourist Expenditure Total : Tourist Type by Sector

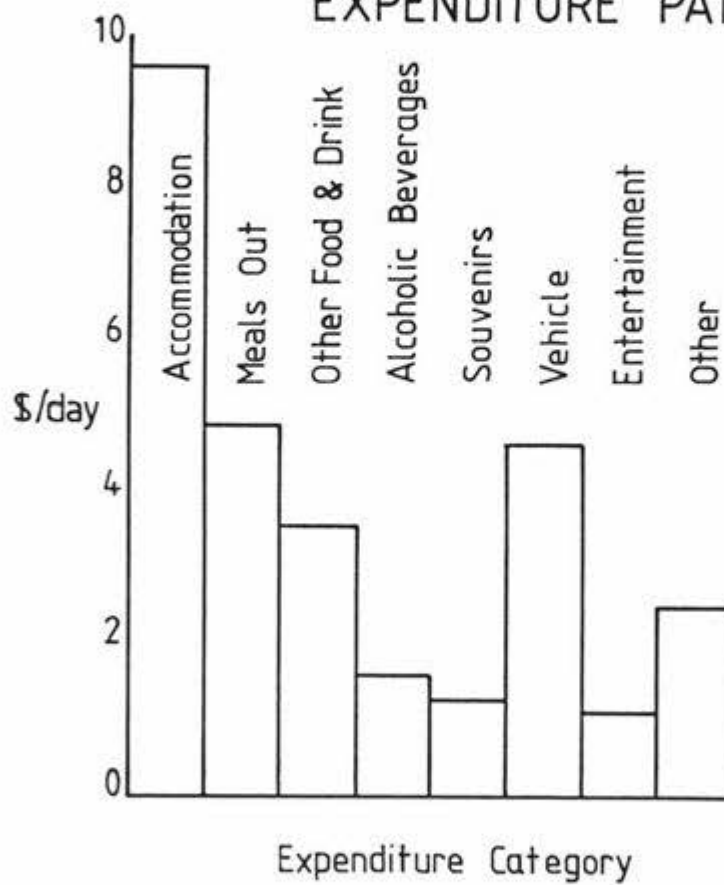
Sector	Tourist Type					Totals
	Hot/Mot Overseas	Hot/Mot Domestic	Holiday Home	Caravan & Camp	Coach Tour	
Accomm.	771319	5104134	-	380299	-	6 255 752
Retail	1030533	3737748	2463867	1157861	106612	8 496 621
Restr't	556362	2041656	839047	344955	40126	3 822 146
Vehicle	232466	1829245	985547	561259	-	3 608 517
Const'tn	-	-	303655	-	-	303 655
L.Auth.	-	-	322300	-	-	322 300
Utility	-	-	79909	-	-	79 909
Totals	2590680	12712783	4994325	2444374	146738	22 888 900

Table 7.2. - Tourist Expenditure Pattern by Tourist Type
(Variable Q)

Expenditure Category	Economy Sector	Tourist Type											
		Hotel/Motel Overseas		Hotel/Motel Domestic		Holiday Home		Caravan & Camping		Coach Tour		All Resident Tourists (Avg.)	
		\$	%	\$	%	\$	%	\$	%	\$	%	\$	%
Accom.	Accom.	15.86	29.8	16.10	40.1	-	-	2.69	15.6	-	-	9.69	32.9
Meals Out	Rest'rnt	11.44	21.5	6.44	16.1	3.15	16.8	2.44	14.1	1.37	27.3	4.89	16.6
Other Food & Drink	Retail	3.66	6.9	4.17	10.4	2.78	14.8	3.77	21.8	0.80	16.0	3.59	12.2
Alcoholic Beverages	Retail	2.52	4.7	1.83	4.6	1.39	7.4	1.28	7.4	0.20	4.0	1.63	5.5
Souvenirs	Retail	8.75	16.4	1.09	2.7	0.38	2.0	0.94	5.4	1.58	31.5	1.30	4.4
Petrol, Gar.	Vehicle	4.78	9.0	5.77	14.4	3.70	19.7	3.97	23.0	-	-	4.66	15.8
Entertain't	Retail	2.01	3.8	0.94	2.3	1.21	6.4	1.08	6.2	-	-	1.13	3.8
Household Expenditure	[Retail [C'struct'n [Local Auth. [Utilities	-	-	-	-	4.67	24.9	-	-	-	-	*	*
Other	Retail	4.25	7.9	3.76	9.4	1.47	7.8	1.12	6.5	1.06	21.1	2.52	8.6
TOTAL		53.27	100.0	40.10	100.0	18.75	100.0	17.29	100.0	5.01	100.0	29.41	100.0

* Household expenditure of holiday home tourists treated as an accommodation expense

FIG 7.1 ALL RESIDENT TOURISTS
EXPENDITURE PATTERN



8. MULTIPLIER COEFFICIENTS

8.1. Introduction

Tourist expenditure in Taupo is a source of turn over for many local businesses. However while data on gross turn over is interesting, a more meaningful measure in terms of economic welfare is how much of this turnover becomes income to local households and how many jobs are created by it. A large proportion of the gross receipts leak from Taupo as payment for goods and services, taxes and remittances in the form of rent and interest. The multiplier provides the link between the injection of tourist expenditure and the resulting increase in local income and employment.

The multiplier model is fully discussed in Section 4. The essential feature of the model is the regional income generation (RIG) coefficient which measures the fraction of each dollar or turnover to a type of business which becomes income to households in Taupo. Regional employment generation (REG) coefficients play a similar role in estimating employment generation.

The coefficients are then weighted by the proportion of \$1 spent in each type of business to produce multiplier values for each type of tourist by accommodation type and an overall multiplier for the average tourist. For a worked example of this method see Appendix I.

Table 8.1 exhibits income multiplier values for the selected tourist types, the values ranging from .185 to .295 with a weighted average for all resident groups of .261. The coach tour value is excluded from the weighted average because the profile of expenditure for coach tour tourists is not comparable with the resident groups.

8.2. Income Multiplier Values

Table 8.1. - Income Multipliers by Tourist
Type per \$1 of Expenditure

TYPE OF TOURIST	MULTIPLIER VALUE
Hotel/Motel Overseas Tourist	.284
Hotel/Motel Domestic Tourist	.295
Holiday Home Tourist	.185
Camping & Caravan Tourist	.213
Coach Tour Tourist	.225
Weighted Average (resident tourists only)	.261

The variation in multiplier value results from two factors: (1) the pattern in which the average tourist dollar is spent (See Table 7.1); (2) the size of the RIG coefficients in the businesses which received it. One of the more surprising results is that domestic hotel/motel tourists have a higher multiplier value than overseas hotel/motel tourists. This result demonstrates the importance of the two factors represented above. The significant difference between these two groups is the proportion of their expenditure on accommodation, the highest income generator per dollar spent. (See Appendix I).

For example the two highest multiplier values relate to tourists who stayed at hotels and motels. This form of accommodation promotes the eating of meals in restaurants or the consumption of meals prepared by someone else. Restaurants and hotel/motel accommodation are also the most labour intensive of the economy sectors, having the highest propensity to generate local income out of turnover.

Holiday home tourists on the other hand have the lowest resident tourist multiplier. Accommodation expenses were also higher for this category of tourist but unlike

hotel/motel tourists their accommodation is self provided and consequently their expenses are directed towards rates, building materials and services, power supply and other household expenditure. These expenses are received by local economy sectors with a lower propensity to generate local income.

8.2.1. Direct, Indirect and Induced Components

The direct, indirect and induced components of the multiplier for each tourist group are shown in Table A3.1 to A3.5. The overall weighted average for all resident tourist groups shows that for each dollar spent, 20 cents of local income was directly generated, with a further 3 cents being indirectly generated and a similar amount induced. The indirect and induced components are comparatively small so that it is the variability of the direct component which accounts for the different income generating propensity of each tourist type.

It is notable that for the two hotel/motel tourist types which had a greater propensity to spend money in more labour intensive sectors that the induced component is greater than the indirect component. This pattern follows through to the overall weighted average.

8.3. Employment Multipliers

The employment multipliers will exhibit a similar pattern to the income multipliers just presented. This is because both regional income and regional employment coefficients are related to the same turnover. However, while income is generated in easily divided units, this is not so with employment which displays certain "lumpiness" in its relationship with turnover. In this context "lumpiness" means that turnover would need to reach a new level or threshold before an extra job was created. In the meantime existing staff may be used more intensively or for longer

hours. In practice the size and type of business will determine the extent to which an increase in turnover will require an increase in the labour force.

The part-time and seasonal labour force which is a feature of the tourism industry allows some adjustment or refining of this lumpiness, yet creates difficulties in measurement because the standard job is now an imprecise measure. To overcome this measurement problem Henderson and Cousins adopted a weighting system which allowed the summation of part time and seasonal jobs with full time jobs. The weightings are based on both the permanent and regularity of the employment as follows :

CATEGORIES	WEIGHTING
Full time permanent	1.000
Part time permanent	0.333
Full time seasonal	0.333
Part time seasonal	0.111

The same method has been adopted in this study and the business survey questionnaires were designed to obtain the information in the required form. The arbitrariness of this approach is recognised, however it does reduce the likelihood of over estimating the impact of the tourism industry on employment. Another similar approach was adopted by Archer and Owen. However, the weightings used above are accepted as providing a more exact relationship between part time, seasonal and one full time job.

Employment multiplier for each tourist type is now shown in Table 8.2. Domestic hotel/motel tourists generated approximately 4.1 standardised jobs for every \$100 000 they spent, while holiday home tourists generate only 2.02 jobs for the same expenditure. The pattern is similar to the income multipliers and is determined by the various tourist groups spending their money in businesses with different REG coef-

ficients. Once again the labour intensive businesses, namely serviced accommodation and restaurants are very important in determining the strength of the multiplier.

8.3.1. Direct, Indirect and Induced Components

The direct, indirect and induced components of the employment multipliers are displayed in Tables A5.1 to A5.5. Direct employment generation accounts for 90% of all employment, the indirect and induced components being relatively unimportant. The leakages from the region for the purchase of materials produced elsewhere seriously weakens the ability of local tourist expenditure to continue flowing in the local economy and creating employment.

Table 8.2. - Employment Multipliers

By Tourist Type

Per \$100 000 of Expenditure

TYPE OF TOURIST	MULTIPLIER VALUE
Hotel/Motel Overseas	3.88
Hotel/Motel Domestic	4.10
Holiday Home	2.02
Camping & Caravan	2.50
Coach Tour	2.04
Weighted Average	3.44
(resident tourists only)	

9. THE ECONOMIC IMPACT OF TOURISM

9.1. Introduction

The previous chapters have dealt with the amount and pattern of expenditure for tourists in Taupo and the extent to which this expenditure creates income and employment. By combining this data the effect which the tourism industry has upon household income and the total number of jobs in Taupo is revealed. The results presented in this chapter are estimates generated by the multiplier model used unless otherwise stated.

9.2. Income Generation

The most obvious feature of Table 9.1 is that the income generated within the region was much less than the tourist expenditure from which it was derived. From a total tourist expenditure in Taupo in 1981 of approximately \$23 million (survey data), the income generated for local households amounted to approximately \$6 million, i.e. slightly more than one-quarter of the original injection. This reflects the large leakage of goods and materials outside. Such leakages are a feature of most regional economies. If reference is made back to Table 7.1 it is also evident that the overall size of tourism spending is the determining factor in identifying the impact of each tourist type. No one tourist type exhibits multiplier coefficients which vary enough to make their impact disproportionate to their total spending. Tourists staying in hotel/motel type accommodation accounted for 75% of the total income generated, the domestic tourist being responsible for 63% of this total, i.e. 12% was due to overseas tourists.

9.3. Direct, Indirect and Induced Income

Income generated directly through businesses which receive tourist expenditure was as expected, the largest component accounting for 76% of all income generation. (See Table

A3.6.) A further 11% was generated through the backward linkages these firms had with businesses supplying the tourist businesses and another 13% was generated through the respending of these incomes by the recipient households. Looking more closely at the data for each tourist type it is evident that induced income is not consistently greater than indirect income. (See Tables A3.1 to A3.5). Where tourists stay in serviced accommodation, induced income rises appreciably above indirect income as a percentage of the total income generated. This is clearly due to the expenditure of these tourists on labour intensive items which have a large degree of personal service. For holiday home tourists the spending pattern and multiplier coefficients emphasise indirect income generation over the induced component. This follows from the relatively strong indirect income generation coefficient for the local authority, and the large proportional expenditure on the retail sector by this tourist type.

9.4 Accommodation/Non-Accommodation Income

An interesting division of income generated can be made between the accommodation sectors. This comparison is difficult to achieve if using the information in the form it has been presented in Table 9.1 which attributes all income generation in second and successive rounds of spending to the sector which initially received the tourist expenditure. So instead if the information in Tables A3.1, A3.2 and A3.4 is reorganised to sum the income directly generated through accommodation and compare this with that indirectly generated through accommodation and directly and indirectly generated in other sectors it is possible to distinguish more readily which sectors receive the most income. Table 9.2 presents these findings.

It can be seen that of the \$4.5 million of income directly generated just over \$2.1 million was in the accommodation

sector while a further \$2.4 million was generated in the non-accommodation sectors. If the total indirect and induced income is added the latter figure a perhaps unexpected result is reinforced. While the accommodation sector generates more income directly than any other sector and performs the essential task of housing tourists while they enjoy the attributes of the tourist region, it is the non-accommodation sectors that benefit the most overall.

9.5. Income Generation Per Tourist Night

The tourist day, person-night or tourist night is a commonly used unit of enumeration in the tourist trade. The amount of income generated per tourist-night is an expression of the relative contribution which the different types of tourists make to the local economy. It is an easily used figure for planning purposes. Table 9.3 depicts the results for each tourist type in Taupo. The picture presented is now familiar with the highest per tourist night income being generated by those staying in a serviced accommodation. On average \$7.69 of income was generated for each resident tourist-night. Each coach tour visitor generates on average \$1.13 of income to the residents of Taupo.

9.6. Employment Generation

The jobs generated in Taupo as a result of tourist expenditure are shown in Table 9.4. A total of 790 jobs were created and sustained by the tourism industry. It is to be remembered that these are standardised jobs and do not represent the actual number of people who have some kind of employment related to tourism. This figure is approximately 890 with the bulk of the difference being accounted for by the part time and seasonal employment available in the accommodation, retail and restaurant sectors.

Table 9.1 - Income Generated All Tourist Groups by Sector

	Accom.	Retail	Restaurant	Vehicle	Construction	L. Authority	Utility	TOTALS
Hot/Mot								
Overseas	346322	181374	198064	9530				735290
Hot/Mot								
Domestic	2291755	657844	726828	75000				3751427
Holiday								
Home		443640	298701	40408	64679	81864	5834	925126
Caravan								
& Camp	170754	122804	203783	23012				520353
Coach Tour		18764	14285					33049
Totals	2808831	1414426	1441661	147950	64679	81864	5834	5965245

Table 9.2 - Accommodation/Non-Accommodation Income

INCOME	ACCOMMODATION	NON-ACCOMMODATION
	\$	\$
Directly Generated	2 114 444	2 386 768
Indirect & Induced		
Through Accommodation		
Sector		694 387
Indirect & Induced		
Through Non-Accommodation		
Sectors		736 597
Totals	2 114 444	3 817 752

Table 9.3 - Income Generated - Per Tourist Night

TOURIST TYPE	INCOME GENERATED
	per tourist night
	\$
Hotel/Motel Overseas	15.17
Hotel/Motel Domestic	11.83
Holiday Home	3.47
Caravan and Camping	3.68
Coach Tour (per visit)	1.13
Weighted Average (Resident tourists)	7.69

Table 9.4 - Employment Generated by Tourist Type

Tourist Type	Expenditure	Jobs Per		
		\$100 000	Jobs	\$/Job
	\$			
Hotel/Motel Overseas	2 605 269	3.88	101	25 795
Hotel/Motel Domestic	12 712 781	4.10	521	24 401
Holiday Home	4 994 325	2.02	101	49 449
Caravan & Camping	2 444 374	2.50	61	40 071
Coach Tour	146 738	2.04	3	48 913
Weighted Average (all resident tourists)	22 756 749	3.44	784	29 026

Disaggregating the total figure between the types of tourists, hotel/motel domestic tourists created a total 521 jobs through their spending of which 388 were directly in the accommodation sector. Another 101 jobs were created by overseas hotel/motel guests, 52 of these being in the accommodation sector. Holiday home tourist spending created another 101 jobs, mainly in the retailing and restaurant sectors. While the vehicle, construction, local authority and utility sectors received 34% of this particular tourist type spending, the low employment multipliers allow the creation of only 15 jobs in total. However it is

worthwhile remembering that the method employed in the study identifies indirect and induced employment with the sector which initially receives the tourist expenditure. Therefore jobs created in the four sectors listed above are anonomously counted in the indirect and induced employment generated in the hotel/motel tourism sector. For example observation in the study area reveals that considerable building industry employment is created on new motel sites or additional motel units.

9.7. Direct, Indirect and Induced Components

The direct component of employment generation accounts for an over-whelming 90% of jobs created. This makes an interesting comparison with the 76% figure for direct income generation, the disparity being accounted for by the higher employment multipliers in those industries which receive tourism spending directly, i.e. more jobs per dollars spent. Indirect employment generated accounts for most of the remaining 10% with induced employment being negligible in most cases. The weakness of the indirect and induced components is due to the smallness of the region defined as the study area. If the study area was enlarged to include larger urban areas which supply Taupo, these components would be enlarged considerably.

9.8. Accommodation/Non-Accommodation Employment

Focussing on direct employment alone, 52% of jobs are created in the accommodation sector. However when total jobs created are used as the base figure, this percentage drops to 47%, meaning that more jobs are actually generated in the non-accommodation sector.

Tourists using serviced accommodation expectedly created more jobs in this sector than the other sectors but in total this propensity was outweighed by the employment generation of the other tourist subgroups. See Table 9.6.

Table 9.5 - Employment Generated by Sector

SECTOR	EMPLOYMENT GENERATED
Accommodation	369
Retail	104
Restaurant	218
Others	<u>98</u>
Total	789

Table 9.6 - Employment Generated Accommodation/Non-Accommodation
Employment

EMPLOYMENT GENERATED	ACCOMMODATION	NON-ACCOMMODATION	
Directly	369	341	
Indirect & Induced Through Accommodation Sector		46	
Indirect & Induced Through Non-Accommodation Sector		33	
Totals	369	420	<u>789</u>

9.9 Employment : Socio Economic Impact

An important feature of employment creation are the types of jobs created and who fills these positions. A composite employment profile for the three major employment groups is shown in Table 9.7. Table 9.7 depicts unstandardised jobs to emphasise actual numbers employed. Although employment data sought from business included a greater than/less than 21 age split, it was decided that the responses were not sufficient to extrapolate to the total population in this

segregated form. However survey responses indicated that greater than 50% of female employment went to the under 21 age group. Therefore a composite table is presented showing the data in unstandardised form which emphasises the incidence of employment between full and part time and male and female. It is evident that females benefit more from the tourism industry than males, 69% of all unstandardised positions being filled by females. Most female jobs are full time so notwithstanding the fact that part time and seasonal jobs comprise between a 10th and a third of a full time job, the question is raised as to what extent a tourism income supplements a primary income or is in fact the main household income. This is an important consideration in determining what the impact of an increase or decline in tourism expenditure in Taupo would be on employment. No conclusions can be reached from the present study but intuitively one would expect a tourism income to be a supplementary one and assuming also that households relocate mainly due to the male head obtaining a job in a new location, tourism may not be seen as a growth industry which attracts families to Taupo in the same way as forestry or geothermal power construction industry. Nevertheless tourism is an important household income earner and to maintain their present standard of living many Taupo families are reliant on this source of income.

Table 9.7 Employment Generated

- Unstandardised Jobs (Directly Generated Only)

	Full-time		Part-time or Seasonal		Totals
	Male	Female	Male	Female	
Accommodation	113	245	9	23	390
Restaurant	77	142	4	22	245
Retail	32	40	6	58	136
Totals	222	427	19	103	771

Of total unstandardised jobs, 84% were full time, the remainder being part time and seasonal. In a tourist town with marked peaks it may well have been expected that more part time and seasonal employment exists. How can this be explained? The accommodation sector responses indicate that where extra labour was required this was most often filled through the employment of existing staff for longer hours or the employment of family members who may or may not have been paid. The seasonal impact is therefore reduced. The restaurant trade also caters for the peak through the expanding hours of existing experienced staff. The retail sector appears slightly different, however a large number of the part time and seasonal job were through the policy of one large store in utilising part time labour. This was not in fact tourist related. Therefore the overall picture of the number of unstandardised jobs increasing by 8 to 12% during the seasonal peak remains consistent across the three sectors listed in the table.

9.10 Comparison with Other Data

The estimates produced by the model can be compared with labour force data from the 1981 Census. The tables below present labour force data in two forms. Firstly employment is shown within two Industry Major Groups; the Retail Trade (Division 62) and Restaurants and Hotels (Division 63) of the New Zealand Standard Industrial Classification (N.Z.S.I.C.)

Secondly employment is shown by Occupation Minor Groups of the New Zealand Standard Classification of Occupations (N.Z.S.C.O.).

The two methods of categorising employment are broadly comparable in terms of the set of jobs being represented. However the Divisions of the N.Z.S.I.C. do not exactly match the Occupation groupings of the N.Z.S.C.O. and therefore the totals do not match.

The tables presented are subject to two further adjustments before a comparison can be made with the model estimates shown in Table 9.5.

1. Firstly in the field work where a restaurant was part of an accommodation complex, restaurant employment was not separated from the accommodation employment.

Therefore in order to relate the total in Table 9.8 (B) to the Accommodation total in Table 9.6 some adjustment is necessary. At the time of survey 40% of restaurants were in conjunction with accommodation so if the total employed in Restaurants, cafes, etc, is adjusted by this factor then the total of 486 becomes approximately 400. The model estimate of 369 is at a variance of 8.5%. While sampling error could have introduced some of this variance it will be remembered that an a priori adjustment was made for part-time and seasonal jobs (see Section 8.3).

2. Secondly Tables 9.8(A) and 9.9(A) represent total employment in the retail sector whether this employment is related to tourism or not. The field survey revealed that on average tourism expenditure was the source of 16% of total turnover. The model estimates that 104 jobs were created in the retail sector and this estimate is 14% of the total jobs shown in Table 9.8(A). Assuming that tourist turnover has the same propensity for job creation as non-tourist turnover, then the model prediction of 104 jobs compares favourably with actual tourist related jobs in the retail sector.

Table 9.8 Employment of Persons in Fulltime Labour Force
(A) Retail Trade; (B) Restaurants and Hotels

(A) <u>Retail Trade</u>	Employment		
	<u>Male</u>	<u>Female</u>	<u>Total</u>
Unprocessed Primary Products	3	12	15
Food Beverages and Tobacco	84	108	192
Textiles, Clothing & Footwear	24	78	102
Paint, Wallpaper and Hardware	9	12	21
Household Appliances, Furniture	45	36	81
Paper Products	6	9	15
Chemical Products & Petroleum	48	33	81
Motor Vehicles and other Transport Equipment	114	30	144
Retail Trade (not elsewhere classified)	<u>36</u>	<u>63</u>	<u>99</u>
Total	369	384	753
(B) <u>Restaurants & Hotels</u>			
Restaurants, Cafes and other Eating & Drinking Places	36	102	138
Motels, Hotels, Guest Houses, Hostels, Camps & Accommod.	<u>123</u>	<u>225</u>	<u>348</u>
Total	159	327	486

Table 9.9 Occupation Minor Groups in Fulltime Labour Force
(A) Sales Workers; (B) Service Workers

(A) <u>Sales Workers</u>	Employment		
	<u>Male</u>	<u>Female</u>	<u>Total</u>
Managers (Wholesale & Retail Trade)	78	27	105
Working Proprietors (Wholesale and Retail Trade)	84	57	141
Sales Supervisors and Buyers	18	3	21
Technical Sales Staff, Commercial Travellers and Manufacturers Agents	51	6	57
Insurance, Real Estate, Securities & Business Services Salespersons & Auctioneers	54	3	57
Salespersons, Shop Assistants	<u>123</u>	<u>255</u>	<u>378</u>
Total	411	348	759
(B) <u>Service Workers</u>			
Managers (Catering and Lodging Services)	24	15	39
Working Proprietors (Catering and Lodging Services)	51	51	102
Housekeeping and Related Services Supervisors	-	6	6
Cooks, Waiters/Waitresses, Bartenders	51	120	171
Housestaff and Related Housekeeping Service Workers	6	78	84
Building Caretakers, Charworkers, Cleaners	24	36	60
Launderers, Drycleaners and Pressers	3	21	24
Hairdresser, Barbers, Beauticians	9	30	39
Protective Service Workers	69	3	72
Service Workers (not elsewhere classified)	<u>21</u>	<u>30</u>	<u>51</u>
Total	261	387	648

10. CONCLUSIONS

10.1. Summary of Main Results

It has been estimated that during the 1981-82 study year 773399 tourist nights were spent in Taupo. In addition 29289 coach tour tourists visited the town and there were several hundred thousand transit tourists and day tourists. For reasons explained earlier these latter groups were not included in the study.

The resident tourist nights were composed as follows. A total of 365 660 tourist nights were spent in hotel/motel accommodation of which 48633 were attributable to overseas tourists. Hotel/motel groups averaged 2.5 persons and stayed on the average 2.6 days. Holiday home tourists accounted for another 266 364 tourist nights. Each holiday home was used on average 294 nights and the average number of persons staying was 3.5. A further 141 375 tourist nights were spent in the regions caravan and camping areas. This type of tourist stayed for 4.0 days on average with 3.7 persons in each group. Despite Taupo's year round attractions there was a marked seasonal preference for January by all groups. Coach tour tourists very rarely numbered more than one or two in a group and spent between one half hour to two hours in Taupo en route from one night stop to the next. Over-nighting by coach tour groups in Taupo was negligible.

Altogether it was estimated that almost \$23 million dollars was spent by tourists in Taupo. Of this total \$6.2 is spent on accommodation, \$3.8 million in restaurants and on eating out and \$8.5 in the retail sector. Vehicle expenditure accounts for another \$3.6 million while holiday home owners spend \$0.7 million on rates, maintenance and power collectively. The average tourist staying in Taupo spent \$29 per tourist night, a value which ranged from \$53 for overseas hotel/motel tourists to \$17 for caravan and camping tourists. Coach tour tourists spent \$5 per visit on average.

Income and employment multipliers were produced to show the impact of the expenditure on Taupo. The income multiplier for an average \$1 of tourist expenditure was .261 with a range from .295 for domestic hotel/motel tourists to .185 for the holiday home tourist. Employment multipliers for the same tourist types ranged from 4.1 to 2.02 with an average of 3.44 (standardised jobs per \$100 000 of tourist expenditure). When these multipliers are applied to the total expenditure the income and employment generation of tourist spending was revealed. Of the \$23 million expenditure, \$6 million became income to local households and almost 800 jobs were generated by tourist spending. Analysed by tourist groups those staying in serviced accommodation had the greatest impact on local income and employment. Of the respective totals, \$4.5 million of income and 622 jobs can be attributed to hotel/motel tourists, with \$3.75 million income and 521 jobs being attributed to domestic hotel/motel tourists. Income generation per tourist night averaged at \$7.69 with a range from \$15.17 for overseas hotel/motel tourists to \$3.47 for holiday home tourists. Coach tour tourists had a much lower impact of only \$1.13 income generated per visit.

The direct component of income and employment generation was dominant accounting for 76% of income and 90% of jobs generated. Indirect effects accounted for a further 11% and 9% respectively with the induced effects making up the remainder.

Tourism in Taupo is an important source of female employment especially to the under 21 age group where in the order of 300 jobs are filled by this demographic group.

10.2. Utilising the Study Findings

One of the objectives of this study has been to examine the efficacy of multiplier analysis in providing information necessary to making policy decisions on tourism development.

To elaborate further, to what extent does the information provided answer the questions in the minds of policy makers on the requirements, benefits and costs of tourism before promotion and investment occurs? And how widely and for how long can this information be used?

Multiplier analysis provides a reliable and objective measure of how tourism turn over is converted into local income and employment. Conventional survey methods have been utilised to gather information on tourism spending and local business data on the subsequent circulation of that money. The data has then been plugged into a matrix representing inter-industry flows of spending and a computer used to perform the necessary matrix operations. Information has then been produced on the current economic performance of tourism in Taupo. Measures have been provided of the size of the industry and the different impacts of various tourist types have been estimated. The features of the local economy which determine the strength of the multiplier have been made explicit and the incidence of employment for broadly defined demographic groups has been identified. The information could be used to estimate the impact of larger numbers of tourists on longer staying tourists emphasising the benefits which result from promotional activity.

However multiplier analysis is subject to certain limitations and these have been discussed earlier. Two limitations which are of significance to this summing up are opportunity cost and long run considerations.

Firstly this study does not take any account of the benefits which may have resulted if the resources used in tourism had been employed in alternative forms of activity. In opportunity cost terms, these benefits should be deducted from the benefits of tourism to reveal the true benefit. Furthermore some account should be taken of economies and diseconomies of scale arising from the tourism industry

(eg consumer benefits which local residents enjoy such as greater shopping choice (economy) and January traffic and lakefront congestion (diseconomy). There are also certain public costs for which it is difficult to charge the tourist and for which local residents must pay. These costs include services for which systems of greater capacity must be installed to cater for tourist demands. Examples of this are the road network, water supply, sewage and rubbish disposal, fire services and police.

Secondly tourism expenditure in Taupo has been continuing now for many years. During that time local business people have been able to save for reinvestment in tourist facilities. A healthy industry will also attract investment from outside the region from both private investors and the public sector (eg Development Finance Corporation). It was evident from the study that considerable local authority investment is directed at promoting tourism. This investment is induced by tourism spending during any one year and is therefore an identifiable element in the economic impact of that spending. However this study takes no account of the longer run effects.

10.3. Uses of the Information

The first and most obvious use of information produced in this study is for promotional purposes. It is an advantage to any growing industry which is competing for resources to have objective data on income and employment generated for a given injection of external funds.

At the regional level, the policies of the Tongariro United Council, the body with regional planning responsibilities, should be designed to maximise the benefits of tourism to the Tongariro region. The information revealed by this study indicates that it is the tourist that stays in serviced accommodation that has the greatest propensity to generate local income and employment. Furthermore it is the domestic

tourist rather than the overseas tourist who generates more benefits per dollar of expenditure.

Perhaps it is coincidental or an indication of the quality of planning in the region but an early regional planning document stated :

"The single fundamental policy of regional recreation and tourism is to accommodate domestic recreation rather than international tourism on a scale compatible with the outstanding natural physical environment of the area." (Crawford 1978)

A simultaneous consideration of the benefits of serviced accommodation and the conservation of the physical environment leads inevitably to a policy of concentrating tourist accommodation around the existing urban areas of Taupo and to a lesser extent Turangi. It is in these towns that the services and infrastructure exist to provide for the most economic and environmentally compatible forms of development.

Such a concentration also promotes a greater flow-on effect between the accommodation and non-accommodation sector. This inter-relationship was identified in the study where it was shown that in total the non-accommodation sector fared better than the accommodation sector in terms of both income and employment generated. However this characteristic does not detract from the prime result that to be of any great benefit to Taupo a tourist must first stay overnight. The 'capture' of a tourist for a night ensures a far greater impact than that of a mere visit. This has an important implication for the organisation of coach tours that include overnighing in Taupo. At present the number of overnighing tourists is minimal due to the lack of large motels or hotels which can cater for coach tour numbers in addition to providing for their regular trade. While not demonstrated in this study it has been shown elsewhere that

group-organised tours have a greater impact than individually organised tours. Furthermore coach tour activity peaks in March not January as with other tourist activity and it therefore has the potential to lengthen the seasonal peak for accommodation and non-accommodation sectors alike if coach tourists can be 'captured' for the night.

The overseas tourist nevertheless spends the largest amount per day and generates the most income and employment per day (although not per dollar spent) so this study further demonstrates the benefits albeit regionalised, of overseas tourism to central government.

In the absence of similar measurement carried out on regional forestry, energy or agricultural development it is difficult to make a comparison between industries. Regional forestry multipliers for income and employment have been produced for the Rotorua forest region but a different specification unfortunately makes the results uncomparable. (Aldwell 1982). At the national level labour multipliers and shadow prices which approximate output multipliers have been produced for tourism, agriculture and manufacturing. The labour multipliers produced (Agriculture 4.40; Tourism 4.56; Manufacturing 4.47) have similar values to those estimated in the present study but any attempt at using this data for comparison at the regional level should be avoided for reasons already discussed. (See Section 3.6.1).

A further study implication is suggested through the obvious importance of the tourism industry to women, especially younger women.

The points made above for utilising the study information may be of use at the national level but are directed more particularly for regional utilisation. Utilisation at a national level would be unlikely to go beyond incorporating results in a sectoral functional plan for tourism ie a plan

which focuses on tourism as a nationwide industry. Utilisation at a regional or local level in a regional plan will be more productive because a regional plan focuses on the coordination and integration of the region's economic activities. The information generated in this study is directed at the 'bottom-up' approach to planning rather than the 'top-down' approach.

To conclude, the results of this study can be of use to a wide range of decision makers. The results have been demonstrated as being useful at both national and local levels of planning and policy making. However the actual level of use given to any information is to a large extent governed by the perceived importance of the activity to which that information relates. Tourism has long been recognised as being very important in Taupo, but its national economic status is just beginning to be realised. Further more, the very activity of attempting to create a satisfactory model reveals important insights and brings about a higher level of understanding of the resource utilisation process.

A P P E N D I C E S

APPENDIX I : CALCULATION OF INCOME AND EMPLOYMENT
GENERATED BY TOURISTS IN TAUPO

STEP ONE : INPUT COEFFICIENT TABLE

The initial step in the process is the composition of a partial input-output table for the local economy based on business survey and other secondary data. This is displayed in Table A1. The table shows the basic pattern of transactions which flow through the local economy. Each column shows the value of purchases made by one sector from all other sectors.

TABLE A1 - Input Coefficient Table

	Accommodation	Retail	Restaurant	Vehicle	Construction	Local Authority	Utility	Households
Accommodation	0	0	0	0	0	0	0	0
Retail	.197	.039	.237	.013	.273	.334	.166	.475
Restaurant	0	0	0	0	0	0	0	.056
Vehicle	.041	.022	.020	0	.022	.011	.022	.119
Construction	.018	.01	.010	.017	0	.138	0	.033
Local Authority	.040	.006	.005	.002	0	0	0	.027
Utility	.100	.015	.033	.003	.009	.029	0	.027
Households	.338	.140	.267	.03	.136	.140	.035	.018
Leakages	.266	.767	.428	.934	.560	.348	.777	.245
<u>Total</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>	<u>1.000</u>

For example in the operation of the average retail business in Taupo 3.9 cents of purchases are made within the sector itself for every dollar of output or turnover, similarly 2.2 cents goes to the vehicle sector, 1.1 cents to construction, 0.6 cents to the local authority and 1.5 cents to the utility.

A further 14.0 cents becomes income to local households and 76.7 cents is leaked outside the region in the form of other purchases, professional services, interest, rent etc. The household income now actually represents the direct income generated for one dollar spent by a tourist in each sector. The indirect and induced income generated can only be calculated through the application of matrix algebra.

STEP TWO : THE LEONTIF INVERSE

The production of the Leontif inverse matrix was through a computer package generally available for the inverse procedure at Waikato University. The information used as input is altered from that depicted in Table A1 in the following ways :

- 1) The inverse procedure will not accept a row of zeros. The Accommodation sector receives no expenditure from any Local sectors so a zero row appears and must be thus eliminated. The restaurant sector receives spending only from households and no other Local business sector so it too must be eliminated where the inverse of the matrix where households are not included is calculated. The reintroduction of these sectors to the calculations in each case is dealt with below.
- 2) The matrix excludes the import coefficients which do nothing to generate local income.

It was necessary to run two matrices through the inverse procedure in order to separate the indirect from the induced effects. The difference between the matrices is that the household sector is included in one to obtain the induced effects and not the other. The elements of the inverse are termed transaction multipliers as they represent the effect of an infinite number of transactions. (See Tables A2.1 to A2.4).

TABLE A2.1 - Input Coefficient Matrix
(Households Endogenous)

	Retail	Restaurants	Vehicle	Construction	Local Authority	Utility	Households
H =	[0.039	0.237	0.013	0.273	0.334	0.166	0.475]
	[0.000	0.000	0.000	0.000	0.000	0.000	0.056]
	[0.022	0.020	0.000	0.022	0.011	0.022	0.119]
	[0.011	0.010	0.017	0.000	0.138	0.000	0.033]
	[0.006	0.005	0.002	0.000	0.000	0.000	0.027]
	[0.015	0.033	0.003	0.009	0.019	0.000	0.027]
	[0.140	0.267	0.031	0.136	0.140	0.035	0.018]

TABLE A2.2 - Leontif Inverse

	[1.143	0.450	0.042	0.399	0.530	0.212	0.617]
	[0.010	1.020	0.002	0.011	0.014	0.004	0.064]
-1=	[0.047	0.074	1.007	0.056	0.057	0.035	0.153]
(I-H)	[0.021	0.030	0.019	1.013	0.155	0.006	0.053]
	[0.012	0.017	0.003	0.008	1.010	0.003	0.035]
	[0.023	0.051	0.005	0.021	0.046	1.005	0.044]
	[0.173	0.352	0.042	0.204	0.248	0.070	1.142]

TABLE A2.3 - Input Coefficient Matrix (Household Exogenous)

	Retail	Vehicle	Construct- ion	Local Authority	Utility
D =	[0.039	0.013	0.273	0.334	0.166]
	[0.022	0.000	0.022	0.011	0.022]
	[0.011	0.017	0.000	0.138	0.000]
	[0.006	0.002	0.000	0.000	0.000]
	[0.015	0.003	0.009	0.029	0.000]

TABLE A2.4 - Leontif Inverse

	【1.05	0.020	0.289	0.396	0.175】
-1	【0.024	1.001	0.029	0.024	0.025】
(I-D)	【0.128	0.018	1.004	0.143	0.002】
	【0.006	0.002	0.008	1.002	0.001】
	【0.016	0.004	0.013	0.036	1.003】

STEP THREE : SECTORAL INCOME GENERATION (RIG COEFFICIENTS)
(Variable V)

Taking the retail sector as an example the propensity for each sector to generate income out of one dollar spent in that sector can be calculated as follows.

Direct Income Generation = \$0.140

Indirect and Induced Income Generation through the spending of the retail sector in each other sector is calculated by summing the income generated in those sectors by their own responding. In each case the summation is of the product of an income/output ratio (Table A1) and a transaction multiplier. The sum is then weighted by the proportion of one dollar spent by the retail sector in that sector. More specifically :

Let h_{ab} represent the element in the a th row and the b th column of matrix H and similarly for matrix I and i_{ab} .

Element h_{31} represents the proportion of one dollar spent by the retail sector in the vehicle sector;

Elements h_{71} to h_{77} represents the income to turnover ratios for each sector; and

Elements i_{13} to i_{73} represents the transaction multipliers for the vehicle sector.

The summation is as follows in matrix terms :

$$\begin{aligned}
 h_{31} & \text{ [} h_{71}i_{13}+h_{72}i_{23}+h_{73}i_{33}+h_{74}i_{43}+h_{75}i_{53}+h_{76}i_{63}+h_{77}i_{73} \text{]} \\
 & = 0.022 \text{ [} .14(.042)+.267(.002)+.031(1.007)+.136(.019)+.140 \\
 & \quad \text{ (.003)+.035(.005)+.018(.042) \text{]} \\
 & = 0.022 \text{ [} .214 \text{]} \\
 & = 0.00471
 \end{aligned}$$

This process is then repeated for each sector, viz:

Income generated from retail sector respending within its own sector:

$$= 0.039 \text{ 【.14(1.143)+.267(.01)+.031(.047)+.136(.021)+.14(.012) \\ +.035(.023)+0.18(.172)】}$$

$$= 0.00673$$

Income generated from retail sector respending in construction:

$$= 0.011 \text{ 【.14(.399)+.267(.011)+.031(.056)+.136(1.013)+.14 \\ (.008)+.035(.021)+018(.204)】}$$

$$= 0.0024$$

Income generated from retail sector respending in local authority :

$$= 0.006 \text{ 【.14(.530)+.267(.014)+.031(.057)+.136(.155)+.14(1.01) \\ +.035(.046)+.018(.248)】}$$

$$= .00149$$

Income generated from retail sector respending on utilities:

$$=0.015 \text{ 【.14(.212)+.267(.004)+.031(.035)+.136(.006)+.14(.003) \\ +.035(1.005)+.018(.07)】}$$

$$= 0.00104$$

Income generated from retail sector respending on households (wages, salaries, profits, etc.) :

$$= 0.140 \text{ 【.14(.617)+.267(.064)+.031(.153)+.136(.053)+.14(.035) \\ +.035(.044)+.018(1.142)】}$$

$$= 0.01995$$

Total Induced and Indirect Income Generated = \$0.036
 Therefore Total Income Generated per \$1 of tourist spending
 in the retail sector = \$0.176.

This process is then repeated for all other sectors. In practice the summation within the square brackets is the same in each case, only the variable outside the square brackets representing the proportion of spending in that sector changing.

Accommodation and Restaurants

It has been noted above that the accommodation and restaurant sectors do not receive any income from local business spending. Restaurants receive some local household spending but together they rely almost solely on outside spending. The accommodation sector could not therefore be included in the matrix used for the Leontief inverse for either indirect or indirect + induced income. The restaurant sector was excluded from the former only. The reintroduction of these sectors is relatively simple in each case if their spending on other sectors is treated as an exogenous input to the matrix of local business spending.

Households Exogenous

The above procedure was actually repeated twice in order to identify both the indirect and induced RIG coefficients. Matrix D is substituted for Matrix H in the second run. The full results of these calculations can be seen in the next step.

STEP FOUR : TOURIST INCOME MULTIPLIERS

The propensity for each sector to generate income through the direct, indirect and induced RIG's is now combined with the pattern of tourist spending to produce the multipliers for each tourist group. The following tables show the calculations for each tourist group plus a weighted average for all resident groups in the final table.

TABLE A3.4 - Income Generated by Caravanners & Campers

n = 141375

	Expenditure	RIG's And Income Generated				Total		
		\$/Year	Direct	Indirect	Induced			
Acc.	380299	.338	28541	.048	18254	.063	23959	170754
Res.	344955	.267	92103	.042	14488	.047	16213	122804
Ret.	1157861	.140	162100	.020	23157	.016	18526	203783
Gar.	561259	.031	17399	.003	1684	.007	3929	23012
	2444374		400143		57583		62627	520353
								(.213)

TABLE A3.5 - Income Generated by Coach Tour Visitors

n = 29289

	Expenditure	RIG's And Income Generated				Total		
		\$/Year	Direct	Indirect	Induced			
Res.	40126	.269	10714	.042	1685	.047	1886	14285
Ret.	106612	.140	14926	.020	2132	.016	1708	18764
	146738		25640		3817		3594	33049
								(.225)

TABLE A3.6 - Income Generated byWeighted Average of All Resident Tourists (Totals)

	Expenditure	RIG's and Income Generated				Total		
		\$	\$/Year	Direct	Indirect		Induced	
29.41	22742162	.198	4591212	.030	676768	.033	754216	5932196

STEP FIVE : TOURIST EMPLOYMENT MULTIPLIERS

The procedure employed to produce tourist employment multiplier is very similar to that explained for income multipliers above. The information in the Leontif inverse matrices is again utilised. However employment/output ratios are substituted for income/output ratios, where this ratio represents standardised jobs. This means that in Step Three the h variable inside the square brackets is an employment/output ratio and resulting product is an REG coefficient. These coefficients for each sector and how they are applied to tourist spending is demonstrated in Tables A4 and Tables A5.1 to A5.5.

TABLE A4 - Sectoral Employment Generation Jobs/\$100 000 Output
Employment Generated

Sector	Tourist Expenditure \$	Direct		Indirect		Induced		Total	
		REG	Jobs	REG	Jobs	REG	Jobs	REG	Jobs
Acc.	6 255 752	5.900	369	.653	41	.074	5	6.63	415
Ret.	8 511 322	1.230	105	.104	9	.018	2	1.35	116
Res.	3 822 142	5.720	219	.382	15	.048	2	6.15	236
Veh.	3 608 517	0.260	9	.049	2	.007		0.32	11
Const.	303 655	1.130	3	.377	1	.049		1.56	4
L.A.	322 300	1.560	5	.682	2	.084		2.33	7
Utility	79 909	0.890		.225		.032		1.15	
TOTALS	22 903 486	3.10	710	.310	70	.04	9	3.45	789

TABLE A5.1 - Jobs Generated by Hotel/Motel Overseas Tourists

Sector	Expenditure \$	REG's and Employment Generated						
		Direct		Indirect		Induced		Total
		REG	Jobs	REG	Jobs	REG	Jobs	Jobs
Acc.	771 319	5.90	46	.653	5	.074	1	52
Ret.	1 045 123	1.23	13	.104	1	.018		14
Res.	556 361	5.72	32	.382	2	.048		34
Veh.	232 466	0.26	1	.049		.007		1
TOTALS			92		8		1	(3.88) 101

TABLE A5.2 - Jobs Generated by Hotel/Motel Domestic Tourists

Sector	REG's and Employment Generated							
	Expenditure	Direct		Indirect		Induced		Total
	\$	REG	Jobs	REG	Jobs	REG	Jobs	Jobs
Acc.	5 104 134	5.9	301	.653	33	.074	4	338
Ret.	3 737 749	1.23	46	.104	4	.018	1	51
Res.	2 041 653	5.72	117	.382	8	.048	1	126
Veh.	1 829 245	0.26	5	.049	1	.007		6
TOTALS			469		46		6	(4.10) 521

TABLE A5.3 - Jobs Generated by Holiday Home Tourists

Sector	REG's and Employment Generated							
	Expenditure	Direct		Indirect		Induced		Total
	\$	REG	Jobs	REG	Jobs	REG	Jobs	Jobs
Res.	839 047	5.72	50	.382	3	.048		53
Ret.	2 463 867	1.23	30	.104	3	.018		33
Veh.	985 547	0.26	3	.049		.007		3
Con.	303 655	1.13	3	.377	1	.049		4
L.A.	322 300	1.56	5	.682	2	.084		7
Uti.	79 909	0.89		.225		.032		1
TOTALS			91		9		1	(2.02) 101

TABLE A5.4 - Jobs Generated by Caravan and Camping Tourists

Sector	REG's and Employment Generated							
	Expenditure	Direct		Indirect		Induced		Total
	\$	REG	Jobs	REG	Jobs	REG	Jobs	Jobs
Acc.	380 299	5.9	22	.653	2	.074		24
Ret.	1 157 861	1.23	14	.104	1	.018		15
Res.	344 955	5.72	20	.382	1	.048		21
Gar.	561 259	0.26	1	.049		.007		1
TOTALS			55		4			(2.50) 61

TABLE A5.5 - Jobs Generated by Coach Tour Tourists

Sector	Expenditure \$	REG's and Employment Generated						Total Jobs
		Direct		Indirect		Induced		
		REG	Jobs	REG	Jobs	REG	Jobs	
Ret.	106 612	1.23	1	.104	-	.018	-	1
Res.	40 126	5.72	2	.382	-	.048	-	2
TOTALS			3		-		-	(2.04) 3

APPENDIX II

Variables L, X, and Z all relate to household consumption and the induced or third level multiplier effects. In the course of the study it became evident that no local data would be available and that national data and estimates would need to be employed. The results indicate that induced income and employment represents 13% and 1% of total income and employment respectively. While these proportions, especially in the latter case, are not large it has nevertheless been considered necessary to test the variables. More specifically what is the effect on the multiplier values of a significant change in variables L and Z?

Variable X

Variable X, the local pattern of consumption is not challenged as being significantly different from the national pattern. Regional household income was also assumed to be that of the national average for the 1981-82 year.

The most recent household survey was the Household Survey Report 1980-81 as reported in the New Zealand Yearbook 1982. This survey gave the household expenditure breakdown shown in Table A6. These figures were then adjusted by the consumer price index change for each expenditure category to provide 1981-82 figures. CPI index figures were obtained from the Monthly Abstract of Statistics.

Table A6.1 Household Expenditure Breakdown (Variable Z)

<u>Expenditure Category</u>	1980-81	CPI	1981-82
	\$	Index	\$
Food	43.81	1165	51.04
Housing	43.55	1199	52.21
Household Operation	36.74	1114	40.93
Apparel	17.38	1114	19.36
Transport	45.36	1171	53.11
Miscellaneous	<u>43.82</u>	1147	<u>52.55</u>
Total	<u>\$232.66</u>	1157	<u>\$269.20</u>

Statistics

Variable L

L, the propensity to consume was taken as being 95% (New Zealand Official Yearbook 1979).

Variable Z

As no data at all was available on the propensity to spend locally the following assumptions were made for the household expenditure items listed above.

- All food was purchased locally, 25% from eating houses
- Rates, 80% of rent and repairs and maintenance were locally paid or purchased
- Mortgage repayments were 80% external
- Household purchases were all locally purchased
- Clothing purchases were 80% local
- Transport costs were 80% local
- Miscellaneous items were 80% local

In dollar terms the effect of these assumptions are shown in Table A6.2.

Table A6.2 Propensity to Spend Locally Variable X

<u>Local Economy Sector</u>	<u>Local Household Expenditure</u>	
	<u>Assumptions 1</u>	<u>Assumptions 2</u>
	\$	\$
Retail	127.79	95.84
Restaurant	15.00	15.00
Vehicle	32.03	32.03
Local Authority	7.32	7.32
Utility	7.20	7.20
Construction	8.97	8.97
Households	6.53	6.53
Imports (Leakages)	<u>64.36</u>	<u>96.31</u>
Totals	<u>\$269.20</u>	<u>\$269.20</u>

To test the sensitivity of the assumptions made for variables L and X it was decided to reduce the local retail sector expenditure by 25%, the difference being accounted for by an increase in imports. (See Assumptions 2 Table A6.2). This increase can be thought of as a reduction in either propensity.

The dollar values in Assumpt 2 alter the matrix shown in Appendix I from H to H* as depicted below with a subsequent change to the inverse. Comparison of the two inverses reveal that despite a 25% change in local retail spending changes are limited and minor.

	[0.039	0.237	0.013	0.273	0.334	0.166	0.353]
	[0.000	0.000	0.000	0.000	0.000	0.000	0.056]
	[0.022	0.020	0.000	0.022	0.011	0.022	0.119]
H* =	[0.011	0.010	0.017	0.000	0.138	0.000	0.033]
	[0.006	0.005	0.002	0.000	0.000	0.000	0.027]
	[0.015	0.033	0.003	0.009	0.029	0.000	0.027]
	[0.140	0.267	0.031	0.136	0.140	0.035	0.018]

	1.119	0.402	0.037	0.371	0.496	0.203	0.461
	0.009	1.019	0.002	0.011	0.014	0.004	0.063
	0.046	0.072	1.006	0.055	0.056	0.035	0.147
$(I-H^*)^{-1}$	0.020	0.030	0.019	1.013	0.154	0.006	0.050
	0.011	0.017	0.003	0.008	1.010	0.003	0.034
	0.022	0.050	0.005	0.021	0.045	1.005	0.041
	0.169	0.345	0.041	0.200	0.243	0.068	1.119

Examination of the inverse $(I-H^*)^{-1}$ and comparison with the inverse of Run 1 reveal that only those elements underlined have any significant change (ie greater than 0.01).

However the real test is whether the change in these elements have any effect on the multiplier. As the retail sector has been subjected to the change for Run 2 and has also been focussed on for the calculations in Appendix I, it will again be used as an example.

Table A6.3 Regional Income Generation Coefficient: Retail

<u>Income Generation</u>	Run 1	Run 2
	\$	\$
Direct	0.14000	0.14000
Through Responding on:		
Retail	0.00673	0.00659
Construction	0.00224	0.00220
Vehicle	0.00100	0.00102
Local Authority	0.00149	0.00146
Utilities	0.00104	0.00104
Households	0.01995	0.01683
Total Indirect and Induced	<u>0.03245</u>	<u>0.02910</u>
Total	<u>0.17245</u>	<u>0.16910</u>

The impact of a 25% cut in spending in the retail sector by local households results in a reduction of only .00335 (0.3 cents in the dollar) in the value of the multiplier. It is considered extremely unlikely that estimations of L or Z values were in error to the degree simulated by a 25% reduction in local retail expenditure.

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

Visitor Survey

1. Are you a visitor to Taupo? If not, terminate - interview.
2. Are you an overseas visitor? Yes/No
3. What is your country of origin? _____
4. (Domestic visitors only) How many nights will you be away from home on this trip? _____
5. How many nights are you spending in Taupo? _____
6. How are you travelling? Tick one of the following.
 - Private Motor Vehicle ... _____
 - Coach Tour _____
 - Public Transport _____
 - Hitch Hiking _____
 - Cycling _____
 - Other, specify..... _____
7. What is the name of the establishment in which you are staying?

8. What is the type of accommodation in which you are staying in Taupo?
Tick one of the following
 - Licenced Hotel or Motel _____
 - Motel _____
 - Private Hotel or Guest House _____
 - Own Second Home or Holiday Bach _____
 - Rented Second Home or Holiday Bach _____
 - Caravan, touring _____
 - Caravan, on-site..... _____
 - Camping _____
 - Staying with Friends... _____
 - Other, specify _____
9. Have you visited Taupo before? Yes/No
10. What is the purpose of your visit? Tick one or more of the following.
 - Holiday _____
 - Business..... _____
 - Visiting friends or relative..... _____
 - Other, specify _____

11. How many people, including yourself are in your party? _____
Are you in a family group? Yes/No
Of the people in your group, how many are 16 years or over? _____

12. Would you mind telling me how much you have spent in Taupo
in the last 24 hours? \$ _____

Of this amount how much have you spent on the following items
in Taupo?

	\$	%
Accommodation	_____	_____
Meals out	_____	_____
Food	_____	_____
Alcoholic Beverages	_____	_____
Souvenirs	_____	_____
Petrol, oil etc	_____	_____
Entertainment	_____	_____
Other items, specify	_____	_____
	_____	_____

D F Serjeant

Dear Sir

TAUPO TOURISM STUDY

During 1982 I am conducting research into the economic impact of tourism in Taupo as part of my Masters degree in business studies at Massey Universtiy. An essential part of the research is a survey of various business operations in Taupo and it is with this survey that I am seeking your organisation's cooperation and support.

My research is concerned with the total generation of income and employment that flows from the expenditure of tourist dollars in Taupo. It is clear that this total is some multiple of the initial expenditure as money received initially from motels, shops and tourist attractions is then respent to create further income and jobs and so on. It is therefore necessary to find out how much money is received, how many people are employed and what proportion of a given business's expenditure on wages, supplies and other factor inputs and flow of profits stay within Taupo to enter a further round of spending.

I am fully aware that some of the information I seek is confidential and that some business people will be unwilling to supply me with this information. I respect their wish for privacy however I wish to assure you that all information supplied will be treated with the utmost confidence and security. It will also be presented in such an aggregated form that no individual business would be recognisable.

One further aspect of confidentiality is that I am currently employed by the Taupo Borough Council as a town planner. While I do not see that this would complicate the matter of confidentiality I feel it is necessary to make you aware of this fact.

You will undoubtedly ask the question: Is there anything in this study for us? This is a question I expect as I am not one who believes that studies should be undertaken for academic interest alone. The results of a study should have readily apparent implications for the policy-maker and practitioner. Firstly, the study will provide an objective measure of the value of tourism in Taupo in terms of income and employment. It will also identify the impact that different types of tourists have on these variables. Secondly where there is equivalent information for other forms of economic activity(e.g. forestry) a reasonable basis for comparison exists. Thus it is possible that the results of the study could be used in a promotional way or in regional development policymaking. Thirdly this type of analysis permits the various stages in the economic process to be recognised and it should be possible to identify where Taupo could capture more tourist dollars or make each tourist dollar go further.

It is my intention that I meet with your association committee or governing group before proceeding further with this study. At that time I will be able to answer any questions you may have.

I enclose a copy of the draft questionnaire for your examination.

Yours faithfully

D F Serjeant

D. F. Serjeant

Dear Sir
TAUPO TOURISM STUDY

During 1982 I am conducting research into the economic impact of tourism in Taupo as part of my Masters degree in Business Studies at Massey University. An essential part of the research is a survey of various business operations in Taupo and it is with this survey that I am seeking your cooperation and support.

I have already obtained the support of the Lake Taupo Accommodation Association and the Taupo branch of the Motel Association of New Zealand.

My research is concerned with the total generation of income and employment that flows from the expenditure of tourist dollars in Taupo. It is clear that this total is some multiple of the initial expenditure as money received initially from motels, shops and tourist attractions is then respent to create further income and jobs and so on. It is therefore necessary to find out how much money is received, how many people are employed and what proportion of a given business's expenditure on wages, supplies and other factor inputs and flow of profits stay within Taupo to enter a further round of spending.

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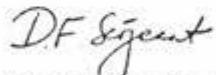
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It is my intention to leave the questionnaire with you for a short time then return to collect it and go over your responses with you and answer any questions you may have.

Thanking you in anticipation.

Yours faithfully



David Serjeant

D. F. Serjeant

Dear Sir
TAUPO TOURISM STUDY

During 1982 I am conducting research into the economic impact of tourism in Taupo as part of my Masters degree in Business Studies at Massey University. An essential part of the research is a survey of various business operations in Taupo and it is with this survey that I am seeking your cooperation and support.

I have already obtained the support of the Taupo Chamber of Commerce and the Taupo Retailers Association.

It is possible that you may be thinking at this point: What has tourism got to do with me? The short answer is that tourist dollars effect every person and every business establishment in Taupo to some degree. Although relatively little tourist spending is received directly by businesses outside of accommodation, certain retail activities and tourist attractions it is the respending of this initial income that creates income and employment in other businesses throughout Taupo. It is also worth noting that the building industry receives a considerable amount of work from people who own second homes in Taupo as well as from the more obvious motel construction. It is therefore necessary to find out how much money is received, how many people are employed and what proportion of a given business' expenditure on wages, supplies and other factor payments stay within Taupo to enter a further round of spending.

I am fully aware that some of the information I seek is confidential and that some business people will be unwilling to supply me with this information. I respect your wish for privacy however I wish to assure you that all information supplied will be treated with the utmost confidence and security. It will also be presented in such an aggregated form that no individual business would be recognisable.

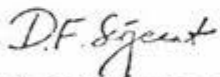
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It is my intention to leave the questionnaire with you for a short time then return to collect it and go over your responses with you and answer any questions you may have.

Thanking you in anticipation.

Yours faithfully



David Serjeant

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

The aim of this questionnaire is to determine the impact of spending by tourists on local income and employment in Taupo.

Tourists are defined as visitors to Taupo excluding those who come on business or to work (such as travelling salesmen and truck drivers) but including conference attenders.

PRELIMINARY QUESTION :

Would you please indicate your form of ownership:

Sole proprietor
Partnership
Private company.
Public company

EMPLOYMENT:

1. I am concerned initially with your base, year-round employment (seasonal employment will be dealt with below).

(a) How many jobs do you provide all year round, including working proprietors and managers?

		NO. FULLTIME	NO. PART-TIME
OVER 21	MALE		
	FEMALE		
UNDER 21	MALE		
	FEMALE		
TOTAL			

(b) When do you employ this part-time staff (if any) and for what purposes? _____

(d) Of your extra staff, how many:

	All	More than half	Less than half	None
Were female				
Were under 21				
Came from outside Taupo				

(e) Do you regularly rely on the same people to meet your extra staff needs?

(f) Do you have difficulty in obtaining your extra staff?

INCOME:

In this part I am interested in estimating how much tourists contribute to total spending.

3. Would you please indicate what your total turnover was in the 1981/82 financial year. (If your annual statements are not yet available then use 1980/81 figures.)

Statements used (indicate one) 1980/81 1981/82

(The table is in 000's)

0-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
90-95	95-100	100-110	110-120	120-130	130-150	150-175		
175-200	200-225	225-250	250-300	300+				

Please comment if these figures are for less than 12 months (e.g. new building, new owner _____)

- * How much of your total turnover would you estimate is due to tourists? _____%

It is important to estimate, as accurately as possible, how much of this turnover is spent by your business in Taupo.

4. Would you indicate your costs for the same period.

(The table is in 000's)

0-50	50-55	55-60	60-65	65-70	70-75	75-80	80-85	85-90
90-95	95-100	100-110	110-120	120-130	130-150	150-175		
175-200	200-225	225-250	250-300	300+				

5. How would you break these costs down into the following categories? Also, of the money you spend on each of categories, how much of it do you spend in Taupo?

NOTE: THIS INFORMATION CAN BE FOUND ON YOUR PROFIT/LOSS ACCOUNT

Category	% of total expenses	% of this category spent in Taupo
Gross wages and salaries (including your own if you are a sole proprietor)		
Professional and commercial services (e.g. legal, accounting, laundry, etc.		
Indirect taxes, levies, credit charges (VISA etc.)		
Retailers and wholesalers, supplies		
Utilities (P.O., M.E.D.)		
Garages and vehicle expenses		
Rates		
Rent, leasing of land, buildings, equipment and interest charges		
Personal expenses (travelling and entertainment)		
Manufacturers		
Builders		
Other expenses, (specify)		

6. Did your payments go to any particular town, city or region in New Zealand outside of Taupo?

YES/NO

If so, which one _____

7. If you specified that you are a company then what percentage of your after-tax profit was paid to shareholders or others outside of Taupo?

_____ %

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

Dear Sir/Madam

TOURISM RESEARCH : TAUPO

I am currently conducting tourism research into the economic impact of tourism in Taupo for a Masters degree thesis at Massey University. Your name has been selected in a random sample of the Taupo Borough Council rating records as a non-resident owner of property in Taupo. As the use of second homes or holiday baches by persons living outside of Taupo constitutes a significant flow of income into the local economy in various ways it is an essential part of my research to investigate this aspect of tourism.

Expenditure by you on food, general household supplies, repairs, renovations and rates all constitutes a flow of income into the local economy and creates employment. The use of your property in Taupo by others if you rent it out has a similar effect.

You may regard some of this information as confidential and thus may not wish to respond. However I give you my utmost assurance that the information will be treated with confidence and security and that it will be presented in such an aggregated form that no individual response would be recognised.

I enclose a copy of the questionnaire and suggest that it may be convenient for you to return the completed questionnaire with your rates remittance. Your assistance in this project is most appreciated.

Thanking you in anticipation.

Yours faithfully

D.F. Sejeant

D F Sejeant
RESEARCHER

With the Authority of

L. A. Duckworth

L A Duckworth
ASSOCIATE TOWN CLERK

NON-RESIDENT PROPERTY OWNER QUESTIONNAIRE

1. Do you own a home or in property in but live for most of the year elsewhere in New Zealand? YES/NO

If NO, explain more fully please:
 (i.e. recently sold Taupo property) _____

2. Where do you reside for most of the year? _____

3. How many nights from April 1981 to March 1982 inclusive did you or your family use your Taupo property? _____

4. How many people (on average) stayed for these nights? _____

5. Could you indicate on the following chart the number of nights stayed in each month or holiday period?

1981

APRIL	EASTER	MAY	JUNE	QB WKND	JULY	AUGUST	SEPT	OCT	LAB WKND

1982

NOV	DEC	JAN	FEB	MARCH

6. The state of development of your property in Taupo is best described as (indicate one)

VACANT LAND	<input type="checkbox"/>
ON-SITE CARAVAN	<input type="checkbox"/>
SMALL BUILDING	<input type="checkbox"/>
HOLIDAY HOME	<input type="checkbox"/>
TWO HOME UNITS	<input type="checkbox"/>
MORE THAN TWO HOME UNITS	<input type="checkbox"/>
OTHER, SPECIFY	<input type="checkbox"/>

7. When you come to Taupo, you stay in which of the following:
(indicate one or more)

TENT	<input type="checkbox"/>
CARAVAN MOBILE	<input type="checkbox"/>
CARAVAN ON-SITE	<input type="checkbox"/>
SMALL BUILDING	<input type="checkbox"/>
HOLIDAY HOME	<input type="checkbox"/>
ONE OF THE UNITS	<input type="checkbox"/>

8. Could you indicate what your expenditure IN TAUPO was on the following items for the time period above.

FOOD, NON-ALCOHOLIC DRINK	\$ <input type="text"/>
ALCOHOLIC DRINK	<input type="text"/>
GENERAL HOUSEHOLD ITEMS	<input type="text"/>
REPAIR AND RENOVATION MATERIALS	<input type="text"/>
REPAIR AND RENOVATION SERVICES	<input type="text"/>
HOUSEHOLD SERVICES (lawn-mowing carpet-clean etc.)	<input type="text"/>
PROFESSIONAL SERVICES (docter vet. etc.)	<input type="text"/>
RATES	<input type="text"/>
OTHER, SPECIFY	<input type="text"/>

9. Did you rent or lease your property or allow other visitors to Taupo to otherwise use your property during the above time period? YES/NO

If YES, could you indicate the nights used by other visitors for each month or holiday period in the following chart:

1981

APRIL	EASTER	MAY	JUNE	QB WKND	JULY	AUGUST	SEPT	OCT	LAB WKND
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

1982

NOV	DEC	JAN	FEB	MARCH
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

10. Could you indicate the number of persons (on average) that stayed on your property for these periods? _____

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

MOTEL VISITOR SURVEY

1. Are you an overseas visitor? YES/NO

If YES, what is your country of origin? _____

2. (NEW ZEALAND VISITORS ONLY) How many nights will you be away from home on this trip? _____

3. How many nights are you spending in Taupo? _____

4. How are you travelling? Indicate one.

Private motor vehicle _____

Coach tour _____

Public transport _____

Hitchhiking _____

Cycling _____

Other, specify _____

5. Have you visited Taupo before? YES/NO

6. What is the purpose of your visit? Indicate one or more.

Holiday _____

Business _____

Visiting friends
or relatives _____

Other, specify _____

7. How many people, including yourself are in your party? _____

Are you in a family group? YES/NO

Of the people in your group, how many are 16 years or over? _____

8. Would you mind telling me how much you have spent in Taupo in the last 24 hours? \$ _____

Of this amount how much have you spent on the following items?

Accommodation \$ _____ Souvenirs \$ _____

Meals out \$ _____ Petrol, oil etc. \$ _____

Alcoholic beverages \$ _____ Entertainment \$ _____

Other food and drink \$ _____ Other items, specify \$ _____

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

CAMPING GROUND VISITOR SURVEY

1. Are you an overseas visitor? YES/NO

If YES, what is your country of origin? _____

2. (NEW ZEALAND VISITORS ONLY) How many nights will you be away from home on this trip?

3. How many nights are you spending in Taupo? _____

4. How are you travelling? Indicate one of the following.

Private motor vehicle _____

Coach tour _____

Public transport _____

Hitchhiking _____

Cycling _____

Other, specify _____

5. What is your form of shelter or accommodation? Indicate one.

Tent _____

Cabin _____

Caravan _____

6. Have you visited Taupo before? YES/NO

7. How many people, including yourself are in your party? _____

Are you in a family group? YES/NO

Of the people in your group, how many are 16 years or over? _____

8. Would you mind telling me how much you have spent in Taupo in the last 24 hours? \$ _____

Of this amount how much have you spent on the following items?

Accommodation \$ _____ Souvenirs \$ _____

Meals out \$ _____ Petrol, oil etc. \$ _____

Alcoholic beverages \$ _____ Entertainment \$ _____

Other food and drink \$ _____ Other items, specify \$ _____

Taupo Tourism Survey

AN INVESTIGATION INTO THE ECONOMIC IMPACT OF TOURISM IN TAUPO

COACH VISITOR SURVEY

1. Are you an overseas visitor? YES/NO

If YES, what is your country of origin? _____

2. How many nights/days does this coach tour last? _____

3. How many nights will you be spending in Taupo? _____

4. Have you visited Taupo before? YES/NO

5. How many people including yourself are in your party?

Are you in a family group? YES/NO

Of the people in your group, how many are 16 years or over?

6. Would you mind telling me how much you have spent in Taupo in the last 24 hours or, if you have not been here that long, your total spending?

\$ _____

Of this amount how much have you spent in the following items?

Accommodation \$ _____

Meals out \$ _____

Alcoholic beverages \$ _____

Other Food and Drink \$ _____

Souvenirs \$ _____

Tourist attractions \$ _____

Other, specify \$ _____

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