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THE ECONOMIC IMPACT OF TOURISM ON AN ISLAND ECONOMY: A CASE

STUDY OF VICTORIA, B.C.

by

Juanita C. Liu

B.A., University of Southern California, 1969

M.A., University of Pennsylvania, 1971

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in the Department

of

Geography

Ⓒ   Juanita C. Liu 1979

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December 1979

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The Economic Impact of Tourism on an Island Economy:

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ABSTRACT

The primary objective of this study is to investigate the
economic impact of tourism on Victoria, which is located on
Vancouver Island, by determining the multiplier effects of
tourist spending on the generation of income, employment, sales,
government revenue and imports. Further, differential tourist
multipliers are calculated in order to make comparisons of the
relative contribution by types of tourists.

The secondary objective of the study is to examine
differential accommodation multipliers according to types of
industrial organisation, e.g., by location, size, scale,
affiliation, and ownership. It was hypothesised that the
central, the larger, the more affiliated, and the
externally-owned establishments have lower multipliers than the
peripheral, the smaller, the less affiliated, and the
locally-owned ones. The a priori reasons are that the former
types enjoy economies of scale in production and purchasing and
also have smaller linkages with the local economy because of
greater access to outside suppliers.

The method for calculating the regional income coefficient
significantly extended the initial model developed by Archer. An
additional weighting term was incorporated in order to reflect
differences at the establishment level for the accommodation
sector. Further, an eleven-sector input-output framework was

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derived for the Victoria economy and was used as the basis for calculating the tourist multipliers. Analysis of variance and simple correlation techniques were used to test the null hypotheses that there are no associations among the multipliers and other selected variables with the classification variables. The data used in the analysis were collected from a survey of accommodations and from available published sources.

The major findings with regard to differential tourist multipliers are: 1) The regional tourism income multiplier of .65 per tourist dollar is consistent with previous findings. It is considered to be low because of the high leakage elements of island economies. 2) The results demonstrate the importance of secondary effects, since more income and jobs are generated by indirect and induced spending than by direct spending. 3) Although the differences are slight, overnight visitors have higher income, but lower employment multipliers, than do day-trippers.

The major findings in relation to differential accommodation multipliers are: 1) The study shows that different types of establishments have different levels of performance. In general, the findings support the initial hypotheses. 2) As a consequence of these different performance levels, the hypothesis that the usual method of calculating the income multiplier tends to be overestimated was also confirmed. The model was adjusted to compensate for this. 3) Higher multipliers

do not necessarily mean better performance, nor do they
necessarily indicate what is best for the region. As was
postulated, the lower multiplier values were also due to
economies of scale, particularly economies of labour.
Furthermore, the relative contribution of establishments with
lower multipliers to the local economy are much greater than are
those with higher estimates. Finally, other factors such as
regional goals and priorities, supply contraints, and demand
factors are found to be important from the standpoint of
establishing guidelines for regional policy formulation.

ACKNOWLEDGEMENTS

It is my pleasure to acknowlege those who have contributed to the successful completion of this research project.

I feel honored to have been one of the first recipients of the B.C. Ministry of Education Graduate Engineering and Technology (GREAT) Award. In connection with this grant, the financial contributions of the B.C. Research Council, the B.C. Hotels' Association, and the Hotel & Restaurant Employees & Bartenders Union Local 40 are gratefully acknowledged. Letters of support from the Greater Victoria Visitors Bureau and the Greater Victoria Chambers of Commerce are also appreciated. In addition, computer time was generously provided by the geography department at SFU.

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I. THE CONCEPTUAL FRAMEWORK

Statement of the Problem

Tourism has been regarded as a leading strategy for the economic development of limited or ailing economies.[1] The rationale is that tourism expansion provides the benefits of increased production, income, employment, and investments, as well as alleviates problems of balance of payments and regional disparities.[2] In particular, the tourist industry has been widely promoted as the strategy of development for island economies. It is already the largest single industry in Hawaii, Fiji, Guam, Bermuda, the Virgin Islands, and the Bahamas.[3]

According to the "Prebisch line", the traditional exports of developing regions are subject to slow growth because of the

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[1] M. E. Bond and Jerry R. Ladman, "Tourism: A Strategy for Development," Nebraska Journal of Economics and Business 11 (Winter 1972):37-52.

[2] Robert McIntosh, Tourism Principles, Practices and Philosophies, (Columbus: Grid, Inc., 1972); and Canada Department of Industry, Trade, and Commerce, Tourism: Its Magnitude and Significance, Research Bulletin No. 2, (Ottawa: Canadian Government Office of Tourism, November 1974).

[3] Ben R. Finney and Karen Ann Watson, eds., A New Kind of Sugar: Tourism in the Pacific, (Honolulu: East-West Technology and Development Institute, University of Hawaii, 1975); and Donald E. Lundberg, The Tourist Business, (Chicago: Cahners Publishing Co., 1972), p. 8.

low price and income elasticities of import demand and adverse terms of trade. This results in an increasing balance of payments gap and thus impaired developmental capacity. This situation characterises many island economies, which also have certain restrictive geographic features, such as spatial isolation, small land areas and populations, scarce resources, narrow economic base, extremely open economies, and attractive but fragile landscapes that are vulnerable to high impact developments.[4] Hence, the high income elasticity for foreign travel, estimated at about 2 for developed countries, gives developing regions hope for increased foreign exchange earnings.[5] Although Victoria obviously cannot be classified as a developing island economy in the conventional sense, it does share some similarities with other island countries, notably problems of accessibility, limited resources, and reliance on imports.

Tourism is a fact of life for many economies with limited economic possibilities, but it has been a rather neglected subject for serious study until fairly recently. Gray explains this neglect in relation to international trade theory. Since

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[4] United Nations, Developing Island Countries, (Geneva: United Nations Conference on Trade and Development, 1974).

[5] Walter Krause and G. Donald Judd, International Tourism and Latin American Development, ed. by Calvin P. Blair, Studies In Latin American Business, No. 15, (Austin: Bureau of Business Research, University of Texas, 1973), p. 14.

international travel is classified as an "invisible" export, it has a certain residual quality to it by definition.[6] He also points out that invisibles do not conform to the conceptual framework which assumes a virtual inability of factors of production to cross international boundaries. Further, the failure of national accounts in reporting estimates of invisible trade items has resulted in the emphasis on commodity trade. Goldsmith has observed that "tourism has seldom been included in studies of regional development even though it is a normal interregional transaction".[7]

Others have pointed out that not much is really known about the role of tourism in stimulating development.[8] The development potential of tourism is a subject that seems to have been virtually neglected, as research interest has been focussed on the more "productive" secondary (manufacturing) and primary

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[6] "Invisibles" are defined as "nonmerchandise transactions in the current account." Other items are passenger transportation, freight transportation, dividends, interest and royalties. H. Peter Gray, International Travel--International Trade, (Lexington: Heath Lexington Books. 1970), pp. 1-4.

[7] William W. Goldsmith, "The Impact of the Tourism and Travel Industry on a Developing Regional Economy: The Puerto Rican Case," (Ph.D. Thesis, Cornell University, 1968), p. 1.

[8] For the purposes of the study, "development" is defined as "the improvement of the productive capacity of the economy in the sense of maintaining a process of self-sustaining growth". Hence, it can be characterised by the capacity of the economy to restructure itself by self-generating and directing growth and change, and to respond to adverse exogenous changes. William Demas, The Economics of Development with Special Reference to the Caribbean, (Montreal: McGill University, 1965).

(extractive) activities.[9] For example, Clark's theory on the progression of economic development from the dominance of the primary to the secondary to the tertiary is, for the most part, not applicable to regions that have traditionally relied upon the tertiary sector.[10]

Tourism as a vehicle for economic growth is contrary to conventional wisdom thinking. Although increasing interest has been focused on the service sector as a potential growth vehicle, the tertiary sector has been traditionally viewed as endogenous to the local regional economy. According to both central-place and export-base theories, the tertiary sector is market-oriented and therefore non-basic in nature. This implies that service development is the result of regional growth, not the cause.[11]

However, a case can be made for the unique nature of the "tourism commodity".

1. It is amenity-oriented, where the main tourism products are

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[9] Arthur D. Little, Inc., Tourism and Recreation. Report to the U.S. Department of Commerce, (Washington, D.C., October 1966): Hugh K. Himan, Tourism and Economic Development: The British Honduras Case, ed. David K. Evans, Developing Nations Monograph Series No. 2, (Winston-Salem: Overseas Research Center, Wake Forest University, 1970).

[10] Colin Clark, The Condition of Economic Progress, (London: MacMillan, 1957).

[11] Roger F. Riefler, "Implications of Service Industry Growth For Regional Development Strategies," Annals of Regional Science 10 (July 1976):89.

provided mainly by a particular conception of nature and
culture. Ferrario states that tourism is basically a
landscape industry since it is totally identified with the
environment in its widest sense.

> "Many other leisure and recreational activities
> require an environmental stage but their main
> emphasis is on the activities themselves, not the
> setting. They do not necessarily have the direct
> relationship with and dependence upon the human and
> natural landscape that is essential for tourism."[12]

In a sense these tourism products can be considered as
ubiquitous goods, to be "discovered" and promoted, but they
can no longer be considered as free goods.

2. Consumption takes place at the point of "production". This
involves sharing of facilities with local residents, since
tourist destinations are also places of their residence.
Thus conflicts of interest may arise and the quality of the
product itself may suffer because of environmental
deterioration.

3. Tourism involves the movement of a factor of production,
i.e., labour as consumers rather than producers. Gray calls
this the international movement of a "factor of
consumption".[13]

4. It is a basic activity, since a crucial aspect of tourism is

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[12] Franco F. Ferrario "The Tourist Landscape: A Method of
Evaluating Tourist Potential and its Application to South
Africa," (Ph.D. Thesis, University of Cape Town, 1976).

[13] Gray, op. cit., p. 3.

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the foreign exchange earnings generated by international tourists.

5. It is "productive" in the sense of requiring substantial infrastructure and facilities. In fact, there is some evidence that tourism is more capital-intensive and less labour-intensive than commonly believed.[14] This implies substitution of the factors of production and economies of scale.

6. There are problems of measurement of this elusive activity. Tourism is amorphous and diffuse, involving many intangibles, where even life styles are reified and sold as "tourism products". One of the most successful advertising campaigns actually failed to mention the location of the resort. "The selling of the holiday experience itself and not the destination was the important factor."[15]

This unique nature of tourism partially explains why it has been difficult to establish formal principles to study the phenomenon, unlike other more tangible commodities. Rather, it has been assumed that the economic benefits of tourism are substantial and irrefutable.

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[14] J. Diamond, "Tourism and Development Policy: A Quantitative Appraisal," Bulletin of Economic Research 28 (May 1976):36-50.

[15] Alan Murphy, "Don't Sell Jamaica--Sell Hedonism," Canadian Business January 1978):7, Cited by J. G. Bailie, "International Travel Trends in Canada in the Seventies," Paper presented at the Canadian Association of Geographers Conference, (Victoria, B.C., May 1979), p. 24.

In contrast with the overwhelming majority of studies that
emphasise the benefits of tourism, some rather surprising
results were obtained from several recent studies that examined
the benefits of tourism to island economies. A benefit-cost
analysis by Bryden demonstrated that the net social benefit to
residents of the Caribbean is low.[16] In a study to examine the
linkages between diversified agriculture and tourism in Hawaii,
Renaud concluded that the development of the tourist industry
has had no stimulating impact on local agricultural output.
Instead, he noted "that there is a switch from agricultural
exports to tourism without the possibility of simultaneous
expansion of both sectors".[17] An econometric model developed by
Ghali showed that only fourteen percent of the growth in
Hawaii's personal income after 1952 was due to tourism. He
concluded that personal income would grow without tourism
because of other exports and internal forces in the economy.[18]
These findings suggest that the subject of tourism impacts
requires closer examination.

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[16] John M. Bryden, Tourism and Development: A Case Study of the
Commonwealth Caribbean, (Cambridge: University Press, 1973).

[17] Bertrand M. Renaud, "The Influence of Tourism Growth on the
Production Structure of Island Economies," Review of Regional
Studies 2 (Spring 1972):41-56.

[18] Moheb A. Ghali, "Tourism and Economic Growth: An Empirical
Study," Economic Development and Cultural Change 24 (1976):
527-538.

One way of assessing regional economic impacts is by multiplier analysis, which attempts to estimate the impacts of an exogenous expenditure in terms of its cumulative effects on production, income, and jobs. The use of regional multipliers has persisted despite those who claim that "they are out of fashion as an operational concept because of their excessive aggregation and lack of spatial dimension".[19] Of particular interest is a regional model developed by Brian Archer for examining the impacts of tourism in terms of income and job creation.[20] The model has the virtue of allowing various possibilities for disaggregation. As a result of this flexible quality, this modified form of the input-output approach has potential for the study of impacts within a spatial, as well as an economic, framework. As Berry points out,

> "the integrating concepts and processes of the
> geographer relate to spatial arrangements and
> distributions, to spatial integration, to spatial
> interactions and organisation, and to spatial
> processes."[21]

This methodology has been applied in previous case studies in

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[19] However, Richardson and Gordon even suggest the use of a spatial multiplier, using distance-decay concepts. Harry W. Richardson and Peter Gordon, "A Note on Spatial Multipliers," Economic Geography 54 (October 1978):312.

[20] Brian H. Archer, "The Anatomy of a Multiplier," Regional Studies 10 (1976):71-77.

[21] Brian J. L. Berry, "Approaches to Regional Analysis: A Synthesis," Annals of the Association of American Geographers 54 (1964):3.

Anglesey, Cardiganshire, Gwynedd, Greater Tayside, Cumbria, East

Anglia and the Caribbean.[22]

Archer's original model was formulated to determine the

differential multiplier effects of tourism at the stages of

generation, by types of tourist businesss, and by types of

tourists.[23] It has since been applied to different types of

communities and levels of regional aggregation (by the

tiered-region approach).[24]
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[22] Brian Archer and Christine Owen, "Towards a Tourist Regional
Multiplier," Journal of Regional Studies 5 (1971):289-294; Peter
Sadler, Brian Archer and Christine Owen, Regional Income
Multipliers ed. Jack Revell, Bangor Occasional Papers in
Economics, No. 1, (Bangor: University of Wales Press, 1973);
Brian Archer, The Impact of Domestic Tourism, ed. Jack Revell,
Bangor Occasional Papers in Economics, No. 2, (Bangor:
University of Wales Press, 1973); Brian Archer, Sheila Shea, and
Richard de Vane, Tourism in Gwynedd: An Economic Study Report to
the Wales Tourist Board, Prepared by the Institute of Economic
Research, (Bangor: University College of North Wales, 1974); B.
H. Archer and D. R. Jones, Tourism in Appleby, Keswick and
Sedbergh, Report to the Cumbria County Council, Cumbria Tourist
Board, English Tourist Board, and the Lake District Special
Planning Board, Prepared by the Institute of Economic Research,
(Bangor: University of Wales Press, 1977); Brian H. Archer,
Tourism in the Bahamas and Bermuda: Two Case Studies ed. Jack
Revell, Bangor Occasional Papers in Economics, No. 10, (Bangor:
University of Wales Press, 1977).

[23] The tourism multiplier refers to the capacity of the tourist
industry to generate income, while the tourist multiplier refers
to the propensity of a particular type of tourist to create
income.

[24] David M. Henderson and R. Lee Cousins, The Economic Impact of
Tourism: A Case Study in Greater Tayside, eds. J. T. Coppock, B.
S. Duffield, and M. L. Owen, Report to the Scottish Tourist
Board, Prepared by the Tourism and Recreation Research Unit, No.
13, (Edinburgh: University of Edinburgh, September 1975); J. T.
Coppock and B. S. Duffield, "The Economic Impact of Tourism: A
Case Study in Greater Tayside," Tourism as a Factor in National
and Regional Development, Occasional Paper 4, (Peterborough:

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Archer has also developed a model to determine the aggregate regional income multiplier, so that the tourism multiplier may be compared to it.

This study extends the application of the model to the establishment level. The reason for this choice is that the establishment is a more appropriate level of study than the industrial sector, because of the differences in operating processes and purchasing policies between firms.[25] As many studies have shown, these differences negate the assumption of homogeneous production functions.[26] This study focusses on the accommodation facility, which is regarded by Lundgren as the major transfer mechanism for the geographic distribution of tourism in the region.

> "It is to this geographic place (accommodation), that
> tourist-originated demands are attached and it is from
> the same site that these demands diffuse into the
> surrounding geography. Thus by manipulating the
> accommodation function one can in effect control the
> consequences of the tourist demand on a regional
> basis."[27]

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[24] (cont'd)Trent University, 1975), pp. 26-42.

[25] William F. Lever, "Regional Multipliers and Demand Leakages at the Establishment Level," Scottish Journal of Political Economy 11 (1974):113.

[26] Homogeneous in the sense of having similar production functions within the industrial sector.

[27] Jan O. J. Lundgren, "Geographic Characteristics of the Tourist Accommodation Enterprise in the Peripheric Tourist Region: Case Studies from Sweden," Paper presented at the Canadian Association of Geographers Conference, Victoria, B.C., June 28, 1979.

Specifically, this study seeks to examine the differential multipliers of lodging establishments according to types of industrial organisation, e.g., by location, size, scale, affiliation, and ownership. The assumption underlying the study is that an investment which generates greater linkages is in some sense of greater importance for economic development than another.[28] This intra-industry study has specific geographic application, since it enables one to examine patterns of transaction flows within the region, and to a limited extent, between regions. The goal of the study is to overcome some aspects of the problem of the distribution of benefits, which is justifiably one of the major criticisms of impact studies.

As such, this study is merely a starting point from which to examine the development potential of the tourist industry. It is hoped that more substantive knowledge of the contribution to income and jobs by the accommodation sub-sectors and by different types of tourists will provide a better understanding of the structure and process of the tourist industry in Victoria, and therefore, serve as a guide for decision making.

Finally, recent developments have accentuated the need for more substantive information on the tourist industry. In 1976 the service sector for the first time came under the auspices of

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[28] Albert O. Hirschman, The Strategy of Economic Development, (New Haven: Yale University Press, 1958).

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the Anti-Combines legislation designed to prevent noncompetitive practices.[29] Further, in 1978 the Travel Industry Development Subsidiary Agreement (TIDSA) for B.C., negotiated with the Department of Regional Economic Expansion (DREE), provided $50 million to boost the travel industry in nonmetropolitan areas. The effectiveness of the Foreign Investment Review Agency (FIRA) in restricting foreign ownership and control of Canadian enterprise is currently undergoing re-evaluation in its sixth year of operation. In addition, the B.C. Ministry of Tourism has recently combined with the Ministry of Small Business, which indicates a concern for the development of the tourist industry along this direction. Lastly, a recent task force report identifies the importance of tourism as Canada's largest single employer and sixth largest source of foreign exchange. It notes that tourist spending amounts for 5 percent of GNP, and yields governments some $5 billion in tax revenues.[30]

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[29] Canadian Institute of Travel Counselors, The Travel Industry and the Law, Seminar sponsored by the GITC, (Toronto, May 7, 1977), pp. 82-100.

[30] John Powell, Chairman, A Report by the Sector Task Force on the Canadian Tourism Industry, Report to the Canada Minister of Industry, Trade, and Commerce, (Ottawa: Tourism Sector Consultative Task Force, 12 July 1978), p. 1.

Organisation of the Study

This study is organised into five chapters. The remainder of this introductory chapter will present some explanatory remarks on the definitions and concepts of the multiplier and the objectives and hypotheses of the study. The research methodology is presented in Chapter Two which begins with a discussion of the field survey methods involving data collection and deficiencies. The second part of Chapter Two is a description of the mathematical models based on the Archer method and of the techniques used for testing various proposed hypotheses. In Chapter Three the relevant socio-economic and spatial parameters of the study area are described. The statistical results and major findings are presented in Chapter Four, while the final chapter summarises the study and concludes with policy implications and recommendations for further research.

The Concept of the Multiplier

Although the multiplier concept is a familiar one, confusion still exists. It is therefore appropriate at this point to present some basic definitions and distinctions.[31] The multiplier is defined variously in the literature. It is the

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[31] The discussion in this section draws heavily from Archer's work. Brian Archer, _The State of the Art_, ed. Jack Revell, Bangor Occasional Papers in Economics, No. 11, (Bangor: University of Wales Press, 1977).

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"ratio of a change in national (regional) income to the initiating change in expenditure that brings it about."[32] Three models that can be used to produce multipliers are export base, ad hoc, and input-output. In export-base theory the multiplier is the change in total activity divided by the change in the relevant causal activity. Ad hoc multipliers are adapted from the classical Keynesian model. Input-output multipliers are based on the value of the flows of current transactions through the economy.[33]

In traditional Keynesian theory the multiplier measures the change in income due to an autonomous injection of expenditure into an economy, for example, through exports, foreign investment, government investment, and in this case, tourist spending. This expenditure stimulates economic activity so that provided there are enough resources, additional business activity, household incomes, and jobs, are generated. Hence, the multiplier is an approximate measure of the general prosperity brought about by the exogenous spending to the region by adding up all the successive rounds of transactions. (see Figure 1)

This summing up occurs at three stages in the multiplier

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[32] Richard G. Lipsey, Gordon R. Sparks and Peter O. Steiner, Economics, (New York: Harper and Row, Inc., 1973), p. 482.

[33] Brian H. Archer, "The Uses and Abuses of Multipliers," Planning for Tourism Development: Quantitative Approaches, eds. Charles E. Gearing, William W. Swart and Turgut Var, (New York: Praeger, 1976), pp. 116-124.

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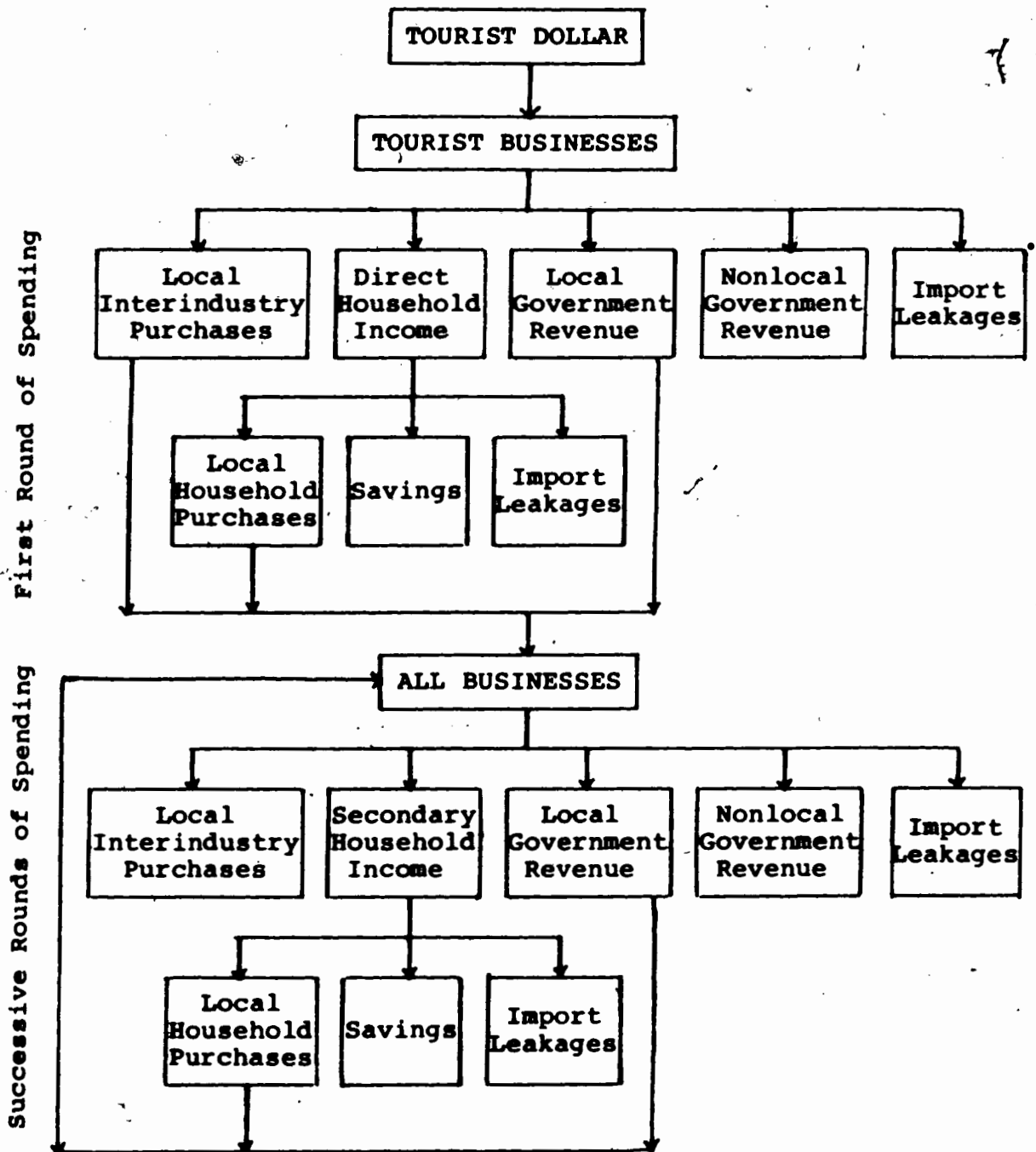
Figure 1. Flow of the Tourist Dollar in the Local Economy.

process. The initial injection of tourist spending is called the direct expenditure. This initial round of spending creates direct revenue for hotels, shops, and other tourist businesses, to the extent that it does not leak out of the region. The amount of this money that remains in the region as wages, salaries, and local purchases from other businesses, are the so-called indirect effects, which depend on the extent of the interindustry linkages (local purchases from local businesses) in the economy. Induced effects are the increases in economic activity generated by local consumption due to rising wages and salaries. Together, the indirect and induced effects are also known as the secondary effects.

Four types of tourism multiplier are in common use. The first type is the transactions (or sales) multiplier, which relates tourist expenditure to sales generated in the local economy. The second type of multiplier, the output multiplier, is similar to the first, except that it measures the rise in inventories, as well as sales. Because of the difficulties of acquiring data on inventory changes, these two multipliers are usually considered to be identical. They reflect the total interdependence of the industrial sectors within the economy. For example, an "output" multiplier of 1.5 means that $1.5 dollars of total industry requirements are needed to produce one

dollars worth of final demand for the industry in question.[34]

The third type of tourism multiplier, the income

multiplier, falls into two distinct categories--the ratio or the

normal. The ratio income multiplier is of the Type I or Type II

variety. The Type I multiplier is the ratio of the direct and

indirect income to the direct income, while the Type II

multiplier is the ratio of the direct and secondary income to

the direct income. Hence, the multiplicand, which is the initial

unit the resultant change is measured against, is in income

terms. Ratio multipliers provide a useful picture of degree of

internal linkages in the economy and the relative importance of

the secondary effects, but they do not give any indication per

se of the volume of exogenous sales that is required to generate

endogenous income. In other words, additional information is

needed to link tourism receipts with the income that is

generated.

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[34] This is commonly known as the column multiplier of the
Leontief inverse matrix. The row multiplier indicates the total
requirements of the industry in question needed to produce one
dollars worth of final demand of all the industries.
William H. Miernyk, The Elements of Input-Output Analysis, (New
York: Random House, 1967), p. 28; Harry W. Richardson,
Input-Output Analysis and Regional Economics, (London:
Weidenfeld and Nicolson, 1972), p. 39.

By contrast, this link is achieved directly through the other type of income multiplier, called the normal income multiplier.[35] The normal income multiplier attempts to measure the total amount of direct, indirect, and induced household income, e.g., wages and salaries, rent, interest, and profits, that is generated by a unit of additional autonomous expenditure. Because the multiplicand is in expenditure terms in this instance, it is more relevant and important as a guide for decision making.

The fourth type of tourism multiplier is the employment multiplier, which similarly falls into the ratio and normal categories. The ratio variety indicates the generation of secondary employment relative to the direct component, while the normal type indicates the total employment generation per unit of tourist spending. All these four types of multipliers are intrinsically related and all of them are useful as guidelines for public policy.

The most well-known income multiplier is the Keynesian multiplier, which was originally developed as an instrument for national economic planning. The classic model developed by Keynes in 1939 for a closed economy is:

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[35] Archer also refers to normal multipliers as "unorthodox", and to ratio multipliers as "orthodox".

$$K = \frac{1}{1 - mpc} \quad \ldots \ldots \ldots \ldots \ldots \quad (1)$$

where, mpc is the marginal propensity to consume.

Various forms of this simple multiplier principle for open economies can be found in the tourist literature:

$$K = \frac{1}{1 - mpc + mpm} \quad \ldots \ldots \ldots \quad (2)$$

where, mpm is the marginal propensity to import.[36]

$$K = \frac{1 - tpm}{1 - mpc + mpm} \quad \ldots \ldots \ldots \quad (3)$$

where, tpm is the tourists' propensity to buy imported goods and services.[37]

Another adaptation suggested by Clawson and Knetsch was used as the basis of this study.[38]

$$K = \frac{A}{1 - BC} \quad \ldots \ldots \ldots \ldots \ldots \quad (4)$$

where, A is the proportion of tourist expenditure remaining in
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[36]Himan, op. cit.

[37]Lundberg, op. cit.

[38]Marion Clawson and Jack L. Knetsch, The Demand for Recreation, (Baltimore: John Hopkins Press, 1967).

the economy after first round leakages, B is the proportion of income that local people spend on local goods and services, and C is the proportion of the expenditure of local people that accrues as local income.

In all of these equations, the denominator is a measure of leakage elements, e.g., imports and savings. By definition, consumption leakages are the complement of local consumption and are inversely related to the size of the multiplier. In equations (3) and (4) factor leakages are the complement of local backward linkages plus local value-added.[39] Thus, leakages represent what is not spent in the local economy.

Objectives and Hypotheses

The primary objective of this study is to assess the economic impact of tourism on the economy of metropolitan Victoria by estimating the multiplier effect of tourist spending on the generation of total income, sales, employment, government revenue, and imports. Further, differential tourist multipliers according to types of tourists are calculated. Since these multipliers reflect the spending patterns of tourists, such as overnight visitors and day-trippers, it is possible to compare their relative contributions to the local economy.

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[39] Backward linkages are purchases from suppliers, while forward linkages are sales to purchasers.

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The secondary objective of the study is to examine differential accommodation multipliers according to types of industrial organisation.[40] These multipliers reflect the variations in local value-added, industrial linkages, and leakages. As was explained earlier, the normal income multipliers indicate the capacity to generate marginal income per unit of tourist expenditure, while the ratio income multipliers indicate the relative importance of the three stages of the multiplier process. In addition, the overall level of economic activity created by tourist spending is measured by the transactions multiplier. Furthermore, labour-intensiveness can be measured in terms of either wages or number of jobs.

There is some evidence in the literature that indicate that there are a priori reasons for expecting the multiplier effects of large and foreign plants to be lower than those of small and local ones. Stigler argues that buying and selling patterns are a function of information availability and that large establishments are likely to enjoy economies of scale in information collection. Pred discusses labour and agglomeration economies in relation to accessibility to markets. Keeble

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[40] It has been suggested that "the behaviour of firms may perhaps be explained more effectively with reference to a multi-variate classification which categorises plants according to their position within a chain of production, their organisational status or their ownership background rather than the traditional manufacturing sectors." P. A. Wood, "Industrial Location and Linkage," Area 2 (1969):34-39.

relates local industrial linkages to resultant economies of scale in manufacturing firms. A study in Ireland, using a linkage model, showed that native firms have higher backward and forward linkages than foreign firms, and that foreign firms show little sign of developing further linkages.[41] In short, the rationale is that the large, foreign firms enjoy economies of scale in production and purchasing and also have relatively few linkages in the local economy.[42]

The multiplier variables tested in this study are the direct, indirect, and total income multipliers, the direct, indirect, and total employment multipliers, ratio multipliers, and transactions multipliers. Other selected variables of interest are the proportion of wages to total revenue, direct import content, other value-added, and percentage loss in revenue due to the increase in ferry fares. These variables are correlated to organisation variables denoting the following ways of classifying the accommodation sector:

1. Location of establishment (Highway 1A, North Downtown, Downtown).

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[41] G. J. Stigler, "The Economics of Information," Journal of Political Economy 69 (1961):213-225; Allan R. Pred, "Towards a Typology of Manufacturing Firms," Geographical Review 54 (1964):65-84; D. E. Keeble, "Local Industrial Linkages and Manufacturing Growth in Outer London," Town Planning Review 40 (1960):163-188; J. C. Stewart, "Linkages and Foreign Direct Investment," Regional Studies 10 (1976):245-258.

[42] See also, Lever, op. cit.

2. Size (number of units).

3. Scale (total revenue per unit; or total room revenue per unit).

4. Type of affiliation (owner-operated, hired-management, referral, franchise, chain).

5. Type of ownership (locally-owned, externally-owned).

6. Type of establishment (motel, hotel).

7. Type of facility (nonlicensed, licensed; or ratio of food and beverage revenue to room revenue).

8. Class of hotel (average roomrate).

9. Return on operation (profit before depreciation per unit).

10. Level of occupancy (average occupancy rate).[43]

Specifically, measures of association, using analysis of variance and bivariate measures of association, are conducted for the multipliers and selected variables of the accommodation sub-sectors with the organisation variables.[44]

The results are expected to confirm previous findings that the larger, more concentrated and externally-owned

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[43] For further detail on the organisation variables, see Appendix 2.

[44] When analysis of variance is used, the multipliers and selected variables are the dependent variables at the interval or ratio level, while the organisation variables are the nominal independent variables. The use of analysis of variance in the geographic literature can be seen in Peter Haggett, Locational Analysis in Human Geography, (New York: St. Martin's Press, 1966), p. 290; Susanne R. Walker, "Linkage Structures in an Urban Economy," Regional Studies 11 (1977):263-273; and Stewart, op. cit.

establishments have lower multipliers because they have less linkages in the local economy. Since the location variable is also a surrogate for distance, one might hypothesise that the more centrally-located establishments have lower multipliers than the more peripherally-located ones. It is also hypothesised that these lower estimates are associated with higher import and lower local value-added ratios. Additionally, rate of occupancy and elasticity of revenue with transportation cost is expected to vary by orgnisation type. The objective is to see whether or not industrial organisation or geographical factors affect the propensity to generate income and jobs in the local economy.

The above hypotheses were put into a testable form as the following null hypotheses to be accepted or rejected at the 5 percent level.

1. There is no association between the multipliers and the organisation variables.

2. There is no association between import content and the organisation variables.

3. There is no association between the value-added ratios and the organisation variables.

4. There is no association between occupancy rate and the organisation variables.

5. There is no association between vulnerability to changes in accessibility and the organisation variables.

II. THE RESEARCH DESIGN

While the previous chapter has presented the conceptual framework, the purpose of this chapter is to present the general methodology of the study. Since this study is based upon a questionnaire survey of 45 hotels and motels in Victoria, as well as various published data, the first part of the chapter discusses the various data sources, the questionnaire design, the field survey techniques, and data limitations. The second part of this chapter introduces the mathematical models used in calculating regional income and employment generation and in hypothesis testing.

Field Survey Methods

A survey of the accommodation sector was conducted for this study. The purpose of the survey was to collect information on purchasing patterns, income and expenditures, geographic distribution of purchases, employment, and other background information. Ideally, this type of information should be collected from all of the tourist businesses in the region. However, since such information is difficult to come by, a heavy reliance was made on whatever published sources were available.

The Data Sources

After the literature was reviewed, a number of organisations and agencies at the federal, provincial, and local levels were contacted in the search for more relevant data at the initial stages of the project. The following sources of information proved to be the most useful:

6. The B.C. Visitor's Survey 1974 and the B.C. Resident's Survey 1976.[1]

    These surveys were conducted by the B.C. Research Council under the sponsorship of the B.C. Department of Travel Industry. The results of these surveys were incorporated into two other useful sources of information--the B.C. Tourism Model developed by B.C. Research and the Vancouver Island Tourism Facts Book 1977 produced by B.C. Tourism Ministry.[2]

7. Statistics Canada Publications.

    Secondary data for the nonaccommodation sectors were obtained from Corporation Financial Statistics (61-207) Corporation Taxation Statistics (61-208) and The Input-Output Structure of the Canadian Economy, 1961-1974

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[1] Complete references for these source materials can be found in the bibliography.

[2] The present Department of Small Business and Travel Industry has also been known in previous years as the Department of the Provincial Secretary and Travel Industry, B.C. Tourism, and Department of Travel Industry.

(15-508). Information on the pattern of household

expenditure, personal income tax, and the propensity to

consume were obtained from <u>Urban Family Expenditure</u>

(62-544).

8. <u>An Interindustry Study of the Metropolitan Vancouver</u>

<u>Economy</u>.

.This input-output study conducted by Craig Davis on the 1971

economy was used as the basis for the adjusted interindustry

coefficients of the economy of Metropolitan Victoria.

9. <u>The Challenge 1976</u> and <u>Impact 1977</u>.

This economic base study conducted by the Capital Regional

District provided information on imports and employment for

the Victoria region. The 1977 survey of visitors (Impact)

provided additional information for tourists in Victoria.

10. Other B.C. Government Publications.

A variety of data were obtained from a number of secondary

sources, including the <u>B.C. Regional Index</u>, <u>B.C. Economic</u>

<u>Summary</u>, and <u>B.C. Facts and Statistics</u>, Ministry of Economic

Development.

The Questionnaire

The questionnaire is included in Appendix III. The first

part of the questionnare dealt with pertinent background facts

about the company, including years of operation, occupancy rate,

business organisation, and ownership. The second part was

designed to collect data on the numbers and location of suppliers and amounts and geographical distribution of purchases. In the third section, data on income and expenditure breakdowns were requested.[3] The fourth part required the interviewee to estimate the number of employees in several categories. An attempt was made in the final section to canvass hoteliers on the effect of the ferry fare increase in the summer of 1976 and their opinions on how the tourist trade could be improved.

The Sample Population

The Directory of B.C. Tourist Accommodations provides a listing of the provincially-approved tourist lodgings.[4] It is a voluntary directory estimated to be 80 percent complete. A sample of the seventy-six hotels and motels closest to Victoria city was chosen from this listing.[5] No attempt was made to survey campgrounds and trailer parks. The sample population represents 85 percent of the hotels and motels in Metropolitan Victoria by number and 95 percent of the unit-capacity.

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[3] This part of the questionnaire uses a format similar to the one used to study the impact of tourism in the Bahamas. Archer, Tourism in the Bahamas and Bermuda, op. cit.

[4] Tourism B.C. Directory of British Columbia Tourist Accommodation 1977, Victoria B.C.

[5] Motor hotels were classified as hotels.

The Field Interviews

Prior to the survey in Victoria, a pilot study was conducted in Vancouver. Twenty hotels and motels were arbitrarily selected and were sent a letter explaining the nature of the study and outlining the information that would be required. They were later contacted by telephone for the purpose of scheduling an interview. Although only four interviews were granted, the experience provided the opportunity to improve the questionnaire design and sharpen interviewing techniques.

Before the inception of the survey in Victoria, the relevant local public and private tourism organisations were contacted and additional support for the study was obtained. It was decided that the best period for the survey would be the late spring after the tax reporting period. Accordingly, in May 1978 a letter of introduction was sent to the seventy-six establishments along with a self-addressed envelope and card indicating the most convenient times to schedule an interview during the next two months. As a follow up, each of the seventy-six hoteliers were telephoned. The personal interviews, which ranged from one-half hour to two hours, were conducted over a period of four months.

Of the seventy-six establishments contacted, fifty-eight responded with interviews during the period of the survey and about a dozen more indicated a willingness to be surveyed during the winter. However, usable financial information was obtained

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from only forty-five establishments, representing 58 percent of the establishments but 64 percent of unit-capacity in the sample space. The next section of the chapter discusses the representativeness and reliability of the data, as well as the preparations involved in processing the data.

Data Deficiencies and Limitations

In order to examine the representativeness of the participating establishments, the sample listing was grouped by size. Hotels with less than 75 rooms and motels with less than 25 rooms were considered to be small.[6] The response rates of these four categories are:

9 small hotels, or 75 percent.

11 large hotels, or 61 percent.

16 small motels, or 53 percent.

9 large motels, or 56 percent.

When grouped by location the response rates are as follows:

24 establishments in the downtown area, or 59 percent.

18 establishments along Highway 1A, or 58 percent.

3 establishments in Saanich, or 75 percent.

And when grouped by affiliation the response rates are:

6 chain or franchise establishments, or 100 percent.

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[6] These designations are among those used by Statistics Canada in data collection. Personal communication with Jerry Freda, Statistics Canada, Ottawa, Ontario.

4 referral establishments, or 50 percent.

35 independent establishments, or 56 percent.[7]

Although the survey can be considered to be fairly
representative in terms of size, location, and affiliation, it
is biased in several respects. Several managers of
externally-owned establishments were reluctant to cooperate
without permission from the owner. The owners were contacted by
mail, but it was difficult to get them to participate. The
sample is also biased toward the Victoria municipality for the
sake of convenience in data collection. Finally, the sample is
also biased toward those who were willing to cooperate and
probably toward those that keep better financial records.[8]
However, these difficulties can never be entirely overcome in
any survey.

In addition, the reliability of the data is also an
important consideration. At the end of each interview, the
financial information was rated according to the following

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[7] Chain establishments are those that are entirely owned by a
firm owning four or more establishments. Franchise operations
are those that pay a fee for management contracts, while
referral organisations are more those that obtain promotional or
referral services without payment. Some examples are: Canadian
National, Slumberlodge, and Delta (chain); Best Western and
Holiday Inns (franchise); and Flag Inns, Prestige Inns, and
Canadiana (referral). Independent operations are completely
unaffiliated although there may be cases of multiple ownership
by the same company.

[8] This is not entirely undesirable since it ensures more
reliable data.

scale:

1. Data from financial statement - 29 responses.

2. Estimation with reference to financial records - 7
   responses.

3. Mostly recall - 9 responses.

This means that about eighty percent of the responses in the
first two categories are reasonably accurate. Of course, data on
items such as suppliers and employment were at best, intelligent
guesses.

In any case, it was necessary to perform some consistency
checks and make some adjustments to the raw data because of
problems of aggregation, omissions, and noncompatibility.
Despite efforts to standardise accounts by the Uniform System of
Accounts, a variety of accounting procedures are practiced.[9]
Coding the data into the desired format required adjustments in
some cases such as using average ratios from establishments of
similar type, size, and location. Missing and incomplete data
were handled in the same fashion.

Expenditures were correlated with revenues and the trends
were as expected with high positive coefficients for almost all
items, except capital expenses. However, there are ambiguities
in items such as profits, proprietor's salary, and capital

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[9] Laventhol & Horwath, U.S. Lodging Industry, Philadelphia,
Pennsylvania, 1978; Harris, Kerr, Forster & Company, Trends in
the Hotel Business, New York, 1978.

expenditures due to the peculiarities of keeping financial records for tax purposes.

The sample size is not particularly small compared to similar studies in the literature, but it does limit the extent to which the sample can be disaggregated. Another limitation is that the data were obtained from a variety of sources and span a period of seven years (1971-1977). However, this problem could not be overcome because of resource constraints and is partially mitigated in that the analysis requires percentages and ratios rather than the actual dollar amounts.

An insurmountable difficulty is that the survey data are not compatible with the nonsurvey data, since different methods were used to collect them. Hence, any comparisons between the accommodation and nonaccommodation sectors are unreliable. However, comparisons within the accommodation sector are acceptable, if one bears in mind that multipliers are merely crude approximations and that their primary usefulness is their function in comparing accommodations, industrial sectors, tourists, and regions.

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The Archer Multiplier Estimation Method

The Tourism Income Model

As was previously mentioned the methodology developed by
Archer was based on equation (4) (page 19) and is of the normal
income type. Hence, it measures the ratio of total income
generated per unit of the initial injection of tourist
expenditure. The regional tourism income multiplier is
determined by the following equation:

$$\sum_{j=1}^{J} \sum_{i=1}^{I} Q_j K_{ji} V_i \left[\frac{1}{1-C \sum_{i=1}^{I} X_i Z_i V_i} \right] \quad \dots \dots (5)$$

where, j is each category of tourist, i is each type of
business, Q_j is the proportion of total tourist expenditure
spent by the jth type of tourist, K_{ij} is the proportion spent by
the jth type of tourist in each ith type of business, V_i is the
direct and indirect income generated per $1 of revenue by the
ith type of business which receives tourist expenditures, C is

the propensity to consume, X_i is the proportion of total consumer spending by the residents of the tourist region in the ith type of business, and Z_i is the proportion of consumer spending by residents in the ith type of business within the region.

Archer explains the components of the model:

"In essence, the regional income multiplier can be disaggregated into two possible parts. Firstly, the direct and indirect income generated within the region by a unit of tourist spending can be expressed as the QKV term. This formula is really a working method of reducing the value of a unit of the multiplicand to allow for those direct leakages which do not contribute to the formation of regional income. Secondly, the additional income generated by the re-spending of factor earnings by the resident population of the recipient region can be found by applying a multiplier expression to this formula."[10]

It can be seen that import leakages occur in two ways--when local businesses purchase goods from outside the region and when consumers spend money outside the region.

The Value-added Model

In order to calculate meaningful multiplier values, regional income generation (RIG) coefficients were derived for each industry in terms of local value-added. The value-added

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[10] Archer, "Anatomy of a Multiplier," op. cit., p. 74.

formula developed by Archer is as follows:

$$V = \frac{W(1-h-tw)+P(1-tp)+R(1-tw)+\sum_{i=1}^{I} M_i V_i}{S} \quad \cdots \cdots \cdots (6)$$

where, V is the regional income coefficient for each business, W is the gross wages and salaries paid to residents in the region, h is the deductions made for social insurance and benefits, tw is the tax rate on wages and salaries, P is the profits accruing to residents in the region, tp is the tax rate on profits, R is the rent payments to residents in the region, M_i is the cost payments made to the ith business type, V_i is the regional income generated by the ith business type, and S is the total sales turnover of the business.

The two components in this model are the direct and indirect value-added. Direct local value-added is defined as the sum of the wages and salaries, rent, interest, and profits paid to local residents, per dollar of sales turnover. Indirect local value-added is the additional value-added created in other sectors of the local economy as a result of any local purchases made by businesses receiving tourist dollars and also the chain reaction of further purchases. Note that leakages from value-added occur when wage or factor payments in the form of

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rent, interest and profits are paid to nonresidents.

The Archer method disaggregates businesses into average and marginal businesses, defined respectively as businesses that depend primarily on tourism and businesses that rely only partly on the tourist trade. In previous studies separate value-added coefficients were calculated for the two types of businesses giving two values for the retail trade sector, for example. Since data at this level of detail were not available, only one coefficient was computed for each nonaccommodation sector as a whole.[11]

Notice that the value-added coefficients (equation (6), page 36) can also be expressed as a system of linear equations of the form

$$x = y + Ax \dots \dots \dots \dots \dots \dots \dots \dots \dots (7)$$

where, x is the vector of direct and indirect RIGs for each industry, y is the vector of direct value-added coefficients as defined above, and A is the interindustry transactions

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[11] Thus, the coefficients computed in this study are expected to be slightly larger than those computed by using marginal and average coefficients, since the average coefficients are probably larger than marginal ones. This is because the marginal businesses require a certain number of support staff during the slack tourist season, so that the extra value-added as a ratio to tourist revenues is probably smaller than the average ratio.

coefficients matrix.[12] Hence, the standard solution, using the
Leontief inversion technique, can be employed, since

$$x - Ax = y \quad \ldots \ldots \ldots \ldots \ldots \ldots \quad (8)$$

$$(I - A)x = y \quad \ldots \ldots \ldots \ldots \ldots \ldots \quad (9)$$

$$x = (I - A)^1 y \quad \ldots \ldots \ldots \ldots \ldots \quad (10)$$

where, I is the identity matrix.[13] Hence, equation (10) is the

solution for the direct and indirect income change, as well as

for the other input coefficients of government revenue and

imports.

Extension to the RIG Model

The model was modified in order to determine tourism

multipliers that reflect variations within the accommodation

sector by organisation type. This is accomplished by including

an additional weighting term to the multiplier equation, so that

income generation coefficients are determined separately for

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[12] The A matrix is the transposed constant coefficients matrix
of the input-output variety, with the exception that
transactions are in purchasers prices, rather than the usual
convention of using producers prices.

[13] The matrix techniques can be found in Miernyk, op. cit.;
Richardson, op. cit.; and Walter Isard, Methods of Regional
Analysis: An Introduction to Regional Science, (Cambridge: The
M.I.T. Press, 1960).

each business category. In this way, linear nonhomogeneous functions are derived for the accommodation sector.

Hence, for every i = each type of accommodation establishment (hotel, motel),

$$V_i = \sum_{h=1}^{H} F_{ih} V_{ih} \quad \dots \dots \dots \dots \dots \dots (11)$$

where, h is the level of industrial organisation, F_{ih} is the proportion of expenditure on accommodation in each hth level of organisation of the ith type of business which receives tourist expenditure, and V_{ih} is the direct and indirect income generated per \$1 of revenue by each hth level of organisation of the ith type of business which receives tourist expenditure.

The general form of the multiplier estimation model incorporating this modification then is:

$$\sum_{j=1}^{J} \sum_{i=1}^{I} \sum_{h=1}^{H} Q_j K_{ji} F_{ih} V_{ih} \frac{1}{1-C\sum_{i=1}^{I} X_i Z_i V_i} \quad \dots (12)$$

where, the symbols are as defined above.

Thus, the local value-added for the accommodation sector is
the weighted sum of the income generation coefficients of each
type of hotel. For the nonaccommodation sectors, the model is
constrained so that it becomes the original multiplier equation,
such that for every i = nonaccommodation business, $h = 1$, $F_{ih} =$
1 and $V_{ih} = V_i$, in other words, the $F_{ih}V_{ih}$ term becomes the V_i
term in equation (5) (page 34).

The Regional Income Multiplier

The adapted model for the aggregate regional income
multiplier is:

$$\sum_{i=1}^{I} X_i V_i \quad \frac{1}{1 - C \sum_{i=i}^{I} X_i Z_i V_i} \qquad \dots \dots \dots \dots (13)$$

where, the symbols are as defined above.[14]

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[14] Archer, "The Anatomy of a Multiplier," op. cit., p.75.

The Regional Employment Generation Model

The final model to be presented is the regional employment multiplier model.[15]

$$\sum_{j=1}^{J} \sum_{i=1}^{I} Q_j K_{ji} E_i +$$

$$\left[\sum_{j=1}^{J} \sum_{i=1}^{I} Q_j K_{ji} V_i \cdot \cfrac{1}{1-C \sum_{i=1}^{I} X_i Z_i V_i} \right] \sum_{i=1}^{I} X_i E_i \quad \ldots (14)$$

where, E_i is the amount of employment (direct and indirect) generated by \$1 of tourist expenditure in the ith type of business and the other symbols are as defined above.

This model is divided into two parts. The first expression on the top measures the direct and indirect employment generated in the business sectors of the economy by a unit of tourist expenditure. The second term measures the employment induced by the household incomes derived from tourism. The expression in

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[15] Archer and Jones, _Tourism in Appleby_, op, cit., pp. 104-5.

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the brackets is the region's income multiplier (see equation
(5), page 34). The addition of the two expressions is the total
employment multiplier.

The values of E_i are the regional employment generation
coefficient (REG), which is similar in form to the RIG model
(equation (6) (page 36)).

$$E = \frac{D + \sum_{i=1}^{I} M_i E_i}{S} \quad \ldots \ldots \ldots \ldots \ldots \ldots (15)$$

where, D is the number of employees for each business and the
other symbols have the same meanings as in equation (14) (page
41).

Several salient points may be noted concerning the
methodology adopted in this study. First, the original regional
tourism model developed by Archer in 1971 included the initial
unit of tourist expenditure so that the income multiplier
consisted of the value estimated by equation (5) (page 34) plus
one. Archer later omits the initial unit, "since it represents
only the initial unit of tourist expenditure, the benefit of

which accrues to the tourist."[16] Second, leakages are more rigorously calculated compared to the other more aggregated models, since leakages are accounted for in the value-added items, as well as for imports and savings.[17]

Third, in departure from the Archer method, an input-output framework is used as the basis of the calculations, since data are available from published sources. This makes a survey of all the tourist businesses unnecessary, although it means that one cannot distinguish between marginal and average tourist businesses.

Fourth, the weighted coefficient for the accommodation sector is expected to be smaller than that calculated by the method using overall sums since a larger proportion of sales accrues to the larger establishments with presumably smaller RIG coefficients. To some extent, this should compensate for the larger values obtained by not excluding nontourist-related transactions in the marginal businesses.[18] Fifth, as has been the case with virtually all multiplier studies, average propensity to consume was used because of data restrictions.

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[16] Archer, "Anatomy of a Multiplier," op. cit., p. 73.

[17] In contrast to the usual national accounting definition of value-added, government revenues are considered to be a leakage in the first round, although the multiplier effects of further public spending in the local economy are accounted for.

[18] Refer to Footnote 11.

Finally, while conventional models assume uniform impacts from all exogenous spending, this method accounts for the relative contributions by the various types of tourists. Hence, the model is essentially a modified input-output analysis that attempts to measure the contribution of tourism to the local economy by adopting a more rigorous method of calculating net values than the more aggregated multiplier models.

Statistical Models

The statistical techniques to be presented are analysis of variance, Spearman correlation and Pearson product-moment correlation.[19]

Analysis of Variance

The basis of analysis of variance is the decomposition of variation or sums of squares corrected for the mean (SS). In a one-way analysis of variance there is a dependent, or criterion variable Y and a categorical independent variable, or factor, A. The between groups sum of squares is often denoted as SSa, that

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[19] For further detail, see N. R. Draper and H. Smith, Applied Regression Analysis, (New York: John Wiley & Sons, Inc., 1966); Hubert M. Blalock, Jr., Social Statistics, (New York: McGraw-Hill Book Company, 1960); Moroney, M. J., Facts from Figures, Baltimore: Penguin Books, 1951); and Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, (New York: McGraw-Hill Book Company, 1975).

is, the portion of the sum of squares in Y due to factor A. The within groups sum of squares if often denoted as SSe, which is the variation which is not accounted by A. The sum of these two quantities is SSy = SSa + SSe, which is the total sum of squares in Y.

Analysis of variance tests the hypothesis that there are no differences between means of groups, that is,

Ho = t1 = t2 = ... th = 0

where, h is the number of groups and the t1,t2,...th are the differences between the hth group means and the overall mean level. It is usual to test the hypothesis by comparing the ratio of the between groups mean square to the within groups mean square with the F distribution.[20]

Eta is a descriptive statistic used for measuring the strength of the effects of A on Y, where

$$eta^2 = \frac{SSa}{SSy} \quad\quad\quad\quad\quad\quad (16)$$

Eta[2] denotes how much of the variation in the dependent variable is explained by the independent variable. It is called the correlation ratio and ranges from 0 to 1. It is basically an indication of how dissimilar the means on the dependent variable

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[20] Draper and Smith, op. cit., p. 244; and Nie et al., op. cit., pp.400-401.

are within the categories of the independent variable.[21]

Pearson Product-Moment Correlation Coefficient

The Pearson correlation coefficient, r, is used to denote the strength of the relationship between two interval-level variables. The strength of the relationship indicates both the goodness of fit of the linear regression line to the data and, when r is squared, the proportion of explained variance by the other variable. A negative r denotes an inverse relationship. Mathematically, r is defined as the ratio of covariation to the square root of the product of the variation in X and the variation in Y, where X and Y symbolise the two variables.[22] The r ranges from -1 to 1, while the r^2 ranges from 0 to 1.

The Spearman Correlation Coefficient

The Spearman rank-order correlation coefficient is similar to the Pearson correlation coefficient, except that it requires that the variables be at least ordinal in scale.

$$rho = 1 - \frac{6 \sum_{i=1}^{N} d_i^2}{N^3 - N} \qquad \ldots \ldots \ldots (17)$$

where, d is the difference between the ranks of the two

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[21] Nie et al., op. cit., p. 230.

[22] Nie et al., op. cit., p. 281.

variables for each case. Spearman's rho is defined as the sum of
the squared differences in the paired ranks for two variables
over all cases, divided by a quantity which is what the sum of
the squared differences in ranks would have been had the two
sets of ranking been totally independent.[23]

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[23] Nie et al., op. cit., p. 209.

III. THE TOURIST INDUSTRY IN METROPOLITAN VICTORIA

The purpose of this chapter is to describe the geographic
landscape of Victoria. In addition, the importance of the
tourist industry is discussed in terms of the supply and demand
components of tourism in Victoria. The region is divided into
six tourist market areas in order to provide a better base for
the analysis of the distribution and impact of tourist
activities in the region. Since the study focusses on the hotel
sector, survey results are presented on establishment
concentration, occupancy rates, and vulnerability to changes in
accessibility. The theme of this chapter is Victoria's
attractiveness as a resort located on an island and its
representativeness of the diverse nature of tourism in B.C.

The Geographic Landscape

Vancouver Island is situated between latitudes 48 20'- 50
40' north and longitudes 123 10' - 128 30' west with an area
of some 32,100 square kilometres (12,519 sq. miles). It is the
largest of North America's offshore islands with a predominantly
mountainous core composed largely of a heterogeneous group of
pre-Cretaceous sedimentary and volcanic rocks. This mountainous

core is surrounded by coastal lowlands, particularly in the north and east.[1] (see Figure 2)

It was on the southeastern coastal plain that European Settlement developed beyond the stage of the isolated fur trading post. However, the greater part of the island still consists of wilderness frontier.[2]

In 1976, metropolitan Victoria had a population of 218,404, which represented approximately 50 percent of the population of Vancouver Island and 9 percent of that of the Province. (see Table 1) Its eleven municipalities can be seen in Figure 3.

The climate of Vancouver Island has been characterised as "humdrum" because it possesses a "mild, unexciting, unspectacular, maritime climate, experiencing neither extremes of heat nor cold." Severe weather events are almost unheard of and the southeast has only a moderate annual precipitation and a relatively dry summer.[3]

In short, Victoria's beautiful physical setting as a water resort within close proximity to scenic mountainous terrain, mild climate, and sport fishing, make it a popular tourist

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[1] Harold D. Foster, "Relief, Drainage and Natural Hazards,Vancouver Island: Land of Contrasts, ed. Charles N. Forward, Western Geographical Series Vol. 17, University of B.C., (Victoria: University of Victoria, 1979), p. 51

[2] Ibid, p. 1

[3] Stanton E. Tuller, "Climate", Vancouver Island: Land of Contrasts, op. cit., p. 86.
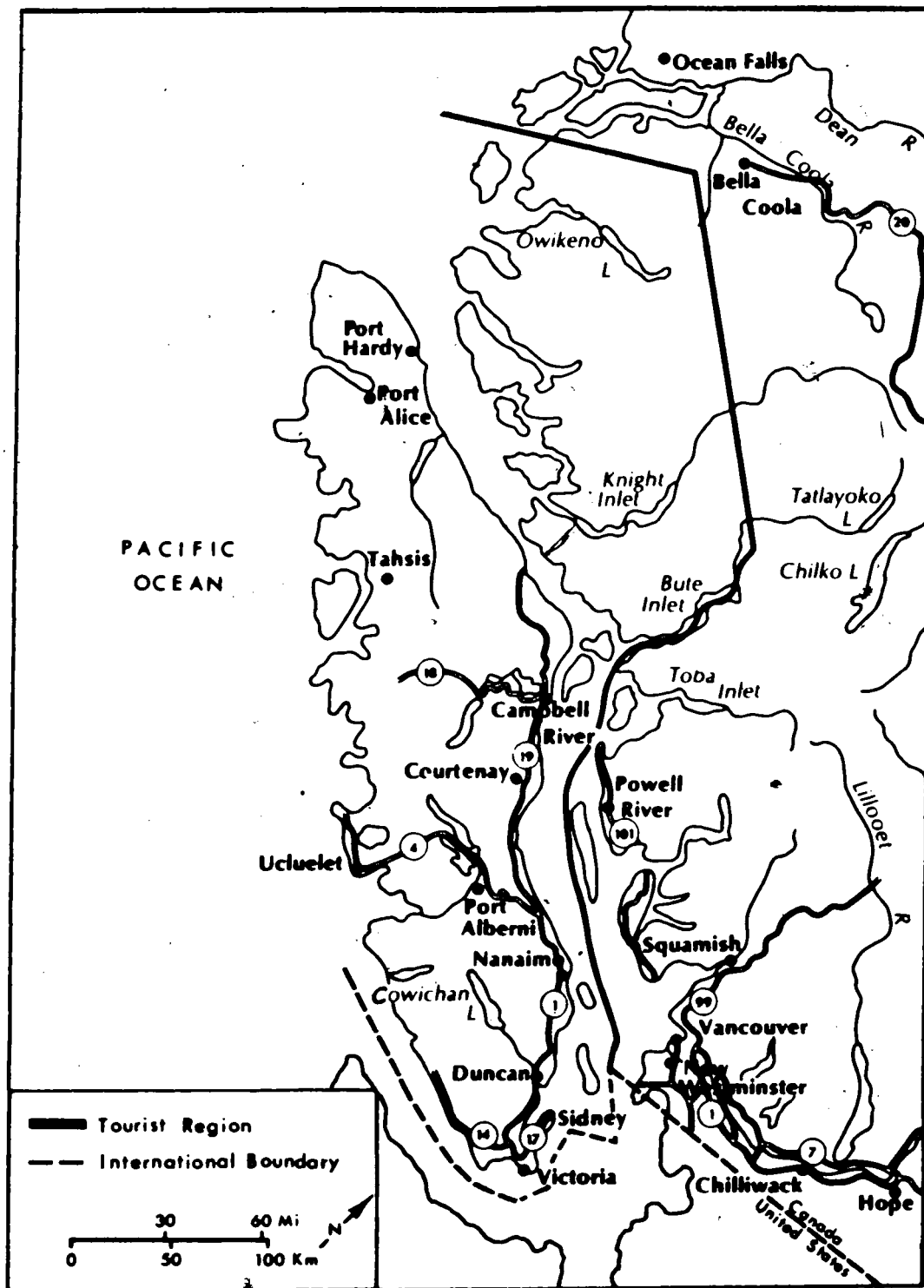
Figure 2. The Vancouver Island Tourist Region.

Adapted from: Tourism B.C., Vancouver Island Tourism Facts Book 1977, (Victoria: Queen's Printer, 1977), p. 3.
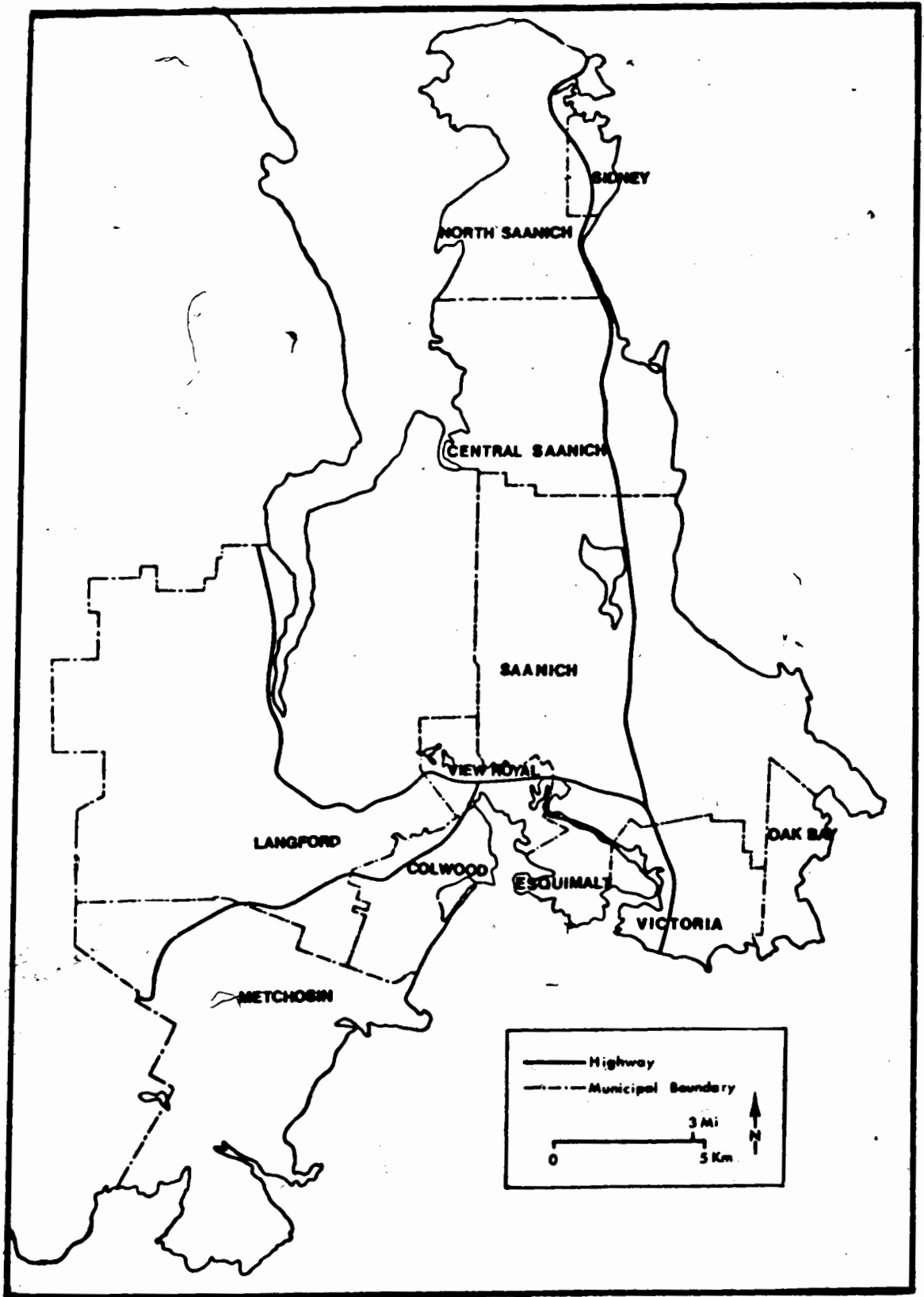
Figure 3. The Victoria Metropolitan Area.

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TABLE 1

POPULATION OF THE VICTORIA METROPOLITAN AREA

Municipality	1976 Census
Victoria	62,551
Esquimalt	15,053
Oak Bay	17,658
Saanich	73,383
Central Saanich	7,413
North Saanich	4,697
Sidney	6,732
Subdivision B*	29,437
Indian Communities	1,480
Census Metro Area	218,404
Vancouver Island	441,417[1]
British Columbia	2,466,608[1]

SOURCE:

Ministry of Economic Development, B. C. Facts and Statistics, (Victoria: Queen's Printer, 1977), p. 73.

[1] Colin, J. B. Wood, "Settlement and Population," Vancouver Island: Land of Contrasts, ed. Charles N. Forward, Western Geographical Series Vol. 17, (Victoria: University of Victoria, 1979), p. 9.

*Langford, Colwood, Metchosin, and View Royal

destination. In addition, the presence of the world-famous

Butchart Gardens, as well as its "Olde English" charm, increases

its attractiveness.[4] According to a study which calculated
attractivity indices for the Province, Vancouver Island ranks
first as the most attractive of the 8 tourist regions, while
Victoria ranks second among the 19 tourist districts.[5] Visitors
to Victoria can easily participate in the range of experiences
that the Province offers, including the wilderness experience) in
camps or resorts in the northern areas.

Economic Development

Micklewright has pointed out that the manufacturing sector
of Vancouver Island may be characterised by a "strong dependence
on wood and wood-related industries on one hand, and a
concentration of non-wood-related industries in the Capital
Regional District on the other hand."[6] The major manufacturing
activities in metropolitan Victoria, based on the 1971 census by
percentage of the labour force, are wood (28.8 percent), food
and beverage (20.1 percent), print and publishing (12.2

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[4] Kenneth Lines, "A Bit of Old England: The Selling of Tourist
Victoria," M.A. Thesis, (Victoria: University of Victoria,
1972).

[5] Turgut Var, Doug Beck, and Patrick Loftus, "Determination of
Touristic Attractiveness of the Touristic Areas in British
Columbia," Journal of Travel Research 15 (Winter 1977):28.

[6] The Capital Regional District includes metropolitan Victoria,
Sooke, Saltspring Island, Outer Gulf Islands and Indian
Communities. In 1976 the population of the Capital Regional
District was 230,592.

percent)," and transportation equipment (9.8 percent).[7]

Victoria's production and employment by industrial sector can be seen in Table 2. The primary sector, consisting of agriculture, forestry, fishing, and mining, is relatively small with less than 3 percent of the labour force. Only 11.4 percent of the working population is employed in the primary and secondary sectors. This means that the tertiary sector accounts for about 89 percent of total employment, and an estimated 78 percent of total production. This implies weak backward linkages and a high import content to pay for imported goods.

The labour force in the primary and secondary sectors in Victoria is at least half of that of the Province and Nation. (see Table 3) Hence, the Victoria economy can be described as having a predominant service sector and a weak basic sector. However, Micklewright views the potential for the development of the manufacturing sector as rather limited because of Victoria's isolation in time-cost terms, the small size of the local market, and the increasing concentration of industrial ownership. On the other hand, he states that the same isolation and presence of important amenities are positive influences in attracting industries with high value-low weight products. He identifies the tourist industry, research establishments,

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[7] M.A. Micklewright, "Manufacturing", Vancouver Island: Land of Contrasts, op. cit., pp. 251-257.

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TABLE 2

PRODUCTION AND EMPLOYMENT BY INDUSTRIAL SECTOR,
VICTORIA METROPOLITAN AREA

| Industry | Production | | Employment (1976) | |
	$('000)	%	#	%
Primary	180,000	8.6	2400	2.8
Construction	112,300	5.4	5278	6.3
Manufacturing	286,400	13.7	7236	8.6
Wholesale	350,000	16.7	2514	3.0
Retail	436,000	20.8	11,100	13.1
Transportation	53,206	2.5	4,367	5.2
Communications and utility	18,694	.9	1,535	1.8
Finance	311,500	14.8	4,216	5.0
Service	300,000	14.3	24,363	28.9
Government	50,000	2.4	21,410	25.4
Total	2,098,100	100.0	84.419	100.0

SOURCES:

Capital Regional District, The Challenge, (Victoria: CRD.,
December 1977), pp. 28, 47.

Ministry of Economic Development, B.C. Regional Index, (Canada:
Evergreen Press, 1978), pp. 391-426.

Ministry of Economic Development, B.C. Economic Activity,
(Victoria: Queen's Printer, 1979), pp. S1-S33.

Ministry of Economic Development, B.C. Facts and Statistics,
(Victoria: Queen's Printer, 1977), p. 19.

City of Victoria, "Social and Economic Data Metropolitan
Victoria 1974," mimeographed, p. 18.

The Greater Victoria Chamber of Commerce, Victoria, Victoria: J.
Barnard & Associates, 1978), p. 14.

TABLE 3

LABOUR FORCE BY INDUSTRY AS A PROPORTION OF TOTAL LABOUR FORCE,
METROPOLITIAN VICTORIA, BRITISH COLUMBIA, AND CANADA, 1971

	Metro Victoria %	British Columbia %	Canada %
Primary	2.9	7.5	8.4
Construction	6.3	7.0	6.2
Manufacturing	8.8	16.1	19.8
Trade	15.9	16.2	14.7
Transportation, communication and other utilities	6.8	9.5	7.8
Finance, insurance and real estate	4.8	4.6	4.2
Community, business and personal services	28.2	24.8	23.7
Public administration	18.8	6.3	7.4
Other	7.5	7.9	7.9
Total	100.0	100.0	100.0

SOURCE:

Capital Regional District, <u>The Challenge</u>, (Victoria: CRD,
December 1977), p. 42.

consulting firms, and their related industries, as particularly

viable.[8]

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[8] Ibid., p. 262

The Importance of the Tourist Industry

There are two components of the tourist industry. The supply side consists of the "tourism plant", including accommodation, restaurants, tourist attractions, and gift shops. On the demand side is the "tourist", defined by the International Union of Official Travel Organisations (IUOTO), as temporary visitors staying at least 24 hours for the purposes of leisure or business.[9] In this study the impact of day-trippers is also considered, since they constitute about 20 percent of visits to Canada.

Tourist Demand

In 1977, the volume of visitors to Victoria is estimated to have been approximately 1.5 million, including day-trippers, which was about 7 times the local population. (see Table 4) This figure can be compared to the 1.9 million overnight visitors to Vancouver Island. In 1977 tourist expenditures were an estimated 135 million dollars in metropolitan Victoria, or about half the

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[9] Organisation for Economic Cooperation and Development, Tourism Policy and International Tourism in OECD Member Countries, Annual Report, (Paris, 1978), p. 7.

TABLE 4

EXPENDITURE PATTERNS OF TOURISTS
IN VICTORIA, 1977

| Category of Expenditure | Overnight Visitors | | | Day-trippers | All Tourists |
	Non-Residents %	Vancouver Island Residents %	Total %	%	%
Accomm.	23	15	22	5	21
Transp.	16	26	18	34	19
Meals	27	26	27	21	27
Groceries	2	10	3	3	3
Ent. & Rec.	11	6	10	14	10
Shopping	21	17	20	23	20
Total	100	100	100	100	100

TOURIST EXPENDITURES AND NUMBERS

	Amount %	Amount %	Amount %	Amount %	Amount %
Tourist Expenditures ($ mm)	110 81.5	20 14.8	130 96.3	5 3.7	135 100
Vol. of vis. ('000)	940 62.7	310 20.7	1250 83.3	250 16.7	1500 100

SOURCES:

Tourism B.C. Vancouver Island Tourism Facts Book 1977, (Victoria: Queen's Printer, 1977)

Alex Tunner and Tung K. Ngai, British Columbia Tourism Model, (Vancouver: B. C. Research, 1977).

Capital Regional District, Impact, Victoria, B.C., 1979.

Greater Victoria Chamber of Commerce, Victoria , (Victoria: J. Barnard & Associates, 1978).

tourism revenue in Vancouver Island.[10]

The market share of tourism on Vancouver Island is estimated to be about 20 percent of that of the Province. It is evident in Figure 4 that the rate of growth of tourism revenues for B.C. exceeds that of the Island.

The expenditure patterns of overnight visitors, consisting of nonresidents and Vancouver Island residents, and day-trippers can be seen in Table 4. As can be expected, these three groups spend different proportions of the tourist dollar on accommodation with the difference accounted for by transportation expenses. Another noticeable difference is that resident tourists spend about 8 percent more on groceries than the other groups.

Several distinctive features of the Vancouver Island tourist were revealed by a discriminant analysis by Murphy.[11] The results of the study confirmed the importance of the west coast market and the presence of campers. It was also noted in the study that the extra expense of ferries, in addition to general expenses, contributed to the higher expenditures of

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[10] The estimate of $130 million by Tourism B.C. for overnight visitors was used, although a figure of $128 was derived by using survey data. The contribution of day-trippers was estimated to be $5 million, based on 250,000 day-trippers with an average $20 per day expenditure. Information on day-trippers was obtained from the Capital Regional District and Laventhol and Horwath.

[11] Peter E. Murphy, "Development and Potential of Tourism", Vancouver Island: Land of Contrasts, op. cit., pp. 294-5.

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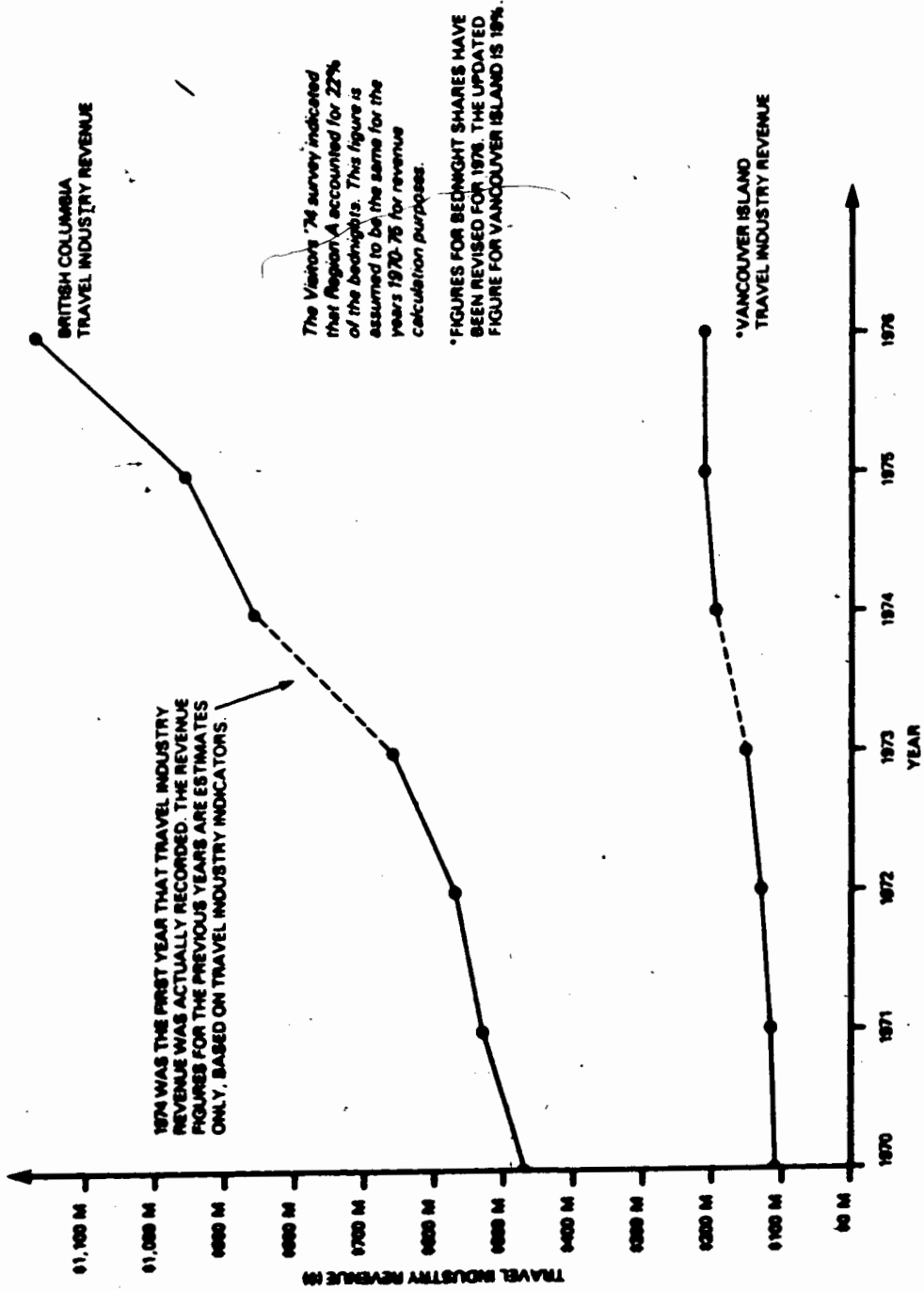
Figure 4. A Comparison of British Columbia and Vancouver Island Travel Industry Revenues.

Source: Tourism B.C., Vancouver Island Tourism Facts Book 1977, (Victoria: Queen's Printer, 1977), p. 15.

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visitors to the Island than the average expenditures of visitors to the Province.

Tourist traffic to Vancouver Island is seasonal and hotel operators rely on a short season lasting from June to October for most of their room revenues. The seasonal pattern of daily traffic flow is shown in Figure 5.

Supply Aspects

The regionalization of metropolitan Victoria's eleven municipalities and districts does not coincide with tourism planning. For instance, motels located along Highway 1A belong to five different municipalities, including Victoria, Saanich, View Royal, Colwood, and Langford. Hence, to use these as planning regions would be to divide up an essentially similar market area. On the other hand, accommodation located in other than the Victoria Municipality and along Highway 1A is relatively sparse and is widely distributed among a few locations. Retaining municipal boundaries in these cases would fragment an already small and narrow market. More meaningful regions for tourism planning can be obtained by dividing the Victoria Metropolitan Area into 6 market areas according to major transportation routes, municipal boundaries, and similarity of accommodation type. (see Figure 6) These six Market Areas are:

VICTORIA

Seasonal difference
January to July 28% increase
in average daily traffic volume
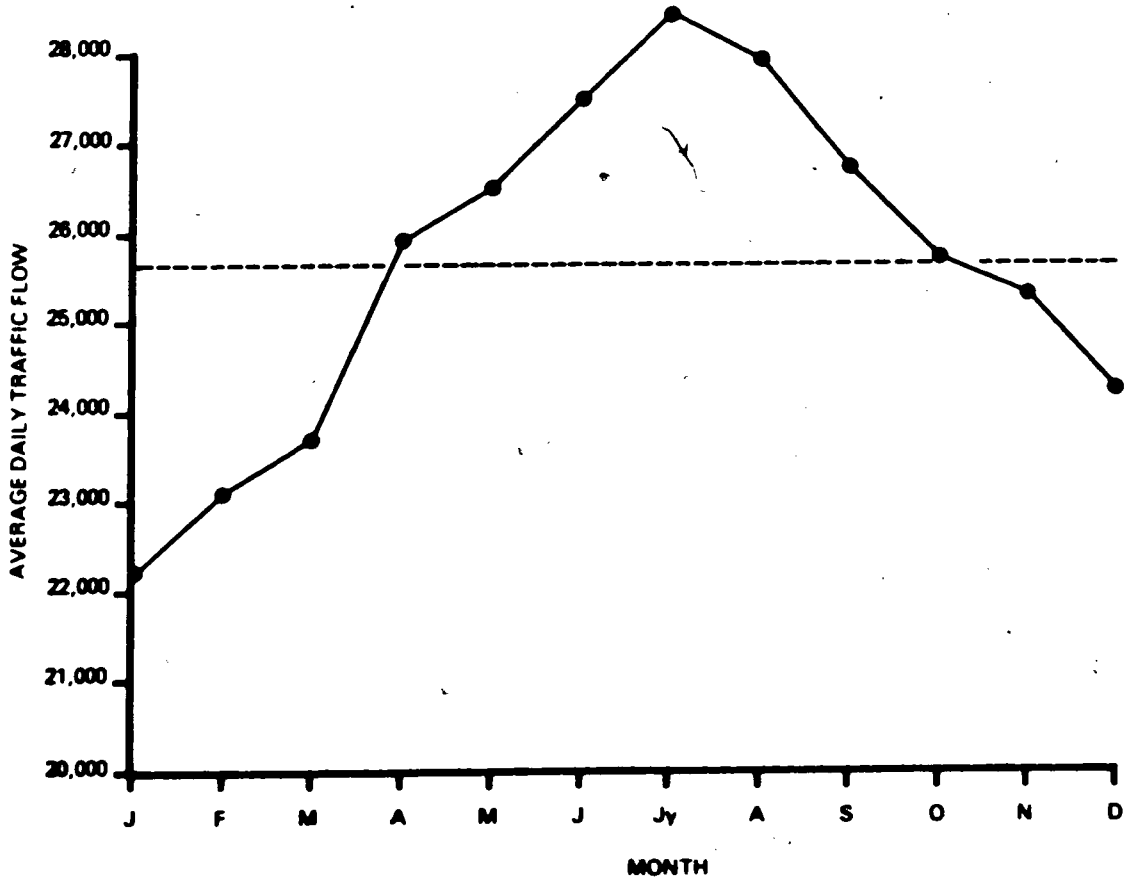
Figure 5.   Seasonal Variation of Daily Traffic Flow, 1976.

Source: Tourism B.C., Vancouver Island Tourism Facts Book
   1977, (Victoria: Queen's Printer, 1977), p. 59.
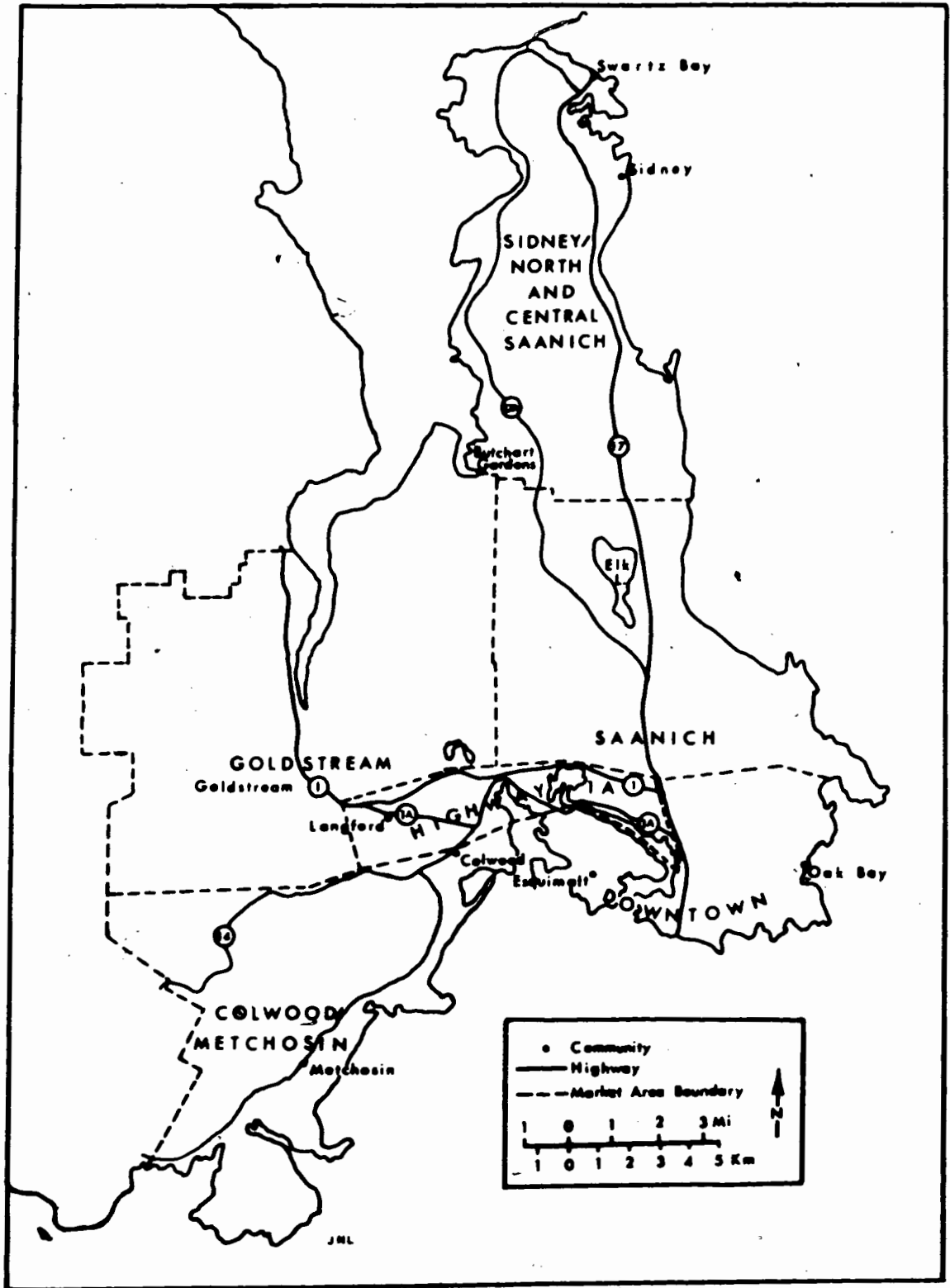
Figure 6. Tourism Market Areas in the Victoria Metropolitan Area.

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1. Downtown and vicinity

2. Highway 1A

3. Saanich

4. Sidney-North and Central Saanich

5. Goldstream

6. Colwood-Metchosin

Most of the tourist accommodation is located in the Downtown and Highway 1A Market Areas, which contain 81 percent of the 100 establishments and 84 percent of 5101 units in metropolitan Victoria. (see Table 5) Altogether, these two areas also contain over 92 percent of total hotel and motel units in the Metropolitan Area. Sixty-eight percent of the campground spaces are also located here.

Over three-quarters of the hotels are located in the Downtown Market area, while the majority of motels are located in the Highway 1A area. A corridor-type development is the general predominant pattern. In terms of average unit-capacity both hotels and motels in the Downtown Area are at least twice as large as those located in the other regions. Hence, the Downtown Market Area is spatially dominated by hotels and larger establishments, while small motels are spatially concentrated in the Highway 1A Market Area. (see Figure 7)

Only 16 additional establishments are located in the remaining 4 Tourist Market Areas. Fifty-seven percent of unit-capacity in this vast area consists of campground and

TABLE 5

ACCOMMODATION BY TOURIST MARKET AREAS
IN METROPOLITAN VICTORIA

	Hotels		Motels		Campgrounds		Trailer Parks	
	Est.	Units	Est.	Units	Est.	Units	Est.	Units
1. Downtown	25	2078	16	613	1	50	1	70
2. Highway 1A	4	308	30	834	6	262	5	83
3. Saanich	1	87	3	33	0	0	0	0
4. Sidney-N. & C. Saanich	2	100	6	89	2	50	2	56
5. Goldstream	0	0	0	0	2	249	0	0
6. Colwood-Metchosin	1	28	1	8	1	28	2	75

SOURCE:

Tourism B.C. Directory of British Columbia Tourist Accommodation 1977, Victoria, B.C.
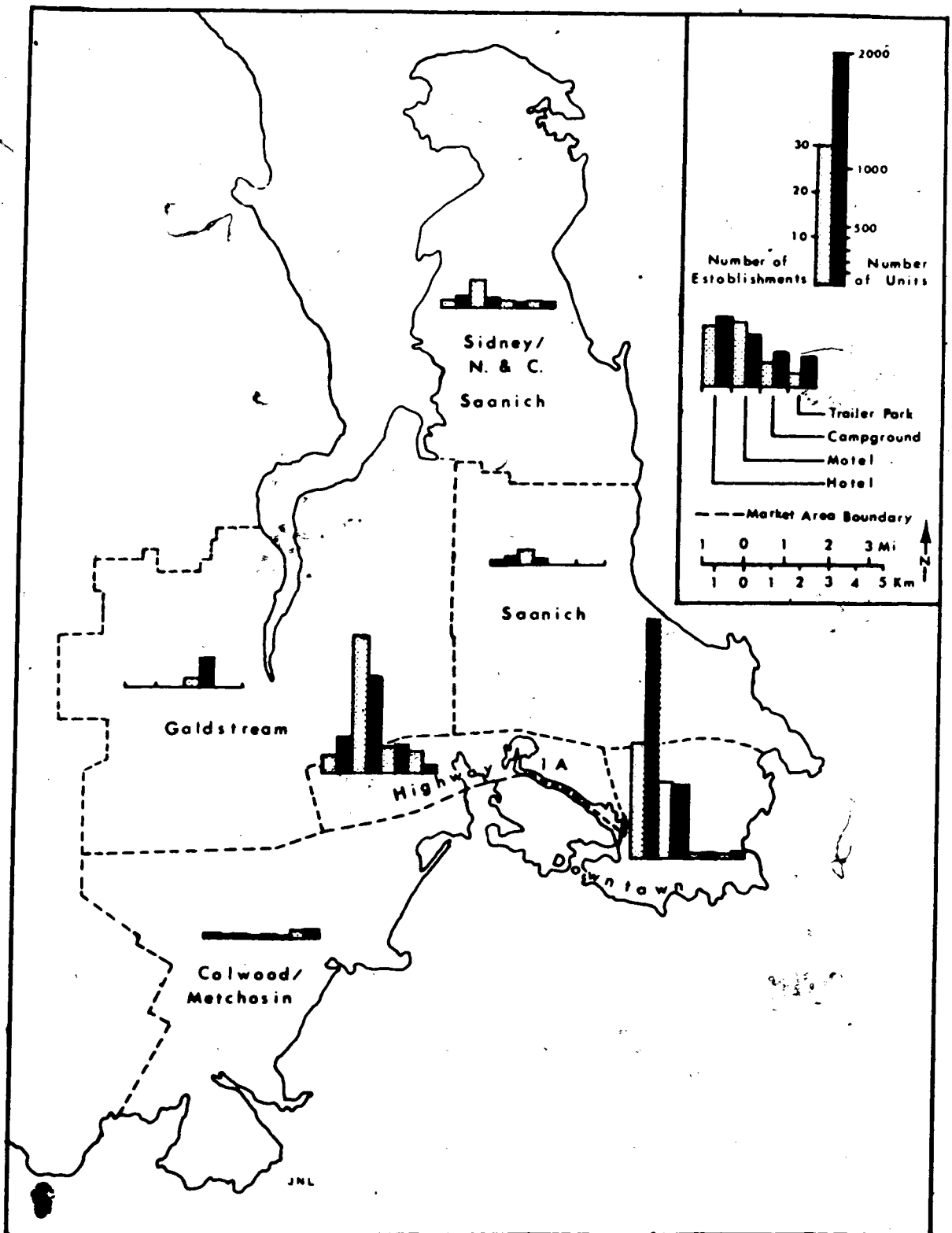
Figure 7. The Spatial Distribution of Tourist Accommodation
by Market Area in Metropolitan Victoria.

Source: Tourism B.C., Directory of B.C. Tourist Accommodation
1977, (Victoria, B.C., 1977).

trailer units.

Establishment Concentration

The proportion of unit-capacity, revenues, and profits accounted for by the two, four and eight largest establishments are shown in Table 6. These proportions indicate that the degree of establishment concentration is rather high because the market is dominated by a few establishments. The largest two hotels in the sample account for 20 percent of the total units and 38 percent of the total revenue but 48 percent of net profit before depreciation. The largest 8 hotels account for 44 percent of unit-capacity but 80 percent of the profits. The proportions for food and beverages are even higher than the proportions for total revenue and room revenue. However, since Victoria has only one large hotel over 150 rooms, these high concentration levels can also be explained in terms of narrowness of market, that is, "establishments are small (often sub-optimal) but are large relative to the market in which they operate."[12]

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[12] Richard Schwindt and Turgut Var, "Industrial Structure of the British Columbia Traveller Accommodation Sector: An Application of the Industrial Organisation Model to Service Industries," Journal of Travel Research 16 (Spring 1978):29.

TABLE 6

THE PROPORTION OF ROOMS AND REVENUES ACCOUNTED FOR BY THE LARGEST 2, 4, AND 8 HOTELS IN VICTORIA

Largest	Units %	Total Revenue %	Room Revenue %	Beverage Revenue %	Food and Beverage Revenue %	Profit Before Depreciation %
2	20.4	37.6	34.8	38.3	36.7	47.8
4	28.7	48.2	46.3	53.3	55.2	> 61.5
8	44.1	65.7	60.1	76.0	79.0	78.3

Note: All figures are ratios to sample totals, which represents a 64 percent unit-capacity of metropolitan Victoria.

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Levels of Occupancy

The rate of occupancy is probably the best parameter for tourist activity, since it provides some indication of the interactions between supply and demand. It has been pointed out, however, that "occupancy rate is not a substitute for earnings."[13]

The average occupancy rate of the total sample was 51.4 percent. When grouped by affiliation categories, the average rates were chain (65.0), franchise (48.4), referral (69.1), hired-management (48.9), and owner-operated (49.0). Surprisingly, the lowest average rate was obtained by the franchise motels. An examination of the correlation coefficients indicates why this is so. The level of occupancy was found to increase with scale (room revenue, r=.75), room rates (r=.31), and size of hotel (r=.26).[14] This means that size and scale factors are more important in determining occupancy levels. However, the results of a one-way analysis of variance in Table 7 showed that the difference in occupancy rates between the affiliated and independent establishments was significant at the 2 percent level.

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[13] Avner Arbel and Paul Grier, "The Risk Structure of the Hotel Industry," The Cornell Hotel and Restaurant Administration Quarterly (November, 1978): 18.

[14] The reader is referred to Appendix 2 for more detail on the correlation coefficients.

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TABLE 7

AVERAGE OCCUPANCY BY TYPE OF AFFILIATION, 1977

Affiliation	N	Mean	Standard Deviation	Standard Error	
Affiliated	10	60.0	13.2	4.2	F = 5.869
Independent	35	48.9	12.6	2.1	p = .020
					eta = .35
All lodgings	45	51.4	13.4	2.0	

A negative relationship was found for occupancy rate with the ratio of revenue from food and beverage to revenue from rooms (r=-.26, p=.043). This confirms previous findings that hotels with large food and beverage operations rely less upon room sales than the other hotels, since they also have significantly higher profits. Previous analysis of the data has shown that licensed hotels with less than 18 percent of their total revenues received from rooms, not only have the lowest room rates and smallest size, but also have low break-even occupancy rates that might even approach zero.[15] In fact, no significant relationships for the level of occupancy with total revenue or profit was found.

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[15] Juanita Liu and Turgut Var, "The Use of Lodging Industry Ratios in Overall Tourism Planning", forthcoming in <u>Annals of Tourism Research</u>, October 1980.

Vulnerability to Changes in Accessibility

Being almost entirely dependent on ferry tourist traffic, Victoria is extremely sensitive to any changes in time-cost access. The effect of the doubling of the ferry rates in the summer of 1976 did not affect all lodgings uniformly. The results in Tables 8 and 9 show significant variations in the percentage of lost revenues with respect to location and establishment type. The downtown lodgings reported an average 11 percent decrease, while those in the upper downtown area and along Highway 1A suffered average losses of 22 percent and 25 percent, respectively ($F=3.816$, $p=.031$). Moreover, hotels reported an average 12 percent decrease in revenues compared to the 25 percent loss by motels ($F=7.565$, $p=.009$). Correlation analysis also showed that losses from the increase in ferry fares were significantly and negatively related to size ($r=-.43$, $p=.003$), scale (room revenue, $r=-.30$, $p=.026$), and class of hotel (roomrate, $r=-.28$, $p=.035$).

Several hoteliers stated that they lost more business from B.C. residents than U.S. visitors and were critical of media reports which they felt exaggerated the situation.[16] Although

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[16] B.C. residents in other than Vancouver Island represented 30 percent of the overnight visitors and contributed 26 percent of the gross revenues from tourism in the Vancouver Tourist Region in 1976. Tourism B.C., Vancouver Island Tourism Facts Book 1977, (Victoria: Queen's Printer, 1977) pp. 8, 18.

TABLE 8

AVERAGE DECREASE IN REVENUES DUE TO THE DOUBLING OF
FERRY FARES BY LOCATION, 1976

Location	N	Mean	Standard Deviation	Standard Error	
Downtown	16	10.6	12.6	3.2	F = 3.816
Northdowntown	10	21.5	15.5	4.9	p = .031
Highway 1A	16	24.9	17.1	4.3	eta = .40
All lodgings	42	18.6	16.1	2.5	

TABLE 9

AVERAGE DECREASE IN REVENUES DUE TO THE DOUBLING OF
FERRY FARES BY TYPE, 1976

Type	N	Mean	Standard Deviation	Standard Error	
Hotel	20	12.0	12.9	2.9	F = 7.565
Motel	22	24.7	16.6	3.5	p = .009
					eta = .40
All lodgings	42	18.6	16.1	2.5	

interviewees reported that business was back to normal, these
findings demonstrate the ability of different types of
establishments to withstand changes in accessibility.

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In summary, Victoria's popularity as a tourist destination in B.C, is exceeded only by that of Vancouver's. It has many attractions as an island resort and is more dependent on the tourist trade than the Province or Nation. On the other hand, the high seasonal element of tourism, rather high degree of establishment concentration, significant differences in occupancy rates, and vulnerability to changes in accessibility by different types of establishment are not entirely unique to Victoria. Rather, these features are considered to be characteristic of other communities in the Province, for example, those in the North.

IV. THE ECONOMIC IMPACT OF TOURISM IN VICTORIA

Having characterised the importance of tourism to Victoria, we now proceed to present the cumulative multiplier effects of tourist spending on the economy of the Victoria Metropolitan Area.

As a first step, the multipliers for eleven sectors in Victoria's economy were derived by using the input-output model. Since there was such a great reliance on secondary sources, this represents only a modest attempt. Nevertheless, it provides the necessary framework for examining the hypotheses presented in Chapter One. The results with respect to the major variables of interest are examined. Using the methodology suggested in the Chapter Two, the accommodation income multiplier is then weighted by ownership categories and compared with the aggregate regional income multiplier.

In addition, differential tourist multipliers for overnight and day visitors are determined. The relative contributions of the various types of tourists to household' income, sales, jobs, government taxes and imports are then compared.

Sector Multipliers for Victoria

As a basis for calculating the tourism multipliers, it was necessary to determine the local value-added elements of the industrial sectors in Victoria by using equation (6) (page 36). Because survey data were available for only the accommodation sector, secondary data sources were relied upon for the remaining sectors.[1] Hence interindustry comparisons are to be viewed with caution.

For the purposes of this study, it was assumed that no wages and salaries were paid to nonresidents of Victoria, although purchase of services from outside the region were considered to be imports. Furthermore, since no information on leakages from the value-added elements were available for the nonaccommodation sectors, an estimate of 20 percent leakages, derived from the survey data, was applied uniformly for all sectors. This is an imperfect method relied upon only as a measure of last resort. In general, this estimate for factor leakages are considéred to be conservative with the effect of overestimating the multipliers. Tests of sensitivity of the model to changes in the leakages from other value-added on the multipliers and household income are discussed later in the

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[1] The pattern of expenditures of the restaurant sector was estimated by using data for hotels with ratios of food and beverage sales to total sales of at least 90 percent. Refer to Table 29 in Appendix 1 for further detail.

chapter.

Table 10 shows that the wholesale and retail trade sectors have among the lowest normal multipliers (.263, .472), and yet have the highest ratio multipliers (3.011, 3.533). The reason that the ratio multipliers are so high is that the direct income coefficients are so low. The main value of the ratio multiplier lies in demonstrating the importance of secondary relative to direct income.

The finance sector has the highest direct (.589) and total income coefficients (.983) because of high interest payments. The accommodation total RIG of .736 was exceeded only by those for the restaurant (.747), communications and utility (.747), and finance sectors (.983). Furthermore, as was expected, the income and transactions multipliers of the service sector were generally higher than those for the primary and secondary sectors. The accommodation multiplier of .736 is 47 percent higher than the aggregate multiplier for the region (.502), which was calculated by using equation (13) (page 40).

The transactions multipliers for the industrial sectors range from 1.285 to 1.638. These values can be compared to the multipliers of 1.18 to 1.97 obtained in Davis' input-output study of metropolitan Vancouver.[2]

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[2] H. Craig Davis, An Interindustry Study of the Metropolitan Vancouver Economy, Urban Land Economics Report No. 6, University of British Columbia, (Vancouver: School of Community & Regional Planning, 1974), p. 26.

TABLE 10

SECTOR MULTIPLIERS FOR VICTORIA

Industrial Sector	Direct Income	Indirect Income (Per $1 of Turnover)	Induced Income	Total Income	Ratio Income Type I	Type II	Transactions
Primary	.238	.049	.099	.386	1.207	1.625	1.154
Construction	.243	.172	.144	.558	1.707	2.297	1.524
Manufacturing	.277	.050	.113	.441	1.180	1.588	1.155
Wholesale trade	.087	.108	.068	.263	2.237	3.011	1.285
Retail trade	.134	.217	.121	.472	2.624	3.533	1.540
Transportation	.314	.210	.182	.705	1.667	2.245	1.638
Communications and utility	.379	.175	.192	.747	1.462	1.968	1.488
Finance	.589	.141	.253	.983	1.239	1.668	1.321
Service	.339	.101	.152	.592	1.299	1.749	1.286
Restaurant	.393	.162	.192	.747	1.413	1.902	1.542
Accommodation	.413	.134	.189	.736	1.324	1.783	1.430
Aggregate	.278	.094	.129	.502	1.084	1.459	1.066

NOTES:

Government Revenues are excluded from the direct income coefficients but are included in the indirect and induced elements.

Refer to Table 29 in Appendix 1 for data used in the calculations.

The sector multipliers were obtained by using standard Leontief inversion techniques. Because of the technical differences, explained in Chapter 2 and at the beginning of this chapter, the method used in this study is more closed than the Archer method, i.e., more industrial sectors were treated as endogenous. As a check, the model was closed with respect to the household sector. The results were identical to those calculated by the Archer model when a value of 100 percent for household propensity to consume (C) was used. Thus the two different methods are consistent.

Nevertheless, despite the fact that these multipliers are considered to be gross estimates, they exhibit expected patterns and the values appear to fall within a reasonable range. However, the intra-industry comparisons in the next section can be made with greater confidence, since they were primarily based upon the survey data.

Differential Accommodations Multipliers

Statistical tests of significance were conducted for the direct, indirect, and total regional income and employment coefficients, transactions and ratio multipliers, as well as for other selected dependent variables. Initially, 27 independent variables were considered but these were later reduced to 16 variables because of redundancy. The organisation variables

indicated location, size, scale, affiliation, ownership, type of establishment, type of facility, class of hotel, return on operation, and level of occupancy.

One-way analysis of variance was used to test whether there were significant differences among establishments when they were grouped by five categories of location, affiliation, ownership, type, and facility type. The regional income generation coefficient was discovered to be significant at the .013 level by ownership categories with an F value of 6.792. Both regional employment generation coefficients and transactions multipliers were found to be significantly different when grouped by type of facility, that is, whether or not the establishments are licensed. The F values were 4.2 and 12.5 with significance levels of .05 and .001 respectively (refer to Tables 11-13).

Although the eta^2 statistic indicates how much of the variation is explained by the nominal categories, more useful information can be obtained from correlation coefficients which indicate the strength and direction of the relationships of the variables.[3] (see equation (16), page 45)

The significant relationships, in general, confirm the hypotheses formulated at the beginning of the study.[4] A summary

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[3] However, these results do not imply causal relationship. Blalock, op. cit.

[4] Further detail on the correlation coefficients can be seen in Appendix 2.

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TABLE 11

ANALYSIS OF VARIANCE OF THE TOTAL REGIONAL INCOME GENERATION
COEFFICIENTS OF ACCOMMODATION BY OWNERSHIP CATEGORIES

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F	p
Explained	.093	1	.093	6.792	.0131
Residual	.586	43	.014		
Total	.678	44	.015		

NOTE: N = 45 and Eta = .37

TABLE 12

ANALYSIS OF VARIANCE OF THE TOTAL REGIONAL EMPLOYMENT
GENERATION COEFFICIENTS BY TYPE OF FACILITY

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F	p
Explained	.002	1	.002	4.208	.046
Residual	.023	43	.001		
Total	.025	44	.001		

NOTE: N = 45 and Eta = .30

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TABLE 13

ANALYSIS OF VARIANCE OF THE TRANSACTIONS MULITPLIER BY TYPE OF FACILITY

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square	F	p
Explained	.126	1	.126	12.530	.001
Residual	.431	43	.010		
Total	.556	44	.013		

NOTE: N = 45 and Eta = .48

of the significant relationships between the dependent variables and the independent variables is as follows.

1. Direct RIGs are higher for the locally-owned establishments.

2. Indirect RIGs are higher for the licensed, the lower class, the smaller-size, and the smaller-scale (room revenue per unit) establishments.

3. Total RIGs are higher for the locally-owned and the less profitable establishments.

4. Ratio multipliers are higher for the smaller-size establishments.

5. Transactions multipliers are higher for the licensed hotels, the lower class, and the smaller-scale establishments.

6. Direct REGs are higher for the nonlicensed, the

less-affiliated, the lower class, the smaller-size, and the smaller-scale establishments.

7. Indirect REGs are higher for the peripheral, the lower class, the smaller-size and the smaller-scale, the less profitable, and the locally-owned establishments. ..

8. Total REGs are higher for the less-affiliated, the lower class, the smaller-size, and the smaller-scale establishments.

9. The direct import ratio is higher for the licensed hotels, the central, the more-affiliated, the externally-owned, the higher class, the larger-scale and the more occupied establishments.

10. The wage ratio is higher for the licensed hotels, the central, the higher class, the larger-size, and the larger-scale establishments.

11. The other value-added ratio is higher for the nonlicensed hotels, the peripheral, the less affiliated, the locally-owned, the smaller-size, and the smaller-scale establishments.

12. The percentage loss due to the doubling of ferry fares is higher for the peripheral, the motel, the lower class, the smaller-size, and the smaller-scale (room revenue per unit) establishment.

13. Occupancy rates are higher for the nonlicensed (ratio variable), the higher class, the larger-size, and the

larger-scale (room revenue per unit) establishment.
Hence, in each of these instances, the null hypothesis of zero
correlation can be rejected at least the .05 level.

Of the 104 possible correlations of the multipliers with
the organisation variables, only about one-third showed
significant relationships. Out of the total, 20 percent were
significant at the .05 level, 10 percent were significant at the
.01 level, and only 5 percent were significant at the .001
level. As was hypothesised, those enterprises with higher
multipliers have significantly lower import content and
additionally, higher percentages of other value-added.[5] Some of
the major findings in regard the the main variables of interest
are summarised as follows.

Location

The location variable was also a surrogate for proximity to
city center, albeit a weak one. In general, the multipliers did
not vary significantly with respect to location, although the
import and wage ratios decreased with distance from the downtown
area. The only significant relationship was the indirect REG at
the .001 level (rho=-.47), while the other multipliers exhibited

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[5] It was pointed out in Chapter Two that the value of the total
regional income coefficient is directly related to the direct
local value-added element. On the other hand, it is inversely
related to the amount of leakages, not only from imports of
purchases of goods and services by businesses and households,
but also from factor payments of value-added elements to outside
regions.

weak negative correlations. This means that the peripheral establishments generated more indirect employment per tourist dollar. Hence, the null hypotheses of zero correlation of the tourism multipliers with location can be rejected in only this instance.

,Peripheral establishments also reported greater losses from the increase in ferry fares than the more centrally-located hotels (significant at the .01 level). In this instance, about 18 percent of the variation in the loss in revenues could be attributed to the location variable (rho=-.43, p=.01).

Although the occupancy rate for the large downtown luxury hotels was 71 percent, compared to the overall average occupancy rate of 51.4 percent, levels of occupancy, using analysis of variance, did not vary significantly among the three main market areas. This can be explained by the special rates the motels in the outside areas offer during the shoulder months to attract a more permanent clientele, mostly Prairie-farmers. Apparently, each market area is competitive and has its own appeal. The Downtown Market Area attracts the more foot-oriented and luxury-seeking visitor. The Upper Downtown Area serves the more auto-oriented visitor, while the Highway 1A 'Motel Village' caters to the tourist who seeks a quieter and more inexpensive lodging.

However, occupancy rate was found to be weakly correlated with proximity to city center (rho=.21). The popularity of the

Downtown Market Area is due to its accessibility to tourist
entry points, proximity to tourist attractions, and the greater
propensity to travel by public transportation or foot because of
rising fuel costs. During the peak of the summer season, this
area becomes quite congested and plans to improve the ambience
and flow of traffic in the area are being implemented.

Size and Scale

Although total RIG was not significantly correlated with
size and scale of operation, some significant relationships for
the indirect RIG, ratio, and transactions multipliers with the
independent variables were found. In general, these multipliers
decreased with increasing size and scale of operation.

The direct, indirect and total REGs were also inversely
related to the size and scale variables. It was possible to
reject the null hypotheses in all these instances at at least
the .05 level of significance.

The hypothesis that the large scale (but not size)
establishments had higher import content was also confirmed.
However, the smaller hotels had significantly higher other
value-added ratios (rent, interest, and profit) than the larger
ones. For these reasons, the REGs were higher for the smaller
establishments, even though the larger ones had significantly
higher wage content. The smaller multipliers for the large
hotels can also be explained by the economies of scale they

achieve. Of course, the large companies provide most of the job opportunities in the region.

A study by Schwindt and Var showed that smaller hotels are relatively more important in B.C. than in Oregon or Washington, due to provincial legislation which favors hotels in the allocation of liquor licenses.[6] Survey results show that Victoria hotels had an even higher average percentage of total revenues due to alcoholic beverages than their B.C. counterparts.[7]

The question of optimal size has been the focus of many studies, but no firm conclusions have yet been made, especially for the service sector. A study by Kipnis on manufacturing firms favors the development of medium-size plants, which achieve increasing scale economies and maintain diversified production activities, but are not big enough to take advantage of internal economies of self supply or to depend on outside supply agents.[8]

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[6] Richard Schwindt and Turgut Var, "Structure of the British Columbia, Washington, and Oregon Hotel Industries--A Comparative Analysis," Discussion Paper 78-6-2, School of Business Administration and Economics, (Vancouver: Simon Fraser University, 1978).

[7] Juanita Liu and Turgut Var, "Information Needs for Tourism Planning," Discussion Paper 79-17-3, School of Business Administration and Economics, (Vancouver: Simon Fraser University, 1979).

[8] Baruch A. Kipnis, "The Impact of Factory Size on Urban Growth and Development," Economic Geography 53 (July 1977):295-302.

Affiliation

Significant and negative correlations were found for the direct and total REGs with degree of affiliation at the .05 level. Once again, this result was due to the significantly higher import content (all at the .001 level) and also the lower proportion of other value-added for the more affiliated companies due to greater leakages. However, their high wage ratios tend to lessen the effects that the leakages have in reducing the size of the multipliers. Hence, the remaining multipliers exhibited only weak negative relationships with the levels of affiliation.

Because of the advantages to be obtained through promotional and referral services, it was surprising that occupancy rates and loss from the increase in ferry fares were not significantly correlated with the affiliation variable. Analysis of variance showed that the affiliated hotels had a 23 percent higher average occupancy rate than the independent establishments. (p=.02, see Table 7) However, the results in this section are not very conclusive because of the small number of affiliated firms in the study region.

Ownership

That the total RIG varied significantly with type of ownership was one of the major findings of the study. Total RIG was correlated with the percentage of shares owned by

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nonresidents at the .036 level. Using analysis of variance, it
was shown that there are significant differences in the value of
RIGs between the locally-owned versus externally-owned
operations at the .013 level. The study also found significantly
higher import content but lower other value-added ratios for the
externally-owned firms. In contrast with the other findings,
wage content did not vary significantly with ownership. These
results confirm the previous findings in the literature that the
externally-owned companies have lower income multipliers because
of smaller linkages in the local economy.

In addition, the data showed that firms that were at least
50 percent owned by outside interests, including those in B.C.
and in the rest of Canada, captured 75 percent of the earnings
of the hotel industry in metropolitan Victoria. Although the
income multiplier values were smaller for the outside firms,
they provided substantially more household income and jobs than
the locally-owned ones.

The findings of this study agree with those in a study of
the industrial structure of the Vancouver hotel industry. The
study found that about 78 percent of the unit-capacity of hotels
with 200 or more rooms is linked to foreign (primarily American)
interests.[9]

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[9] Schwindt and Var, "The Structure of the British Columbia,
Washington and Oregon Hotel Industries," op. cit.

Although the percentage of wages to total revenue is significantly higher for the larger establishments than the smaller ones, the REG coefficients are significantly higher for the latter type. This is probably due to economies of labour in the larger establishments, and the fact that the proprietor's salary was not included in wages and salaries, thus distorting the wage percentage especially for the smaller owner-operated establishments.[10]

Simple correlation analysis showed that the total government revenue coefficient was significantly and negatively correlated to facility type ($r=-.73$, $p=.001$), establishment type ($r=-.53$, $p=.001$), food and beverage ratio ($r=-.58$, $p=.001$), size ($r=-.31$, $p=.021$) and scale ($r=-.62$, $p=.001$), but not to the room revenue ($r=-.07$) or profit ($r=.04$). Further examination shows that these results were due to the larger proportion of revenues paid by the nonlicensed, the smaller and motel establishments to the municipal and provincial governments. 'Although it is not the purpose of this study to investigate tax structure, these findings suggest that these types of establishments carry a greater tax burden in relation to their sales volume than do the licensed, the larger, and hotel establishments.

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[10] As this tends to lessen the usefulness of the wage ratio, the REG is considered to be a better measure of labour-intensiveness.

Extension of the Model

In equation (12) (page 39) the Archer model was modified to include weighted value-added elements for the accommodation sector as an alternative to the approach using overall sums. In this way it is possible to reflect differences within the accommodation sector due to variations in organisation type by relaxing the assumption of homogeneous production functions.

Since the total RIG coefficient was significantly related to the ownership variable by both analysis of variance and correlation analysis, it was used as the basis for weighting the accommodation coefficients. As was hypothesised, the method using overall sums overestimates the income multiplier for accommodations by 7 percent and the total tourism income multiplier by 1.7 percent. (see Tables 14 and 15)

The 38 locally-owned establishments represent 84 percent of the sample, while the externally-owned ones, which are at least 50 percent owned by nonresidents, capture 75.4 percent of the market share. Thus, the overall-sum method tends to underrepresent the impact of the externally-owned establishments. Since the weighted method corrects for this, the weighted value of .684 was used to calculate the tourist multipliers presented in the next section.

TABLE 14

A COMPARISON OF THE LOCAL VALUE-ADDED ELEMENTS OF THE ACCOMMODATION SECTOR BY USING DIFFERENT METHODS OF AVERAGING
(Per 1$ of Tourist Spending)

Method	Percent of Receipts	Direct Income	Indirect Income	Induced Income	Total Income
Overall sum[1]		.413	.134	.189	.736
Weighted by ownership type[2]					
Locally-owned[3]	24.6%	.441	.143	.202	.787
Outside-owned	75.4%	.366	.118	.167	.651
Wgt. average		.384	.124	.176	.684
Percentage difference		-7.0%	-7.5%	-6.9%	-7.1%

[1] Transactions of all establishments are added together.

[2] Classification by ownership was significant at the .013 level.

[3] Locally-owned establishments are more than 50 percent owned by Victoria residents.

TABLE 15

A COMPARISON OF THE TOURIST MULTIPLIER VALUES USING DIFFERENT AVERAGING
PROCEDURES FOR THE ACCOMMODATION SECTOR

Category of Tourist	Direct Income			Indirect Income			Total Income		
	WGT[1]	Over all sum	Percent Diff.	WGT	Over all Sum	Percent Diff.	WGT	Over all Sum	Percent Diff.
Overnight Visitors									
Non-residents	.314	.321	-.022	.167	.169	-.012	.647	.660	-.020
Van. Is. res.	.299	.303	-.013	.180	.182	-.006	.644	.652	-.012
Average	.312	.318	-.019	.169	.171	-.012	.647	.658	-.017
Day-trippers	.291	.292	-.003	.182	.183	-.005	.639	.639	-.003
All tourists	.311	.317	-.023	.169	.172	-.012	.647	.658	-.017

[1] The accommodation sector was weighted by ownership categories (refer to table 14).

Differential Tourist Multipliers

This section presents the tourism multipliers for income, employment, and transactions, as well as the other input coefficients of government revenue and import content. Once these have been estimated, then the impact of tourism is determined by applying the appropriate multipliers to the expenditures of the various types of tourists using equation (5) (page 34). Thus, comparisons of the relative contribution by various types of tourists to the total amount of household income, jobs, sales, government revenues and imports can be made. The amount of direct income and jobs generated by the accommodation sector can also be determined.

Household Income and Sales

For every dollar of tourist spending, 65 cents of household income is generated in metropolitan Victoria. Only 31 cents is direct income, demonstrating the importance of the secondary effects. Daytrippers generate 64 cents compared to 65 cents for overnight visitors, representing a slight 1.5 percent difference. On the other hand, day-trippers generate $1.53 of sales in the local economy for every $1 of tourist spending, compared to $1.50 for overnight tourists. These differences reflect the greater proportion of expenditures by day tourists

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on retail sales and transportation, but less on accommodation which has a relatively higher income coefficient. (refer to Table 16) *

In 1977 tourism generated $41,983,000 direct household income, and $87,297,000 total household income in Victoria (see Table 17). Ninety-six percent of household income was generated by overnight tourists with only 15 percent of this contributed by Vancouver Island residents. This confirms the importance of nonresident overnight tourists. In addition, a total of $203,093,000 sales was generated in the local economy by the $135,000,000 tourism revenues in that year. (see Table 25) This represents about 10 percent of the gross regional product in metropolitan Victoria.

The importance of the accommodation sector can be seen when the direct RIG coefficient is disaggregated into its accommodation and nonaccommodation components. While only 22 percent of the average tourist dollar is spent on lodgings, Tables 18 and 19 show that 27 percent of direct income is generated by hotels and motels, which was $11,093,000 in 1977.[11]

Out of this amount, the relative contribution of the hotels by ownership categories can be determined. Although locally-owned establishments capture 25 percent of the market share, their contribution to total household income is 28

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[11] This reflects the slightly higher RIG coefficients for accommodation.

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TABLE 16

TOURIST INCOME AND TRANSACTIONS
MULTIPLIERS IN VICTORIA

CATEGORY OF Tourist	Normal Income				Ratio Income		
	DIRECT (1)	INDIRECT (2)	DIRECT & Indirect (3)	TOTAL (4)	TYPE I $(3)\div(1)$	TYPE II $(4)\div(1)$	Trans-actions
	(per $1 of tourist spending)						
Overnight Visitors							
Non-residents	.314	.167	.481	.648	1.532	2.062	1.498
Van. Is. residents	.299	.180	.479	.644	1.600	2.154	1.530
Average	.312	.169	.48	.647	1.542	2.075	1.503
Day-trippers	.291	.182	.473	.637	1.627	2.190	1.532
All Tourists	.311	.169	.480	.647	1.545	2.079	1.504

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TABLE 17

THE IMPACT OF TOURIST EXPENDITURES ON HOUSEHOLD INCOME IN VICTORIA, 1977
(Money Amounts in Thousands of Dollars)

Category of Tourist	Tourist Expenditures		Direct	Indirect	Induced	Total
	% of Total	Amount				
Overnight Visitors						
Nonresidents	81.5	110,000	34,547	18,365	18,314	71,225
Van. Is. residents	14.8	20,000	5,982	3,592	3,314	12,889
Total	96.3	130,000	40,530	21,957	21,627	84,114 7
Day-trippers	3.7	5,000	1,453	911	818	3,183
All tourists	100.0	135,000	41,983	22,868	22,446	87,297

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TABLE 18

THE ACCOMMODATION AND NON-ACCOMMODATION COMPONENTS OF THE DIRECT INCOME COEFFICIENT FOR VICTORIA
(Per $1 of Tourist Spending)

Category of Tourist	Accommodation	Non-accommodation	Total
Overnight Visitors			
Nonresidents	.089	.225	.314
Van. Is. residents	.059	.240	.299
Average	.085	.227	.312
Day-trippers	.019	.271	.291
All tourists	.082	.229	.311

TABLE 19

THE ACCOMMODATION AND NON-ACCOMMODATION COMPONENTS OF DIRECT HOUSEHOLD INCOME IN VICTORIA 1977
(Money Amounts in Thousands of Dollars)

Category of Tourist	Accommodation	Non-accommodation	Total Direct Income
Overnight Visitors			
Nonresidents	9,816	24,731	34,547
Van. Is. residents	1,181	4,802	5,982
Total	10,997	29,533	40,530
Day-trippers	96	1,357	1,453
All tourists	11,093	30,890	41,983

percent or $3,126,000. However, it is apparent from Table 20 that most of the direct income is generated by the externally-owned lodgings - $7,967,000.

Employment

Tourist employment multipliers were calculated by using equations (14) and (15) (pages 41 and 42). The results in Table 21 show that one full-time job is created for every $10,000 of tourist spending. Contrary to the results of the income multipliers, the value for the multiplier for the day-tripper is 12 percent higher than that for the overnight visitor. Similarly, of the overnight visitors, residents of Vancouver Island generate 4 percent more jobs per unit of spending than do non-residents. These results reflect the higher propensities of the transportation and retail sectors to generate jobs compared to the accommodation sector. As in the case of income generation, more jobs were provided by the secondary effects than by direct tourism revenue.

The impact of tourist expenditures on employment can be seen in Tables 22 and 23. In 1973 tourism generated 6,317 direct jobs and a total of 13,791 jobs, as a result of the multiplier effects. Further investigation reveals that 16 percent of the direct jobs, or 997 were provided by hotels.

The 6,317 direct jobs (in full-time equivalents) can be

TABLE 20

THE RELATIVE CONTRIBUTION OF ACCOMMODATION GROUPS TO DIRECT
HOUSEHOLD INCOME IN VICTORIA, 1977.
(Money Amounts in Thousands of dollars)

Type of Ownership	Total Revenue		Direct Income Coefficient	Direct Household Income	
	$	%		$	%
Locally-Owned	7,084	24.6	.441	3,126	26.8
Outside-owned	21,766	75.4	.366	7,967	73.2
Total	28,850	100.0	.384	11.093	100.0

TABLE 21

EMPLOYMENT MULTIPLIERS FOR VICTORIA
(Per $1,000 of Tourist Spending)

Category of Tourist	Direct Employment			Indirect Employment	Total Employ.
	Accomm-odation	Non-accomm-odation	Total		
Overnight Vis. Nonresident	.008	.038	.046	.022	.101
Van. Is. res.	.005	.043	.048	.025	.105
Average	.008	.039	.046	.023	.102
Day-trippers	.002	.054	.055	.026	.114
All Tourists	.007	.039	.047	.023	.102

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TABLE 22

THE IMPACT OF TOURIST EXPENDITURES ON EMPLOYMENT IN VICTORIA, 1977

Category of Tourist	Tourist Expenditures		Number of Jobs			
	% of Total	Amount ($mm)	Direct	In-direct	In-duced	Total
Overnight Vis.						
Nonresidents	81.5	110	5,073	2,469	3,572	11,114
Van. Is. residents	14.8	20	966	492	650	2,108
Total	96.3	130	6,039	2,961	4,222	13,222
Day-trippers	3.7	5	277	129	162	568
All tourists	100.0	135	6,317	3,090	4,384	13,791

TABLE 23

THE ACCOMMODATION AND NON-ACCOMMODATION COMPONENTS OF DIRECT EMPLOYMENT IN VICTORIA, 1977

Category of Tourist	Accommodation	Non-accomm-odation	Direct Jobs
Overnight Visitors			
Nonresidents	882	4,191	5,073
Van. Is. residents	106	860	966
Total	988	5,051	6,039
Day-trippers	9	269	277
All tourists	997	5,320	6,317

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compared with estimates for Vancouver Island. In 1976 it was estimated that there were 11,400 full-time and part-time employees in the tourist industry in Vancouver Island with 38 percent of these in the accommodation sector.[12] The estimate for 1978 is that 27 percent of the jobs were created by the accommodation sector.[13]

Government Revenue and Import Content

Estimates for government revenue and import coefficients were derived from equation (10) (page 38). Table 24 shows the direct and total multipliers for the three levels of government, and for imports of goods and services. The overnight visitor has the greater propensity to generate direct municipal, provincial, federal taxes, as well as total government payments, than does the day-tripper. On the other hand, both direct and total import content is higher for the day-tripper. The multiplier for total government revenue is .213 and for total import content .339 or 34 percent per dollar of tourist expenditure.

Direct government revenue generated by the tourist industry in 1977 was $18,148,000, compared to total revenues of

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[12] Tourism B.C. Vancouver Island Tourism Facts Book 1977, Victoria, Queens's printer, 1977), p. 53.

[13] Alex Tunner and Tom Tsang, British Columbia Tourism Model: Travel Industry Outlook as of September 1978, (Vancouver: B.C. Research, December 1978), p. 6.

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TABLE 24

DIRECT AND TOTAL INPUT COEFFICIENTS FOR GOVERNMENT REVENUES AND IMPORTS
(Per $1 of Tourist Spending)

Category of Tourist	Government Revenue					Import Content	
	Direct Municipal	Direct Provincial	Direct Federal	Total Direct	Total	Direct	Total
Overnight Visitors							
Nonresident	.019	.034	.084	.136	.215	.138	.335
Van. Is. res.	.016	.030	.082	.129	.209	.146	.349
Average	.018	.033	.083	.135	.213	.139	.338
Day-Trippers	.013	.026	.077	.116	.192	.178	.380
All tourists	.018	.033	.083	.134	.213	.140	.339

$28,745,000, consisting of municipal (11 percent), provincial
(25 percent) and federal (64 percent). The relative contribution
by overnight tourists to each of these three levels of
government was about 97 percent. (see Table 25)

The direct multiplier estimate is consistent with the
$36,000,000 direct government revenue for Vancouver Island,
since about 50 percent of the tourists who travel to the Island
visit Victoria. However, the corresponding breakdowns by levels
of government is municipal (31 percent), provincial (31 percent)
and federal (38 percent).[14] The 1977 estimate for tax revenues
for the Province was $80,000,000.[15]

Direct imports in Victoria in 1977 amounted to $18,946,000,
while total imports were $45,790,000 or approximately one-fourth
of total sales created by tourist spending. In this case the
cumulative secondary multiplier effects contribute an amount
greater than the direct import content.

Sensitivity Tests

Tests of reliability in the previous studies have shown
that the regional tourism multiplier model is robust in that it
is able to withstand slight changes in the propensity to

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[14] Ibid.

[15] Tourism B.C., Tourism British Columbia Marketing Plan
1979/1980, (Victoria, 1979), p. 5.

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TABLE 25

THE IMPACT OF TOURIST EXPENDITURES ON GOVERNMENT REVENUES, IMPORTS AND SALES IN VICTORIA, 1977
(Money Amounts in Tousands of Dollars)

Category of Tourist	Total Government Revenue				Imports	Sales
	Municipal	Provincial	Federal	Total		
Overnight Visitors						
Nonresidents	2,552	6,049	15,021	23,621	36,904	164,832
Van. Is. residents	421	1,031	2,714	4,166	6,984	30,604
Total	2,973	7,079	17,735	27,787	43,888	195,436
Daytrippers	89	233	636	958	1,901	7,658
All Tourists	3,062	7,312	18,371	28,745	45,790	203,093

Note: All figures include the direct, indirect, and induced effects of tourist spending.

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consume (C) and the proportion of household spending in the local area (Z).[16] (refer to equation (5), page 34) In this study, sensitivity tests for the two most unreliable estimates (leakages from the other value-added and import ratios) were conducted for the accommodation RIG, the tourism multiplier, and total household income. The results can be seen in Tables 26 and 27.

The tests show that 5 percent increases in leakages from the other value-added ratio decreased the values of the accommodation multiplier, the tourism multiplier, and household income by .016, .017, and $2,184,000 (2.5 percent), respectively. Similarly, a 5 percent increase in direct import content decreased these same variables by .008, .012, and $1,587,000 (1.8 percent), respectively. Thus, the model was relatively more sensitive to changes in value-added leakages than import content, although somewhat substantial differences in income change resulted in both cases. Hence the model is considered to be fairly sensitive to imports and leakages.

In addition, these tests also indicate the approximate gains that could be achieved through strengthening the linkages in the economy by increasing local factor payments or by import substitution. For example, a 5 percent decrease in leakages from other value-added or purchases of imports by businesses would

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[16] See, for example, Archer and Jones, op. cit.; and Henderson and Cousins, op. cit.

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TABLE 26

SENSITIVITY TESTS OF CHANGES IN LEAKAGES FROM LOCAL VALUE-ADDED ON INCOME INTERACTIONS IN VICTORIA

Other Value-Added Leakages[1]	Accommodation Multiplier	Tourism Multiplier	Household Income $('000)	Pct. diff. from estimated value
-.20%	.754	.715	96,424	10.5
-.15%	.736	.697	94,082	7.8
-.10%	.718	.680	91,780	5.1
-.05%	.701	.663	89,519	2.5
Estimated	.684	.647	87,297	.0
.05%	.668	.630	85,113	- 2.5
.30%	.589	.554	74,734	-14.4
.55%	.517	.483	65,173	-25.3

[1] Other value-added consists of rent, interest and profit, but not wages.

Note that as leakages increase, the values of the multipliers decrease.

TABLE 27

SENSITIVITY TESTS OF CHANGES IN IMPORT CONTENT
ON INCOME INTERACTIONS IN VICTORIA

Import Content	Accommodation Multiplier	Tourism Multiplier	Household Income $('000)	Pct. diff. from estimated value
-.50%	.797	.801	108,147	23.9
-.25%	.733	.714	96,409	10.4
-.10%	.703	.672	90,689	3.9
-.05%	.693	.659	88,956	1.9
Estimated	.684	.647	87,297	.0
.05%	.676	.635	85,710	- 1.8
.10%	.668	.623	84,189	- 3.6
.25%	.646	.593	79,981	- 8.4
.50%	.615	.548	73,945	-15.3

bring about increases in Victoria's household income of $2,222,000 or $1,659,000, respectively.

Comparison with Previous Case Studies

The tourism multipliers for Victoria can be compared with estimates in other case studies using the Archer method in Table 28. The estimate for the Victoria multiplier of .647 falls below the Caribbean estimates but exceeds most of those of the Great Britain studies by a factor of 2. However, there are geographical as well as methodological reasons why this is so. Although Victoria is located on an island, its economy is more diversified than those in the study areas in the United Kingdom. The greater interdependence and diversification of the Victoria economy is evidenced by the higher ratio and transactions multipliers.

Other studies do not agree entirely with the finding that the income multiplier for day-trippers is lower than that for overnight visitors. Only three out of the other five studies show this relationship, i.e., those on Keswick, Gwynedd, and Tayside.

The government revenue coefficients are similar to those for the Caribbean study which focussed on government expenditures. However, the total import coefficient for Victoria is half that of those found in the Caribbean. While this latter

TABLE 28

A COMPARISON OF THE VICTORIA TOURISM MULTIPLIERS WITH THOSE
PRODUCED IN OTHER STUDIES USING THE ARCHER METHOD

	Income Multipliers			Employment Multipliers		
	All Tourists	Over-Night	Day Trippers	All Tourists	Over-night	Day trippers
	(per unit of tourist expenditure)			(per $1,000 of tourist expenditures)		
Victoria 1977	.647	.647	.637	.103	.102	.114
Bermuda, 1975	1.100					
Bahamas, 1974	.782			(per $1,000 of tourist spending)		
Keswick, Cumbria, 1976	.348	.371	.302	.141	.144	.139
Gwynedd, N. Wales, 1973	.368	.324*	.303			
East Anglia, 1975,	.349	.339	.479			
Greater Tayside, 1973	.319	.321	.292	.192	.141	.153
Cardigan-shire, 1973,		.310	.317			
Anglesey 1970,	.25	.25*		.48	.49*	

(Continued on next page)

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Table 28 (continued)

	Ratio Multiplier	Transaction Multiplier	Government Revenue	Import Content
			(per $1 of tourist spending)	
Victoria	2.078	1.504	.213	.338
Bahamas			.23	.72
Bermuda			.21	.66
Keswick				
Gwynedd	1.34	1.16		

SOURCES:

Brian Archer, "The Anatomy of a Multiplier," Regional Studies, 10 (1976):71-77.

Brian Archer, Tourism in the Bahamas and Bermuda: Two Case Studies, (Bangor: University of Wales Press, 1977), pp. 35, 43, 72.

Brian Archer, Tourism Multipliers: The State of the Art, (Bangor: University of Wales Press, 1977):45-64.

B. H. Archer and K. R. Jones, Tourism in Appleby, Keswick and Sedberg, (Bangor: Institute of Economic Research, 1977), pp. 68, 78.

Brian Archer, Sheila Shea and Richard de Vane, Tourism in Gwynedd: An Economic Study, (Bangor: Institute of Economic Research, 1974), pp. 17-18, 42.

David M. Henderson and R. Lee Cousins, The Economic Impact of Tourism: A Case Study in Greater Tayside, (Edinburgh: Tourism and Recreation Research Unit, 1975), p. 121.

*Estimate refers to hotel guests only.

result can be explained by the broader base of the Victoria economy, it does not explain why the Victoria income multiplier is smaller than those for the Bahamas or Bermuda.[17]

Summary

This chapter has presented information on the multiplier effects of tourism in the Victoria Metropolitan Area. Based on the survey data for 45 hotels and motels, as well as other published information, regional income coefficients were derived from a modest input-output analysis of the Victoria economy. The multipliers for the service sectors were generally higher than for the primary and secondary sectors. That the conventional method of summing up the accommodation sector overestimates the regional income generation coefficient was confirmed and therefore, the accommodation multiplier was adjusted from .736 to .684. This latter figure was 36 percent higher than the composite regional multiplier of .502. The employment multiplier for the accommodation sector was .084.

On the whole, the direct, indirect, and total RIGs and REGs for the accommodation sector were negatively correlated with the organisation variables, indicating that size and industrial

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[17] The methodology varied from the other studies since household leakages were incorporated in the propensity to consume variable.

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organisation do have some explanatory powers, thereby confirming the hypotheses of this study. In particular, there were strong inverse correlations for the REGs and volume measures. However, some positive relationships were found for the indirect RIG, indicating that the hotels with high food and beverage ratios generate more indirect income and sales per tourist dollar to the local economy, than do those with lower ratios. On the other hand, only about one-third of the possible relationships of the multipliers with the organisation variables was significant.

A puzzling result was the highly significant negative correlations obtained for government payments. It was found that the smaller, the nonlicensed, and the motel-type establishments paid a greater proportion of their revenues as municipal, provincial, and total taxes.

The regional tourism income multiplier for Victoria was .65 per tourist dollar and the employment multiplier was .10 per $1,000 of tourist spending. The transactions, government revenue, and import coefficients per $1 tourist dollar were 1.5, .21 and .34, respectively. Overnight visitors spend relatively more on accommodation and less on transportation and retail purchases than do day-trippers. These spending patterns have the effect of producing slightly higher income multipliers for overnight visitors and higher employment multipliers for day-trippers. On the whole, overnight visitors generate more than 95 percent of the economic activity in the region than do

the day visitors.

Including the multiplier effect, the tourist spending of $135 million in 1977 generated approximately $87 million of household income, $203 million of sales, 14,000 jobs, $29 million in government revenues and $46 million of imported goods and services in Victoria. (see Figure 8) The importance of the accommodation sector is evident, since it generated 27 percent of direct income and 16 percent of direct employment.

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V. CONCLUSIONS

Now that the economic impact of tourism on the economy of
Victoria has been determined, the study proceeds into the final
chapter. This study alludes to the current policy concerns of
foreign ownership, competition policy, development of tourism
infrastructure and small business development. To a large
extent, these issues determined the choice of variables on
industrial organisation. Given the data deficiencies,
methodological limitations, and theoretical uncertainties, it is
stressed that the conclusions drawn from this study are only
tentative. As was stated in the previous chapter, the major
findings support the initial hypotheses of the study. They also
appear to support present government policy directions. However,
care should be taken in formulating policies which are based
solely on the basis of the size of multiplier estimates. Other
factors, such as capacity constraints, demand factors, and
regional goals and priorities, are important from the standpoint
of establishing guidelines for regional policy formulation.

This chapter is divided into three sections. Firstly, the
major findings of the study are summarised. Secondly,
recommendations for public action as a result of the findings of
the study are suggested. Thirdly, directions for further
research are proposed.

Major Findings

The major finding in relation to the differential tourist multipliers are:

1. The multiplier estimates for Victoria are generally higher than the other studies using the Archer method. This was expected because of the methodological reasons mentioned in Chapter Two, and also because of the relatively broader base of the Victoria economy. However, the results are considered to be consistent with previous findings that the regional tourism multiplier is low. This can be expected from island economies, which have high leakage elements. The regional income multiplier of .65 obtained in this study can be compared with the value of .87 estimated for Prince Edward Island obtained by using an ad hoc model.[1]

2. The results demonstrate the importance of secondary effects, since more income and jobs were generated by indirect and induced spending than by direct spending.

3. According to the results, if the goal is to maximise income, then overnight visits should be promoted. On the other hand, if the goal is to maximise employment, then day-trips should be promoted. However, these findings may lead to wrong

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[1] James C. Birch, Howard Birnbaum, Robert Jerrett, Louise Strayhorn, _Tourism Impact Study for Prince Edward Island_, Report to the Province of Prince Edward Island, (Cambridge: ABT Associates, Inc., 1976), p.10.

policy conclusions, since these strategies may or may not be feasible depending on supply constraints and market demands.

The major findings in regard to differential accommodation multipliers are:

1. The study shows that different types of establishments have different levels of performance. As was mentioned in the beginning of the study, there were a priori reasons for expecting the relationships that were found in the analysis. The multipliers for the accommodation sub-sectors were expected to vary with size and industrial organisation because of differences in purchasing patterns and factor leakages. The findings support the initial hypotheses of the study, since smaller multipliers were generally found for the central, large, affiliated, and externally-owned establishments because of the higher leakage elements.

2. As a consequence of these differences, the hypothesis that the usual method of estimating the income multiplier tends to overestimate it was confirmed. The model was adjusted to compensate for this.

3. Higher multipliers do not necessarily mean better performance, nor do they necessarily indicate what is best for the region. As was postulated, the lower multiplier values were also due to economies of scale, particularly economies of labour. Furthermore, the relative contribution to the regional economy of establishments with lower

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multipliers are much greater than those with higher

estimates. For example, the results show that

externally-owned lodgings contribute more than twice the

direct income than do those that are locally-owned.

4. Caution must be used in translating these results into

public policy. For example, Brownrigg and Grieg showed that

even though the multiplier for a certain accommodation

sub-sector is relatively high, this does not necessarily

mean that the multiplier for tourists staying in that type

of lodging would also be high. Their accommodation

multipliers for licensed hotels and camping facilities were

.23 and .67, respectively. However, the tourist income

multipliers for visitors staying in these different

facilities were identical--.23.[2] Archer himself warns that

the wrong policy conclusions can be drawn from the

multipliers and states that the information they provide is

of limited value, since multiplier analysis only provides a

partial picture.[3] Finally, the results are only useful

within the context of the goals and priorities of the

region.

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[2] M. Brownrigg and M. A. Greig, "Differential Multipliers for
Tourism," Scottish Journal of Political Economy 22 (November
1975):261-276.

[3] Archer, "The Uses and Abuses of Multipliers," op. cit., p.
119.

Implications for Planning

Establish Clearer Regional Goals and Priorities

Although provincial marketing targets have been identified
and promotional efforts have been expanded, there is a need to
take positive steps in establishing regional goals and
priorities.[4] The tourist industry has been subject to the
generally universal trends within capitalism of conglomeration
and the need for better management. Hudson claims that the
concentration of financial links is changing the whole structure
of the industry from individually-made "products" to
mass-produced articles for mass-consumption.[5] The resulting
conflicts of interest and the competition for limited resources
has also brought about increased government intervention and
control of resources. The fundamental considerations for policy
formulation are equity and efficiency.

Additionally, policy directions are often ambiguous.
Diamond relates tourist sectoral output multipliers to four
objective functions reflecting Turkish planning priorities. The
policy objectives were (1) the maximisation of income, (2) the

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[4] J. Liu, "Tourism Research and Policy in B.C.," _Proceedings of
the 5th Pacific Regional Science Association Conference,_
(Vancouver: Western Regional Science Association, August 1977).

[5] Edward Hudson, _Vertical Integration in the Travel and Leisure
Industry,_ (Paris: Institut du Transport Aerien), n.d.

maximisation of employment, (3) the minimisation of capital and (4) the minimisation of foreign exchange losses. He explained how, in some cases, these objectives were irreconcilable, e.g., some industries minimise the loss of foreign exchange but do not create a relatively high amount of income and employment.[6]

Some proposed regional goals would be to maximise the benefits for local residents (income and jobs), to optimise industrial mix (broaden the economic base), to optimise facilities mix (determine scale of facilities), and to optimise factor mix (promote local purchases).

Strengthen the Economic Base

This analysis has demonstrated the importance of linkages to the local economy in generating income and jobs, based on the premise that greater interdependence in the economy is desirable for regional development. But it is a much more difficult matter to determine how this is to be achieved. On the basis of the study results, three beneficial strategies can be advocated.

1. Strengthen existing linkages--although the limited economic possibilities of island economies presents particular challenges, Victoria does have indigenous secondary industry such as food processing, printing, and transportation

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[6] J. Diamond, "Tourism and Development Policy: A Quantitative Appraisal," Bulletin of Economic Research 28 (May 1976):36-50.

equipment. Possibilities of making local purchases should be encouraged, particularly at the wholesale level.

2. Establish new linkages--this is much more difficult to accomplish even though present government policy of offering incentives and concessions to private industry appears to be the most promising way to broaden the economic base through diversification.

3. Control leakages--this strategy is much more contentious than the previous two, since restrictions on trade and foreign control of capital are likely to be resisted by the business community as a whole.

It has been shown that small decreases in leakages could result in the additional generation of millions of dollars in household income. For these reasons, it is felt that efforts should be made to increase the backward and forward linkages in the economy, for example, by diversification and import substitition.

Reappraise the System of Public Assistance

It is recognised that inequities can never be entirely eliminated. Nevertheless, the study results suggest that tax policy should be reappraised to see whether the tax burden falls unevenly on the small enterprises.

Establish an Information System Based on Supply-Side Data

Traditionally, tourism development strategies have been based on demand side data involving extensive visitor surveys. Although border counts are important in determining tourist profiles, it is argued that the information provided by supply side data is more timely, broader based, and less costly to obtain. Additionally, it provides information that is more useful for policy makers, as well as hotel operators.

Suggestions for Further Research

This study has been hampered by poor data, methodological limitations, and theoretical weaknesses. Hence, interindustry comparisons were made with caution. Moreover, it provides static results for the short term, only.

Nevertheless, this study does provide some first estimates for the multiplier impact of tourism in the Province. In addition, the analysis has been extended to the level of the establishment in this detailed study of the accommodation sector. As such, it represents one of the first attempts to study multipliers at this level of disaggregation. By incorporating some concepts in the geographical literature, such as location, linkages, and industrial organisation, this empirical investigation represents a contribution to the micro, as well as macro, level of planning.

There are several ways in which this study could be extended and improved.

1. Improve the data base--The inclusion of better data would improve the reliability of the estimates and comparisons.

2. Extend the study--The study could be extended to include other tourists (campgrounds and recreation vehicles), the other tourist regions in the Province, and levels of regional aggregation. The techniques could also be used to evaluate the impacts of new projects or proposals. Spatial concepts could also be applied more specifically to the geographic distribution of benefits, e.g., distance-decay concepts or length of linkages. The model could also be transformed into a dynamic one by incorporating a dynamic feedback mechanism, similar to the consumption feedback mechanism developed in previous studies. Along these lines, dynamic capital flows could also be investigated.

3. Apply other planning models--the results of this study could be incorporated with other economic studies using benefit-cost analysis or decision modelling to provide more useful information for policy formulation.

4. Develop better theory--this study has demonstrated the need for a more solid theoretical foundation for economic development based on the tertiary sector. It is argued that the tourist industry is a capital-intensive despite the amorphous and diffuse nature of the tourism commodity. Until

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the role of tourism in stimulating development becomes
clearer, studies of this nature have only limited
usefulness.

APPENDIX 1

TABLE 29

EXPENDITURE PATTERNS BY INDUSTRIAL SECTOR, VICTORIA 1977

	Prim. %	Cons. %	Manu. %	Whole. %	Retail %	Trans. %	Comm. %	Fin. %	Serv. %	Rest. %	Accom. %
Local Purchases											
Primary	.81	.13	.10	.00	.19	.01	.00	.00	.07	3.87	2.30
Construction	1.96	.27	.08	.20	1.18	5.54	2.28	.48	.70	.51	.24
Manufacturing	4.32	25.95	7.65	6.51	10.09	9.84	12.37	3.26	5.46	28.99	20.11
Wholesale	.42	2.74	.59	.11	.07	1.45	.21	.77	.78	.70	.88
Retail	.06	.33	.01	.02	.02	.40	.23	.19	.42	1.61	.74
Transportation	.93	1.89	.64	.48	.41	16.13	1.89	2.26	.79	1.45	1.00
Communications	1.71	1.87	1.19	4.71	11.89	4.77	7.55	3.33	4.87	2.30	4.40
Finance	.77	5.25	.87	4.07	11.18	2.74	4.95	11.40	2.38	.93	.97
Service	.62	3.87	1.32	5.71	5.47	3.75	7.44	2.06	6.06	3.93	3.92
Total	11.61	42.30	12.45	21.80	40.50	44.27	36.90	23.74	21.53	44.29	34.55
Local Value-added											
Wages after tax	10.53	18.43	22.09	5.74	9.73	22.35	22.35	21.61	25.72	32.76	31.51
Rent	.68	2.32	.83	.69	2.11	3.54	2.19	.79	3.80	.01	.80
Interest	4.14	1.77	1.88	1.29	1.19	5.41	11.94	42.28	3.66	5.41	7.78
Profit after tax	11.74	3.26	4.35	1.78	1.26	2.39	5.35	3.57	2.71	2.71	3.66
Total	27.08	25.77	29.16	9.50	14.29	33.69	41.83	68.25	35.89	40.88	43.75
Govt. Payments											
Municipal	.61	.40	.43	.22	.45	1.12	1.17	2.06	1.08	2.13	3.83
Provincial	30.51	13.38	3.34	3.16	2.96	.81	1.47	1.66	3.24	4.36	4.60
Federal	12.76	7.57	12.96	16.79	14.81	2.89	4.28	4.05	5.96	7.53	8.12
Total	43.88	21.35	16.73	20.16	18.22	4.83	6.92	7.76	10.29	14.02	16.55

(Continued on next page)

TABLE 29 (continued)

EXPENDITURE PATTERNS BY INDUSTRIAL SECTORS, VICTORIA 1977

	Prim. %	Cons. %	Manu. %	Whole. %	Retail %	Trans. %	Comm. %	Fin. %	Serv. %	Rest. %	Accom. %
Imports											
Rest of Van. Is.	2.44	1.48	17.08	.97	.54	16.35	13.63	.10	1.61	.08	.28
Van. & L. Main.	11.05	6.98	8.75	17.47	7.83	.86	.72	.14	10.01	.46	2.06
Rest of B.C.	1.50	.63	7.50	4.85	1.89	.00	.00	.00	18.08	.01	.18
Rest of Canada	1.57	.95	2.08	14.07	11.07	.00	.00	.00	.65	.09	1.98
U.S.A.	.87	.53	5.00	8.25	2.97	.00	.00	.00	.65	.16	.64
Other	.00	.00	1.25	2.91	2.70	.00	.00	.00	.32	.00	.00
Total	17.42	10.58	41.67	48.53	27.00	17.21	14.35	.24	32.29	.81	5.15

SOURCES:

H. Craig Davis, An Interindustry Study of the Metropolitan Vancouver Economy, Urban Land Economics Report No. 6, University of British Columbia (Vancouver: School of Community and & Regional Planning, 1974), p. 38.

Ministry of Economic Development, B.C. Regional Index, (Canada: Evergreen Press, 1978), p. 391-426.

Ministry of Economic Development, B.C. Economic Activity, (Canada: Queens's Printer, 1979) p. 19.

Statistics Canada, Corporation Financial Statistics, 61-207, (Ottawa: Ministry of Industry, Trade and Commerce, 1977), p. 111-185.

(continued)

Statistics Canada, Corporation Taxation Statistics, 61-208, (Ottawa: Ministry of Industry, Trade and Commerce, 1977), p. 26

Statistics Canada, The Input-Output Structure of the Canadian Economy 1961-1974, 15-508E, (Ottawa: Ministry of Industry, Trade and Commerce, 1979), p. 387-390.

Capital Regional District, The Challenge, Victoria: CRD, December 1977), p. 27-28.

Statistics Canada, Urban Family Expenditure, 62-544, (Ottawa: Ministry of Industry, Trade and Commerce, 1975), p. 16-17.

Note: Column totals may not add to 100 due to rounding.

APPENDIX 2

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TABLE 30

SECONDARY INCOME GENERATED BY HOUSEHOLD SPENDING
(Per Dollar of Household Spending)

Category of Expenditure	Expenditure Pattern (XZ)	Sector Value-Added (V)	Induced Income Generation (XZ)x(V)
Primary	.003	.287	.001
Construction	.003	.415	.001
Manufacturing	.083	.327	.027
Wholesale	.035	.196	.007
Retail	.099	.351	.035
Transportation	.030	.524	.016
Communications and utility	.049	.555	.027
Finance	.122	.730	.089
Service	.134	.440	.059
Restaurant	.017	.555	.009
Induced (second round)			.271
Induced (subsequent rounds)			.075
Total			.346

SOURCES:

H. Craig Davis, An Interindustry Study of the Metropolitan Vancouver Economy, Urban Land Economics Report No. 6, University of B.C., (Vancouver: School of Community & Regional Planning, 1974), p. 38.

Statistics Canada, Urban Family Expenditures, 62-544, (Ottawa: Ministry of Industry, Trade and Commerce, 1975), p. 16.

APPENDIX 2

TABLE 31

CLASSIFICATION AND CODES OF ACCOMMODATION GROUPS

Classification	Variables*	Code
Type of facility	1. Facility	1. Non-licensed 2. Licensed
	6. Ratio of food and beverage revenue to room revenue	
Location of establishment	2. Location	1. Highway 1A 2. North downtown 3. Downtown
Type of establishment	3. Type	1. Motel 2. Hotel
Type of affiliation	4. Affiliation	1. Owner-operated 2. Hired-management 3. Referral 4. Franchise 5. Chain
Type of ownership	5. Ownership	1. Locally-owned 2. Outside-owned
	13. Percentage of local ownership	

(Continued on next page)

TABLE 31 (continued)

CLASSIFICATION AND CODES OF ACCOMMODATION

Classification	Variables*
Class of hotel	7. Roomrate
Size of establishment	8. Number of units
Scale of establishment	9. Total revenue per unit
	10. Toom revenue per unit
Return on operation	11. Profit before depreciation per unit
Level of occupancy	12. Occupancy rate

*Numbering of variables corresponds to the order in Table 32.

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TABLE 32

MEASURES OF ASSOCIATION OF THE ORGANISATION VARIAB[...]

		1	2	3	4	5	6	7	8
1.	Facility	1.00							
2.	Location	.69 XX	1.00						
3.	Type	1.0 XXX	.82 XXX	1.00					
4.	Affiliation	.38	.28	.44	1.00				
5.	Ownership	.44	.63	.29	.29	1.00			
6.	Food and beverage ratio	.92 +++	.41 ++	.79 +++	.21	.24	1.00		
7.	Room rate	.07	.27 +	.05	.37 ++	.06	-.17	1.00	
8.	Units[a]	.55 +++	.39 ++	.67 +++	.49 +++	.01	.14	.32 •	1.0
9.	Total revenue	.83 +++	.53 +++	.75 +++	.25 +	.18	.78 ***	.36 **	.3 *
10.	Rooms revenue	.16	.26 +	.12	.35 ++	-.07	-.21	.84 ***	.4 *
11.	Profit	.26 +	.31 +	.31 +	-.19	.16	.38 **	.24	.1
12.	Occupancy	.16	.21	.18	.21	-.18	-.26 *	.31 *	.2 *
13.	Percent local ownership	-.21	-.27 +	-.20	-.23	-.78 +++	-.05	-.09	-.1

NOTES:

Values within the first five rows and columns are gamma coefficient[s ...]
variables (X). The coefficients within the remaining first fi[...]
Spearman correlation coefficients for <u>ordinal</u> with <u>interval</u> va[...]
Values in columns 6 - 13 are Pearson correlation coefficients [...]
<u>ratio</u> variables (*).

Levels of significance are denoted by:
X, +, * significant at 0.05, XX, ++, ** significant at 0.01, a[...]
XXX, +++, *** significant at 0.001.

Refer to Table 31 for variable codes.

[a]Excludes extreme case.

TABLE 32

MEASURES OF ASSOCIATION OF THE ORGANISATION VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12	13
	1.00												
	.69 XX	1.00											
	1.0 XXX	.82 XXX	1.00										
	.38	.28	.44	1.00									
	.44	.63	.29	.29	1.00								
	.92 +++	.41 ++	.79 +++	.21	.24	1.00							
	.07	.27 +	.05	.37 ++	.06	-.17	1.00						
	.55 +++	.39 ++	.67 +++	.49 +++	.01	.14	.32 *	1.00					
	.83 +++	.53 +++	.75 +++	.25 +	.18	.78 ***	.36 **	.36 **	1.00				
	.16	.26 +	.12	.35 ++	-.07	-.21	.84 ***	.40 **	.36 **	1.00			
	.26 +	.31 +	.31 +	-.19	.16	.38 *	.24	.15	.54 ***	.30 *	1.00		
	.16	.21	.18	.21	-.18	-.26 *	.31 *	.26 *	.14	.75 ***	.22	1.00	
	-.21	-.27 +	-.20	-.23	-.78 +++	-.05	-.09	-.17	-.01	-.01	-.06	.12	1.00

e first five rows and columns are gamma coefficients for _ordinal_
X). The coefficients within the remaining first five columns are
rrelation coefficients for _ordinal_ with _interval_ variables (+).
olumns 6 - 13 are Pearson correlation coefficients for _interval_ or
bles (*).

icance are denoted by:
nificant at 0.05, XX, ++, ** significant at 0.01, and
** significant at 0.001.

1 for variable codes.

e case.

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TABLE 33

PEARSON CORRELATION MATRIX OF THE TOURISM MULTIPLIERS AND SELECTED VARIABLES

	1	2	3	4	5	6	7	8	9	10	11	12	13
Direct RIG[a]	1.00												
Indirect RIG	-.43 **	1.00											
Total RIG	.93 ***	-.07	1.00										
Ratio Multiplier	-.84 ***	.75 ***	-.63 ***	1.00									
Transactions Multiplier	-.38 **	.94 ***	-.03	.67 ***	1.00								
Direct REG[b]	-.13	.33 *	-.02	.35 **	.18	1.00							
Indirect REG	-.37 **	.87 ***	-.06	.68 ***	.70 ***	.46 ***	1.00						
Total REG	-.20	.48 ***	-.03	.45 ***	.31 *	.98 ***	.62 ***	1.00					
Municipal	-.07	-.05	-.09	.09	-.30 *	.16	.28 *	.20	1.00				
Provincial	-.16	-.20	-.26 *	.06	-.37 **	.31 *	.07	.29 *	.48 ***	1.00			
Federal	-.19	-.22 *	-.30	-.07	-.12	-.05	-.38 **	-.13	-.32 *	.15	1.00		
Total Govt. Payments	-.19	-.20 *	-.29	.07	-.42 **	.22	.08	.21	.81 ***	.79 ***	.22	1.00	
Direct Imports	-.23	-.29 *	-.37 **	-.05	-.21	-.25 *	-.31 *	-.29 *	-.22	-.26 *	.19	-.18	1.00
Wages	.06	.09	.10	-.08	.29 *	-.19	-.23	-.22	-.51 ***	-.78 ***	.35 **	-.53 ***	.26 *
Other Value Added	.62 ***	-.36 **	.54 ***	-.50 ***	-.48 ***	.06	-.07	.04	.35 **	.51 ***	-.40 **	.29 *	-.36 **
Ferry[c]	-.21	.30 *	-.11	.32 *	.21	.30 *	.50 ***	.37 **	.33 *	.14	-.36 **	.15	-.08

NOTES:

Levels of significance are denoted by: * significant at 0.05, ** significant at 0.01, and *** significant at 0.001.

Variables 9 - 15 are ratios to total revenue plus sales taxes minus depreciation.

[a] Regional income generation coefficient.

[b] Regional employment generation coefficient.

[c] Percentage loss due to the doubling of ferry fares in the summer of 1976.

TABLE 33

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1.00															
2	-.43**	1.00														
3	.93***	-.07	1.00													
4	-.84***	.75***	-.63***	1.00												
5	-.38**	.94***	-.03	.67***	1.00											
6	-.13	.33*	-.02	.35**	.18	1.00										
7	-.37**	.87***	-.06	.68***	.70***	.46***	1.00									
8	-.20	.48***	-.03	.45***	.31*	.98***	.62***	1.00								
9	-.07	-.05	-.09	.09	-.30*	.16	.28*	.20	1.00							
10	-.16	-.20*	-.26	.06	-.37**	.31*	.07	.29*	.48***	1.00						
11	-.19	-.22*	-.30	-.07	-.12	-.05	-.38**	-.13	-.32*	.15	1.00					
12	-.19	-.20*	-.29	.07	-.42**	.22	.08	.21	.81***	.79***	.22	1.00				
13	-.23	-.29*	-.37**	-.05	-.21	-.25	-.31*	-.29*	-.22*	-.26	.19	-.18	1.00			
14	.06	.09	.10	-.08	.29*	-.19	-.23	-.22	-.51***	-.78***	.35***	-.53***	.26**	1.00		
15	.62***	-.36**	.54***	-.50***	-.48***	.06	-.07	.04	.35**	.51***	-.40**	.29*	-.36**	-.75***	1.00	
16	-.21	.30*	-.11	.32*	.21	.30*	.50***	.37**	.33*	.14	-.36**	.15	-.08	-.27*	.07	1.00

cance are denoted by: * significant at 0.05, ** significant at 0.01,
ificant at 0.001.

are ratios to total revenue plus sales taxes minus depreciation.

generation coefficient.

ent generation coefficient.

due to the doubling of ferry fares in the summer of 1976.

TABLE 34

MEASURES OF ASSOCIATION OF THE TOURISM MULTIPLIE
VARIABLES WITH THE ORGANISATION VARIAB

Organisation Variable / Dependent Variable	1. Facility	2. Location	3. Type	4. Affiliation	5. Ownership	6. Food and Beverage Ratio	7. Room Rate	8.
1. Direct RIG	-.02	-.01	-.08	-.14	-.33 +	-.09	-.06	
2. Indirect RIG	-.22	-.20	.14	-.21	-.06	.31 **	-.33 **	-.
3. Total RIG	-.01	-.15	-.11	-.18	-.36 ++	.03	-.20	.
4. Ratio multiplier	.09	-.16	.07	-.02	.17	.13	-.19	-.
5. Transactions multiplier	.48 +++	-.07	.37 ++	-.14	.02	.53 ***	-.26 **	-.
6. Direct REG	-.27 +	-.15	-.20	-.32 +	-.20	-.24	-.30 **	-.
7. Indirect REG	-.15	-.47 +++	-.24	-.23	-.14	-.05	-.40 **	-.
8. Total REG	-.25	-.22	-.21	-.34 +	-.18	-.22	-.35 **	-.
9. Municipal	-.77 +++	-.37 ++	-.67 +++	-.18	-.22	-.61 ****	-.11	-.
10. Provincial	-.76 +++	-.25 +	-.64 +++	-.42 ++	.02	-.42 **	-.20	-.
11. Federal	.33 +	.57 +++	.49 +++	.20	.18	.12	.23	.
12. Total govt. payments	-.73 +++	-.12	-.53 +++	-.18	-.09	-.58 ***	-.06	-.
13. Direct imports	.32 +	.28 +	.26 +	.47 +++	.34 +	-.06	.67 ***	.
14. Wages	.71 +++	.49 +++	.72 +++	.49 +++	.11	.42 **	.30 *	.
15. Other value added	-.52 +++	-.35 ++	-.56 +++	-.43 +++	-.33 +	-.39 **	-.28 *	-.
16. Ferry	-.25	-.43 ++	-.41 ++	-.15	-.06	-.11	-.28 *	-.

NOTES:

Columns 1 - 5 give the Spearman Correlation Coefficients (+). The l
as follows: + significant at 0.05; ++ significant at 0.01; ++

Columns 6 - 13 show the Pearson Correlation Coefficients (*). The l
as follows: * significant at 0.05; ** significant at 0.01; **

Refer to Tables 31 and 33 for further clarification of the variables

a Excludes extreme case.

TABLE 34

MEASURES OF ASSOCIATION OF THE TOURISM MULTIPLIERS AND SELECTED VARIABLES WITH THE ORGANISATION VARIABLES

1. Facility	2. Location	3. Type	4. Affiliation	5. Ownership	6. Food and Beverage Ratio	7. Room Rate	8.a Units	9. Total Revenue	10. Rooms Revenue	11. Profit	12. Occupancy	13. Percent Local Ownership
.02	-.01	-.08	-.14	-.33 +	-.09	-.06	.20	-.05	-.03	-.22	.03	.17
.22	-.20	.14	-.21	-.06	.31 *	-.33 *	-.30 *	.12	-.29 *	-.12	-.13	.20
.01	-.15	-.11	-.18	-.36 ++	.03	-.20	.10	-.01	-.15	-.29 *	-.02	.27 *
.09	-.16	.07	-.02	.17	.13	-.19	-.33 *	-.01	-.17	-.01	-.06	-.01
.48 +++	-.07	.37 ++	-.14	.02	.53 ***	-.26 *	-.11	.37 **	-.22	.02	-.11	.09
.27 +	-.15	-.20	-.32 +	-.20	-.24	-.30 *	-.39 **	-.32 *	-.32 *	-.20	-.21	.11
.15	-.47 +++	-.24	-.23	-.14	-.05	-.40 **	-.51 ***	-.26 *	-.38 **	-.31 *	-.17	.25 *
.25	-.22	-.21	-.34 +	-.18	-.22	-.35 **	-.45 ***	-.34 **	-.36 **	-.24	-.22	.15
.77 +++	-.37 ++	-.67 +++	-.18	-.22	-.61 ***	-.11	-.43 **	-.70 ***	-.20	-.42 **	-.17	.16
.76 +++	-.25 +	-.64 +++	-.42 ++	.02	-.42 **	-.20	-.49 ***	-.56 ***	-.17	-.25 *	-.02	.06
.33 +	.57 +++	.49 +++	.20	.18	.12	.23	.48 ***	.29 *	.35 **	.66 ***	.26 *	-.16
.73 +++	-.12	-.53 +++	-.18	-.09	-.58 ***	-.06	-.31 *	-.62 ***	-.07	.04	-.03	.08
.32 +	.28 +	.26 +	.47 +++	.34 +	-.06	.67 ***	.21	.31 *	.61 ***	.14	.26 *	-.29 *
.71 ++	.49 +++	.72 +++	.49 +++	.11	.42 **	.30 *	.66 ***	.60 ***	.27 *	.02	.03	-.22
.52 ++	-.35 ++	-.56 +++	-.43 +++	-.33 +	-.39 **	-.28 *	-.39 **	-.50 ***	-.23	-.16	.01	.29 *
.25 ++	-.43 ++	-.41 ++	-.15	-.06	-.11	-.28 *	-.43 **	-.23	-.30 *	-.24	-.16	.04

the Spearman Correlation Coefficients (+). The levels of significance are denoted
significant at 0.05; ++ significant at 0.01; +++ significant at 0.001.

the Pearson Correlation Coefficients (*). The levels of significance are denoted
significant at 0.05; ** significant at 0.01; *** significant at 0.001.

and 33 for further clarification of the variables.

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APPENDIX 3

TOURISM ACCOMMODATION SURVEY

| Please provide the following information for financial year 1977. |

1. How long has this establishment been in business?
   How long has the business been operated by present owners?

2. Accommodations statistics:

   a) How many rooms were available for rent in 1977?

   b) Please estimate your average room occupancy rate for 1977. [____] %
      (i.e. percent of occupancy)

   c) Could you break down your room rental revenue into:

      Commercial, industrial and convention business [____] %

      Other tourists and visitors [____] %

      Permanent guests [____] %

      100 %

   d) What would you estimate to be your average daily room
      rate for 1977? $ [____]

3. How is this business organized? (please ✓ all applicable)

   ☐ Chain operation

   ☐ Franchise operation

   ☐ Owner operated

   ☐ Leased by outside management

   ☐ Other, please specify _____

4. a) How is this business registered?

      ☐ Individual Proprietorship   ☐ Partnership   ☐ Incorporated Company

   b) Location of head office _____

   c) What percentage of the business or voting shares are owned
      by residents of: %

      Victoria Metropolitan Area   [____]
      Rest of Vancouver Island   [____]
      Vancouver and Lower Mainland   [____]
      Rest of B.C.   [____]
      Rest of Canada   [____]
      U.S.A.   [____]
      Other, please specify   [____]
                                       100 %
      _____

5. a) Approximately how many suppliers did you make purchases from during 1977 for:

Inventories

Furniture, fixtures, & equipment

b) Could you please tell me where these suppliers are located?

Location	Number of Suppliers
Victoria Metropolitan Area	_____
Rest of Vancouver Island	_____
Vancouver and Lower Mainland	_____
Rest of B.C.	_____
Rest of Canada	_____
U.S.A.	_____
Other, please specify	_____

6. What is the percentage distribution of your purchases from wholesalers, retailers, manufacturers, construction, etc.?

Item	Type of Supplier				
	Whole.* %	Ret. %	Manu. %	Constr. %	Other . %
Inventories						100 %
Furn., fixtures & equipment						100 %

*includes Government Liquor Stores

7. Could you give me an approximate breakdown of your total revenue into the following categories:

	%	$
Rooms		
Food		
Beverage+		
Other		

100 %

+includes Public House

8. TOTAL BUSINESS EXPENSES   (note: for financial year 1977)

(a) Total Labour Costs - Would you please give me some idea of your total
wage and salary bill, including holiday and sick pay, social insurance
contributions, etc.?

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┌────────────────────────────┐
│                            │
└────────────────────────────┘
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(b) Other Operating Costs - Please provide a breakdown of your operating
costs, excluding wages and salaries, into the following categories:

Item	Cost $	Origin of Purchases*						
		Victoria M.A. %	Rest of Van. Is. %	Van. and Low.Main. %	Rest of B.C. %	Rest of Canada %	U.S.A. %	Other (spec.) %
Food								
Beverages								
Printing and office supplies								
Other materials and supplies								
Telephone								
Heat, light, and power								
Laundry								
Purchased advertising and sales promotion								
Purchased repairs and maintenance								
Purchased delivery services								
Purchased legal and auditing fees								
Management or franchise fees								
Insurance								
Business taxes, permits, & licenses								
Property taxes								
Rent								
Interest								
All other operating expenses (please specify)								

*Rows should total 100%

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9. Could you give me a breakdown of any assets which you acquired for repairs and maintenance, renovations and upgrading during 1977 into the following categories:

Value $	Vic. M.A. %	Rest of Van.Is. %	Van. and Low. Main. %	Rest of B.C. %	Rest of Can. %	U.S.A. %	Other %

Origin of Purchases

10. Could you give me some idea of the geographical distribution of profit into the following regional breakdown:

Vic. Metro. Area

Rest of Van. Is.

Van. and Low. Main.

Rest of B.C.

Rest of Canada

U.S.A.

Other, please spec.

_____ 100 %

11. Would you please give me some idea of your total sales revenue, including sales tax, for 1977?

$

12. Employment:

a) Could you tell me the total number of your labour force, including members of your family, for an average week in

February 1977

August 1977

b) Would you break down the August total into the following categories:

Male				Female			
Permanent		Seasonal		Permanent		Seasonal	
Full time	Part time	Full time	Part time	Full time	Part time	Full time	Part time

c) Of the extra staff in August, could you tell me how many are from:

Vic. Metro. Area

Rest of Van. Is.

Elsewhere

d) How many of your August staff were students?

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13. Do you experience any difficulty in obtaining sufficient labour
in the local area? ☐ Yes ☐ No

If so, which types? _____

14. Do you experience any difficulty in obtaining sufficient labour
from outside? ☐ Yes ☐ No

If so, which types? _____

15. After the doubling of the ferry fares in the summer of 1976, did
your business experience ☐ an increase ☐ a decline ☐ no change.

If applicable, could you estimate what percentage of your total
revenue in 1976 declined as a result of the raising of the ferry fares?

☐_____☒

Please describe what has happened since then.

16. Have you ever received any public assistance? ☐ Yes ☐ No

What is your opinion of increased public assistance for your business?

17. What do you think is needed to improve your tourist business?

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