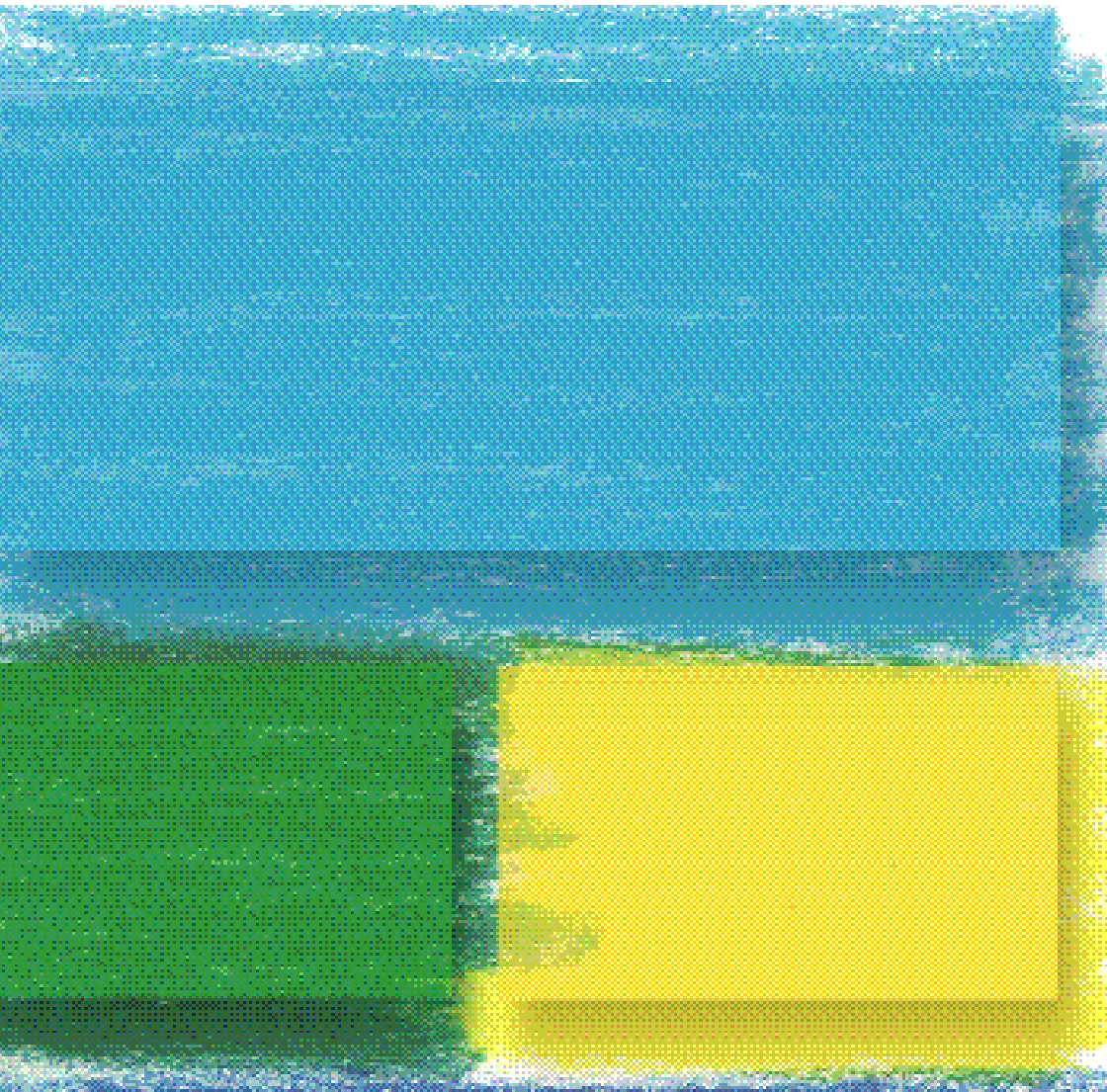
Guy West and Barbara Bayne

THE ECONOMIC IMPACTS OF TOURISM ON THE GOLD COAST



Gold Coast Tourism Visioning Project 3.1 (Part 1a)

The Economic Impacts of Tourism on the Gold Coast

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The Economic Impacts of Tourism on the Gold Coast

Gold Coast Tourism Visioning Project 3.1 (Part Ia)

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This book is published at http://SustainableTourism.Publisher-Site.com
a series imprint of theUniversityPress.com

First published in Australia in 2002
by Common Ground Publishing Pty Ltd
PO Box 463
Altona Vic 3018
ABN 66 074 822 629
in association with
Cooperative Research Centre for Sustainable Tourism
http://www.crctourism.com.au

National Library of Australia Cataloguing in Publication Data

West, Guy.
The economic impacts of tourism on the Gold Coast

Bibliography.
ISBN 1 87668 558 1 (pt.1a) (pbk)
ISBN 1 86335 492 1 (PDF)

1. Tourism – Economic aspects – Queensland – Gold Coast. I. Bayne, Barbara. II. Cooperative Research Centre for Sustainable Tourism. III. Gold Coast Tourism Visioning Project. IV. Title. (Series : Project report (Gold Coast Tourism Visioning Project) ; 3.1, pt. I).

338.47919432

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Background

The Gold Coast Economic Development Strategy released by Gold Coast Mayor, Gary Baildon in early 2002 expects tourism '…to remain the principal industry of the Gold Coast for many years to come.' It continues: 'Tourism is the single largest generator of current economic activity and jobs in the City and is the focus of major investment activity, involving development and redevelopment. As with many maturing destinations, in both a national and international climate of significant change, Gold Coast tourism faces significant challenges and opportunities.' (pp 7)

The Gold Coast City Council commissioned the Cooperative Research Centre for Sustainable Tourism, as part of its strategic planning priorities, to produce an economic impact study of the Gold Coast. The Centre for Economic Policy Modelling at the University of Queensland, one of 17 Australian University members of the CRC for Sustainable Tourism, was engaged to undertake the study based on the most current official statistics from Commonwealth and State Government sources, i.e. from the Australian Bureau of Statistics 1996/97 census.

The first report, *Features and Structures of the Gold Coast Economy*, discusses the general economic features and structure of the region and presents the input-output transactions and associated tables for the Gold Coast. This report is only available from the Gold Coast City Council [www.goldcoast.qld.gov.au].

This report, *The Economic Impacts of Tourism on the Gold Coast*, focuses on the significance of tourism in the region, and is part of the core research undertaken for the Gold Coast Tourism Visioning project.

A third report, *The Economic Impacts of Retail Trade on the Gold Coast* focuses on the economic impact of retail trade on the Gold Coast regional economy in the context of expenditures made by residents and tourists as they interface with the suppliers of household and tourism commodities. This report is part of associated research undertaken during the Gold Coast Tourism Visioning project.

The Gold Coast

The Gold Coast region stands out as one of the fastest growing regions in Australia. The attractiveness of its weather, geography, diverse economy and strategic location in regards to Pacific and Asian markets combine to make it a desirable place to live and work. Global promotion of the region through innovative and aggressive private and public sector tourism marketing campaigns have contributed to raising awareness of the destination as being an exciting place both for those seeking a holiday and for those seeking a new place to live.

Population growth rates continue to be higher than most other regions in Australia. Over the past decade the total population of the region has grown by over 200,000 representing an average annual growth rate of over 3 percent. The Gold Coast City will continue to have a fast growth rate with the population of the coastal strip passing 500,000 over the next ten years and more than 675,000 by 2021. The key tourism market of South East Queensland, which currently contains 65.1% of the total Queensland population, will experience substantial population growth rates over that period, reaching some 3.4 million by 2021 (currently approx 2.3 million). While it can be expected there will be different rates of growth in visitors to the Gold Coast from individual market sources, given the appropriate planning, management and resourcing, there is every expectation that the Gold Coast should be a nett beneficiary of long term global sustainable tourism growth.

Tourism and the Gold Coast Economy

Tourism continues to be a major industry with a pervasive effect on the Gold Coast economy. Most industry sectors involved in providing goods and services directly and/or indirectly to visitors who come to the destination for holiday purposes, to visit friends and relatives or to participate in business meetings, including attending conventions, participating in incentive travel programs, exhibitions or other meetings, receive economic benefits from tourism.

It is appreciated by the Gold Coast City Council and the Gold Coast Regional Economic Development Advisory Committee that the region’s current relatively narrow economic base, of which tourism is a vital part, will need to be expanded in order to meet the needs,

dreams and aspirations of a rapidly growing population and the increasing visitor markets. The study of tourism can involve fundamental and very complex issues, involving significant social, economic, political and environmental consequences. Common questions often asked are what is the nature of tourism demand, is tourism desirable, and is it sustainable over time? Obviously, no one study can answer all these questions, but it has been an objective of the overall Gold Coast Tourism Visioning project to add significant new knowledge to the way the destination addresses these complex tourism management issues.

Fundamental questions always relate to the economic and employment impacts of current, and future tourism. For example, tourism has 'downstream effects' on the Gold Coast economy. Visitor consumption has a direct impact on all the industries supplying the goods and services and an indirect impact on other industries supplying those industries and so on.

This research study was designed to provide the Gold Coast with a contemporary model to address that question. As new data becomes available from official Commonwealth and State sources, this report can be updated to assess shifts and underlying patterns in the tourism economy of the Gold Coast.

Results in this report indicate the total (direct+flow-on) impacts of visitor expenditures (refer section 2.1 for definitions) on the Gold Coast:

1. Gross output,
2. Gross regional product,
3. Household income, and
4. Employment.

1. Gross Output

In 1996/7, visitors to the Gold Coast were responsible for contributing $2.9 billion to gross production (see Table 3).

This reflects the total (direct+flow-on) impact of visitor expenditure on the Gold Coast on gross production. Of this amount:

- $0.3 billion (11.1 percent) came from Queensland residents,
- $1.5 billion (50.3 percent) from interstate visitors, and
- $1.1 billion (38.6 percent) from international tourists.

The *Accommodation, cafes and restaurants* sector is the largest beneficiary with $490 million (increased) production. Other

significant beneficiaries are *Retail trade* with $387 million, *Property services* with $383 million, *Recreation and entertainment services* with $275 million, and *Food manufacturing* with $215 million.

2. Gross Regional Product

Gross production or output is a misleading indicator of economic performance due to double counting. A more reliable indicator is the contribution to gross regional product. Tourism contributed over $1.2 billion to the Gold Coast's gross regional product in 1996/7 (see Table 4), of which:

- $134 million (11.1 percent) originated from (non-Gold Coast) Queensland residents,
- $608 million (50.3 percent) from interstate visitors, and
- $447 million (38.6 percent) from international visitors.

Again, the *Accommodation, cafes and restaurants* sector is the largest contributor with $202 million. *Retail trade* contributes $193 million, *Property services* $164 million, and *Recreation and entertainment services* $130 million.

3. Household Income

Tourism activity on the Gold Coast in 1996/97 is associated with income, by way of payment in wages and salaries to employees working on the Gold Coast, of $662.7 million (see Table 5).

The most significant sectors were *Retail trade* with income to employees of $146 million, *Accommodation, cafes and restaurants* with $134 million, and *Recreation and entertainment* with $80 million.

4. Employment

Tourism activity can be linked, directly and indirectly, to approximately 25,057 thousand FTE (full-time equivalent) jobs on the Gold Coast in 1996/7 (see Table 6). *Retail trade* and *Accommodation, cafes and restaurants* employ 6,130 and 5,350 FTE persons respectively, with *Recreation and entertainment services* employing 2,708.

1. Introduction

1.1 Context

In 2001, the Gold Coast City Council commissioned the Cooperative Research Centre for Sustainable Tourism with national headquarters at the Gold Coast campus of Griffith University, through one of its 17 member Universities, the University of Queensland, to undertake a study of the economic structure of the Gold Coast region. The economic impact of the region, and in particular the significance of tourism, was to be included in the analysis. The choice of dates reflected the latest available ABS Population Census data, i.e 1996/97.

The first study, titled *Features and structures of the Gold Coast economy*, was designed as part of the City Council's Regional Economic Strategy initiatives. As stated in the Gold Coast Economic Development Strategy – 2010, economic planning is being undertaken at a time of unprecedented economic, structural and social change and maximum flexibility is needed to be retained within the planning and implementation of strategies in order to deal with opportunities that will arise in the future. The report discusses the general economic features and structure of the region and presents the input-output transactions and associated tables for the Gold Coast.

The purpose of the first study was to:

- Develop a Gold Coast regional input-output model which could be used in analysis of a broad range of economic initiatives in the region;
- Develop a model that is capable of generating output that is directly comparable with output from similar models at a state level;
- Produce estimates of the economic and employment impacts of tourism in the Gold Coast; and
- Provide indicative figures on the relative economic yield demand from different market segments.

The deliverables specified for this study were:

- An input-output economic model of the Gold Coast and analysis of regional economic structure, and
- A report on the impact of tourism on the Gold Coast.

This report, *The Economic Impacts of Tourism on the Gold Coast*, is part of the research foundation of the Gold Coast Tourism Visioning project, under the coordination of the CRC for Sustainable Tourism. This second report concentrates on the significance of tourism in the region.

A third report focusing on the retail component of the Gold Coast economy has also been prepared.

1.2 Gold Coast and Tourism

The tourism industry in the Gold Coast attracts more than 4 million visitors per year (about 30% are international). It has been recognised for some time as a major industry on the Gold Coast, and various Government and private organisations have become increasingly aware of the potential of sustainable tourism, both for investment and as an instrument of Government policy to stimulate economic growth and generate employment opportunities.

There is however some concern that during much of the 1980s and 1990s the Gold Coast's domestic tourism visits grew at less than half the average annual growth rate for Australia. The low wage rates for employees in the Accommodation, Cafes and Restaurant industry was also of concern.

This report focuses on the economic impact of tourism on the Gold Coast regional economy in the context of expenditures made by tourists as they interface with the suppliers of tourism commodities. Chapter 2 discusses at some length the methodology employed, giving some definitions and procedural details. Chapter 3 gives some results of the economic impacts of tourism.

2. Methodology

The various operations of the tourism sector will have an economic impact on a regional or local economy in a number of different ways. Each operation will have linkages with other regional firms through the purchases of goods and services as inputs into their operations, and through the employment of workers who will in turn spend most of their wages in the local economy. The most common way to measure these impacts is through estimation of the effects of the industry on four economic indicators, namely on the production or *output* of local industries, the addition to the *gross regional product* of the region through value-adding, *household income* earned in the form of wages and salaries, and level of regional *employment*.

The impact of tourism activities on all four of these indicators is measured using an input-output approach. These impacts are measured in terms of both direct effects and flow-on effects, and in terms of each of the usual place of residence of the visitors to the Gold Coast.

2.1 Definitions

The term economic impact refers to the effects of an economic activity (tourism activity operations) on an economic system such as regional, state or national economy. These effects are measured in terms of monetary units and employment.

In this study, the impacts are measured on four key economic indicators:

- *Gross output*. This represents the total value of production or total expenditure on all goods and services purchased in the chain of production by firms in the region.
- *Gross regional product*. Gross output measures are susceptible to multiple counting because they sum all the intermediate transactions over all stages of production during the production process. Consequentially, they can substantially overstate the contribution to economic activity. A preferred measure of the contribution to economic growth is value added. This is technically defined as wages and salaries and supplements paid to labour plus gross operating surplus plus indirect taxes on products and production less subsidies, but for practical purposes measures

payments to factors of production (labour and capital), including net taxes on production. The sum of all industry value added is equal to gross regional product (GRP), so value added impacts refer to the contribution to GRP (or gross state product (GSP) at the state level and gross domestic product (GDP) at the national level).

- *Household income*. This is the income earned by employees during the production process.
- *Employment*. The number of full-time equivalent jobs generated.

The economic impacts are estimated for:

- *Initial* or *direct effects* which are the impact of the industry per se associated with direct purchases and employment by organisations supplying tourist services to visitors to the Gold Coast, and represent the initial round of output, income and employment generated by the activity. For example, hotels purchase inputs (e.g. food) from local suppliers. This is the first round impact.
- *Flow-on effects* that extend beyond the initial round of purchases and employment, and represent the additional output, income and employment generated resulting from second, third, and subsequent-round purchases flowing throughout the regional economy. For example, local suppliers to hotels in turn purchase goods and services from other local firms who in turn purchase goods and services from other local firms, and so on, as part of the chain of production. Similarly, households receive income as employees of hotels and spend some of their income on local goods and services. These purchases result in additional local jobs. Some of the income from these additional employees is in turn spent on local goods and services, thereby creating further jobs and income for local households.
- *Total* impact is the sum of the initial and flow-on effects.

As a result of the successive rounds of re-spending, the total impact on the economy exceeds the initial round of output, income and employment generated by agricultural operations. However, each successive round of re-spending is smaller than the preceding round as some of the spending is on goods and services that are produced outside the region. The money that leaves the region is termed a *leakage* and will eventually limit the number of rounds of re-spending.

As a consequence, the extent of the ripple effects of second, third, and subsequent-round purchases depends on the regional boundaries of the local economy. For example, the size of the flow-on effects of a

particular activity will generally be smaller in the local (regional) economy than in the state economy, which will in turn be smaller than in the national economy as a result of the different levels of leakage.

A measure of the extent of the flow-on effects to other industries attributed to a particular activity is the *multiplier*.

2.2 Multiplier Analysis

Various approaches are available to measure the initial and flow-on effects of an economic activity on the local economy. The most common is multiplier analysis.

In broad terms, a *multiplier* is an index that indicates the overall change in the level of economic activity that results from an initial stimulus. It effectively adds up all the successive rounds of re-spending, based on a number of assumptions that are embedded in the method of estimation (see below). These can be expressed either in terms of absolute changes in the level of economic activity, or in terms of percentage changes. In the latter case, the index is referred to as an *elasticity*.

There are different methods available for calculating multipliers. The method used in this study is *input-output* analysis. It is the most commonly used approach in regional economic impact studies. The procedure follows that documented in *Input-Output Analysis and Economic Impact Assessment within the Queensland Public Sector*, published by the Queensland Government Statistician's Office (1995). The procedure involves three steps: the construction of an appropriate regional *transactions* table; the collection and conversion of visitor expenditure profiles into a form compatible with the accounting format of the input-output table; and finally the calculation of the multipliers and flow-on impacts. A technical description of the input-output methodology used in this study is provided in Appendix A.

The input-output transactions table used in this study was derived from the Australian 1996/7 transactions table (ABS 5209.0) and data from the ABS (both published and special request) using GRIT-type procedures. GRIT is a well-defined and well used procedure for constructing regional transactions tables that are encompassed within higher-order regions, such as the state or nation. The procedure utilises hybrid techniques for 'regionalising' the transactions table of the higher-order region (West, 1990; Lahr, 1993). At the time of writing

this report, the final input-output tables for Queensland, published by the Office of the Government Statistician, were not available, so final calibration of the Gold Coast table against the Queensland and Brisbane-Moreton tables was not possible. For that reason, the results of this study should be regarded as preliminary and subject to revision when the Queensland tables are published.

2.3 Modelling Tourism in an Input-Output Framework

The study of tourism can involve fundamental and very complex issues, involving significant social, economic, political and environmental consequences. Common questions that are asked are what is the nature of tourism demand, is tourism desirable, and is it sustainable over time? Obviously, no study can answer all these questions.

This study focuses on the economic analysis of tourism, in the context of expenditures made by tourists as they interface with the suppliers of tourism commodities. This issue, in turn, can be approached from two main perspectives; either from the supply side in which the suppliers of goods and services to tourists can be viewed as a 'tourist' industry, or from a demand point of view in which tourism expenditures are basically demand oriented. The analysis used in this study uses the demand approach, for reasons that will become clear later.

The supply approach, commonly used in studies of economic significance of firms or industries, is more complex in the case of tourism. For example, the tourist travels to the source of supply rather than the usual situation of goods and services being distributed to or near the consumers' usual place of residence. In addition, there is generally no such thing as a 'pure' tourist good or service; most suppliers sell to both local residents and visitors simultaneously. Although the presence of tourists may alter the mix of goods and services offered by some firms, in general they would still exist, albeit in a modified form, without tourism. The mix of goods and services may change, but employment may be less affected. Of course, there are some activities, such as some tour operators and resort complexes, which may be regarded as 'pure' tourism activity, and can be analysed

in a supply framework, but here the emphasis will be on specific tourism related activities and not on tourism in general.

In terms of the input-output modelling framework, as described in the previous section, these types of tourism activities are best modelled as individual sectors within the intermediate or producing quadrant of the table. These activities are, in fact, businesses, purchasing inputs, employing people and selling their product to consumers (tourists). The problem is to identify that component of the operation that is purely tourism driven and that part which is not. In some cases the distinction is blurred and fraught with problems. For example, a country club may be geared primarily to the tourist market, but also caters for the local residents. However, if the tourist market collapses, the local patronage may not be sufficient to ensure the club's viability.

This approach to analysing tourism activity is made even more complicated by the assumption, in the input-output model, that each industry or sector is homogeneous. A tourism industry of the type defined above is essentially a conglomeration of firms and organisations that together are aimed at satisfying the needs of tourists. But such a collection is clearly not homogeneous; rather it is made up of a wide range of activities including transport, accommodation, food processing, restaurants, pleasure shopping and other leisure activities. The use of so-called 'differential' multipliers (Aislabie and Gordon, in Tisdell *et al*. 1988) reinforce this notion of diversity, and thus heterogeneity, within such an industry.

If, on the other hand, tourism activity is viewed from the point of view of the tourist, the analysis is better approached from a demand aspect. In this respect, the tourist is the dominating influence. The tourist has a virtually unlimited choice of destination, mode of travel, type of accommodation, recreational activity, leisure and sporting goods, and so on. The goods and services offered will vary in quality, price and availability, presumably being directed towards differing categories of tourists. Therefore the tourist can usually select with discretion, and the supplier has to try and anticipate the demand. It is dangerous for the supplier to assume that supply creates demand, as many tourist operators can attest.

This approach to tourism analysis is obviously a demand oriented approach. Purchases by tourists can be classified as purchases by final

users, i.e. as part of final consumption expenditure by individuals[1], and is thus part of final demand in the input-output model. This is the approach taken in this study, since it is designed to estimate the economic impacts of visitor expenditures, not the expenditures of a select number of firms involved in tourism related (and other) activities.

2.4 Visitor Expenditures

There are many varied reasons why tourists and visitors may decide to visit a region. A visitor is defined as a person who undertakes a trip of one or more nights but less than 90 nights in any region, and is involved in a journey of at least 40 kilometres from home. Thus the term visitor encompasses and has a broader meaning than the term tourist, and includes travel not only for recreational purposes but also for business, education, and so on. However for the purpose of this report, the terms visitor and tourist are used interchangeably.

Like the suppliers of goods and services to tourists and visitors, visitor demand is not homogeneous. Different categories of visitors to a region will have differing expenditure patterns. Even within a particular subgroup of visitor, for example holiday/recreation, there are different categories of tourists who stay in 4–5 star resorts, those who stay in rented flats and houses, and those who stay in caravan parks or camping grounds. Presumably, each of these tourist subgroups exhibit different expenditure patterns. Therefore one has to be careful that when undertaking an economic impact analysis of tourist or visitor expenditures, the expenditure profile used is representative of the class of visitor under study. Although the assumption of homogeneity is less important when modelled in the context of final demand rather than in terms of intermediate producing firms, nevertheless we should ensure that the expenditure profiles are representative of the population group or subgroup.

[1] Some input-output tables, e.g. Tasmanian Input-Output Table 1985/86 (Department of Treasury and Finance, Hobart 1990), explicitly disaggregate the Private Consumption column of final demand into the two components, Expenditure by Households and Expenditure by Tourists.

The argument in favour of disaggregation of expenditure profiles to identify individual visitor categories can be extended to the elements in the individual demand patterns themselves. The greater the number of expenditure items which can be identified, the more detail (and accuracy) can be achieved in tracing the expenditure linkages back through the economy. Obviously there is a limit to what can be realistically achieved in terms of the detailed expenditure of individuals, but the expenditure items should at least be able to be identified with, and be consistent with, the sector definitions in the modelling system.

Not only is disaggregation of demand profiles important in terms of accuracy, it also provides useful information to the analyst. We are better able to identify the market characteristics pertaining to a particular category of visitor, and thus target or modify the regional response in a developmental or general policy framework.

Finally, the data on visitor expenditures must be consistent with the regional boundaries of the available regional input-output models. In addition, if the data is also compiled in a consistent form over time, it will provide a basis for additional analysis that can be used to develop a dynamic picture of the structure and trends in the tourism industry.

To model the regional impacts of tourism, we require a three-way classification; average daily visitor expenditure profile X type of visitor x number of visitor nights. This information can be obtained from the Queensland Visitor Survey (QVS). The QVS gives the average daily expenditure per visitor in each of the following expenditure categories: Food and beverage at place of accommodation; Food and beverage bought elsewhere; Pleasure shopping; Gambling; Entertainment; Transport fares; Vehicle expenses; Accommodation; and Other. Type of visitor is differentiated by usual place of residence: Queensland, Interstate, and International.

2.5 Allocation of Visitor Expenditures to Input-Output Sectors

The average daily expenditure breakdown per visitor multiplied by the total number of visitor nights spent in the region during the year provides a total annual expenditure distribution of all visitors across the expenditure categories listed above. This represents the direct

impact of tourism expenditure in the region during the year for each type of visitor. To calculate the indirect or flow-on impact on the region, these expenditures have to be converted into expenditures from industries corresponding to the input-output table industrial classification (see Table 17).

This conversion is carried out in a series of steps. First, the primary sectors into which each visitor expenditure item lies must be identified. This is summarised in Table 1. Where expenditure items were disaggregated across several industries, such as for food and beverage, the allocation was done using expenditure profiles based on local residents.

Table 1

Average Daily Expenditure by Visitors to Gold Coast by Place of Residence, 1996/7, Purchasers' Prices

Expenditure Category	Queensland	Interstate	International	Total
Food & beverages at place of accommodation	5.90	5.61	11.90	23.41
Food & beverages bought elsewhere	25.87	27.32	30.60	83.79
Pleasure shopping	28.51	27.68	64.04	120.23
Gambling	6.95	8.34	6.78	22.07
Entertainment	9.67	15.14	17.14	41.95
Transport fares	2.27	4.26	5.62	12.15
Vehicle expenses	7.65	8.97	7.88	24.50
Accommodation	33.22	36.46	54.22	123.90
Other	4.69	5.18	5.60	15.47
Total	**124.74**	**138.96**	**203.78**	**467.48**
Visitors ('000)	489	1,129	703	2,321
Visitor nights	1,595	6,429	3,263	11,287
Average length of stay (nights)	3.3	5.7	4.6	4.9

The second step involves converting the expenditure amounts that have been allocated to the input-output sectors into basic prices consistent with the accounting format of the input-output model. The visitor expenditures recorded in the QVS are in purchasers' prices, whereas basic prices are measured net of trade and transport margins. The conversion therefore requires the reallocation of the trade and transport margins included in the purchasers' prices back to the appropriate trade or transport sector.

The margins used in this study are those used to convert purchasers' prices to basic prices in the national input-output tables. There are no sub-national margin tables available in Australia, and although there may be some regional variation in the various margins, it is assumed that this variation is minimal in this study.

The final step is to estimate the import component of each expenditure item on a regional basis. This was done by calculating the ratio of imports to total sales for each industry in the regional input-output table, and assuming that the same import ratio applies to consumer goods and services. This is the same approach used by the Bureau of Industry Economics study on Tourism Expenditure in Australia (BIE, 1984), and is not without some problems. The approach again assumes that the regional sectors are comprised of homogeneous outputs, but in fact the commodities purchased by tourists only comprise a part of the range of commodities offered for sale in any sector, with quite possibly a different import ratio for each commodity. Unfortunately, without specific interregional trade data on commodities between regions, it is difficult to estimate with any precision these individual import ratios.

The resulting visitor expenditure profiles are given in Table 2.

Table 2

Allocation of Visitor Expenditures to Gold Coast to Industry Sectors, 1996/7, $'000, Basic Prices

National Sector	Queensland	Interstate	International	Total
2101 Meat products	2,006	8,540	4,855	15,402
2102 Dairy products	2,511	10,690	6,077	19,279
2103 Fruit and vegetable products	1,184	5,042	2,866	9,092
2106 Bakery products	1,714	7,295	4,147	13,156
2107 Confectionery	715	3,043	1,730	5,488
2108 Other food products	2,933	12,484	7,097	22,515
2109 Soft drinks and cordials	1,551	6,604	3,754	11,909
2110 Beer	1,347	5,732	3,259	10,337
2111 Wine and spirits	1,165	4,959	2,819	8,942
2204 Clothing	6,782	26,541	31,166	64,489
2205 Footwear	1,715	6,712	7,881	16,308
2501 Petroleum products	284	1,343	599	2,226
2903 Other manufacturing	3,056	11,960	14,044	29,060
4501 Wholesale trade	6,186	25,837	21,371	53,394
5101 Retail trade	26,873	108,490	105,953	241,315
5701 Accommodation, cafes and restaurants	45,554	197,452	157,434	400,439
6101 Road transport	2,214	14,919	9,631	26,765
6201 Rail transport	656	4,889	3,256	8,800
6301 Water transport	72	516	335	923
6401 Air transport	1,401	10,455	7,075	18,932
6601 Services to transport	14	57	47	117
7401 Insurance	5	22	11	38
9301 Sport, gambling and recreational services	18,699	106,479	55,055	180,233
9501 Personal services	6,168	27,459	15,067	48,694
Taxes less subsidies on products	20,904	95,921	58,828	175,654
Imports	43,235	189,934	140,576	373,744
Total	**198,944**	**893,374**	**664,934**	**1,757,252**

3. The Economic Impacts of Tourism

Tourism has been recognised for some time as a major industry, and various Government and private organisations have become increasingly aware of the potential of tourism, both for investment and as an instrument of Government policy to stimulate economic growth and generate employment opportunities. This section describes the economic impact of tourism on the Gold Coast regional economy.

The total (direct + flow-on) impacts of visitor expenditures on Gold Coast output, gross regional product, household income and employment are provided in Tables 3 to 6. In 1996/7, visitors to the Gold Coast were responsible for contributing $2.9 billion to gross production. Of this amount, $0.3 billion (11.1 percent) came from Queensland residents, $1.5 billion (50.3 percent) from interstate visitors, and $1.1 billion (38.6 percent) from international tourists. *Accommodation, cafes and restaurants* is the largest beneficiary with $490 million increased production. Other significant beneficiaries are *Retail trade* with $387 million, *Property services* with $383 million, *Recreation and entertainment services* with $275 million, and *Food manufacturing* with $215 million.

As mentioned previously, gross production or output is a misleading indicator of economic performance due to double counting. A more reliable indicator is the contribution to gross regional product. Table 4 shows that tourism contributed over $1.2 billion to the Gold Coast's gross regional product in 1996/7, of which $134 million originated from (non-Gold Coast) Queensland residents, $608 million from interstate visitors and $447 million from international visitors. Again, *Accommodation, cafes and restaurants* is the largest contributor with $202 million. *Retail trade* contributes $193 million, *Property services* $164 million, and *Recreation and entertainment services* $130 million.

Tourism activity can be linked to income of approximately $663 million paid to 25 thousand (fulltime equivalent) jobs on the Gold Coast in 1996/97. *Retail trade* employs 6,130 FTE persons with relevant income, by way of wages and salaries, of $146 million. Associated with tourism activity, *Accommodation, cafes and restaurants* and *Recreation and entertainment* respectively employ

5,350 and 2,708 FTE persons with incomes of $134 million and $80 million (Tables 5 and 6).

Table 3
Total Output Visitor Impacts, Gold Coast, 1996/7, $'000

Sector	Queensland	Interstate	International	Total
1: Agriculture, forestry and fishing	3,722	16,476	11,655	31,852
2: Mining	700	3,230	2,372	6,302
3: Food manufacturing	26,340	113,778	74,749	214,867
4: Textiles, clothing and footwear	10,196	40,791	45,184	96,171
5: Wood and paper products	4,732	21,064	16,741	42,537
6: Chemical products	5,175	23,670	17,663	46,509
7: Non-metallic mineral products	950	4,210	3,166	8,326
8: Metal products	1,671	7,458	5,749	14,878
9: Machinery, appliances and equipment	3,663	16,718	12,861	33,242
10: Other manufacturing	4,577	18,788	19,371	42,735
11: Utilities	2,346	10,606	8,109	21,062
12: Construction	2,371	10,690	8,269	21,330
13: Wholesale trade	17,424	75,977	60,703	154,103
14: Retail trade	42,965	181,304	162,334	386,603
15: Accommodation, cafes and restaurants	55,575	242,818	192,042	490,435
16: Transport and storage	17,124	89,299	64,879	171,303
17: Communication services	6,715	30,540	23,511	60,765
18: Finance and insurance	10,318	46,874	35,751	92,943
19: Ownership of dwellings and property services	42,453	191,896	148,198	382,548
20: Business services	21,603	97,040	75,970	194,612
21: Government administration and defence	1,124	5,126	3,952	10,202
22: Education	1,111	5,030	3,887	10,027
23: Health services	1,133	5,272	3,872	10,277
24: Community services	435	1,958	1,492	3,884
25: Recreation and entertainment	28,995	156,286	89,468	274,749
26: Personal and other services	8,519	38,074	23,208	69,802
Total	**321,935**	**1,454,976**	**1,115,155**	**2,892,066**

Table 4

Total Gross Regional Product Visitor Impacts, Gold Coast, 1996/7, $'000

Sector	Queensland	Interstate	International	Total
1: Agriculture, forestry and fishing	1,962	8,687	6,145	16,793
2: Mining	300	1,385	1,017	2,702
3: Food manufacturing	6,229	26,907	17,677	50,812
4: Textiles, clothing and footwear	3,630	14,521	16,085	34,235
5: Wood and paper products	1,773	7,890	6,271	15,934
6: Chemical products	798	3,652	2,725	7,175
7: Non-metallic mineral products	273	1,209	909	2,391
8: Metal products	485	2,165	1,668	4,318
9: Machinery, appliances and equipment	919	4,195	3,227	8,341
10: Other manufacturing	2,027	8,319	8,577	18,924
11: Utilities	1,365	6,173	4,720	12,258
12: Construction	996	4,493	3,475	8,964
13: Wholesale trade	5,916	25,796	20,610	52,322
14: Retail trade	21,449	90,511	81,040	193,000
15: Accommodation, cafes and restaurants	22,854	99,853	78,973	201,680
16: Transport and storage	6,657	34,715	25,222	66,595
17: Communication services	3,465	15,761	12,133	31,359
18: Finance and insurance	5,591	25,400	19,373	50,365
19: Ownership of dwellings and property services	18,148	82,030	63,350	163,527
20: Business services	8,593	38,602	30,220	77,415
21: Government administration and defence	485	2,213	1,706	4,404
22: Education	895	4,052	3,131	8,077
23: Health services	964	4,486	3,295	8,745
24: Community services	243	1,097	836	2,176
25: Recreation and entertainment	13,687	73,773	42,232	129,691
26: Personal and other services	4,520	20,203	12,315	37,038
Total	**134,224**	**608,085**	**466,932**	**1,209,241**

Table 5

Total Income Visitor Impacts, Gold Coast, 1996/7, $'000

Sector	Queensland	Interstate	International	Total
1: Agriculture, forestry and fishing	894	3,960	2,801	7,656
2: Mining	78	358	263	699
3: Food manufacturing	2,674	11,551	7,589	21,813
4: Textiles, clothing and footwear	2,674	10,698	11,850	25,222
5: Wood and paper products	978	4,354	3,460	8,793
6: Chemical products	344	1,575	1,176	3,096
7: Non-metallic mineral products	145	644	484	1,274
8: Metal products	287	1,282	988	2,557
9: Machinery, appliances and equipment	541	2,470	1,900	4,911
10: Other manufacturing	1,403	5,758	5,937	13,098
11: Utilities	264	1,192	911	2,367
12: Construction	444	2,001	1,548	3,993
13: Wholesale trade	3,721	16,227	12,965	32,914
14: Retail trade	16,169	68,231	61,092	145,492
15: Accommodation, cafes and restaurants	15,169	66,277	52,418	133,864
16: Transport and storage	2,784	14,518	10,548	27,850
17: Communication services	1,206	5,487	4,224	10,917
18: Finance and insurance	1,908	8,669	6,612	17,190
19: Ownership of dwellings and property services	1,882	8,505	6,568	16,954
20: Business services	6,127	27,523	21,547	55,196
21: Government administration and defence	369	1,683	1,298	3,349
22: Education	718	3,252	2,513	6,484
23: Health services	613	2,853	2,095	5,561
24: Community services	182	818	623	1,623
25: Recreation and entertainment	8,484	45,731	26,179	80,395
26: Personal and other services	3,588	16,037	9,776	29,401
Total	**73,648**	**331,655**	**257,365**	**662,669**

Table 6
Total Employment Visitor Impacts, Gold Coast, 1996/7, FTE jobs

Sector	Queensland	Interstate	International	Total
1: Agriculture, forestry and fishing	39	172	122	333
2: Mining	2	9	7	18
3: Food manufacturing	99	429	282	810
4: Textiles, clothing and footwear	116	466	516	1,098
5: Wood and paper products	36	158	126	320
6: Chemical products	11	49	36	95
7: Non-metallic mineral products	5	21	16	41
8: Metal products	10	45	35	90
9: Machinery, appliances and equipment	17	79	61	157
10: Other manufacturing	57	236	243	536
11: Utilities	8	37	28	74
12: Construction	14	64	50	128
13: Wholesale trade	130	568	454	1,152
14: Retail trade	681	2,875	2,574	6,130
15: Accommodation, cafes and restaurants	606	2,649	2,095	5,350
16: Transport and storage	89	465	338	891
17: Communication services	37	166	128	331
18: Finance and insurance	63	284	217	564
19: Ownership of dwellings and property services	60	269	208	536
20: Business services	201	903	707	1,812
21: Government administration and defence	11	51	39	102
22: Education	20	93	71	184
23: Health services	20	91	67	177
24: Community services	8	35	27	69
25: Recreation and entertainment	286	1,541	882	2,708
26: Personal and other services	165	737	449	1,351
Total	**2,791**	**12,491**	**9,776**	**25,057**

Appendix A: Input-Output Analysis

The main attraction of the input-output model is that it provides a very detailed picture of the structure of the economy at a particular point of time. It includes all the transactions (both purchases and sales) that occurred during the time interval (usually one year), and thus provides a basis for the detailed analysis of inter-sectoral interrelationships within the economy. If there is a change in the purchasing or sales pattern of any industry, the flow-on effects to every other industry can be calculated. This makes the input-output model very attractive for regional impact analysis, as the effect of (say) a development project on each and every sector in the region can be traced, and thus the additional infrastructure requirements (transport, water, electricity, public administration, etc.) can be estimated as well as the additional physical inputs which will be required through trade related industries.

The application of input-output analysis in an economic impact study basically involves two steps. The first is the acquisition or construction of an appropriate regional (or national) transactions table, and secondly, the transformation of the initial impact or stimulus into a form which is compatible with the input-output equations. The input-output multipliers and flow-on or indirect impacts can then be estimated.

This appendix provides a brief summary of input-output analysis and its application to economic impact measurement. First, a brief description of the input-output table is presented. Second, the concept of input-output multipliers and economic impact analysis is discussed, as well as some of the limitations associated with the use of input-output analysis in impact measurement.

Transactions Table

The input-output table or transactions table is a system of accounts that records, in value terms, the supply and disposal of goods and services produced within an economic system over a period of one year. This is achieved by disaggregating the products produced in the economy according to industry groups or sectors, and recording the transactions flows among these sectors in a tabular format. Table 7 shows the general structure of the input-output table.

Ideally, each sector should represent a separate producing activity. I practice, because of data limitations, this is not always possible and each sector usually comprises an aggregation of producing activities. This aggregation tends to become more pronounced the smaller the region.

Table 7

Example of Transactions Table, $m

Sector	Agric.	Mining	Manuf.	Service	Intermediate Usage	Household Cons'n	Government Cons'n	Capital Formation	Exports	Total Production
	(Outputs)									
Inputs:	(Quadrant 1: Intermediate)					(Quadrant 2: Final Demand)				
Agriculture	5	0	112	1	118	48	23	3	98	286
Mining	0	4	74	1	79	0	4	14	22	119
Manufacturing	19	10	1395	622	2046	1119	22	1080	1392	5659
Services	16	10	689	1025	1741	3036	1853	0	830	8060
Intermediate Inputs	40	24	2270	1650	3984	4186	1602	1100	2148	13024
	(Quadrant 3: Primary Inputs)					(Quadrant 4: Primary Inputs to Final Demand)				
Compensation of Employees	120	52	999	3161	4332	0	0	0	0	4332
G.O.S.	81	27	668	1560	2534	0	0	5	3	2534
Taxes	10	2	58	101	171	488	0	0	0	649
Imports	35	14	1486	486	2009	887	7	182	15	3186
Total Production	286	119	5659	8060	13024	5654	1609	1287	2168	23702
Employment	12717	3557	106878	306482						

The rows of the table show the sales or disposal of the output produced by each industry group or sector. These mainly comprise sales to other industries for further processing, termed *intermediate* sales. In addition, each sector sells direct to households and other final users, including government, for current consumption, exports goods out of the region, and for capital expenditure and change in inventories. These final sales of goods and services are termed *final demand* sales. The row total therefore equals the total production (sales) of the industry.

Each column of intermediate transactions shows the inputs that each sector purchases from other industries. In addition, each sector purchases labour (in the form of wages and salaries of employees) and capital (in the form of gross operating surplus and mixed income), as well as taxes on products and production. These additional purchasing categories are called *primary inputs*. Each sector also purchases imported goods used in the production process.

It should be noted that the input-output table is not an economic model, but simply an accounting statement. For example, the

Australian input-output tables are published as part of the Australian National Accounts. Each entry records both a purchase and a sale, corresponding to the two sides of the balance sheet. The row total (total sales) of each producing sector must equal the corresponding column total (total costs). Also note that the term *transaction* refers to economic transactions only and does not include purely financial transactions such as the transfer in ownership of land.

Direct Requirements Table

The calculation of the direct requirements table, commonly referred to as the direct coefficients table, is the first step in the transition from the transactions table, which is simply an accounting statement pertaining to a particular economy for a given time period, to the application of the input-output model to impact analyses.

The coefficient table, shown in Table 8, is calculated by dividing all entries in each column by the total inputs (column total) for that industry. For example, the elements of the first column of Table 7 are divided by 286 to derive the first column of Table 8. The input-output or direct coefficients are sometimes calculated for the table as a whole, but more usually only for the intermediate quadrant. The latter is usually termed the **A** matrix, or matrix of $[a_{ij}]$ coefficients, where $a_{ij}=t_{ij}/x_j$, t_{ij} are the transactions (shown in Table 7) from industry i to industry j, and x_j is the total output level of industry j. In matrix notation, the direct coefficient matrix is calculated as $\mathbf{A} = \mathbf{T}\hat{\mathbf{X}}^{-1}$ where $\hat{\mathbf{X}}$ denotes a diagonal matrix, i.e. the elements on the main diagonal are the x_j with all other elements zero.

The **A** matrix describes the interdependencies between the sectors of the regional economy. Each a_{ij} coefficient indicates the amount of input required from sector i per unit of output of sector j, and each column of **A** represents a pattern of input purchases by that sector. The **A** matrix is therefore a matrix of average expenditure propensities.

For example, each (average) dollar of output of the Manufacturing sector requires, from regional sources, 1.98 cents in inputs from Agricultural industries, 1.31 cents in inputs from Mining industries, 24.65 cents in inputs from Manufacturing industries, and 12.18 cents in inputs from Service industries, or a total of 40.11 cents from all intermediate industries in direct (first-round) purchases. It also requires 17.65 cents in labour, 15.3 cents in gross operating surplus (capital cost), 1.02 cents in taxes and 25.91 cents in imports.

Table 8

Direct Requirements Table

Sector	Agric.	Mining	Manuf.	Services	Household Cons'm	Govt Cons'm	Capital	Exports
Agriculture	0.0175	0.0000	0.0198	0.0001	0.0081	0.0143	0.0024	0.0445
Mining	0.0000	0.0336	0.0131	0.0001	0.0000	0.0025	0.0111	0.0102
Manufacturing	0.0664	0.0840	0.2465	0.0894	0.1974	0.0137	0.8616	0.6450
Services	0.0559	0.0840	0.1218	0.1474	0.5370	0.9652	0.0000	0.2919
Total	**0.1399**	**0.2017**	**0.4011**	**0.2371**	**0.7425**	**0.9956**	**0.8751**	**0.9917**
Wages	0.4196	0.4370	0.1765	0.4542	0.0000	0.0000	0.0000	0.0000
GOS	0.2832	0.2269	0.1530	0.2241	0.0000	0.0000	0.0000	0.0000
Taxes	0.0350	0.0168	0.0102	0.0145	0.0830	0.0000	0.0040	0.0014
Imports	0.1224	0.1176	0.2591	0.0701	0.1746	0.0044	0.1209	0.0070
Total	**1.0000**	**1.0000**	**1.0000**	**1.0000**	**1.0000**	**1.0000**	**1.0000**	**1.0000**

Impact Analysis

Economic impact analysis using input-output involves estimating the changes in output, income and employment in response to an actual or potential source of economic change in the regional economy. Many of the changes that occur in industry production levels are a result of a change in one or more of the final demand components. The initial stimulus can be in any category of final demand, such as final private expenditure (e.g. tourism), final government expenditure (e.g. fiscal policy), capital formation (investment) or exports. The impact on the economy is then the increase in industry production levels required to meet the additional final demand as they respond to the first, second and subsequent round impulses which pass through the economy.

The calculation of the impact on the economy as a result of any change in final demand expenditures is relatively simple, and is demonstrated with the aid of the example in Table 7. The transactions flows in Table 7 can be written in the form of the following identities:

$$5 + 0 + 112 + 1 + 168 = 268$$
$$0 + 4 + 74 + 1 + 40 = 119$$
$$19 + 10 + 1395 + 622 + 3613 = 5695$$
$$16 + 10 + 689 + 1026 + 5219 = 6960$$

where, for example, the first identity shows the pattern of demand (sales) of the Agriculture sector, i.e. the first four terms are the

intermediate sales to the processing sectors and the fifth term aggregate sales to final demand, all of which must sum to the total output (production level) of the Agriculture sector. In general, the transactions flows can be represented as a system of equations thus:

$$\begin{aligned} t_{11} + t_{12} + t_{13} + \ldots + t_{1n} + y_1 &= x_1 \\ t_{21} + t_{22} + t_{23} + \ldots + t_{2n} + y_2 &= x_2 \\ &\vdots \\ t_{n1} + t_{n2} + t_{n3} + \ldots + t_{nn} + y_n &= x_n \end{aligned} \qquad (1)$$

where t_{ij} = amount purchased by sector j from sector i,
y_i = total final demand for sector i's output,
x_i = total output (production) of sector i
over the n sectors (industries) in the table.

By dividing the elements of the transactions table tij by their respective total output levels xj, the direct coefficients matrix shown in Table 8 is obtained. In equation terms, the model in (1) can be rewritten as:

$$\begin{aligned} a_{11}\,x_1 + a_{12}\,x_2 + a_{13}\,x_3 + \ldots + a_{1n}\,x_n + y_1 &= x_1 \\ a_{21}\,x_1 + a_{22}\,x_2 + a_{23}\,x_3 + \ldots + a_{2n}\,x_n + y_2 &= x_2 \\ &\vdots \\ a_{n1}\,x_1 + a_{n2}\,x_2 + a_{n3}\,x_3 + \ldots + a_{nn}\,x_n + y_n &= x_n \end{aligned} \qquad (2)$$

where $a_{ij}=t_{ij}/x_j$ are the direct coefficients. This system of simultaneous equations is usually written in matrix format as:

$$\mathbf{AX} + \mathbf{Y} = \mathbf{X} \qquad \mathbf{(3)}$$

where **A** = [a i j] is the matrix of direct coefficients, **X** is the column vector of sector total outputs and Y is the column vector of aggregate final demands. From equation (3), we can see that, for a given direct coefficient matrix, it is possible to solve the set of simultaneous equations to find the new sector production levels **X** which will be required to satisfy a potential or actual change in the levels of sector final demands **Y**. Rearranging equation (3) gives:

$$\mathbf{(I - A)X = Y} \tag{4a}$$

or

$$\mathbf{X = (I - A)^{-1} Y} \tag{4b}$$

where $\mathbf{(I - A)^{-1}Y}$) is termed the total requirements table, Leontief inverse matrix or general solution, and represents the direct and indirect effect on the output of each sector in response to a unit change in the final demand of each sector.

It is equations (3) and (4) which provide the nucleus of the input-output model. All impact analyses and multipliers are calculated by manipulating these basic input-output equations.

Various methods exist to calculate the direct and indirect effects in the Leontief inverse in response to a unit change in final demand. An iterative method is commonly used to estimate each round of purchases, which are summed to obtain the total combined direct and indirect effect. The first-round purchases, which represent the inputs purchased directly by the impacted industry from other firms, are simply given by the direct coefficient matrix **A**. The second-round effects occur as firms supplying inputs to the impacted industry in turn purchase inputs from other firms, and can be calculated by multiplying the A matrix by itself to get A^2. The process continues with third-round effects being given by A^3, and so on. Adding the initial unit change in final demand to the sum of the matrices A, A^2, A^3, ..., gives the total direct and indirect effects of a unit increase in sales to final demand of each sector, i.e.

$$\mathbf{I + A + A^2 + A^3 + \ldots \approx (I - A)^{-1}}$$

The Leontief inverse for our example is shown in Table 9.

Table 9
Open Total Requirements Table

Sector	Agric.	Mining	Manuf.	Services
Agriculture	1.0198	0.0026	0.0273	0.0030
Mining	0.0014	1.0366	0.0184	0.0021
Manufacturing	0.0997	0.1302	1.3550	0.1421
Services	0.0813	0.1209	0.1971	1.1936
Total	1.2022	1.2903	1.5978	1.3408

Substituting the matrix in Table 9 into equation (4b), we get:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} 1.0198 & 0.0026 & 0.0273 & 0.0030 \\ 0.0014 & 1.0366 & 0.0184 & 0.0021 \\ 0.0997 & 0.1302 & 1.3550 & 0.1421 \\ 0.0813 & 0.1209 & 0.1971 & 1.1936 \end{bmatrix} \begin{bmatrix} y_1 \\ y_2 \\ y_3 \\ y_4 \end{bmatrix} \quad (5)$$

which can be solved for x_j provided the values of y_j are specified.

Input-Output Multipliers

The normal input-output output multiplier (for sector *j*) is defined as the total change in output in all sectors of the economy that is necessary to satisfy a unit (dollar) change in the final demand of sector *j*. For example, to calculate the output multiplier for the Manufacturing sector (sector 3), we let y_3 equal one (dollar) in equation (5) and solve for **X** (note that rounding occurs in the following examples):

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} 1.0198 & 0.0026 & 0.0273 & 0.0030 \\ 0.0014 & 1.0366 & 0.0184 & 0.0021 \\ 0.0997 & 0.1302 & 1.3550 & 0.1421 \\ 0.0813 & 0.1209 & 0.1971 & 1.1936 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 0.03 \\ 0.02 \\ 1.35 \\ 0.20 \end{bmatrix} \quad (6)$$

Therefore, each (average) dollar of sales by Manufacturing to final demand would result, after all rounds of economic reaction have been felt throughout the economy, in 3 (additional) cents in Agriculture production, 2 (additional) cents in Mining production, $1.35 (including the assumed initial dollar increase) in Manufacturing output, and 20 (additional) cents in the Services sector, providing a total of $1.60 on the productive sectors in the economy.

It can be seen that these sectoral changes correspond to the elements in the Manufacturing column of Table 9. Each entry in Table 9 is therefore a multiplier indicating the expected response to a unit (dollar) sales stimulus–the elements are disaggregated output multipliers showing the relative output effects which can be expected in each sector of the economy, and the (column) sum of these items represents the conventional direct and indirect input-output multiplier, showing the expected relative impacts on the economy as a whole.

The model outlined above expresses the situation when only the productive sectors of the economy are assumed to be endogenous, i.e. when all final demand sectors are assumed to be determined by factors outside the regional productive system. If this assumption is considered unsatisfactory, the model can be fully or partially closed with respect to other variables.

Most analysts, for example, work on the assumption that the household sector is an endogenous component of the economy, i.e. that the level of local production is important in determining local levels of household income, that this in turn will be spent locally to a large extent and therefore influence the level of local consumption, and that this in turn will influence the local level of output of each sector. In this case, the input-output model can be closed with respect to households by bringing the household sector into the intermediate quadrant. The household row may be wholly incorporated if it is reasonable to assume that virtually all of the income that is earned locally is spent locally, or fractionally incorporated if some propensity to spend locally can be identified. The new closed matrix, sometimes termed the augmented matrix, is denoted here as **A***.

The augmented **A*** matrix is conceptually similar to the **A** matrix, except that each round of economic reaction now incorporates an addition to the income of households and an increase in output of the local sectors to satisfy the requirements caused by the local expenditure of this household income. Thus the inverse of the closed model includes an income multiplier and consumption-induced

effects. The closed inverse, or closed total requirements table, is given in Table 10.

Table 10
Closed Total Requirements Table

Sector	Agric.	Mining	Manuf.	Services	Household
Agriculture	1.0317	0.0158	0.0359	0.0171	0.0246
Mining	0.0051	1.0406	0.0210	0.0065	0.0077
Manufacturing	0.3674	0.4250	1.5480	0.4577	0.5543
Services	0.6100	0.7033	0.5783	1.8169	1.0947
Households	0.7770	0.8558	0.5620	0.9159	1.6087
Total	2.7913	3.0405	2.7434	3.2140	3.2900

Care should be exercised when interpreting the results from the closed model. Firstly, the household sector is not a producing sector in the same manner as the other intermediate sectors; it is still a final user. Secondly, the input-output equations (2) assume that total expenditure equals total income (i.e. x_n on LHS=x_n on RHS of the last equation in (2)). In the case of the household sector, this will not generally be true because the household row does not normally include all income payments to households. This may cause some distortion, particularly if the impact analysis uses actual final demand values rather than changes.

The columns of the closed inverse that correspond to the productive sectors are similarly disaggregated output multipliers. The elements are larger than those of the open inverse because they include output levels required by local firms to meet the consumption-induced output effects. The household row of the closed inverse indicates the amount of income that accrues to households in direct, production-induced and consumption-induced effects, per dollar of sales of each sector. The household column indicates a consumption multiplier, i.e. the effect on the output of each sector of an average dollar of consumption in the region.

The output multipliers for the closed model are calculated in the same way as the open model. The disaggregated output multiplier for the Manufacturing sector, for example, is calculated as:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} 1.0317 & 0.0158 & 0.0359 & 0.0171 \\ 0.0051 & 1.0406 & 0.0210 & 0.0065 \\ 0.3674 & 0.4250 & 1.5480 & 0.4577 \\ 0.6100 & 0.7033 & 0.5783 & 1.8169 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix} = \begin{bmatrix} 0.04 \\ 0.02 \\ 1.55 \\ 0.58 \end{bmatrix} \quad (7)$$

giving a total direct, indirect and induced effect on the productive sectors of the economy of $2.18 (the sum of x_1 to x_4) per each dollar increase in sales by Manufacturing to final demand, or a flow-on effect from the initial dollar impact of $1.18. This flow-on effect can be considered to be the result on output levels of the assumed dollar output stimulus to the regional economy, thus depicting the multiplier as a measure of response to a stimulus that can be valued in this case as an additional (or average) dollar of output.

The output multipliers for all sectors are summarised in Table 11, in the format normally used in input-output studies. Table 11 shows, for example, that each additional dollar of output of the Manufacturing sector can be expected to result in 40 cents in first-round purchases from all sectors, 20 cents in indirect or industrial-support (open) output effects from the producing sectors in the economy, and 59 cents in consumption-induced (closed) effects from household consumption, giving a total multiplier of 2.18 or a flow-on effect from the initial dollar impact of $1.18.

Table 11
Total Output Multipliers

Sector	Initial Effect	First Round	Industrial Support	Consumption Induced	Total Multiplier
Agriculture	1.00	0.14	0.06	0.81	2.01
Mining	1.00	0.20	0.09	0.89	2.18
Manufacturing	1.00	0.40	0.20	0.59	2.18
Services	1.00	0.24	0.10	0.96	2.30

The disaggregated output multipliers can also be summarised in tabular form. Table 12, for example, gives the disaggregated output multiplier for the Manufacturing sector. These multipliers, showing the sectoral breakdown of the flow-ons, have an important use in applied regional planning since they provide estimates of the expected reaction on each and every sector in the economy to a proposed unit change in the final demand of one of those sectors.

Table 12
Disaggregated Output Multipliers, Manufacturing Sector

Sector	Initial Effect	First Round	Industrial Support	Consumption Induced	Total Effect	Flow-on
Agriculture	0.00	0.02	0.01	0.01	0.04	0.04
Mining	0.00	0.01	0.01	0.00	0.02	0.02
Manufacturing	1.00	0.25	0.10	0.20	1.55	0.55
Services	0.00	0.12	0.08	0.38	0.58	0.58
Total	**1.00**	**0.40**	**0.20**	**0.59**	**2.18**	**1.18**

It is possible to extend the above analysis to calculate other types of multipliers. This is achieved by multiplying the disaggregated output multipliers by coefficients that relate output levels to the variables under study. For example, household income multipliers derived from input-output tables show the expected impact of an additional dollar of output of each sector on regional household income (wages and salaries). Thus the household income equivalent to the output matrices can be derived by multiplying each output coefficient by the corresponding income coefficient as given in the household row of Table 8. For example, 41.96 cents of each dollar of output in Agriculture goes in wages and salaries, so we need to multiply the change in Agriculture output by 0.4196 to obtain the corresponding change in Agriculture income levels. The household income multipliers are parallel in meaning to the output multipliers discussed above.

The disaggregated direct, indirect and induced income multiplier for the Manufacturing sector is derived from (7) as:

$$\begin{bmatrix} 0.04 \times 0.42 \\ 0.02 \times 0.44 \\ 1.55 \times 0.18 \\ 0.58 \times 0.45 \end{bmatrix} = \begin{bmatrix} 0.02 \\ 0.01 \\ 0.27 \\ 0.26 \end{bmatrix}$$

which shows that each dollar increase in Manufacturing output can be associated with an additional 2 cents in household income payments in the Agriculture sector, 1 cent in Mining income, 27 cents in income payments within the same sector and 26 cents in income payments in the Service sector, giving a total direct, indirect and induced income effect over all sectors of the economy of 56 cents.

Similarly, the total direct, indirect and induced employment multiplier for the Manufacturing sector is given by:

$$\begin{bmatrix} 0.04 \times 44.47 \\ 0.02 \times 25.69 \\ 1.55 \times 18.84 \\ 0.58 \times 44.03 \end{bmatrix} = \begin{bmatrix} 1.60 \\ 0.54 \\ 29.16 \\ 25.46 \end{bmatrix}$$

which gives a total direct, indirect and induced employment effect over all sectors of the economy of approximately 57 equivalent full-time jobs per each million dollars increase in Manufacturing output. The employment coefficients are calculated from Table 7, by dividing the employment in each sector by the corresponding output level. For example, in Manufacturing, the employment coefficient is given by 106616/5659=18.84, and represents the equivalent full-time employment per million dollars of output of the Manufacturing sector.

The total income and employment multipliers for all sectors are summarised in Tables 13 and 14.

Table 13

Total Income Multipliers

Sector	Initial Effect	First Round	Industrial Support	Consumption Induced	Total Multiplier	Type I Ratio	Type II Ratio
Agriculture	0.42	0.04	0.02	0.29	0.78	1.15	1.85
Mining	0.44	0.07	0.03	0.32	0.86	1.22	1.96
Manufacturing	0.18	0.11	0.06	0.21	0.56	1.97	3.17
Services	0.45	0.08	0.03	0.35	0.92	1.25	2.02

Table 14

Total Employment Multipliers

Sector	Initial Effect	First Round	Industrial Support	Consumption Induced	Total Multiplier	Type I Ratio	Type II Ratio
Agriculture	44.47	4.49	1.88	28.95	79.79	1.14	1.79
Mining	25.69	6.15	2.69	31.89	66.41	1.34	2.59
Manufacturing	18.84	11.22	5.83	20.87	56.77	1.91	3.01
Services	44.03	8.19	3.21	34.13	89.55	1.26	2.03

Analysts often calculate ratios commonly termed Type I and Type II ‘multipliers’, although they are not strictly multipliers in a technical sense. This is done in order to establish a relationship between initial

or own-sector (income or employment) effects and flow-on (income or employment) effects, and can be summarised as follows:

$$\text{Type I Ratio} = \frac{\text{Direct \& Indirect Effect}}{\text{Initial (Own Sector) Effect}}$$

$$\text{Type II Ratio} = \frac{\text{Direct, Indirect \& Induced Effect}}{\text{Initial (Own Sector) Effect}}$$

For example, the Type I income ratio for Manufacturing is 0.35/0.18=1.97, and the Type II ratio is 0.56/0.18=3.17. These values can be used as measures of association, for example each dollar of household income accruing to employees in the Manufacturing sector is associated with $3.17 in direct, indirect and induced household income in all sectors, including the initial income dollar in the Manufacturing sector. The Type II ratio in particular is commonly used in this way in impact studies.

Changes in Final Demand

The simplest, and probably most common, approach to impact analysis with input-output is an extension of the above multiplier concept. The procedure involves replacing the final demand of the required sector(s) in equation (4b) by the actual monetary values. This is the approach used in this study.

Suppose in our example that additional Manufacturing export contracts amounting to $2.1 million are to take effect. Substituting the value 2.1 for y_3 in equation (7) (assuming that the purchasing pattern of each sector remains the same) gives:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} 1.0317 & 0.0158 & 0.0359 & 0.0171 \\ 0.0051 & 1.0406 & 0.0210 & 0.0065 \\ 0.3674 & 0.4250 & 1.5480 & 0.4577 \\ 0.6100 & 0.7033 & 0.5783 & 1.8169 \end{bmatrix} \begin{bmatrix} 0 \\ 0 \\ 2.1 \\ 0 \end{bmatrix} = \begin{bmatrix} 0.08 \\ 0.04 \\ 3.25 \\ 1.22 \end{bmatrix} \quad (8)$$

indicating that an increase of $2.1 million in final demand sales by Manufacturing results in an increase of $0.08 million in Agriculture

production, \$0.04 million in Mining production, \$3.25 million (including the initial \$2.1 million increase) in Manufacturing output and \$1.22 million in Service sector output, or a total increase in output in the economy of \$4.59 million.

The initial \$2.1 million increase in output by Manufacturing will be accompanied by an increase in wage and salary payments in Manufacturing of 2.1 x 0.18=\$0.38 million and employment of 2.1 x 18.84=39.56 jobs. The corresponding direct, indirect and induced income and employment effects are given by:

$$\begin{bmatrix} 0.08 \times 0.42 \\ 0.04 \times 0.44 \\ 3.25 \times 0.18 \\ 1.22 \times 0.45 \end{bmatrix} = \begin{bmatrix} 0.03 \\ 0.02 \\ 0.59 \\ 0.55 \end{bmatrix}$$

and

$$\begin{bmatrix} 0.08 \times 44.46 \\ 0.04 \times 25.69 \\ 3.25 \times 18.84 \\ 1.22 \times 44.03 \end{bmatrix} = \begin{bmatrix} 3.56 \\ 1.03 \\ 61.23 \\ 53.72 \end{bmatrix}$$

respectively, giving a total direct, indirect and induced income effect of \$1.19 million and 119.5 equivalent full-time jobs over all sectors of the economy. Note that the same results could have been achieved by multiplying the Manufacturing output, income and employment multiplier values by the actual (monetary) change of 2.1. However, this is not generally recommended as the above example is a special case. These results are summarised in Table 15.

Table 15
Impact of a $2.1m Increase in Manufacturing Output

	Output ($m)	Income ($m)	Employment (jobs)
Initial Impact	2.10	0.38	39.56
Flow-on Effect	2.49	0.81	79.98
Total Effect	4.59	1.19	119.54
Disaggregated Total Impacts by Sector			
Agriculture	0.08	0.03	3.56
Mining	0.04	0.02	1.03
Manufacturing	3.25	0.59	61.23
Services	1.22	0.55	53.72
	4.49	1.19	119.54

Most impact situations, however, are more complex than a single change in final demand, and are more appropriately represented by multiple adjustments. These adjustments might represent a general move in the same direction for all categories, such as a general increase in consumption levels due to tax reductions, or compensating adjustments such as the re-allocation of government expenditure from (say) the service sector to the private sector.

Consider the previous example. Suppose that, in spite of the $2.1 million expansion in Manufacturing, it is expected that because of the downturn in the international demand for primary products, agriculture exports will fall by $2.1 million next year. (It is highly unlikely that the increases and decreases will be equally compensating. It is assumed here for demonstration purposes.) If we were using a simple economic base multiplier, we would conclude that because the exports are equally compensating, the net effect on the regional economy would be zero. However, because the expenditure and purchasing patterns and inter-sectoral linkages of the two sectors are different, it can be demonstrated that this is not the case.

Methodologically, the calculation of the economic impacts resulting from multiple changes in final demand is similar to that used above. The multiple changes are simply inserted into the Y vector of equation (4b). In the example, substituting the value –2.1 for y_1 (Agriculture) and +2.1 for y_3 (Manufacturing) in equation (7), we get:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix} = \begin{bmatrix} 1.0317 & 0.0158 & 0.0359 & 0.0171 \\ 0.0051 & 1.0406 & 0.0210 & 0.0065 \\ 0.3674 & 0.4250 & 1.5480 & 0.4577 \\ 0.6100 & 0.7033 & 0.5783 & 1.8169 \end{bmatrix} \begin{bmatrix} -2.1 \\ 0 \\ 2.1 \\ 0 \end{bmatrix} = \begin{bmatrix} -2.09 \\ 0.03 \\ 2.48 \\ -0.07 \end{bmatrix} \quad (9)$$

The corresponding income and employment impacts are then given by:

$$\begin{bmatrix} -2.09 \times 0.42 \\ 0.03 \times 0.44 \\ 2.48 \times 0.18 \\ -0.07 \times 0.45 \end{bmatrix} = \begin{bmatrix} -0.88 \\ 0.01 \\ 0.44 \\ -0.03 \end{bmatrix}$$

and

$$\begin{bmatrix} -2.09 \times 44.46 \\ 0.03 \times 25.69 \\ 2.48 \times 18.84 \\ -0.07 \times 44.03 \end{bmatrix} = \begin{bmatrix} -92.99 \\ 0.86 \\ 46.71 \\ -2.94 \end{bmatrix}$$

respectively. These results are summarised in Table 16. Even though the net initial output impact is zero, there is a net positive flow-on output effect to the economy. This is a result of the more interrelated structure of the Manufacturing sector relative to Agriculture, as we would expect, and can be seen by comparing the Manufacturing and Agriculture columns in Table 8; purchases by Manufacturing from other producing sectors are larger than those for Agriculture. However, there has been a net decrease in income and employment impacts. This is brought about because Agriculture is more labour intensive than Manufacturing in general, which can be seen by comparing the labour-output ratios. Each million dollars of output produced by the Agriculture sector requires on average 44.46 equivalent full-time persons, whereas only 18.84 equivalent full-time persons are required (on average) to produce $1 million of

Manufacturing output. Thus any cut-back in Agriculture production will (on average) have a greater impact on employment (and income) levels than a corresponding change in Manufacturing production.

Table 16

Impact of Compensating Changes in Manufacturing and Agriculture Output

	Output ($m)	Income ($m)	Employment (jobs)
Initial Impact	0.00	–0.51	–53.81
Flow-on Effect	0.35	0.05	5.468
Total Effect	0.35	–0.46	–48.35
Disaggregated Total Impacts by Sector			
Agriculture	–2.09	–0.88	–92.99
Mining	0.03	0.01	0.86
Manufacturing	2.48	0.44	46.71
Services	–0.07	–0.03	–2.94
	0.35	–0.46	–48.35

This example highlights the importance of taking into account the relativities and sectoral interrelationships in an impact situation. A net positive change in output levels does not necessarily flow through to positive changes in income and employment. It is very difficult to analyse these effects in other than an input-output or other general equilibrium type framework.

Although the above procedure is straightforward, it is important to keep in mind the limitations of such an approach. Firstly, the increase in the value of output should not simply be due to an increase in product price levels that are not reflected in increased usage of physical inputs. Secondly, the increased production should not simply be an aberration due to climatic or other conditions that affect physical output without affecting the purchases of inputs. Only if the change is a genuine expansion of the industry in terms of inputs and outputs should this approach be used for impact assessment. Third, the input-output equations are assumed to apply equally to increases and decreases in output. In practice, the process of contraction is not usually a mirror image of the process of expansion, so some caution is required before generalising from expansion to contraction situations.

Finally, the sectors in the table subjected to the initial impact must be an accurate representation of the industries under study. If the impacted firms or industries are sufficiently different in coefficient structure so that they cannot be uniquely identified in the table, the

transactions or direct coefficients table must be modified in some way. For example, expansion of the table by the addition of a new row and column representing the impacted industry is often desirable. This can occur either because the impacting industry is a new industry in the economy, or because the impacted industry is contained within an existing broader defined sector. In the latter case, the impacted industry should be disaggregated from its parent sector. The impact analysis would then proceed as previously described, perhaps also extending it to include the effects of proposed changes in the level of output as the firm grows and passes through various production stages until it reaches full economic production levels.

Assumptions of the Input-Output Model

This section would not be complete without some mention of the assumptions inherent in the basic model. While the input-output table is simply an accounting statement, the transformation of the table into an operational model requires the use of a number of explicit assumptions.

The assumptions of the input-output model are concerned almost entirely with the behaviour of production. The model is based on the premise that it is possible to divide all productive activities in an economy into sectors whose interrelations can be meaningfully expressed as a simple set of equations. The crucial assumption is that the money value of goods and services delivered by an industry to other producing sectors is a linear and homogeneous function of the output level of the purchasing sector. More precisely, the specific assumptions are as follows:

(i) The inputs purchased by each sector are a function only of the level of output of that sector. The input function is generally assumed linear and homogeneous of degree one, which implies constant returns to scale and no substitution between inputs. The technology is also assumed constant.

(ii) Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each sector has only a single primary output. In other words, there are no joint products.

(iii) The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the additivity assumption.

(iv) The system is in equilibrium at given prices.

(v) In the static input-output model, there are no capacity constraints so that the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions.

These assumptions highlight the desirable (and undesirable) features that ideally our model should possess. Thus, for example, the input coefficients are fixed average input propensities and we need to accept that each dollar increase in output results in the same proportional increase in inputs. This obviously rules out economies of scale. This distortion may not be excessive provided that the initial impact is small relative to the size of the industry in question and the overall economy. If however, the impacts involve a restructuring of local industries, input-output would not be appropriate. Similarly, we would want the model to be as disaggregated as possible, i.e. contain as many sectors as possible, to minimise the effects of error caused by a sector producing more than one product.

In addition, the model assumes full employment with no capacity constraints, and thus prices have no role to play in the input-output model. Again, one needs to view the application in the light of these restrictions. If the area under study is a small open economy relative to the rest of the nation, where factors of production can easily move into and out of the region and local prices gravitate to external prices (subject to transport margins, etc.) then the input-output model would be a reasonable choice. Conversely, if the economy is closed and there is likely to be ‘crowding-out’ of factors, then a more complex model is required.

Appendix B: Input-Output Industry Classification

Table 17
Gold Coast Input-Output Industry Concordance

Gold Coast Industry	Input-Output Industry Classification (IOIC) 1996/97	
Agriculture, forestry and fishing	0101	Sheep
	0103	Beef cattle
	0104	Dairy cattle
	0105	Pigs
	0102	Grains
	0106	Poultry
	0107	Other agriculture
	0200	Services to agriculture; hunting and trapping
	0300	Forestry and logging
	0400	Commercial fishing
Mining	1100	Coal; oil and gas
	1301	Iron ores
	1302	Non-ferrous metal ores
	1400	Other mining
	1500	Services to mining
Food manufacturing	2101	Meat and meat products
	2102	Dairy products
	2103	Fruit and vegetable products
	2104	Oils and fats
	2105	Flour mill products and cereal foods
	2106	Bakery products
	2107	Confectionery
	2108	Other food products
	2109	Soft drinks, cordials and syrups
	2110	Beer and malt
	2111	Wine and spirits
	2112	Tobacco products

Gold Coast Industry	Input-Output Industry Classification (IOIC) 1996/97	
Textiles, clothing and footwear	2201	Textile fibres, yarns and woven fabrics
	2202	Textile products
	2203	Knitting mill products
	2204	Clothing
	2205	Footwear
	2206	Leather and leather products
Wood and paper products	2301	Sawmill products
	2302	Other wood products
	2303	Pulp, paper and paperboard
	2304	Paper containers and products
	2401	Printing and services to printing
	2402	Publishing; recorded media and publishing
Chemical products	2501	Petroleum and coal products
	2502	Basic chemicals
	2503	Paints
	2504	Medicinal and pharmaceutical products, pesticides
	2505	Soap and detergents
	2506	Cosmetics and toiletry preparations
	2507	Other chemical products
	2508	Rubber products
	2509	Plastic products
Non-metallic mineral products	2601	Glass and glass products
	2602	Ceramic products
	2603	Cement, lime and concrete slurry
	2604	Plaster and other concrete products
	2605	Other non-metallic mineral products
Metal products	2701	Iron and steel
	2702	Basic non-ferrous metal and products
	2703	Structural metal products
	2704	Sheet metal products
	2705	Fabricated metal products

Gold Coast Industry	Input-Output Industry Classification (IOIC) 1996/97	
Machinery, appliances and equipment	2801	Motor vehicles and parts; other transport equipment
	2802	Ships and boats
	2803	Railway equipment
	2804	Aircraft
	2805	Photographic and scientific equipment
	2806	Electronic equipment
	2807	Household appliances
	2808	Other electrical equipment
	2809	Agricultural, mining and construction equipment
	2810	Other machinery and equipment
Other manufacturing	2901	Prefabricated buildings
	2902	Furniture
	2903	Other manufacturing
Electricity, gas and water	3601	Electricity supply
	3602	Gas supply
	3701	Water supply; sewerage and drainage services
Construction	4101	Residential building
	4102	Other construction
Wholesale trade	4501	Wholesale trade
Retail trade	5101	Retail trade
	5401	Mechanical repairs
	5402	Other repairs
Accommodation, cafes and restaurants	5701	Accommodation, cafes and restaurants
Transport and storage	6101	Road transport
	6201	Rail, pipeline and other transport
	6301	Water transport
	6401	Air and space transport
	6601	Services to transport; storage
Communication services	7101	Communication services
Finance and insurance	7301	Banking
	7302	Non-bank finance
	7401	Insurance
	7501	Services to finance, investment and insurance
Ownership of dwellings and property services	7701	Ownership of dwellings
	7702	Other property services

Gold Coast Industry	Input-Output Industry Classification (IOIC) 1996/97	
Business services	7801	Scientific research, technical and computer services
	7802	Legal, accounting, marketing and business management services
	7803	Other business services
Public administration and defence	8101	Government administration
	8201	Defence
Education	8401	Education
Health services	8601	Health services
Community services	8701	Community services
Recreation and entertainment services	9101	Motion picture, radio and television services
	9201	Libraries, museums and the arts
	9301	Sport, gambling and recreational services
Personal and other services	9501	Personal services
	9601	Other services

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The Gold Coast Tourism Visioning Project
Cooperative Research Centre for Sustainable Tourism

The Gold Coast Tourism Visioning project articulates a set of core values and principles that underpin a preferred future for the sustainable prosperity of Australia's leading tourism destination in the medium to longer term (10 to 20 years). It challenges destination Gold Coast to move from a past ad hoc approach to tourism to one that integrates economic, social and environmental dimensions to evolve new patterns of managing and growing tourism in a more systematic and dynamic way in this new century. Tourism is a key component of the inevitable transition to sustainable development strategies in advanced western democracies such as Australia.

Through this Gold Coast Tourism Visioning project, the local tourism industry has an opportunity to confirm itself as part of the solution, rather than as a contributor, to the economic, social and environmental challenges of the future.

With the assistance and support of numerous public and private sector organisations and individuals, a team of interdisciplinary researchers built the knowledge foundation for the leading-edge Gold Coast Tourism Visioning Project. The project has created a more strategic perspective towards tourism policy, planning, development and marketing involving the process of visioning – a technique combining the setting of a 'vision' and 'planning'.

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It had its origins in the late 1990s, when a number of Gold Coast tourism's key stakeholders recognised that the relationships between business, government and community, which had enabled the Gold Coast to flourish in the past, were changing and the destination was confronted by a new range of challenges. Many of these challenges are shared with maturing destinations the world over.

Gold Coast City Council

The tourism visioning project has provided a vehicle for advocating long-term change in the overall approach to tourism by all stakeholders concerned with the creation of a sustainable, prosperous tourism industry for the Gold Coast. Cooperation and collaboration at all levels between various stakeholder groups must override fragmentation, confrontation, internal competition and a lack of an agreed common long-term focus. A new vision for tourism is required in what has been – and can continue to be – Australia's most successful tourism destination.

CONRAD JUPITERS
GOLD COAST

Gold Coast Airport

If the Gold Coast is to continue to provide us and our visitors with the lifestyle experience for which we are known, then we must aim high, plan long and settle for nothing but sustainable excellence in all facets of OUR GOLD COAST.

The vision is in our hands, but can we see it?

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