The economic contribution of the bus industry to Victoria by Local Government Area:

Part One – The operational contribution

A report for
Bus Association Victoria

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Contents

1. Background, study objectives and headline results

The headline results

The headline results for the bus industry are as follows. In terms of direct impact, the total direct value added at factor cost created by the bus industry is $656 million. The flow-on impact of additional value added generation from:

(i) goods and services industries supporting the bus industry; and

(ii) industries supported by the expenditures flowing from the incomes generated directly or indirectly by the bus industry,

is $275 million, giving a total of $931 million or, at market prices (i.e. including indirect taxes) of $1.1 billion. This means that in 2008-09 the bus industry was responsible for generating 0.4 per cent of Victoria's gross state product.

The corresponding estimate, in terms of employment, is that the bus industry generated 10,900 employment positions for the Victorian economy.

The Local Government Areas where the bus industry was responsible for more than $30 million of gross product at factor cost were:

(i) Greater Dandenong;

(ii) Greater Geelong;

(iii) Manningham;

(iv) Maribyrnong;

(v) Melbourne;

(vi) Monash;

(vii) Whittlesea; and

(viii) Yarra Ranges.

In a two part study the objective of this first part is to estimate for 2008-09 the operational contribution of the bus industry to Victorian LGAs' economic activity. Economic activity is measured in terms of contribution of the bus industry to LGA:

- resident and industry employment;
- gross regional product;
- consumption expenditure; and
- gross industry output.

Operational versus strategic contribution

The second part of this study will focus on the economic or strategic development enhancing benefits of the bus industry. This raises the key question of what is the difference between operational and strategic contributions. This difference can be seen from the following definitions.

The direct contribution

The direct contribution of the bus industry to economic activity is its total revenue or, more correctly, the distribution of the total revenue.

The total revenue of the bus industry is made up of the following three segments, namely:

(i) **gross operating surplus**, which is made up of depreciation allowances, interest payments, dividend payments, company tax payments and retained earnings;

(ii) **wages and salaries** or income to employees; and

(iii) **goods and services purchases** to directly support the bus industry.

The flow-on benefit

The flow-on benefit is the benefit to the economy from the distribution out of bus industry revenue. Typically the flow-on benefit is restricted to the household consumption benefits from expenditure out of wage and salary income and similar inter-industry household income benefits from bus industry expenditures on industry goods and services to support the bus industry. These two flow-on channels are known as “type two benefits”. The additional benefits from tax revenues are typically not taken into account because governments may or may not spend the revenue. Also, investment benefits are not taken into account because for the bus industry investment is generally on equipment and parts, certainly not made in the local area and often not made in Australia.

The operational impact

The operational impact is the sum of the direct and flow-on impacts.

The resource cost of the bus industry

The resource cost of the bus industry is the operational benefit that would have flowed to the economy if consumers had not supported the bus industry in 2008-09. That is, if the bus industry had not been in place the resource cost of the bus industry is the alternative expenditure on taxis, rail, private motor vehicles, etc.

The development benefit of the bus industry

The development benefit of the bus industry is the flow-on benefit of the bus industry in lifting economic capacity and productivity. This comes from the benefit the bus industry generates in terms of connecting consumers with suppliers, employees with employers which can be the least cost mode in allowing some of these connections to be made and, indeed, for a more limited number of cases to be made at all.

The strategic value

The strategic value of the bus industry is simply the difference between the development benefit of the bus industry and the development benefit of the alternatives that would have to be put in place if the bus industry was eliminated, less the difference between the resource cost of the bus industry and the resource cost of the alternative transport modes.

This paper examines the operational benefit only. The strategic value will be estimated in the subsequent paper.

2. The estimation methodology

The estimation methodology is straight forward. The steps are:

(i) estimate the direct contribution of the bus industry at the LGA level;

(ii) estimate the flow-on expenditure of the bus industry to inter-industry demand and household income;

(iii) use an econometric model of Victorian LGAs to estimate the flow-on benefits; and

(iv) complete the operational benefit by summing (i) and (iii).

3. The direct estimates

The key Victorian control tables for 2008-09 are taken from ITS (Monash University) "*2009 Victorian Bus Industry Survey – Final Report*".

The key control totals are given in Table 1.

Table 1	Macro activity indicators for Victorian bus industry – 2008-09
Revenue by segment ($ million)	
School	219
Route	497
Charter	154
Total	**870**
Employment (number)	
Drivers	6,316
Others	1,684
Total	**8,000**

The next step was to break down the estimates in Table 1 to total revenue estimates and income and industry purchase estimates at the LGA level. This was done in accordance with the following steps.

Firstly, the 2006 Census estimates for the number of bus drivers ASCO classification and income received was obtained for Victorian LGAs from the ABS Census.

Secondly, the number of bus drivers to 2008-09 in accordance with transport industry employment trends from the ABS Labour Force Survey was adjusted to LGA estimates. This supplied estimates of both bus drivers and bus driver incomes where bus driver average earnings were indexed to the nearest ABS occupation wage series.

Thirdly, 2008-09 quantification rules from the 2008-09 bus industry survey were used to go from bus driver income to revenue and other cost components. These rules are given in Table 2.

Fourthly, the long distance driver employment Census data was used to adjust non-wage cost per employed driver.

Finally, the resident employment and household direct income generated from the bus industry is estimated by applying the derived journey to work matrix for bus industry employees from the 2006 Census. The detailed matrix is obtained by RAS adjustment to the nearest industry journey to work matrix from the ABS so that bus industry employment by place of work by LGA balances the bus industry employment by residents by LGA. RAS stands for row and column adjustment, where the matrix coefficients are adjusted until the row sums (on LGA bus industry resident employment) are balanced by the row sums (on LGA bus industry, industry employment).

The resulting key aggregate estimates by LGA are given in Table 3.

Table 2 The Victorian bus industry: the relationship between wage costs and total revenue (2008-09) – per cent

Service cost details	Metro	Country/Urban	School
Bus hour costs			
Driver wages + on costs	42.1	33.4	32.4
Bus kilometre costs			
Fuel (net of rebate)	8.0	14.9	10.4
Maintenance wages + on costs	5.7	5.1	6.3
Parts + other bus kilometre costs	5.3	8.6	6.3
Bus overhead costs			
Wages	6.8	5.1	3.9
Other overheads	8.4	6.6	12.1
Margin	14.0	14.8	12.8
Capital	9.7	11.7	15.7
Total	**100.0**	**100.0**	**100.0**

Source: Bus Association Victoria.

Table 4 breaks the goods and services purchases into the industry groups to be fed into the econometric model of Victorian LGAs. The break-down of expenditure is achieved by the use of ABS Input-Output tables of the national economy.

Table 3 Direct bus industry aggregates by Victorian LGAs for 2008-09

	Industry employment – number (where bus industry employees work)	Resident employment – number (where bus industry employees live)	Resident household income – 2008-09 $m	Total bus industry revenue – 2008-09 $m	Total bus industry value added – 2008-09 $m	Total bus industry purchases of goods and services – 2008-09 $m
Alpine (S)	28.7	24.2	1.2	3.9	2.7	1.2
Ararat (RC)	22.3	22.2	0.7	2.0	1.4	0.6
Ballarat (C)	204.7	162.4	7.1	24.0	16.8	7.1
Banyule (C)	157.7	129.2	6.1	14.8	11.5	3.2
Bass Coast (S)	43.3	63.7	2.4	3.9	2.7	1.2
Baw Baw (S)	101.8	124.6	4.7	9.7	6.8	2.9
Bayside (C)	152.3	44.5	2.0	17.2	13.4	3.7
Boroondara (C)	45.9	35.8	1.5	4.7	3.7	1.0
Brimbank (C)	201.3	386.9	1.8	20.9	16.4	4.6
Buloke (S)	19.0	23.7	17.9	3.7	2.6	1.1
Campaspe (S)	79.6	75.3	1.6	9.7	6.8	2.9
Cardinia (S)	193.9	174.7	3.6	18.3	14.3	4.0
Casey (C)	79.6	425.3	7.8	7.4	5.8	1.6
Central Goldfields (S)	31.0	22.5	20.4	4.2	3.0	1.3
Colac-Otway (S)	46.6	51.2	1.2	4.5	3.1	1.3
Corangamite (S)	76.7	83.0	1.9	7.1	5.0	2.1
Darebin (C)	137.8	166.1	3.1	15.0	11.8	3.3
Delatite (S)	46.0	58.4	8.0	5.5	3.9	1.7
East Gippsland (S)	87.0	101.5	3.8	8.3	5.8	2.5
Frankston (C)	217.2	192.7	9.1	21.4	16.7	4.6
Gannawarra (S)	28.5	37.6	1.2	2.3	1.6	0.7
Glen Eira (C)	0.0	79.9	4.0	0.0	0.0	0.0
Glenelg (S)	52.9	57.3	2.9	7.3	5.1	2.2
Golden Plains (S)	6.5	57.4	2.5	0.7	0.5	0.2
Greater Bendigo (C)	145.5	164.9	6.8	16.4	11.5	4.9
Greater Dandenong (C)	277.1	226.4	11.6	33.2	26.0	7.2
Greater Geelong (C)	394.6	332.7	15.4	39.9	31.2	8.7
Greater Shepparton (C)	126.6	111.9	4.1	12.3	8.6	3.7
Hepburn (S)	10.4	32.1	1.4	1.3	0.9	0.4
Hindmarsh (S)	20.4	20.4	0.9	2.5	1.7	0.7
Hobsons Bay (C)	83.5	79.8	3.8	8.9	6.9	1.9
Horsham (RC)	44.8	49.3	2.3	5.7	4.0	1.7
Hume (C)	282.6	290.8	13.3	25.8	20.2	5.6
Indigo (S)	43.9	39.3	1.3	4.0	2.8	1.2
Kingston (C)	162.0	168.0	8.4	15.5	12.1	3.4
Knox (C)	209.5	241.6	12.4	25.8	20.2	5.6
La Trobe (S)	92.3	95.4	4.7	12.7	8.9	3.8
Loddon (S)	29.3	24.6	0.8	2.5	1.8	0.8
Macedon Ranges (S)	79.7	109.3	4.3	7.5	5.3	2.2
Manningham (C)	298.3	149.9	7.5	33.3	26.1	7.2
Maribyrnong (C)	461.3	99.4	1.2	46.8	36.7	10.2
Maroondah (C)	70.2	153.4	4.6	7.9	6.2	1.7
Melbourne (C)	60.5	8.0	7.8	7.5	5.8	1.6

Table 3	Direct bus industry aggregates by Victorian LGAs for 2008-09 (continued)					
	Industry employment – number (where bus industry employees work)	Resident employment – number (where bus industry employees live)	Resident household income – 2008-09 $m	Total bus industry revenue – 2008-09 $m	Total bus industry value added – 2008-09 $m	Total bus industry purchases of goods and services – 2008-09 $m
Melton (S)	33.8	172.0	0.4	1.8	1.4	0.4
Mildura (RC)	42.3	42.0	7.2	4.6	3.3	1.4
Mitchell (S)	49.1	59.8	1.7	5.1	3.6	1.5
Moira (S)	66.8	71.4	2.4	6.1	4.3	1.8
Monash (C)	381.7	166.4	2.4	46.1	36.1	10.0
Moonee Valley (C)	84.8	100.6	8.4	11.0	8.6	2.4
Moorabool (S)	67.7	73.9	5.1	6.5	4.6	1.9
Moreland (C)	170.3	136.5	2.6	17.1	13.4	3.7
Mornington Peninsula (S)	155.1	215.0	6.4	13.9	10.9	3.0
Mount Alexander (S)	24.1	23.4	9.3	1.9	1.3	0.6
Moyne (S)	20.0	47.2	0.7	2.5	1.8	0.8
Murrindindi (S)	24.9	44.0	2.2	2.2	1.5	0.7
Nillumbik (S)	69.5	71.9	1.8	6.7	5.3	1.5
Northern Grampians (S)	23.2	18.8	3.3	2.4	1.7	0.7
Port Phillip (C)	57.6	27.7	0.8	6.5	5.1	1.4
Pyrenees (S)	13.3	18.5	1.4	2.2	1.5	0.7
Queenscliffe (B)	0.0	0.0	1.0	0.0	0.0	0.0
South Gippsland (S)	77.8	87.3	0.0	8.0	5.6	2.4
Southern Grampians (S)	52.9	52.8	3.5	6.3	4.4	1.9
Stonnington (C)	12.8	24.5	2.4	0.8	0.6	0.2
Strathbogie (S)	24.0	33.7	1.3	2.2	1.6	0.7
Surf Coast (S)	5.2	36.5	1.2	0.7	0.5	0.2
Swan Hill (RC)	48.0	33.5	1.6	5.0	3.5	1.5
Towong (S)	34.1	34.0	1.3	4.5	3.2	1.3
Unincorporated Vic	29.4	11.7	1.6	2.9	2.0	0.9
Wangaratta (RC)	66.9	65.1	0.5	9.6	6.7	2.9
Warrnambool (C)	76.8	40.7	3.4	9.5	6.7	2.8
Wellington (S)	99.7	104.3	1.8	11.4	8.0	3.4
West Wimmera (S)	11.7	11.6	4.3	0.9	0.6	0.3
Whitehorse (C)	161.6	155.3	0.3	15.1	11.9	3.3
Whittlesea (C)	352.6	355.2	7.9	41.5	32.5	9.0
Wodonga (RC)	56.8	56.7	17.1	8.3	5.9	2.5
Wyndham (C)	122.5	221.3	3.3	13.2	10.3	2.9
Yarra (C)	187.0	19.5	10.1	20.6	16.2	4.5
Yarra Ranges (S)	318.4	340.4	1.0	42.5	29.9	12.7
Yarriambiack (S)	24.7	29.6	16.6	3.9	2.7	1.2
Total	**8000**	**8000**	**365**	**870**	**656**	**214**

4. The Victorian LGA econometric model

The NIEIR Victorian LGA model is a model that links the 79 LGAs of Victoria. Each LGA has its own input-output model built around a 48 industry input-output framework which generates industry output and employment given industry final demand. Household final demand is generated by microsimulation models that generate household consumption expenditure by industry.

Appendix A outlines how the data base for the model is derived at the 106 industry level across South Australia, Victoria and New South Wales LGAs.

5. The Victorian bus industry: operational surplus

The household income (residents) and industry purchases data from Table 4 are inserted into the Victorian LGA model as a perturbation and the difference between the two model results are compared. This provides the flow-on estimates of the bus industry given in Tables 5 to 9. The total operational impact is therefore the direct impact of the bus industry on a given variable plus the flow-on impact. Thus, from Table 6, the total industry employment generated by the Victorian bus industry is 10,900, of which 2,901 are employment positions created by the flow-on effects.

Table 4(a) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million)

	Alpine (S)	Ararat (RC)	Ballarat (C)	Banyule (C)	Bass Coast (S)	Baw Baw (S)	Bayside (C)	Boroondara (C)	Brimbank (C)	Buloke (S)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Textile, clothing, footwear and leather	0.00	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.02	0.00
Wood and paper product	0.00	0.00	0.03	0.01	0.00	0.01	0.02	0.00	0.02	0.00
Printing, publishing and recorded media	0.00	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.00
Chemicals and petroleum	0.45	0.23	2.76	1.01	0.45	1.11	1.17	0.32	1.43	0.43
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.00	0.00	0.03	0.01	0.00	0.01	0.02	0.00	0.02	0.00
Machinery and equipment	0.04	0.02	0.26	0.14	0.04	0.11	0.16	0.04	0.20	0.04
Other manufacturing	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Electricity and gas	0.00	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.00
Water	0.01	0.00	0.04	0.02	0.01	0.02	0.02	0.01	0.03	0.01
General construction	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00
Basic material wholesaling	0.05	0.03	0.30	0.16	0.05	0.12	0.19	0.05	0.23	0.05
Machinery wholesaling	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.18	0.09	1.13	0.56	0.18	0.46	0.66	0.18	0.80	0.17
Accommodation and restaurants	0.01	0.00	0.05	0.02	0.01	0.02	0.03	0.01	0.04	0.01
Road transport	0.12	0.06	0.75	0.31	0.12	0.30	0.36	0.10	0.44	0.12
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.02	0.01	0.09	0.05	0.02	0.04	0.06	0.02	0.07	0.01
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.04	0.02	0.24	0.12	0.04	0.10	0.14	0.04	0.18	0.04
Finance	0.01	0.01	0.08	0.04	0.01	0.03	0.05	0.01	0.06	0.01
Insurance	0.00	0.00	0.02	0.01	0.00	0.01	0.01	0.00	0.01	0.00
Services to finance and insurance	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00

Table 4(a) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Alpine (S)	Ararat (RC)	Ballarat (C)	Banyule (C)	Bass Coast (S)	Baw Baw (S)	Bayside (C)	Boroondara (C)	Brimbank (C)	Buloke (S)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.05	0.02	0.29	0.15	0.05	0.12	0.18	0.05	0.22	0.04
Business services	0.13	0.07	0.82	0.43	0.13	0.33	0.50	0.14	0.61	0.13
Government administration	0.02	0.01	0.13	0.07	0.02	0.05	0.08	0.02	0.10	0.02
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.00
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00
Libraries, museums and the arts	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.17**	**0.60**	**7.15**	**3.21**	**1.16**	**2.89**	**3.73**	**1.03**	**4.55**	**1.10**

Table 4(b) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Campaspe (S)	Cardinia (S)	Casey (C)	Central Goldfields (S)	Colac-Otway (S)	Corangamite (S)	Darebin (C)	Delatite (S)	East Gippsland (S)	Frankston (C)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Textile, clothing, footwear and leather	0.01	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.01	0.02
Wood and paper product	0.01	0.02	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.02
Printing, publishing and recorded media	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01
Chemicals and petroleum	1.11	1.25	0.51	0.49	0.51	0.82	1.02	0.64	0.95	1.46
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.01	0.02	0.01	0.00	0.00	0.01	0.01	0.01	0.01	0.02
Machinery and equipment	0.11	0.17	0.07	0.05	0.05	0.08	0.14	0.06	0.09	0.20
Other manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Electricity and gas	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Water	0.02	0.03	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.03
General construction	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Basic material wholesaling	0.12	0.20	0.08	0.05	0.06	0.09	0.16	0.07	0.10	0.23
Machinery wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.46	0.70	0.28	0.20	0.21	0.34	0.58	0.26	0.39	0.82
Accommodation and restaurants	0.02	0.03	0.01	0.01	0.01	0.01	0.03	0.01	0.02	0.04
Road transport	0.30	0.38	0.16	0.13	0.14	0.22	0.32	0.17	0.26	0.45
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.04	0.06	0.03	0.02	0.02	0.03	0.05	0.02	0.03	0.07
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.10	0.15	0.06	0.04	0.04	0.07	0.13	0.05	0.08	0.18
Finance	0.03	0.05	0.02	0.01	0.02	0.02	0.04	0.02	0.03	0.06
Insurance	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01
Services to finance and insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table 4(b) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Campaspe (S)	Cardinia (S)	Casey (C)	Central Goldfields (S)	Colac-Otway (S)	Corangamite (S)	Darebin (C)	Delatite (S)	East Gippsland (S)	Frankston (C)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.12	0.19	0.08	0.05	0.05	0.09	0.16	0.07	0.10	0.22
Business services	0.33	0.54	0.22	0.14	0.15	0.24	0.44	0.19	0.28	0.62
Government administration	0.05	0.09	0.03	0.02	0.02	0.04	0.07	0.03	0.04	0.10
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Libraries, museums and the arts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**2.89**	**3.98**	**1.62**	**1.26**	**1.33**	**2.13**	**3.26**	**1.65**	**2.46**	**4.64**

Table 4(c) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Gannawarra (S)	Glen Eira (C)	Glenelg (S)	Golden Plains (S)	Greater Bendigo (C)	Greater Dandenong (C)	Greater Geelong (C)	Greater Shepparton (C)	Hepburn (S)	Hindmarsh (S)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
Textile, clothing, footwear and leather	0.00	0.00	0.01	0.00	0.01	0.02	0.03	0.01	0.00	0.00
Wood and paper product	0.00	0.00	0.01	0.00	0.02	0.03	0.04	0.01	0.00	0.00
Printing, publishing and recorded media	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00
Chemicals and petroleum	0.27	0.00	0.84	0.08	1.89	2.26	2.72	1.41	0.14	0.28
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.00	0.00	0.01	0.00	0.02	0.03	0.04	0.01	0.00	0.00
Machinery and equipment	0.03	0.00	0.08	0.01	0.18	0.31	0.37	0.13	0.01	0.03
Other manufacturing	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Electricity and gas	0.00	0.00	0.01	0.00	0.01	0.02	0.02	0.01	0.00	0.00
Water	0.00	0.00	0.01	0.00	0.03	0.05	0.06	0.02	0.00	0.00
General construction	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00
Basic material wholesaling	0.03	0.00	0.09	0.01	0.21	0.36	0.43	0.16	0.02	0.03
Machinery wholesaling	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.11	0.00	0.34	0.03	0.77	1.27	1.53	0.58	0.06	0.12
Accommodation and restaurants	0.00	0.00	0.01	0.00	0.03	0.06	0.07	0.02	0.00	0.00
Road transport	0.07	0.00	0.23	0.02	0.51	0.70	0.84	0.38	0.04	0.08
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.01	0.00	0.03	0.00	0.06	0.11	0.13	0.05	0.00	0.01
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.02	0.00	0.07	0.01	0.16	0.28	0.34	0.12	0.01	0.02
Finance	0.01	0.00	0.03	0.00	0.06	0.10	0.12	0.04	0.00	0.01
Insurance	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.00
Services to finance and insurance	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00

Table 4(c) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Gannawarra (S)	Glen Eira (C)	Glenelg (S)	Golden Plains (S)	Greater Bendigo (C)	Greater Dandenong (C)	Greater Geelong (C)	Greater Shepparton (C)	Hepburn (S)	Hindmarsh (S)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.03	0.00	0.09	0.01	0.20	0.35	0.41	0.15	0.02	0.03
Business services	0.08	0.00	0.25	0.02	0.56	0.97	1.17	0.42	0.04	0.08
Government administration	0.01	0.00	0.04	0.00	0.09	0.15	0.19	0.07	0.01	0.01
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.00
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Libraries, museums and the arts	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00
Total	**0.69**	**0.00**	**2.17**	**0.19**	**4.90**	**7.21**	**8.67**	**3.66**	**0.37**	**0.73**

Table 4(d) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Hobsons Bay (C)	Horsham (RC)	Hume (C)	Indigo (S)	Kingston (C)	Knox (C)	La Trobe (S)	Loddon (S)	Macedon Ranges (S)	Manningham (C)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Textile, clothing, footwear and leather	0.01	0.00	0.02	0.00	0.01	0.02	0.01	0.00	0.01	0.02
Wood and paper product	0.01	0.01	0.03	0.00	0.02	0.03	0.01	0.00	0.01	0.03
Printing, publishing and recorded media	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.02
Chemicals and petroleum	0.60	0.66	1.76	0.46	1.06	1.76	1.46	0.29	0.87	2.27
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.01	0.01	0.02	0.00	0.01	0.02	0.01	0.00	0.01	0.03
Machinery and equipment	0.08	0.06	0.24	0.04	0.15	0.24	0.14	0.03	0.08	0.31
Other manufacturing	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Electricity and gas	0.01	0.00	0.02	0.00	0.01	0.02	0.01	0.00	0.01	0.02
Water	0.01	0.01	0.04	0.01	0.02	0.04	0.02	0.00	0.01	0.05
General construction	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Basic material wholesaling	0.10	0.07	0.28	0.05	0.17	0.28	0.16	0.03	0.10	0.36
Machinery wholesaling	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.34	0.27	0.99	0.19	0.59	0.99	0.60	0.12	0.35	1.28
Accommodation and restaurants	0.02	0.01	0.04	0.01	0.03	0.04	0.03	0.01	0.01	0.06
Road transport	0.19	0.18	0.54	0.13	0.33	0.54	0.40	0.08	0.23	0.70
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.03	0.02	0.09	0.02	0.05	0.09	0.05	0.01	0.03	0.11
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.07	0.06	0.22	0.04	0.13	0.22	0.12	0.02	0.07	0.28
Finance	0.03	0.02	0.08	0.01	0.05	0.08	0.04	0.01	0.03	0.10
Insurance	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.02
Services to finance and insurance	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01

Table 4(d) Business industry – purchases of goods and services by LGA for 2009(2008-09 $ million) – continued

	Hobsons Bay (C)	Horsham (RC)	Hume (C)	Indigo (S)	Kingston (C)	Knox (C)	La Trobe (S)	Loddon (S)	Macedon Ranges (S)	Manningham (C)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.09	0.07	0.27	0.05	0.16	0.27	0.15	0.03	0.09	0.35
Business services	0.26	0.20	0.76	0.14	0.45	0.75	0.43	0.09	0.26	0.97
Government administration	0.04	0.03	0.12	0.02	0.07	0.12	0.07	0.01	0.04	0.16
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Libraries, museums and the arts	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01
Total	**1.93**	**1.71**	**5.62**	**1.20**	**3.37**	**5.60**	**3.78**	**0.76**	**2.25**	**7.24**

Table 4(e) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Maribyrnong (C)	Maroondah (C)	Melbourne (C)	Melton (S)	Mildura (RC)	Mitchell (S)	Moira (S)	Monash (C)	Moonee Valley (C)	Moorabool (S)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Textile, clothing, footwear and leather	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.03	0.01	0.01
Wood and paper product	0.05	0.01	0.01	0.00	0.01	0.01	0.01	0.05	0.01	0.01
Printing, publishing and recorded media	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00
Chemicals and petroleum	3.19	0.54	0.51	0.12	0.53	0.58	0.70	3.14	0.75	0.75
Non metallic minerals	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Metal product manufacturing	0.04	0.01	0.01	0.00	0.01	0.01	0.01	0.04	0.01	0.01
Machinery and equipment	0.44	0.07	0.07	0.02	0.05	0.06	0.07	0.43	0.10	0.07
Other manufacturing	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Electricity and gas	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00
Water	0.07	0.01	0.01	0.00	0.01	0.01	0.01	0.07	0.02	0.01
General construction	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Basic material wholesaling	0.51	0.09	0.08	0.02	0.06	0.06	0.08	0.50	0.12	0.08
Machinery wholesaling	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	1.79	0.30	0.29	0.07	0.22	0.24	0.29	1.76	0.42	0.31
Accommodation and restaurants	0.08	0.01	0.01	0.00	0.01	0.01	0.01	0.08	0.02	0.01
Road transport	0.98	0.17	0.16	0.04	0.14	0.16	0.19	0.97	0.23	0.20
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.16	0.03	0.03	0.01	0.02	0.02	0.02	0.15	0.04	0.03
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.39	0.07	0.06	0.02	0.05	0.05	0.06	0.39	0.09	0.06
Finance	0.14	0.02	0.02	0.01	0.02	0.02	0.02	0.14	0.03	0.02
Insurance	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.01	0.00
Services to finance and insurance	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00

Table 4(e) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Maribyrnong (C)	Maroondah (C)	Melbourne (C)	Melton (S)	Mildura (RC)	Mitchell (S)	Moira (S)	Monash (C)	Moonee Valley (C)	Moorabool (S)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.49	0.08	0.08	0.02	0.06	0.06	0.07	0.48	0.11	0.08
Business services	1.37	0.23	0.22	0.05	0.16	0.17	0.21	1.35	0.32	0.22
Government administration	0.22	0.04	0.03	0.01	0.03	0.03	0.03	0.21	0.05	0.04
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Libraries, museums and the arts	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Total	**10.18**	**1.73**	**1.62**	**0.39**	**1.38**	**1.52**	**1.83**	**10.01**	**2.39**	**1.94**

Table 4(f) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Moreland (C)	Mornington Peninsula (S)	Mount Alexander (S)	Moyne (S)	Murrindindi (S)	Nillumbik (S)	Northern Grampians (S)	Port Phillip (C)	Pyrenees (S)	Queenscliffe (B)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile, clothing, footwear and leather	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood and paper product	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
Printing, publishing and recorded media	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chemicals and petroleum	1.17	0.95	0.22	0.29	0.25	0.46	0.28	0.44	0.25	0.00
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.02	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
Machinery and equipment	0.16	0.13	0.02	0.03	0.02	0.06	0.03	0.06	0.02	0.00
Other manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity and gas	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.02	0.02	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
General construction	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic material wholesaling	0.18	0.15	0.02	0.03	0.03	0.07	0.03	0.07	0.03	0.00
Machinery wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.66	0.53	0.09	0.12	0.10	0.26	0.12	0.25	0.10	0.00
Accommodation and restaurants	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00
Road transport	0.36	0.29	0.06	0.08	0.07	0.14	0.08	0.14	0.07	0.00
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.06	0.05	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.00
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.14	0.12	0.02	0.02	0.02	0.06	0.02	0.05	0.02	0.00
Finance	0.05	0.04	0.01	0.01	0.01	0.02	0.01	0.02	0.01	0.00
Insurance	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to finance and insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4(f) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Moreland (C)	Mornington Peninsula (S)	Mount Alexander (S)	Moyne (S)	Murrindindi (S)	Nillumbik (S)	Northern Grampians (S)	Port Phillip (C)	Pyrenees (S)	Queenscliffe (B)
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.18	0.14	0.02	0.03	0.03	0.07	0.03	0.07	0.03	0.00
Business services	0.50	0.41	0.07	0.09	0.08	0.20	0.08	0.19	0.08	0.00
Government administration	0.08	0.06	0.01	0.01	0.01	0.03	0.01	0.03	0.01	0.00
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Libraries, museums and the arts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**3.72**	**3.03**	**0.57**	**0.75**	**0.66**	**1.46**	**0.73**	**1.41**	**0.65**	**0.00**

Table 4(g) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	South Gippsland (S)	Southern Grampians (S)	Stonnington (C)	Strathbogie (S)	Surf Coast (S)	Swan Hill (RC)	Towong (S)	Unincorporated Vic	Wangaratta (RC)	Warrnambool (C)
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textile, clothing, footwear and leather	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Wood and paper product	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Printing, publishing and recorded media	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Chemicals and petroleum	0.91	0.72	0.05	0.25	0.08	0.58	0.52	0.33	1.10	1.09
Non metallic minerals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Metal product manufacturing	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01
Machinery and equipment	0.09	0.07	0.01	0.02	0.01	0.05	0.05	0.03	0.11	0.10
Other manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity and gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Water	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.00	0.02	0.02
General construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Basic material wholesaling	0.10	0.08	0.01	0.03	0.01	0.06	0.06	0.04	0.12	0.12
Machinery wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.37	0.30	0.03	0.10	0.03	0.24	0.21	0.14	0.45	0.45
Accommodation and restaurants	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02
Road transport	0.25	0.20	0.02	0.07	0.02	0.16	0.14	0.09	0.30	0.30
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.03	0.02	0.00	0.01	0.00	0.02	0.02	0.01	0.04	0.04
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.08	0.06	0.01	0.02	0.01	0.05	0.04	0.03	0.09	0.09
Finance	0.03	0.02	0.00	0.01	0.00	0.02	0.02	0.01	0.03	0.03

Table 4(g) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	South Gippsland (S)	Southern Grampians (S)	Stonnington (C)	Strathbogie (S)	Surf Coast (S)	Swan Hill (RC)	Towong (S)	Unincorporated Vic	Wangaratta (RC)	Warrnambool (C)
Insurance	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
Services to finance and insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.10	0.08	0.01	0.03	0.01	0.06	0.05	0.04	0.12	0.12
Business services	0.27	0.22	0.02	0.08	0.03	0.17	0.15	0.10	0.33	0.32
Government administration	0.04	0.03	0.00	0.01	0.00	0.03	0.02	0.02	0.05	0.05
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Libraries, museums and the arts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other services plus private households	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**2.37**	**1.88**	**0.18**	**0.66**	**0.22**	**1.49**	**1.34**	**0.86**	**2.86**	**2.83**

Table 4(h) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Wellington (S)	West Wimmera (S)	Whitehorse (C)	Whittlesea (C)	Wodonga (RC)	Wyndham (C)	Yarra (C)	Yarra Ranges (S)	Yarriambiack (S)	Victoria
Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Services to agriculture, forestry and fishing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
Coal mining, oil and gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02
Other mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to mining	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, beverage and tobacco	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.29
Textile, clothing, footwear and leather	0.01	0.00	0.01	0.03	0.01	0.01	0.02	0.04	0.00	0.67
Wood and paper product	0.01	0.00	0.01	0.04	0.01	0.01	0.02	0.05	0.00	0.90
Printing, publishing and recorded media	0.01	0.00	0.01	0.02	0.01	0.01	0.01	0.03	0.00	0.51
Chemicals and petroleum	1.31	0.10	1.03	2.83	0.96	0.90	1.41	4.89	0.45	73.84
Non metallic minerals	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.12
Metal product manufacturing	0.01	0.00	0.01	0.04	0.01	0.01	0.02	0.05	0.00	0.86
Machinery and equipment	0.12	0.01	0.14	0.39	0.09	0.12	0.19	0.47	0.04	8.65
Other manufacturing	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.23
Electricity and gas	0.01	0.00	0.01	0.03	0.01	0.01	0.01	0.03	0.00	0.57
Water	0.02	0.00	0.02	0.06	0.01	0.02	0.03	0.07	0.01	1.34
General construction	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.00	0.28
Basic material wholesaling	0.14	0.01	0.16	0.45	0.11	0.14	0.22	0.54	0.05	9.96
Machinery wholesaling	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.19
Household good wholesaling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Household good retailing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Motor vehicle retailing and services	0.53	0.04	0.58	1.59	0.39	0.50	0.79	2.00	0.18	36.01
Accommodation and restaurants	0.02	0.00	0.03	0.07	0.02	0.02	0.03	0.08	0.01	1.56
Road transport	0.35	0.03	0.32	0.87	0.26	0.28	0.43	1.33	0.12	21.44
Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07
Water transport	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
Air	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.22
Other trans	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Services to transport	0.04	0.00	0.05	0.14	0.03	0.04	0.07	0.17	0.02	3.10
Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Communication services	0.11	0.01	0.13	0.35	0.08	0.11	0.17	0.42	0.04	7.77
Finance	0.04	0.00	0.04	0.12	0.03	0.04	0.06	0.15	0.01	2.74

Table 4(h) Business industry – purchases of goods and services by LGA for 2009 (2008-09 $ million) – continued

	Wellington (S)	West Wimmera (S)	Whitehorse (C)	Whittlesea (C)	Wodonga (RC)	Wyndham (C)	Yarra (C)	Yarra Ranges (S)	Yarriambiack (S)	Victoria
Insurance	0.01	0.00	0.01	0.02	0.01	0.01	0.01	0.03	0.00	0.52
Services to finance and insurance	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.25
Ownership of dwellings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Property services	0.14	0.01	0.16	0.43	0.10	0.14	0.21	0.52	0.05	9.59
Business services	0.39	0.03	0.44	1.21	0.28	0.38	0.60	1.45	0.13	26.96
Government administration	0.06	0.00	0.07	0.19	0.05	0.06	0.10	0.23	0.02	4.30
Defence	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Education	0.01	0.00	0.01	0.02	0.00	0.01	0.01	0.02	0.00	0.39
Health services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Community services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Film, radio and television services	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.01	0.00	0.23
Libraries, museums and the arts	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.19
Sport and recreation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Personal services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Other services plus private households	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.20
Total	**3.39**	**0.27**	**3.29**	**9.02**	**2.48**	**2.86**	**4.48**	**12.67**	**1.16**	**214.13**

Table 5 Victorian bus industry: operational impact on resident employment – number (2008-09)

	Direct	Flow-on	Total
Alpine (S)	24.2	8.9	33.1
Ararat (RC)	22.2	6.6	28.8
Ballarat (C)	162.4	69.6	232.0
Banyule (C)	129.2	64.9	194.1
Bass Coast (S)	63.7	16.8	80.5
Baw Baw (S)	124.6	35.1	159.7
Bayside (C)	44.5	36.8	81.4
Boroondara (C)	35.8	55.8	91.6
Brimbank (C)	386.9	96.6	483.5
Buloke (S)	23.7	5.9	29.6
Campaspe (S)	75.3	24.7	100.1
Cardinia (S)	174.7	46.8	221.5
Casey (C)	425.3	100.8	526.0
Central Goldfields (S)	22.5	9.2	31.7
Colac-Otway (S)	51.2	15.6	66.8
Corangamite (S)	83.0	14.3	97.3
Darebin (C)	166.1	58.1	224.2
Benalla/Mansfield	58.4	19.9	78.2
East Gippsland (S)	101.5	30.2	131.7
Frankston (C)	192.7	78.7	271.4
Gannawarra (S)	37.6	8.0	45.5
Glen Eira (C)	79.9	47.4	127.3
Glenelg (S)	57.3	16.2	73.5
Golden Plains (S)	57.4	12.9	70.3
Greater Bendigo (C)	164.9	71.4	236.3
Greater Dandenong (C)	226.4	60.8	287.1
Greater Geelong (C)	332.7	123.5	456.1
Greater Shepparton (C)	111.9	38.5	150.4
Hepburn (S)	32.1	10.3	42.3
Hindmarsh (S)	20.4	4.4	24.8
Hobsons Bay (C)	79.8	39.5	119.4
Horsham (RC)	49.3	19.5	68.8
Hume (C)	290.8	74.2	365.0
Indigo (S)	39.3	10.6	49.9
Kingston (C)	168.0	66.8	234.8
Knox (C)	241.6	100.1	341.7
La Trobe (S)	95.4	43.6	139.0
Loddon (S)	24.6	4.9	29.5
Macedon Ranges (S)	109.3	31.1	140.3
Manningham (C)	149.9	69.7	219.6
Maribyrnong (C)	99.4	29.6	129.0
Maroondah (C)	153.4	67.0	220.5
Melbourne (C)	8.0	17.1	25.1
Melton (S)	172.0	47.3	219.3
Mildura (RC)	42.0	24.4	66.4
Mitchell (S)	59.8	20.4	80.2
Moira (S)	71.4	16.8	88.3

Table 5 Victorian bus industry: operational impact on resident employment – number (2008-09) – continued

	Direct	Flow-on	Total
Monash (C)	166.4	80.2	246.6
Moonee Valley (C)	100.6	55.4	156.0
Moorabool (S)	73.9	22.4	96.4
Moreland (C)	136.5	58.9	195.4
Mornington Peninsula (S)	215.0	73.2	288.3
Mount Alexander (S)	23.4	9.2	32.6
Moyne (S)	47.2	11.0	58.3
Murrindindi (S)	44.0	12.1	56.2
Nillumbik (S)	71.9	40.5	112.3
Northern Grampians (S)	18.8	8.5	27.3
Port Phillip (C)	27.7	32.9	60.6
Pyrenees (S)	18.5	5.0	23.5
Queenscliffe (B)	0.0	1.3	1.3
South Gippsland (S)	87.3	22.6	109.9
Southern Grampians (S)	52.8	16.6	69.5
Stonnington (C)	24.5	33.1	57.6
Strathbogie (S)	33.7	8.0	41.7
Surf Coast (S)	36.5	13.4	49.9
Swan Hill (RC)	33.5	14.1	47.6
Towong (S)	34.0	8.1	42.1
Unincorporated Vic	11.7	0.1	11.8
Wangaratta (RC)	65.1	26.5	91.6
Warrnambool (C)	40.7	22.6	63.3
Wellington (S)	104.3	23.7	128.0
West Wimmera (S)	11.6	2.2	13.8
Whitehorse (C)	155.3	67.9	223.2
Whittlesea (C)	355.2	91.9	447.0
Wodonga (RC)	56.7	24.2	80.9
Wyndham (C)	221.3	62.2	283.5
Yarra (C)	19.5	27.9	47.4
Yarra Ranges (S)	340.4	137.3	477.6
Yarriambiack (S)	29.6	7.4	37.0
Total Victoria	**8000.0**	**2891.6**	**10891.6**

Table 6 Victorian bus industry: operational impact on industry employment – number (2008-09)	Direct	Flow-on	Total
Alpine (S)	28.7	9.4	38.1
Ararat (RC)	22.3	6.5	28.7
Ballarat (C)	204.7	76.8	281.5
Banyule (C)	157.7	43.5	201.2
Bass Coast (S)	43.3	15.6	58.9
Baw Baw (S)	101.8	33.2	135.0
Bayside (C)	152.3	27.4	179.8
Boroondara (C)	45.9	30.1	76.0
Brimbank (C)	201.3	89.4	290.7
Buloke (S)	19.0	6.4	25.4
Campaspe (S)	79.6	24.5	104.1
Cardinia (S)	193.9	43.3	237.2
Casey (C)	79.6	28.1	107.6
Central Goldfields (S)	31.0	9.9	40.9
Colac-Otway (S)	46.6	15.8	62.5
Corangamite (S)	76.7	14.8	91.5
Darebin (C)	137.8	60.9	198.6
Benalla/Mansfield	46.0	20.8	66.9
East Gippsland (S)	87.0	30.7	117.7
Frankston (C)	217.2	76.3	293.5
Gannawarra (S)	28.5	8.6	37.2
Glen Eira (C)	0.0	22.8	22.8
Glenelg (S)	52.9	16.4	69.4
Golden Plains (S)	6.5	6.2	12.7
Greater Bendigo (C)	145.5	72.0	217.4
Greater Dandenong (C)	277.1	115.8	392.9
Greater Geelong (C)	394.6	121.0	515.6
Greater Shepparton (C)	126.6	40.3	166.9
Hepburn (S)	10.4	8.2	18.6
Hindmarsh (S)	20.4	4.4	24.8
Hobsons Bay (C)	83.5	32.2	115.8
Horsham (RC)	44.8	20.4	65.2
Hume (C)	282.6	85.2	367.8
Indigo (S)	43.9	8.4	52.3
Kingston (C)	162.0	84.1	246.1
Knox (C)	209.5	99.9	309.4
La Trobe (S)	92.3	47.0	139.3
Loddon (S)	29.3	4.5	33.8
Macedon Ranges (S)	79.7	24.0	103.7
Manningham (C)	298.3	56.5	354.8
Maribyrnong (C)	461.3	72.7	534.0
Maroondah (C)	70.2	56.6	126.8
Melbourne (C)	60.5	155.1	215.5
Melton (S)	33.8	28.5	62.3
Mildura (RC)	42.3	24.7	67.0
Mitchell (S)	49.1	16.3	65.4
Moira (S)	66.8	15.0	81.8

Table 6 Victorian bus industry: operational impact on industry employment – number (2008-09) – continued

	Direct	Flow-on	Total
Monash (C)	381.7	118.6	500.3
Moonee Valley (C)	84.8	45.5	130.3
Moorabool (S)	67.7	15.8	83.5
Moreland (C)	170.3	44.9	215.3
Mornington Peninsula (S)	155.1	52.0	207.1
Mount Alexander (S)	24.1	8.4	32.5
Moyne (S)	20.0	8.3	28.4
Murrindindi (S)	24.9	10.3	35.3
Nillumbik (S)	69.5	17.8	87.3
Northern Grampians (S)	23.2	8.7	31.9
Port Phillip (C)	57.6	45.8	103.4
Pyrenees (S)	13.3	4.1	17.4
Queenscliffe (B)	0.0	1.4	1.4
South Gippsland (S)	77.8	22.3	100.1
Southern Grampians (S)	52.9	17.7	70.7
Stonnington (C)	12.8	24.5	37.3
Strathbogie (S)	24.0	6.8	30.8
Surf Coast (S)	5.2	9.1	14.3
Swan Hill (RC)	48.0	14.5	62.5
Towong (S)	34.1	8.1	42.2
Unincorporated Vic	29.4	0.2	29.6
Wangaratta (RC)	66.9	27.7	94.6
Warrnambool (C)	76.8	25.4	102.2
Wellington (S)	99.7	23.6	123.3
West Wimmera (S)	11.7	2.3	13.9
Whitehorse (C)	161.6	64.2	225.8
Whittlesea (C)	352.6	103.6	456.2
Wodonga (RC)	56.8	27.3	84.1
Wyndham (C)	122.5	60.9	183.4
Yarra (C)	187.0	41.8	228.9
Yarra Ranges (S)	318.4	121.0	439.4
Yarriambiack (S)	24.7	7.7	32.4
Total Victoria	**8000.0**	**2900.7**	**10900.7**

Table 7 Victorian bus industry: operational impact on industry gross output (2008-09 $ million)

	Direct	Flow-on	Total
Alpine (S)	3.9	1.6	5.5
Ararat (RC)	2.0	0.9	2.9
Ballarat (C)	24.0	11.8	35.8
Banyule (C)	14.8	6.9	21.6
Bass Coast (S)	3.9	2.4	6.2
Baw Baw (S)	9.7	4.5	14.2
Bayside (C)	17.2	6.0	23.2
Boroondara (C)	4.7	6.7	11.4
Brimbank (C)	20.9	16.1	37.0
Buloke (S)	3.7	0.9	4.6
Campaspe (S)	9.7	3.9	13.6
Cardinia (S)	18.3	6.3	24.6
Casey (C)	7.4	4.4	11.8
Central Goldfields (S)	4.2	1.5	5.7
Colac-Otway (S)	4.5	2.2	6.7
Corangamite (S)	7.1	2.4	9.5
Darebin (C)	15.0	10.9	25.9
Benalla/Mansfield	5.5	2.7	8.3
East Gippsland (S)	8.3	4.7	13.0
Frankston (C)	21.4	11.1	32.4
Gannawarra (S)	2.3	1.3	3.7
Glen Eira (C)	0.0	4.3	4.3
Glenelg (S)	7.3	3.5	10.7
Golden Plains (S)	0.7	1.0	1.7
Greater Bendigo (C)	16.4	11.0	27.4
Greater Dandenong (C)	33.2	22.1	55.3
Greater Geelong (C)	39.9	22.7	62.6
Greater Shepparton (C)	12.3	6.9	19.2
Hepburn (S)	1.3	1.0	2.3
Hindmarsh (S)	2.5	0.6	3.1
Hobsons Bay (C)	8.9	9.2	18.1
Horsham (RC)	5.7	2.7	8.5
Hume (C)	25.8	18.5	44.3
Indigo (S)	4.0	1.5	5.5
Kingston (C)	15.5	16.7	32.2
Knox (C)	25.8	16.3	42.1
La Trobe (S)	12.7	12.0	24.7
Loddon (S)	2.5	0.7	3.3
Macedon Ranges (S)	7.5	3.7	11.2
Manningham (C)	33.3	9.2	42.5
Maribyrnong (C)	46.8	14.8	61.7
Maroondah (C)	7.9	9.0	17.0
Melbourne (C)	7.5	47.3	54.8
Melton (S)	1.8	3.7	5.5
Mildura (RC)	4.6	4.1	8.7
Mitchell (S)	5.1	2.3	7.3
Moira (S)	6.1	2.6	8.8

Table 7 Victorian bus industry: operational impact on industry gross output (2008-09 $ million) – continued)

	Direct	Flow-on	Total
Monash (C)	46.1	24.6	70.6
Moonee Valley (C)	11.0	7.8	18.8
Moorabool (S)	6.5	2.3	8.8
Moreland (C)	17.1	8.4	25.5
Mornington Peninsula (S)	13.9	8.4	22.3
Mount Alexander (S)	1.9	1.3	3.2
Moyne (S)	2.5	1.4	4.0
Murrindindi (S)	2.2	1.5	3.7
Nillumbik (S)	6.7	2.7	9.4
Northern Grampians (S)	2.4	1.4	3.8
Port Phillip (C)	6.5	11.4	17.9
Pyrenees (S)	2.2	0.6	2.8
Queenscliffe (B)	0.0	0.2	0.2
South Gippsland (S)	8.0	3.3	11.3
Southern Grampians (S)	6.3	2.1	8.4
Stonnington (C)	0.8	4.6	5.5
Strathbogie (S)	2.2	1.0	3.2
Surf Coast (S)	0.7	1.4	2.2
Swan Hill (RC)	5.0	2.1	7.1
Towong (S)	4.5	1.0	5.5
Unincorporated Vic	2.9	0.1	2.9
Wangaratta (RC)	9.6	3.6	13.2
Warrnambool (C)	9.5	3.9	13.3
Wellington (S)	11.4	19.0	30.4
West Wimmera (S)	0.9	0.3	1.2
Whitehorse (C)	15.1	11.3	26.4
Whittlesea (C)	41.5	16.6	58.2
Wodonga (RC)	8.3	4.7	13.1
Wyndham (C)	13.2	10.9	24.1
Yarra (C)	20.6	8.7	29.4
Yarra Ranges (S)	42.5	18.4	61.0
Yarriambiack (S)	3.9	1.1	5.0
Total Victoria	**870.0**	**542.6**	**1412.6**

Table 8 Victorian bus industry: operational impact on gross regional product at factor cost (2008-09 $ million)

	Direct	Flow-on	Total
Alpine (S)	2.7	0.8	3.5
Ararat (RC)	1.4	0.5	1.9
Ballarat (C)	16.8	6.2	23.0
Banyule (C)	11.5	3.7	15.3
Bass Coast (S)	2.7	1.3	4.0
Baw Baw (S)	6.8	2.4	9.2
Bayside (C)	13.4	2.9	16.3
Boroondara (C)	3.7	3.5	7.2
Brimbank (C)	16.4	8.1	24.5
Buloke (S)	2.6	0.5	3.1
Campaspe (S)	6.8	1.9	8.8
Cardinia (S)	14.3	3.3	17.7
Casey (C)	5.8	2.1	8.0
Central Goldfields (S)	3.0	0.8	3.7
Colac-Otway (S)	3.1	1.1	4.3
Corangamite (S)	5.0	1.2	6.2
Darebin (C)	11.8	5.7	17.5
Benalla/Mansfield	3.9	1.6	5.5
East Gippsland (S)	5.8	2.7	8.5
Frankston (C)	16.7	6.0	22.7
Gannawarra (S)	1.6	0.7	2.3
Glen Eira (C)	0.0	2.6	2.6
Glenelg (S)	5.1	1.6	6.7
Golden Plains (S)	0.5	0.6	1.0
Greater Bendigo (C)	11.5	6.0	17.6
Greater Dandenong (C)	26.0	10.2	36.2
Greater Geelong (C)	31.2	11.1	42.4
Greater Shepparton (C)	8.6	3.6	12.3
Hepburn (S)	0.9	0.6	1.5
Hindmarsh (S)	1.7	0.4	2.1
Hobsons Bay (C)	6.9	3.6	10.5
Horsham (RC)	4.0	1.6	5.7
Hume (C)	20.2	7.9	28.1
Indigo (S)	2.8	0.8	3.6
Kingston (C)	12.1	7.4	19.6
Knox (C)	20.2	7.5	27.7
La Trobe (S)	8.9	5.9	14.8
Loddon (S)	1.8	0.4	2.2
Macedon Ranges (S)	5.3	2.0	7.3
Manningham (C)	26.1	5.0	31.1
Maribyrnong (C)	36.7	6.8	43.5
Maroondah (C)	6.2	4.4	10.6
Melbourne (C)	5.8	24.3	30.1
Melton (S)	1.4	2.2	3.6
Mildura (RC)	3.3	2.4	5.6
Mitchell (S)	3.6	1.3	4.8
Moira (S)	4.3	1.3	5.6

Table 8 Victorian bus industry: operational impact on gross regional product at factor cost (2008-09 $ million) – continued

	Direct	Flow-on	Total
Monash (C)	36.1	11.6	47.6
Moonee Valley (C)	8.6	4.1	12.7
Moorabool (S)	4.6	1.3	5.8
Moreland (C)	13.4	4.5	17.9
Mornington Peninsula (S)	10.9	4.5	15.4
Mount Alexander (S)	1.3	0.6	2.0
Moyne (S)	1.8	0.7	2.5
Murrindindi (S)	1.5	0.8	2.4
Nillumbik (S)	5.3	1.5	6.7
Northern Grampians (S)	1.7	0.7	2.5
Port Phillip (C)	5.1	5.8	10.9
Pyrenees (S)	1.5	0.4	2.0
Queenscliffe (B)	0.0	0.1	0.1
South Gippsland (S)	5.6	1.8	7.3
Southern Grampians (S)	4.4	1.3	5.7
Stonnington (C)	0.6	2.6	3.2
Strathbogie (S)	1.6	0.6	2.2
Surf Coast (S)	0.5	0.8	1.3
Swan Hill (RC)	3.5	1.2	4.7
Towong (S)	3.2	0.6	3.8
Unincorporated Vic	2.0	0.0	2.1
Wangaratta (RC)	6.7	2.0	8.8
Warrnambool (C)	6.7	2.0	8.6
Wellington (S)	8.0	10.7	18.7
West Wimmera (S)	0.6	0.2	0.8
Whitehorse (C)	11.9	6.0	17.9
Whittlesea (C)	32.5	8.1	40.6
Wodonga (RC)	5.9	2.4	8.3
Wyndham (C)	10.3	5.2	15.5
Yarra (C)	16.2	4.5	20.6
Yarra Ranges (S)	29.9	9.4	39.3
Yarriambiack (S)	2.7	0.7	3.4
Total Victoria	**655.9**	**275.3**	**931.1**

Table 9 Victorian bus industry: operational impact on household consumption expenditure (2008-09 $ million)

	Direct	Flow-on	Total
Alpine (S)	0.0	0.5	0.5
Ararat (RC)	0.0	0.9	0.9
Ballarat (C)	0.0	8.8	8.8
Banyule (C)	0.0	8.1	8.1
Bass Coast (S)	0.0	2.7	2.7
Baw Baw (S)	0.0	5.6	5.6
Bayside (C)	0.0	4.4	4.4
Boroondara (C)	0.0	3.7	3.7
Brimbank (C)	0.0	21.9	21.9
Buloke (S)	0.0	1.6	1.6
Campaspe (S)	0.0	3.9	3.9
Cardinia (S)	0.0	9.7	9.7
Casey (C)	0.0	3.6	3.6
Central Goldfields (S)	0.0	1.3	1.3
Colac-Otway (S)	0.0	2.2	2.2
Corangamite (S)	0.0	3.2	3.2
Darebin (C)	0.0	10.0	10.0
Benalla/Mansfield	0.0	2.9	2.9
East Gippsland (S)	0.0	4.2	4.2
Frankston (C)	0.0	12.3	12.3
Gannawarra (S)	0.0	1.5	1.5
Glen Eira (C)	0.0	5.2	5.2
Glenelg (S)	0.0	3.1	3.1
Golden Plains (S)	0.0	2.7	2.7
Greater Bendigo (C)	0.0	8.4	8.4
Greater Dandenong (C)	0.0	13.2	13.2
Greater Geelong (C)	0.0	18.5	18.5
Greater Shepparton (C)	0.0	5.1	5.1
Hepburn (S)	0.0	1.6	1.6
Hindmarsh (S)	0.0	0.9	0.9
Hobsons Bay (C)	0.0	5.1	5.1
Horsham (RC)	0.0	2.7	2.7
Hume (C)	0.0	14.3	14.3
Indigo (S)	0.0	1.6	1.6
Kingston (C)	0.0	9.9	9.9
Knox (C)	0.0	15.5	15.5
La Trobe (S)	0.0	5.9	5.9
Loddon (S)	0.0	0.9	0.9
Macedon Ranges (S)	0.0	5.3	5.3
Manningham (C)	0.0	12.5	12.5
Maribyrnong (C)	0.0	6.2	6.2
Maroondah (C)	0.0	9.5	9.5
Melbourne (C)	0.0	1.1	1.1
Melton (S)	0.0	9.5	9.5
Mildura (RC)	0.0	2.5	2.5
Mitchell (S)	0.0	2.8	2.8
Moira (S)	0.0	2.8	2.8

Table 9 Victorian bus industry: operational impact on household consumption expenditure (2008-09 $ million) – continued

	Direct	Flow-on	Total
Monash (C)	0.0	11.9	11.9
Moonee Valley (C)	0.0	7.5	7.5
Moorabool (S)	0.0	3.5	3.5
Moreland (C)	0.0	8.5	8.5
Mornington Peninsula (S)	0.0	10.7	10.7
Mount Alexander (S)	0.0	0.9	0.9
Moyne (S)	0.0	2.4	2.4
Murrindindi (S)	0.0	2.0	2.0
Nillumbik (S)	0.0	4.9	4.9
Northern Grampians (S)	0.0	1.0	1.0
Port Phillip (C)	0.0	2.7	2.7
Pyrenees (S)	0.0	1.1	1.1
Queenscliffe (B)	0.0	0.1	0.1
South Gippsland (S)	0.0	4.0	4.0
Southern Grampians (S)	0.0	2.6	2.6
Stonnington (C)	0.0	2.4	2.4
Strathbogie (S)	0.0	1.4	1.4
Surf Coast (S)	0.0	2.0	2.0
Swan Hill (RC)	0.0	1.7	1.7
Towong (S)	0.0	1.8	1.8
Unincorporated Vic	0.0	0.4	0.4
Wangaratta (RC)	0.0	3.9	3.9
Warrnambool (C)	0.0	2.4	2.4
Wellington (S)	0.0	5.3	5.3
West Wimmera (S)	0.0	0.4	0.4
Whitehorse (C)	0.0	9.2	9.2
Whittlesea (C)	0.0	21.8	21.8
Wodonga (RC)	0.0	3.6	3.6
Wyndham (C)	0.0	12.3	12.3
Yarra (C)	0.0	2.1	2.1
Yarra Ranges (S)	0.0	24.0	24.0
Yarriambiack (S)	0.0	1.7	1.7
Total Victoria	**0.0**	**440.0**	**440.0**

Appendix A: The estimation of international, inter-regional trade flows and input-output relationships

This appendix outlines how the trade flows and input-output relationships are estimated for the inter-regional LGA/SLA model that will be used to estimate the Alpine resorts economic significance both themselves another regions in Australia.

The total database is available for 1996 and 2001. Control totals by region are updated to 2004-05 using the underlying indicators prepared at the LGA level to update the annual "*State of the Regions*" indicators.

The core database comes from the NIEIR YourPlace database which has three and four digit ANZSIC industry output, employment, productivity from 1991, 1996, 1998 and 2001 for each LGA, household income and expenditure estimates based on the Household Expenditure Survey commodity classification, and so on.

The economic model estimation methodology

The economic segment of the freight flow, or perhaps more accurately the trade flow estimation methodology, is outlined in Figures A.1 to A.6.

The regional context

In general, individual regions correspond to Local Government Areas (or LGAs and, if required, SLAs or transport zones). For the States of Victoria, New South Wales and South Australia the trade flows for all LGAs in these States are estimated. The Australian Capital Territory is treated as an LGA. This was done to achieve maximum flexibility in the definition of the proposed port catchment area.

Queensland, Western Australia, Tasmania and the Northern Territory are treated on a state-wide basis. The full list of the 331 regions included in the trade flow estimation process is given in Table A.1. However, the Queensland area has now been modelled down to the SLA level.

The level of industry disaggregation

The estimation of regional trade flows requires the use of input-output tables. The estimation of regional input-output tables requires the use of the Australian Bureau of Statistics' National Input-Output tables. The level of industry disaggregation is, therefore, constrained by the industry structure of the national tables. The tradable goods industries in the national input-output table are given in Table A.2. Overall the national table has 106 industries.

Table A.1	The regional geographical structure		
1	Albury (C)	47	Corowa (A)
2	Armidale (C)	48	Cowra (A)
3	Ashfield (A)	49	Crookwell (A)
4	Auburn (A)	50	Culcairn (A)
5	Ballina (A)	51	Deniliquin (A)
6	Balranald (A)	52	Drummoyne (A)
7	Bankstown (C)	53	Dubbo (C)
8	Barraba (A)	54	Dumaresq (A)
9	Bathurst (C)	55	Dungog (A)
10	Baulkham Hills (A)	56	Eurobodalla (A)
11	Bega Valley (A)	57	Evans (A)
12	Bellingen (A)	58	Fairfield (C)
13	Berrigan (A)	59	Forbes (A)
14	Bingara (A)	60	Gilgandra (A)
15	Blacktown (C)	61	Glen Innes (A)
16	Bland (A)	62	Gloucester (A)
17	Blayney (A)	63	Gosford (C)
18	Blue Mountains (C)	64	Goulburn (C)
19	Bogan (A)	65	Grafton (C)
20	Bombala (A)	66	Great Lakes (A)
21	Boorowa (A)	67	Greater Lithgow (C)
22	Botany (A)	68	Greater Taree (C)
23	Bourke (A)	69	Griffith (C)
24	Brewarrina (A)	70	Gundagai (A)
25	Broken Hill (C)	71	Gunnedah (A)
26	Burwood (A)	72	Gunning (A)
27	Byron (A)	73	Guyra (A)
28	Cabonne (A)	74	Harden (A)
29	Camden (A)	75	Hastings (A)
30	Campbelltown (C) (NSW)	76	Hawkesbury (C)
31	Canterbury (C)	77	Hay (A)
32	Carrathool (A)	78	Holbrook (A)
33	Casino (A)	79	Holroyd (C)
34	Central Darling (A)	80	Hornsby (A)
35	Cessnock (C)	81	Hume (A)
36	Cobar (A)	82	Hunter's Hill (A)
37	Coffs Harbour (C)	83	Hurstville (C)
38	Conargo (A)	84	Inverell (A)
39	Concord (A)	85	Jerilderie (A)
40	Coolah (A)	86	Junee (A)
41	Coolamon (A)	87	Kempsey (A)
42	Cooma-Monaro (A)	88	Kiama (A)
43	Coonabarabran (A)	89	Kogarah (A)
44	Coonamble (A)	90	Ku-ring-gai (A)
45	Cootamundra (A)	91	Kyogle (A)
46	Copmanhurst (A)	92	Lachlan (A)

Table A.1 The regional geographical structure (continued)

93	Lake Macquarie (C)	139	Shellharbour (A)
94	Lane Cove (A)	140	Shoalhaven (C)
95	Leeton (A)	141	Singleton (A)
96	Leichhardt (A)	142	Snowy River (A)
97	Lismore (C)	143	South Sydney (C)
98	Liverpool (C)	144	Strathfield (A)
99	Lockhart (A)	145	Sutherland Shire (A)
100	Maclean (A)	146	Sydney (C)
101	Maitland (C)	147	Tallaganda (A)
102	Manilla (A)	148	Tamworth (C)
103	Manly (A)	149	Temora (A)
104	Marrickville (A)	150	Tenterfield (A)
105	Merriwa (A)	151	Tumbarumba (A)
106	Moree Plains (A)	152	Tumut (A)
107	Mosman (A)	153	Tweed (A)
108	Mudgee (A)	154	Ulmarra (A)
109	Mulwaree (A)	155	Uralla (A)
110	Murray (A)	156	Urana (A)
111	Murrumbidgee (A)	157	Wagga Wagga (C)
112	Murrurundi (A)	158	Wakool (A)
113	Muswellbrook (A)	159	Walcha (A)
114	Nambucca (A)	160	Walgett (A)
115	Narrabri (A)	161	Warren (A)
116	Narrandera (A)	162	Warringah (A)
117	Narromine (A)	163	Waverley (A)
118	Newcastle (C)	164	Weddin (A)
119	North Sydney (A)	165	Wellington (A)
120	Nundle (A)	166	Wentworth (A)
121	Nymboida (A)	167	Willoughby (C)
122	Oberon (A)	168	Windouran (A)
123	Orange (C)	169	Wingecarribee (A)
124	Parkes (A)	170	Wollondilly (A)
125	Parramatta (C)	171	Wollongong (C)
126	Parry (A)	172	Woollahra (A)
127	Penrith (C)	173	Wyong (A)
128	Pittwater (A)	174	Yallaroi (A)
129	Port Stephens (A)	175	Yarrowlumla (A)
130	Queanbeyan (C)	176	Yass (A)
131	Quirindi (A)	177	Young (A)
132	Randwick (C)	178	Unincorporated NSW
133	Richmond River (A)	179	ACT
134	Rockdale (C)	180	Alpine (S) Total
135	Ryde (C)	181	Ararat (RC) Total
136	Rylstone (A)	182	Ballarat (C) Total
137	Scone (A)	183	Banyule (C) Total
138	Severn (A)	184	Bass Coast (S) Total

Table A.1	The regional geographical structure (continued)		
185	Baw Baw (S) Total	231	Mornington Peninsula (S) Total
186	Bayside (C) Total	232	Mount Alexander (S) Total
187	Boroondara (C) Total	233	Moyne (S) Total
188	Brimbank (C) Total	234	Murrindindi (S) Total
189	Buloke (S) Total	235	Nillumbik (S) Total
190	Campaspe (S) Total	236	Northern Grampians (S) Total
191	Cardinia (S) Total	237	Port Phillip (C) Total
192	Casey (C) Total	238	Pyrenees (S) Total
193	Central Goldfields (S) Total	239	Queenscliffe (B) Total
194	Colac-Otway (S) Total	240	South Gippsland (S) Total
195	Corangamite (S) Total	241	Southern Grampians (S) Total
196	Darebin (C) Total	242	Stonnington (C) Total
197	Delatite (S) Total	243	Strathbogie (S) Total
198	East Gippsland (S) Total	244	Surf Coast (S) Total
199	Frankston (C) Total	245	Swan Hill (RC) Total
200	Gannawarra (S) Total	246	Towong (S) Total
201	Glen Eira (C) Total	247	Wangaratta (RC) Total
202	Glenelg (S) Total	248	Warrnambool (C) Total
203	Golden Plains (S) Total	249	Wellington (S) Total
204	Greater Bendigo (C) Total	250	West Wimmera (S) Total
205	Greater Dandenong (C) Total	251	Whitehorse (C) Total
206	Greater Geelong (C) Total	252	Whittlesea (C) Total
207	Greater Shepparton (C) Total	253	Wodonga (RC) Total
208	Hepburn (S) Total	254	Wyndham (C) Total
209	Hindmarsh (S) Total	255	Yarra (C) Total
210	Hobsons Bay (C) Total	256	Yarra Ranges (S) Total
211	Horsham (RC) Total	257	Yarriambiack (S) Total
212	Hume (C) Total	258	Unincorporated Vic Total
213	Indigo (S) Total	259	Adelaide (C)
214	Kingston (C) Total	260	Adelaide Hills (DC)
215	Knox (C) Total	261	Alexandrina (DC)
216	La Trobe (S) Total	262	Barossa (DC)
217	Loddon (S) Total	263	Buranga West (DC)
218	Macedon Ranges (S) Total	264	Berri and Barmera (DC)
219	Manningham (C) Total	265	Burnside (C)
220	Maribyrnong (C) Total	266	Campbelltown (C) (SA)
221	Maroondah (C) Total	267	Ceduna (DC)
222	Melbourne (C) Total	268	Charles Sturt (C)
223	Melton (S) Total	269	Clare and Gilbert Valleys (DC)
224	Mildura (RC) Total	270	Cleve (DC)
225	Mitchell (S) Total	271	Coober Pedy (DC)
226	Moira (S) Total	272	Copper Coast (DC)
227	Monash (C) Total	273	Elliston (DC)
228	Moonee Valley (C) Total	274	Flinders Ranges (DC)
229	Moorabool (S) Total	275	Franklin Harbor (DC)
230	Moreland (C) Total	276	Gawler (M)

Table A.1	The regional geographical structure (continued)		
277	Goyder (DC)	305	Port Augusta (C)
278	Grant (DC)	306	Port Lincoln (C)
279	Holdfast Bay (C)	307	Port Pirie & Dists (M)
280	Kangaroo Island (DC)	308	Prospect (C)
281	Karoonda East Murray (DC)	309	Robe (DC)
282	Kimba (DC)	310	Roxby Downs (M)
283	Lacepede (DC)	311	Salisbury (C)
284	Le Hunte (DC)	312	Southern Mallee (DC)
285	Light (DC)	313	Streaky Bay (DC)
286	Lower Eyre Peninsula (DC)	314	Tatiara (DC)
287	Loxton Waikerie (DC)	315	Tea Tree Gully (C)
288	Mallala (DC)	316	The Coorong (DC)
289	Marion (C)	317	Tumby Bay (DC)
290	Mid Murray (DC)	318	Unley (C)
291	Mitcham (C)	319	Victor Harbor (DC)
292	Mount Barker (DC)	320	Wakefield (DC)
293	Mount Gambier (C)	321	Walkerville (M)
294	Mount Remarkable (DC)	322	Wattle Range (DC)
295	Murray Bridge (RC)	323	West Torrens (C)
296	Naracoorte and Lucindale (DC)	324	Whyalla (C)
297	Northern Areas (DC)	325	Yankalilla (DC)
298	Norwood Payneham St Peters (C)	326	Yorke Peninsula (DC)
299	Onkaparinga (C)	327	Unincorporated SA
300	Orroroo/Carrieton (DC)	328	Tas
301	Renmark Paringa (DC)	329	Darwin
302	Peterborough (DC)	330	Brisbane
303	Playford (C)	331	Perth
304	Port Adelaide Enfield (C)		

Trade flow estimation: the regional household accounts

The first step in the trade flow estimation process is the construction of household accounts for each region. On the income side the regional household income is known fairly accurately from Census, Taxation Office (by postcode) and Social Security data. Given income microsimulation models are used in conjunction with asset information (house prices, rents) and survey data to estimate total household financial assets and liabilities, household savings and, therefore, total household consumption expenditure by region. This stage is outlined in Figure A.1.

Microsimulation modelling involves matching survey (such as the Australian Bureau of Statistics' Household Expenditure survey – HES – of 9,000 households) to Census data and regional activity data (such as type of retail infrastructure) to estimate highly disaggregated household consumption expenditures by region.

The 1995 HES allowed the estimation of 400 expenditure categories by region, while the latest HES of 1999 allows the estimation of up to 550 categories. The estimation for the disaggregated expenditure estimates are constrained to the total regional household expenditure estimate.

As Figure A.2 indicates, this stage of the estimation ends with the household consumption expenditures assigned to the 106 industries in the input-output framework. The important aspect of this methodology is that differences in tastes and consumer demands, as reflected by differences in income and socio-demographic factors, are fully reflected in regional outcomes.

Trade flow estimation: the value of industry output by region

The estimation of the value of production by industry and region is a complex process. Every available data source is used in the estimation process. The foundation for production estimates in the Census estimate of four-digit ANZSIC industry employment, complemented between Census years by three-digit ANZSIC employment from the Business Register.

Given the employment base, production values are assigned to each region on the basis of:

- agricultural production estimates;
- regional productivity differentials based on postcode income tax data; and
- aggregate consistency with state-wide manufacturing and mining Census and State Accounts estimates of industry output.

As noted in Figure A.3, the three and four digit ANZSIC estimates are then aggregated into the 106 industry structure.

Trade flows: regional input-output relationships

The next stage of the trade flow estimation involves the construction of a set of regional accounts showing:

- consumption expenditure;
- government expenditure;
- construction investment;
- tourist expenditure;
- inter-industry demands; and
- equipment investment.

Table A.2 The regional industry structure

1	Sheep	54	Basic non-ferrous metals and products
2	Grains	55	Structural metal products
3	Beef Cattle	56	Sheet metal products
4	Dairy Cattle	57	Fabricated metal products
5	Other Livestock	58	Motor veh. & parts; other transport equip.
6	Other Agriculture	59	Ships and boats
7	Services to agriculture, hunting and trapping	60	Railway equipment
8	Forestry and Logging	61	Aircraft
9	Commercial fishing	62	Photographic and scientific equipment
10	Coal: oil and gas	63	Electronic equipment
11	Iron Ores	64	Household appliances
12	Non-ferrous metal ores	65	Other electrical equipment
13	Other mining	66	Agricult., mining & construct. machinery; lifting & material handling equip.
14	Services to mining	67	Other machinery and equipment
15	Meat and meat products	68	Prefabricated buildings
16	Dairy products	69	Furniture
17	Fruit and vegetable products	70	Other manufacturing
18	Oils and fats	71	Electricity supply
19	Flour mill products and cereal foods	72	Gas supply
20	Bakery products	73	Water supply; sewerage & drainage serv.
21	Confectionery	74	Residential building construction
22	Other food products	75	Other construction
23	Soft drinks, cordials and syrups	76	Wholesale trade
24	Beer and malt	77	Retail Trade
25	Wine and spirits	78	Mechanical repairs
26	Tobacco products	79	Other repairs
27	Textiles fibers, yarns and woven fabrics	80	Accommodation, cafes and restaurants
28	Textile products	81	Road transport
29	Knitting mill products	82	Rail, pipeline and other transport
30	Clothing	83	Water transport
31	Footwear	84	Air and space transport
32	Leather and leather products	85	Services to transport; storage
33	Sawmill products	86	Communication services
34	Other wood products	87	Banking
35	Pulp, paper and paperboard	88	Non-bank finance
36	Paperboard containers; paperbags and sacks	89	Other business services
37	Printing and services to printing	90	Insurance
38	Publishing; recorded media and publishing	91	Services to finance, investment & insurance
39	Petroleum and coal products	92	Ownership of dwellings
40	Basic chemicals	93	Other property services
41	Paints	94	Scientific research, technical & computer serv.
42	Medicinal & pharmaceutical prod.; pesticides	95	Legal account., market. & business mgt serv.
43	Soap and detergents	96	Other business services
44	Cosmetic and toiletry preparations	97	Government administration
45	Other chemical products	98	Defence
46	Rubber products	99	Education
47	Plastic products	100	Health services
48	Glass and glass products	101	Community services
49	Ceramic products	102	Motion picture, radio and television services
50	Cement, lime and concrete slurry	103	Libraries, museums and the arts
51	Plaster and other concrete products	104	Sport, gambling and recreational services
52	Other non-metallic mineral products	105	Personal services
53	Iron and steel	106	Other services

Figure A.1: Regional household accounts

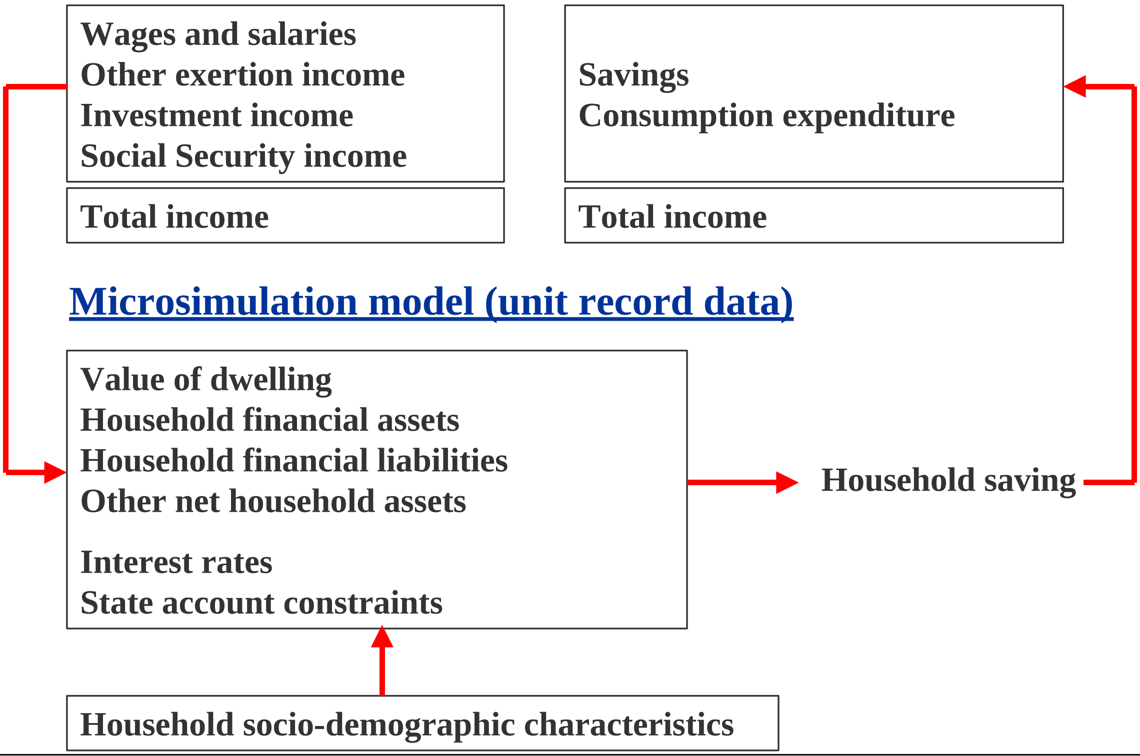


Figure A.2: Regional household expenditures

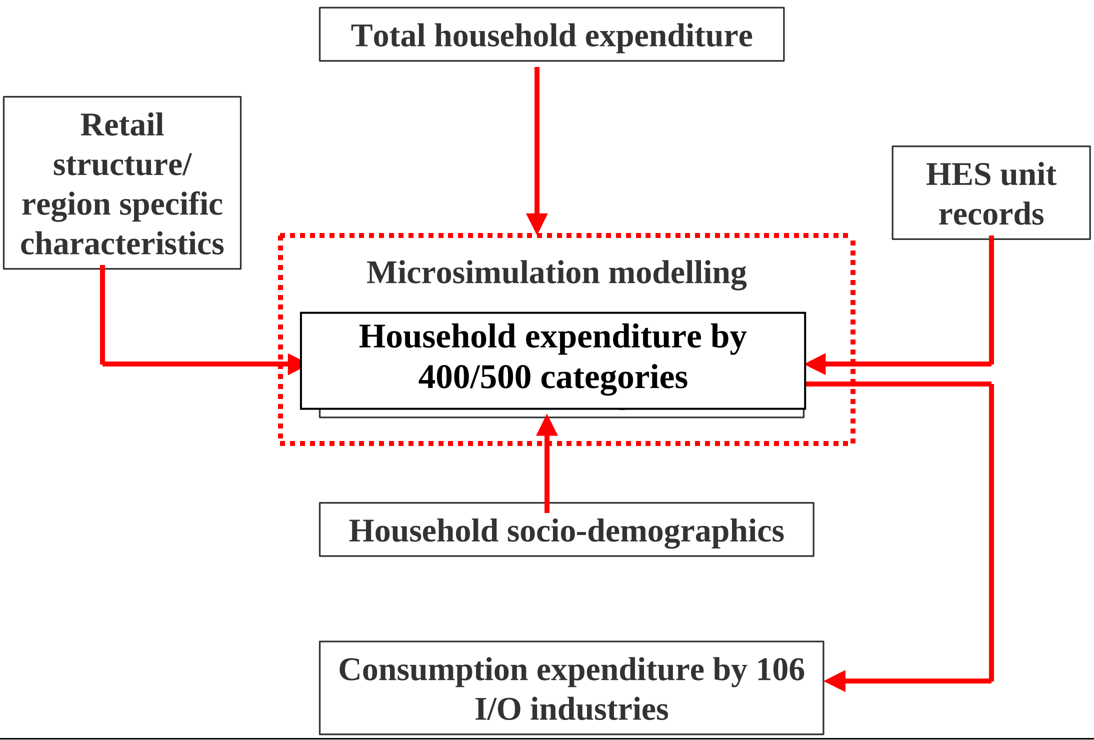


Figure A.3: Regional industry output

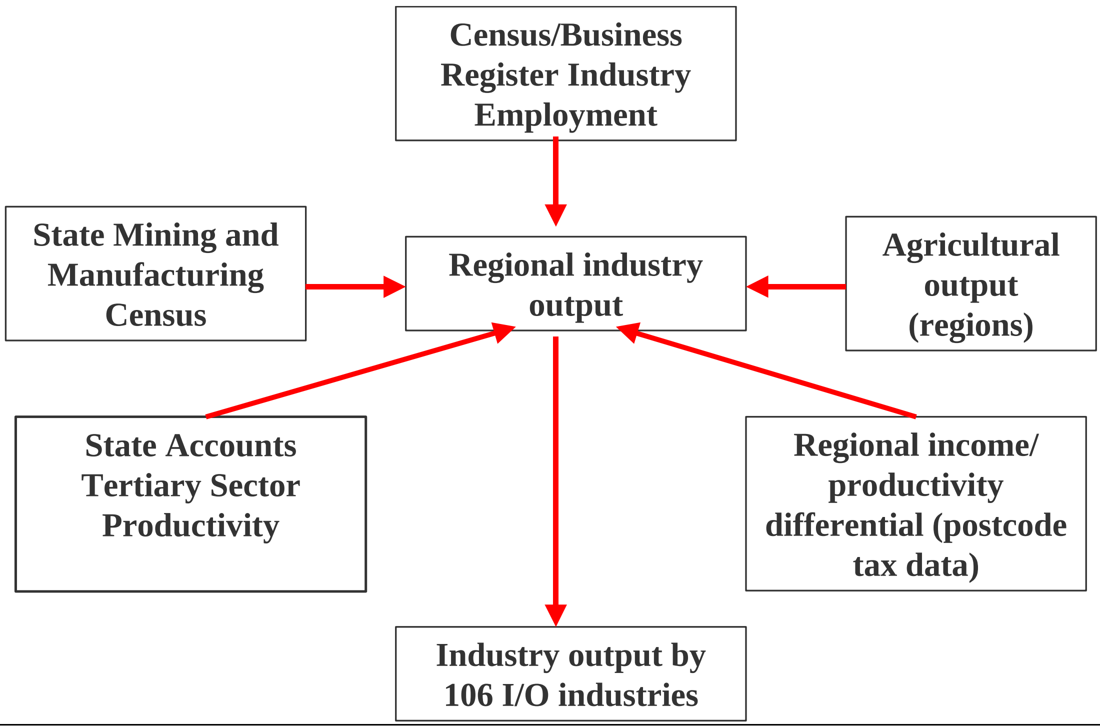
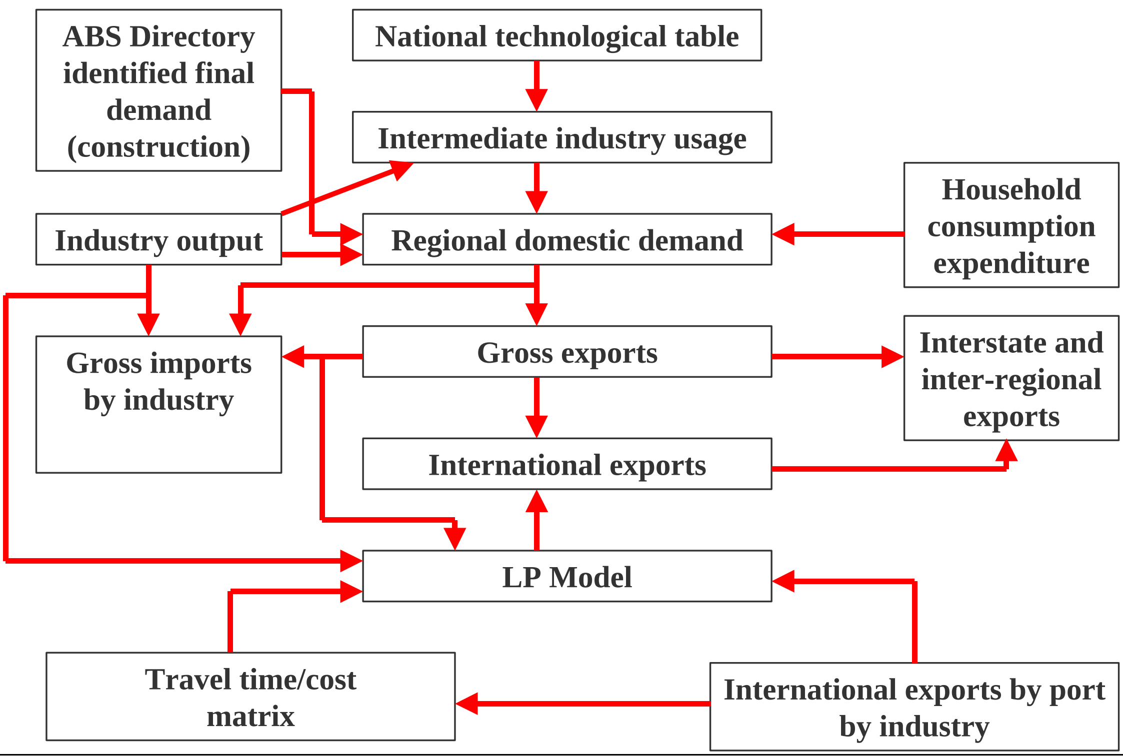


Figure A.4: Regional input-output relationships



These aggregates, in conjunction with:

(i) national input-output tables;

(ii) production data by industry;

(iii) Census information on the characteristics of firms which export; and

(iv) the RAS technique used by the ABS to estimate national input-output tables,

are used to estimate the regional input-output tables. Gross imports by industry into a region are derived as a residual from the process.

The importance of the input-output estimation to the trade flow estimation process stems from the fact that the input-output relationship indicates to what extent local production is retained within a region to support industry activity. The greater the retention of production within a region from any given industry, the less will be the trade between regions and the less exported internationally.

Trade flows: port usage

For each of the industries there is $ million and quantity (tonnes) data available showing the level of exports and imports by port and for each industry by State of origin. Given these constraints, a cost maximisation algorithm is used to allocate international exports and imports by port to the industry in (potentially) each of the 331 regions. The drivers of the port assignment outcome, as Figure A.5 indicates, are the gross exports and imports by industry. The estimation of international exports and imports by region and industry, along with port usage constraints, continues until a consistent balance is achieved across all regions in the national economy.

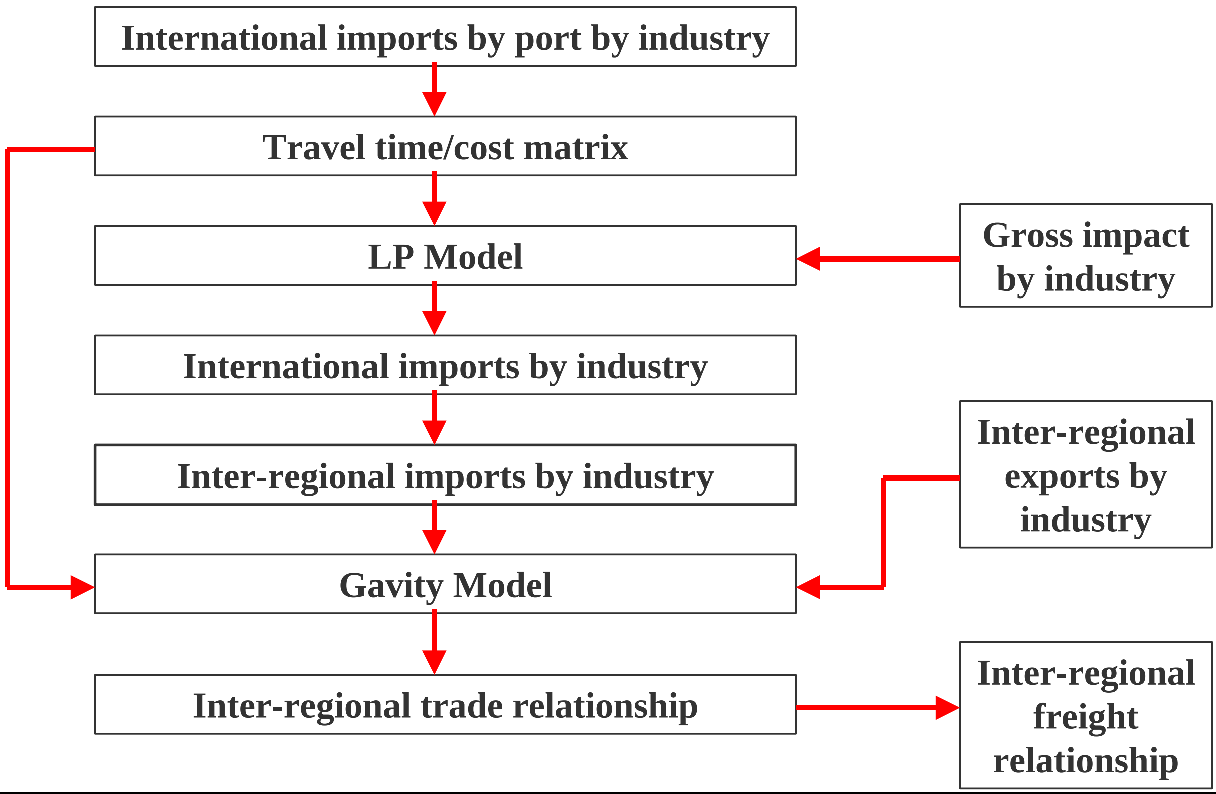
Inter-regional relationships

The estimation of international exports and imports by industry allows the estimation of inter-regional exports and imports to be calculated as a residual.

A gravity model is then used to estimate the inter-regional trade relationships for the 331 regions for a given industry. The “gravity” factors in the model are adjusted for variations in the substitutability of production for a given industry by geographical location. The less the substitutability, the greater will be the tendency of production in a given location to sell into a national market. Over time increasing specialisation in production will tend to lower the degree of substitutability between plants in the same industry in different locations. The substitutability factor for a given industry was estimated on the basis of differentials for the net interstate imports by industry and State.

The estimates of inter-regional trade flows (as outlined in Figure A.6) are carried out in $ million. However, at the end of the estimation process all $ millions are converted to ‘000 tonnes based on estimates of $/tonne estimates.

Figure A.5: Inter-regional trade relationship



The tertiary sectors

The inter-regional trade flow methodology for the tradable industry has been applied to the 20 sectors to obtain a full set of inter-regional trade flows for all 106 industries. Hence, gravity type models are used to estimate trade flows.

Trade flow validation: truck trip correction

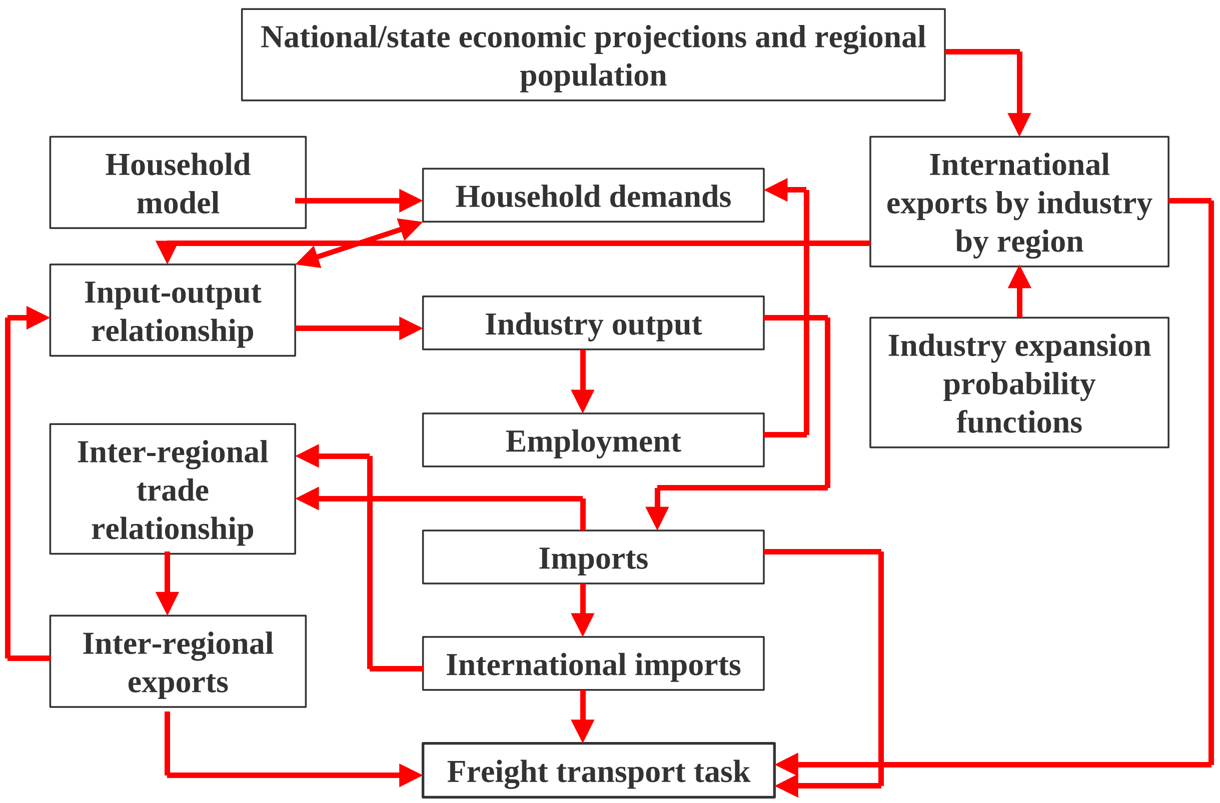
The total trade flow relationships can also be validated or corrected using truck trip data and freight flow modelling systems, such as TRIPS. This is done by interacting between the TRIPS modelling system and the NIEIR trade flow estimates between ports and regions until the truck forecasting error is minimised. That is, adjustments are made to the structure and level of exports and imports into a region until the truck forecasting error in the TRIPS modelling system is satisfactory.

The regional model structure

As Figure A.6 indicates, the estimation of the international and inter-regional trade relationship, along with the input-output relationship, provide a strong platform to develop regional economic projections and to use the quantified framework to assess the impact of the proposed port on the catchment area economies. Figure A.6 describes the inter-relationship of the modelling framework to be used in this study. The full model has, inter alia:

- consumption functions by household type by industry;
- employment functions by industry;
- productivity growth function by region and industry based on productivity – industry cluster density linkages;
- household income generation equation and identities;
- import demand functions; and
- Local, State and Federal Government revenue functions.

Figure A.6: Regional model structure



Using input-output tables in analysis

The following section describes the practical uses of input-output analyses. The Australian Bureau of Statistics (ABS) collects the input-output tables which represent the flow of goods and services between industries. The basic tables and the industry-by-industry tables provided by the ABS are essentially an accounting record of the flows in the national economy. Using simplifying assumptions the input-output estimates can serve many analytical purposes.

Regional input-output

Input-output information is available for the Australian economy as a whole and using this information, a system of building blocks is created which describes, for a product (or more commonly combination of products):

- its origin or source of supply divided into domestic production and imports;
- its destination classified into usage by various industries and final demand categories; and
- the difference between the basic price and the purchasers price for each product or margin.

National Economics has developed the region specific input-output tables with the creation of YourPlace-IO. The geographical unit of analysis is the local government area (LGA) and up to 7 LGA's can be aggregated to create a regional economy.

This process can broadly be explained in four steps and is undertaken for every region. These steps are explained below.

1. Prepare the national indirect allocation of imports table.
2. Gather all economic data on the region of interest, including industry output and consumption expenditure.
3. Analyse the regions industries input requirements given its output.
4. See how much of this input requirement can be sourced from local production.

The input-output tables are estimated for the 106 industries in the national input-output tables prepared by the Australian Bureau of Statistics (ABS). The ABS tables have 107 industries. However, data limitations forced aggregation of two: the agriculture and livestock industries. YourPlace-IO uses the YourPlace data estimates for each LGA for:

- private consumption expenditure for 400 categories;
- construction expenditure;
- equipment expenditure;
- government consumption expenditure; and
- industry output.

YourPlace-IO estimates exports and imports by 106 industries; and then calculates input-output relationships based on the indirect allocation of imports by the ABS methodology.

To measure the strength of the supply chain within a region, however, the indirect allocation tables have to be converted to tables based on the direct allocation of imports into the LGA (Step 4). These tables show the inter-relationships between industries operating within each LGA boundary.

Such tables are estimated from:

(i) the LGA indirect import allocation tables (technological tables); and

(ii) the national direct import allocation tables (as described above).

Once all the steps are undertaken the following scenario can be analysed. A specific example using the meat industry will be considered. Suppose for a region it is found for the meat industry that the column sum is 1.41. This means that for each $1 million of demand for the meat industry in an LGA that $0.41 million of additional output is generated by other industries in the LGA.

The increase in the output of other industries will represent the supply from the:

- agriculture;
- business services;
- energy;
- transport; and
- other manufacturing industries,

into the next industry to enable the meat industry to function. The more the meat industry sources its supplies of goods and services from outside the region, the smaller will be the 1.41 column sum. This figure is refereed to as a Type I multiplier.

NIEIR has two different I/O modules. The first is Current Industry Structure analysis and the second is Specific Project Analysis.

Current Industry Structure Analysis is a simple demand shock model. It corresponds to an increase in final demand. That is, an increase in demand for an industry's output. If the region does not have production in that industry the benefit to the region will be minimal as the increase in demand will be sourced from production outside the region.

Specific Project Analysis allows the user to analyse the effects of a new industry or project to the region. The new industry is assumed to expand the level of demand by the full increase modelled (it is assumed that the market for the produced good already exists). This models an increase in final demand.

This module also allows more parameters to be defined, hence increasing the relevance of the analysis. Variables that can be inputted for a specific project include number of employees, annual wage bills, profits and profits retailed locally. These extra options, which are not available using the Current Industry Structure analysis module, increase the accuracy of the estimated impacts on the regional economy.