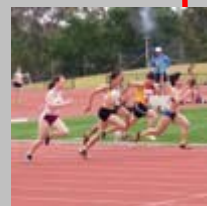
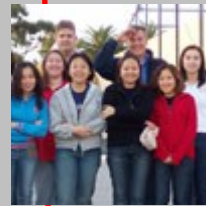




VSU Regional Economic Impact Analysis

May 2005



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Disclaimer:

All figures and data presented in this document are based on data sourced from the Australia Bureau of Statistics (ABS) and other government agencies, most of which relates to the 2001 Census. Using ABS datasets, the regional economic modelling software REMPLAN, developed at La Trobe University, Bendigo has been applied to generate industrial economic data. This document is provided in good faith with every effort made to provide accurate data and apply comprehensive knowledge. However, La Trobe University does not guarantee the accuracy of data nor the conclusions drawn from this information. A decision to pursue any suggestions mentioned in the report is wholly the responsibility of the party concerned. La Trobe University advises any party to conduct detailed feasibility studies and seek professional advice before proceeding with any action and accepts no responsibility for the consequences of pursuing any of the findings or actions discussed in the document.

RESOURCES

All modelling has been undertaken using REMPLAN[®] software that has been developed by Principal Research Fellow, Ian Pinge (ret), at the Economic Research Unit (ERU), La Trobe University Bendigo.



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Report Summary

This report details the current level of economic activity generated by the BSA in the City of Greater Bendigo. As organisations do not operate as islands in an economy, any economic activity generated by the BSA has flow-on impacts on other industry sectors within the region. This report will highlight both the direct, and flow-on regional economic contributions made by the BSA and will examine the possible effects that Voluntary Student Unionism (VSU) may have directly on the BSA and the City of Greater Bendigo economy.

The annual output of the BSA is \$1.797m. This amount has been applied to REMPLAN to calculate an estimate of the total contribution, including flow-on impacts, to the economy of the City of Greater Bendigo by the BSA.

Once all flow-on implications have been taken into consideration it is estimated the BSA contributes \$4.205m per annum to the region's output.

In order to assess the possible economic implications of VSU for the BSA and the City of Greater Bendigo a number of scenarios have been developed. To assess these scenarios modelling has been based on the marginal change expected to occur in each of the scenarios. While the annual output of the BSA is \$1.798m only \$1.301m is attributable to activities partly funded by the General Service Fee (GSF). The GSF is the core contribution made by students to the BSA under the current legislation and under proposed VSU legislation this fee becomes voluntary. All scenario modelling has been undertaken on the \$1.301m.

Scenario 1 assumes that half the students opt to pay the general services fee and the remaining students do not reallocate their spending to other consumption activity in the region.

Under this scenario the annual output of the 'Personal and Other Services' sector of which the BSA is a part would decline by \$0.651m and once all flow-on implications have been taken into consideration it is estimated that \$1.523m in output and 13 jobs would be lost across the Bendigo region.

Scenario 2 assumes half the students opt to pay the general services fee and the remaining students reallocate their spending to other consumption activity in the region according to the existing consumption patterns of the region's household sector.

Under this scenario, the \$0.651m decline in revenue to the 'Personal and Other Services' sector will be redistributed across other industry sectors in the region. The direct decline in BSA activity as part of the 'Personal and Other Services' sector is entirely offset by the redistribution of the \$0.651m across all industry sectors in the Bendigo region. Although this results in a null direct impact, the redistribution of spending results in different spending relationships in the regions economy.

The total estimated change to regional output under this scenario is a decline of \$0.067m and it is estimated that approximately 2 jobs would be lost within the Bendigo region.

Scenario 3 uses student data to separate students into 3 cohorts, mature age, non-mature age originating from Bendigo and non-mature age originating from outside Bendigo. The assumption is that half of each cohort will pay the GSF, and of the remainder will redirect their spending. For the mature age and the non-mature age originating from Bendigo that do not pay the GSF, the assumption is that this spending will be redistributed within the Bendigo region. Of the non-mature age students originating from outside Bendigo this expenditure would be redistributed outside of the region's economy.

At the margin the changes to the region's economy under this scenario relate to a redistribution of \$0.479m within the regional economy, and a loss of \$0.172 to the regional economy.

Under this scenario the regional output in the City of Greater Bendigo is estimated to decline by \$0.449m. This corresponds to a loss of nearly 5 jobs in the region.

As national voluntary student unionism hasn't been implemented as of yet, it is not possible to state categorically what membership rates will be. Therefore, for scenarios 1 to 3 the impact analysis assumed a middle position where 50 percent of students opted to take up membership and pay the GSF, and the other 50 percent of students would decline membership.

During 1994 – 2002 legislation was in place in Western Australia which saw student union membership rates at the various WA Universities range between 6 and 38 percent. For instance, in 1999 the membership rate at Curtin University was 30 percent. (Source: 2004. Hastings, G. 'VSU Legislation Experiences in WA, Victoria and Federally', NSU).

Applying the VSU experiences of Curtin University to La Trobe University, Bendigo, the estimated regional economic implications under a similar framework as those used in Scenario 3, are as follows:

Scenario 4 uses student data to separate students into 3 cohorts, mature age, non-mature age originating from Bendigo and non-mature age originating from outside Bendigo. The assumption is that 30 percent of each cohort will pay the GSF, and of the remainder will redirect their spending. For the mature age and the non-mature age students originating from Bendigo that do not pay the GSF, the assumption is that this spending will be redistributed within the Bendigo region. Of the non-mature age students originating from outside Bendigo this expenditure would be redistributed outside of the region's economy.

At the margin, the changes to the region's economy under scenario 4 relate to a direct loss to the BSA of \$0.911m with \$0.670m of this redistributed within the Bendigo economy, and a loss of \$0.241 to the Bendigo economy.

Under this scenario the annual output of the 'Personal and Other Services' sector, of which the BSA is a part, would decline by \$0.911m and once all flow-on implications have been taken into consideration it is estimated that \$0.632m in output and 7 jobs would be lost across the Bendigo region.

Introduction

The Bendigo Student Association is a not-for-profit organisation that operates to enhance student life at La Trobe University, Bendigo. Although based on campus, the BSA is a completely separate organisation to the University.

The BSA was formed to facilitate and support aspects of student life that are not purely academic by;

- Representing student interests to La Trobe University, Bendigo and the wider community
- Providing social opportunities by hosting events, activities and trips
- Providing opportunities for fitness and to participate in sports
- Giving financial & administrative support to clubs & societies on campus
- Offering support on a range of academic and welfare issues
- Providing an Employment Service
- Producing free publications such as the Student Diary and 3rd Degree
- Running quality businesses on campus such as a cafe, a stationery & art supplies shop and a sports & fitness centre

The BSA is owned by, and operated on behalf of students at La Trobe University Bendigo.

This report will detail the current level of economic activity generated by the BSA in the City of Greater Bendigo, in terms of its contribution to employment, output, wages and salaries, and Gross Regional Product (GRP). As organisations do not operate as 'islands' in an economy, any economic activity generated by the BSA has 'flow-on' impacts on other industry sectors within the region. This report will highlight both the direct, and flow-on regional economic contributions made by the BSA.

BSA Operational Activities

(All figures below relate to the period January through December 2004. Source: BSA)

The activities of the BSA can be divided into two major components:

- 1) GSF - Activities funded by the General Services Fees paid by students attending La Trobe University, Bendigo
- 2) Commercial - Activities funded through enterprise income.

The income received by the BSA from the GSF in 2004 was \$1,300,548.16. Commercial activities generated income in the same year to the value of \$496,995.63. Thus the gross revenue (output) of the BSA in 2004 was \$1,797,543.79.

The total number of BSA staff engaged in GSF funded activities is 53, and for commercial related activities the number is 19.

A further breakdown of the above employment figures is presented below:

GSF:

| | |
|-------------|----|
| Full Time - | 12 |
| Part Time - | 22 |
| Casual - | 19 |
| Total: | 53 |

Commercial:

| | |
|-------------|----|
| Full Time - | 3 |
| Casual - | 16 |
| Total - | 19 |

Therefore a total of 72 people have been employed by BSA in Bendigo during 2004.

NB. The casual employment numbers detailed above include people employed for specific events.

These direct economic activities of the BSA have been applied to the regional economic modelling software REMPLAN, to provide an estimate of the contribution of the BSA to the region's economy.

Economic Contribution Assessment

The contribution of the BSA to Bendigo's regional economy has been assessed using REMPLAN, regional economic modelling software, developed at La Trobe University, Bendigo.

REMPPLAN data is derived from the application of input – output (I-O) methodology. For further details regarding the I-O methodology please see Appendix 1.

REMPPLAN can be configured for any single or combination of local government areas. For this project a REMPLAN economic model configured for the region as defined by the local government boundaries of the City of Greater Bendigo has been applied.

REMPPLAN generates region-specific data which details the contribution by industry sectors to various measures of economic activity including: output, wages and salaries paid to employees, employment, and Gross Regional Product (GRP). This data is available at up to a 106 industry sector breakdown.

In addition to stand alone economic data by industry sector, REMPLAN also details the buying and selling interactions between sectors within the region. These interactions provide the base upon which REMPLAN's dynamic economic impact assessment capability is provided.

REMPPLAN provides this dynamic capability to estimate the likely flow-on implications of an economic change in a defined region. Economic change scenarios may relate to actual events, mooted changes, and what-if analyses. These economic changes could be either expansionary or contractionary.

For this project a number of what-if analyses have been conducted to estimate the current direct and flow-on contribution of the BSA to the Bendigo region's economy and how this contribution could be affected should the BSA experience contractionary changes in relation to its operations in the Bendigo region.

Economic impact analysis is available within REMPLAN at 17 and 35 industry sector breakdowns. All industry sector definitions are identical to those used by the Australian Bureau of Statistics in the national I-O table.

To assess the total contribution made by the BSA to Bendigo's regional economy, the turnover (output) is applied to the appropriate industry sector in REMPLAN to identify the likely flow-on effects to the rest of the regional economy.

To determine the appropriate industry sector to assign the BSA too, the ABS provide standard templates for allocating organisations to particular industry sectors.

At a four digit ANZSIC (Australia New Zealand Standard Industry Classification) code level the BSA corresponds to the '9622 Labour Associations' sector:

96 Other Services

- 9600 Other Services, undef
- 9610 Religious Organisations
- 9620 Interest Groups, undef
- 9621 Business & Professional Assoc
- 9622 Labour Associations**
- 9629 Interest Groups, nec
- 9630 Public Ord, Safety Serv undef
- 9631 Police Services
- 9632 Corrective Centres
- 9633 Fire Brigade Services
- 9634 Waste Disposal Services

NB. For economic analysis purposes data relating to businesses or organisations of interest applied within REMPLAN to the appropriate industry sector as per standard definitions used by the Australian Bureau of Statistics (ABS). These standard industry sector definitions are by nature broad and so do not always reflect exactly the activities and operations of a businesses or organisation.

At a 35 industry sector breakdown which is the upper level at which impact assessment is available within REMPLAN, the '9622 Labour Associations' sector corresponds to the 'Personal and Other Services' sector.

The annual output of the BSA is \$1,797,543.79. This amount was applied to REMPLAN to calculate an estimate of the total contribution, including flow-on impacts, to the City of Greater Bendigo economy.

Once all flow-on implications have been taken into consideration it is estimated the BSA contributes \$4.205m per annum to the region's output.

The \$4.205m includes:

- The direct contribution of the BSA of \$1.798m
- An industrial effect of \$0.784m – this relates to the intermediate inputs which the BSA sources within the regional economy and the flow-on economic activity that this generates.
- A consumption effect of \$1.624m – the BSA employs people, and the servicing of the BSA by other firms within the region (i.e. supply of intermediate inputs) generates employment. In relation to this employment, wages and salaries are paid and some of this income is used for consumption, some of which is captured within the region.

The direct activities of the BSA (i.e. annual output of \$1.798m) contribute in total \$4.204 to the Bendigo region's annual output. This represents a total output multiplier of 2.34. This level of economic activity associated with the BSA is distributed across the following industry sectors in the region:

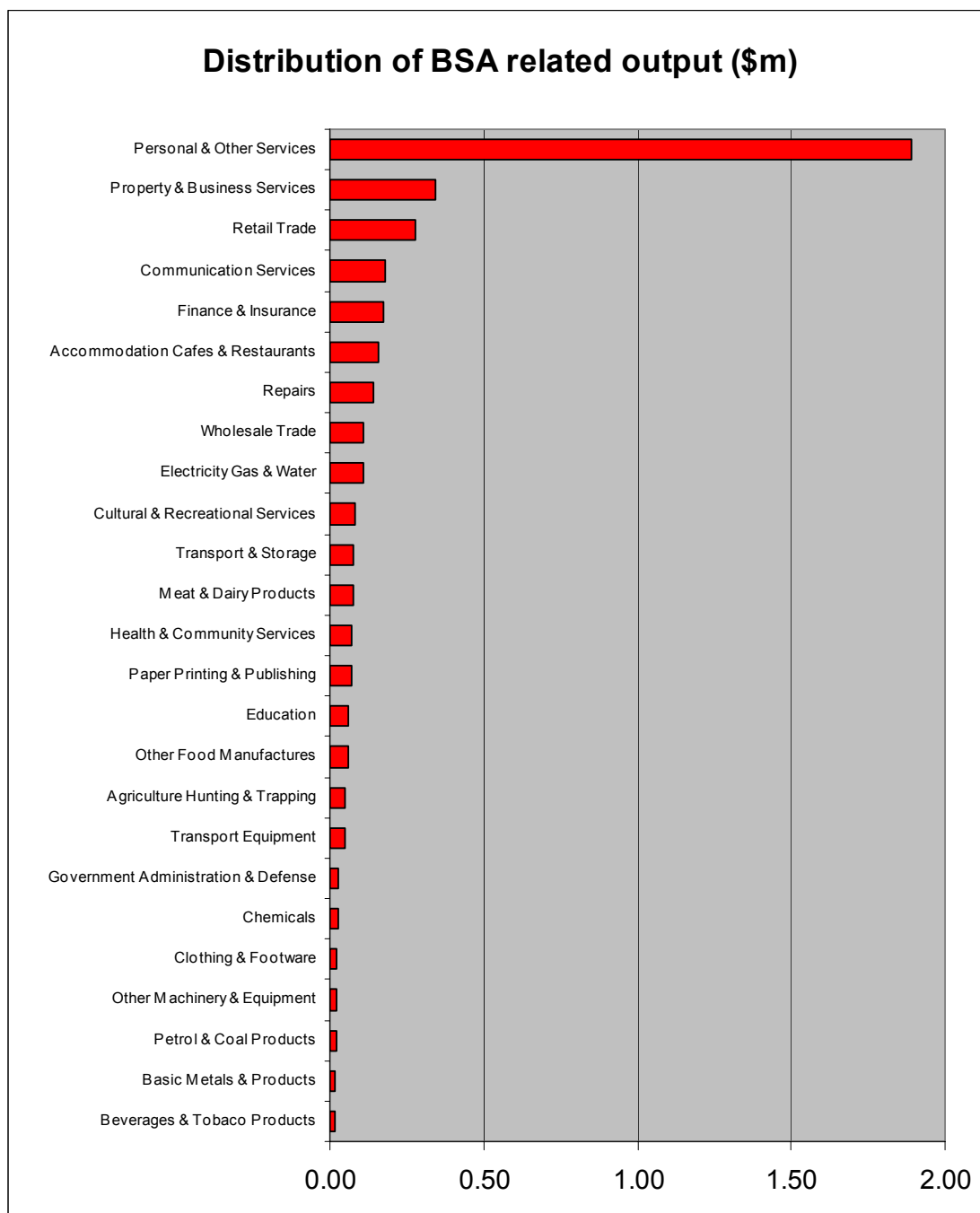


Figure 1. Distribution of output across industry sectors in the Bendigo Region in relation to economic activity associated with the BSA

The BSA is part of the ‘Personal and Other Services’ sector and as such most of the economic activity associated with the BSA occurs within this sector. This is presented in Figure 1. Following from the ‘Personal and Other Services’ sector, the other industry sectors to benefit from the operations of the BSA in the region include ‘Property and Business Services’, ‘Retail Trade’, and ‘Communication Services’.

In terms of total employment (i.e. direct employment, industrial and consumption effects) the activities of the BSA in the region correspond to 36

jobs in total across industry sectors in the region. The distribution of this total BSA related employment across industry sectors is detailed in Figure 2 below:

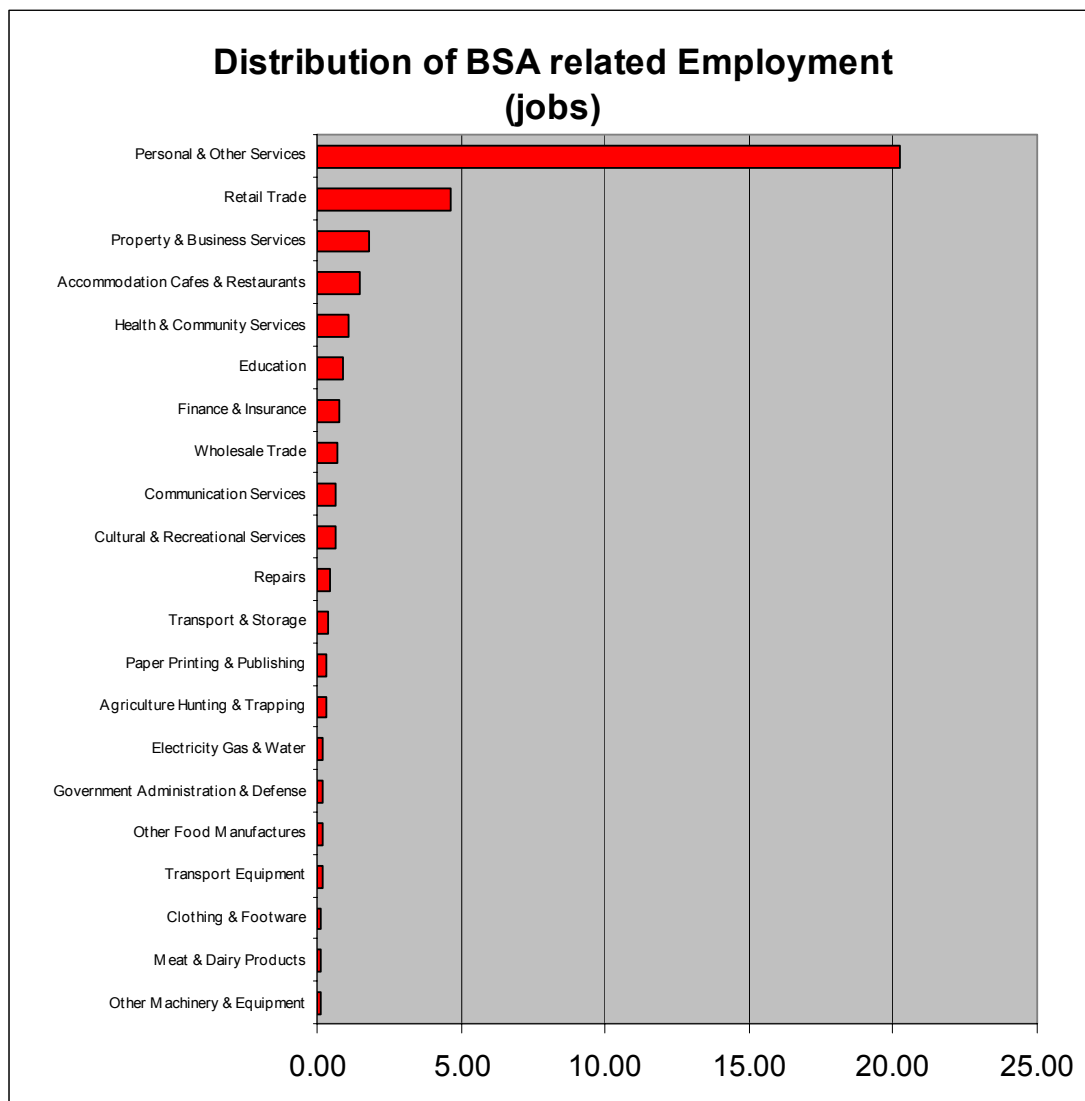


Figure 2. Distribution of employment across industry sectors in the Bendigo Region in relation to economic activity associated with the BSA

From Figure 2 above it can be observed that as with output, the ‘Retail Trade’ and Property and Business Services’ sector also benefit in terms of employment, from the operations of the BSA in the Bendigo region.

NB. The above employment data by industry sector is not equivalent full-time. The degree to which employment for each sector is apportioned between full-time, part-time and casual, is dependent upon the characteristics of that sector. For instance, the retail trade sector is characterised by part-time and casual employment.

For further details on the modelling of the BSA’s Contribution Assessment see Appendix 2.

Economic Impact Assessment Scenarios

The current operations of the BSA are dependant upon its current revenue. Should the revenue of the organisation change then this would have ramifications in terms of its capacity to deliver services.

The revenue which the BSA receives from the General Services Fee (GSF) may change in the near future as a consequence of mooted Federal Government policy.

The potential reduction in revenue received by the BSA would have direct implications for the capacity to maintain current staffing levels and to deliver the current level of services. This would inturn have flow-on implications for other firms in the region which supply the BSA with various goods and services. These direct and flow-on changes would be associated with lower demand for labour therefore impacting on consumption activity in the region.

It is important to note however, that should monies currently allocated to pay the GSF be reallocated and spent in other areas of the regional economy the economic impacts will differ. Possible differences could include a reduced negative impact, a negligible impact, or an expansionary impact. The difference will depend on the final extent to which GSF related monies are reallocated within the regional economy, and how this reallocation is distributed.

The mooted policy changes relate to voluntary student unionism (VSU) where it would no longer be compulsory for students to pay the GSF.

Four impact assessment scenarios have been applied to REMPLAN for analysis and the findings are presented below:

The worst case scenario for the BSA and the Bendigo region would be where 100% of students opt not to pay the GSF and this expenditure is not reallocated to other consumption activity in the region. However, it is not possible to categorically determine the extent to which students would opt to pay the GSF under voluntary arrangements and so some assumptions need to be made.

Modelling Economic Impact Scenarios

Scenario 1

Scenario 1 assumes that half the students opt to pay the general services fee and the remaining students do not reallocate their spending to other consumption activity in the region.

The annual output of the BSA is \$1.798m of which there are two main components:

- 1) GSF (General Services Fee): \$1.301m per annum
- 2) Commercial: \$0.497m per annum

NB. GSF related revenue of \$1.301m includes revenue from other sources which is contingent upon seed funding from GSF derived revenue.

It is assumed that the commercial component of the BSA's revenue is unaffected.

Therefore, under this scenario the annual output of the 'Personal and Other Services' sector of which the BSA is a part would decline by:

$$\$1.301\text{m} / 2 = \mathbf{\$0.651\text{m}}$$

From a direct decline of \$0.651m in output in the 'Personal and Other Services' sector in the City of Greater Bendigo, the following changes are estimated to take effect:

Output (\$m)

| | |
|---------------------|-----------|
| Direct change: | -\$0.651m |
| Industrial Effect: | -\$0.284m |
| Consumption Effect: | -\$0.588m |
| Total change: | -\$1.523m |

These output changes equate to the following changes in employment.

Employment (non-equivalent full-time jobs)

| | |
|---------------------|-------|
| Direct change: | -7 |
| Industrial Effect: | -1.6 |
| Consumption Effect: | -4.6 |
| Total change: | -13.1 |

From a direct decline of \$0.651m in the 'Personal and Other Services' it is estimated under this scenario that total regional output across industry sectors in the City of Greater Bendigo would decline by \$1.523m and that approximately 13 jobs would be lost.

See Appendix 3 for further details.

Scenario 2

Scenario 2 assumes half the students opt to pay the general services fee and the remaining students reallocate their spending to other consumption activity in the region according to the existing consumption patterns of the region's household sector.

The annual output of the BSA is \$1.798m of which there are two main components:

- 1) GSF (General Services Fee) - \$1.301m per annum
- 2) Commercial - \$0.497m per annum

NB. GSF related revenue of \$1.301m includes revenue from other sources which is contingent upon seed funding from GSF derived revenue.

It is assumed that the commercial component of the BSA's revenue is unaffected.

Therefore, under this scenario the annual output of the 'Personal and Other Services' sector of which the BSA is a part would decline by:

$$\$1.301m / 2 = \mathbf{\$0.651m}$$

Under this scenario, the \$0.651m decline in revenue to the 'Personal and Other Services' sector will be redistributed across other industry sectors in the region. This redistribution is according to the existing typical household sector consumption patterns. The redistribution of the \$0.651m is detailed below in table 1:

| Industry sector | \$m | Industry sector | \$m |
|------------------------------|-------|----------------------------------|-------|
| Agric Hunting & Trapping | 0.006 | Miscellaneous Manufacturing | 0.005 |
| Forestry & Fishing | 0.000 | Electrical Gas & Water | 0.027 |
| Mining | 0.000 | Construction | 0.000 |
| Meat & Dairy Products | 0.022 | Wholesale Trade | 0.025 |
| Other Food Manufactures | 0.021 | Retail Trade | 0.149 |
| Beverages & Tobacco Products | 0.006 | Repairs | 0.024 |
| Textiles | 0.002 | Accommodation Cafes & Rest | 0.063 |
| Clothing & Footwear | 0.009 | Transport & Storage | 0.016 |
| Wood & Wood Products | 0.000 | Communication Services | 0.026 |
| Paper Printing & Publishing | 0.006 | Finance & Insurance | 0.056 |
| Petrol & Coal Products | 0.006 | Ownership of Dwellings | 0.000 |
| Chemicals | 0.006 | Property & Bus Services | 0.009 |
| Rubber & Plastic Products | 0.001 | Government & Admin | 0.002 |
| Non-Metal Mineral Products | 0.000 | Education | 0.023 |
| Basic Metals & Products | 0.000 | Health & Community Services | 0.039 |
| Fabric Metal Products | 0.000 | Cultural & Recreational Services | 0.036 |
| Transport Equipment | 0.017 | Personal & Other Services | 0.042 |
| Other Machinery & Equip | 0.003 | | |
| | | Total: | 0.651 |

Table 1. Redistribution of \$0.651m based on typical household sector consumption patterns for the City of Greater Bendigo.

From the direct decline of \$0.651m in output in the 'Personal and Other Services' sector, and the redistribution of this amount according to the existing household sector consumption patterns in the City of Greater Bendigo, the following changes are estimated to take effect:

Output (\$m)

| | |
|---------------------|-----------|
| Direct change: | \$0.000m |
| Industrial Effect: | \$0.025m |
| Consumption Effect: | -\$0.092m |
| Total change: | -\$0.067m |

These output changes equate to the following changes in employment. The direct change in employment is the net effect of the losing 7 jobs from the 'Personal and Other Services' sector and gaining 6 jobs through the redistribution of \$0.651m within the regional economy.

Employment (non-equivalent full-time jobs)

| | |
|---------------------|------|
| Direct change: | -1 |
| Industrial Effect: | -0.0 |
| Consumption Effect: | -0.7 |
| Total change: | -1.8 |

Under this scenario the direct decline in BSA activity as part of the 'Personal and Other Services' sector is entirely offset by the redistribution of the \$0.651m across all industry sectors in the Bendigo region. Although this results in a null direct impact, the redistribution of spending results in different spending relationships in the regions economy.

From this redistribution an expansionary change is estimated in terms of the industry effect. This expansion however is more than offset by an estimated contractionary consumption effect. The total estimated change to regional output under this scenario is a decline of \$0.067m (\$67,000)

In total, it is estimated that nearly two jobs would be lost within the Bendigo region under this scenario.

See Appendix 4 for further details.

Scenario 3

Scenario 3 is based on La Trobe University Bendigo student data along with the following assumptions;

- All mature age students are largely financially independent. Half of these students will pay the GSF, and the remainder would redirect their spending within the Bendigo region.
- All non-mature age students are partially financially dependent. Of students from the Bendigo region half would pay the GSF, and the remainder would (or those financially supporting them) redirect this spending within the Bendigo economy. For those students who are from outside the Bendigo region, half of these students would pay the GSF, and for other half, this expenditure would be redistributed, but outside of the region's economy.

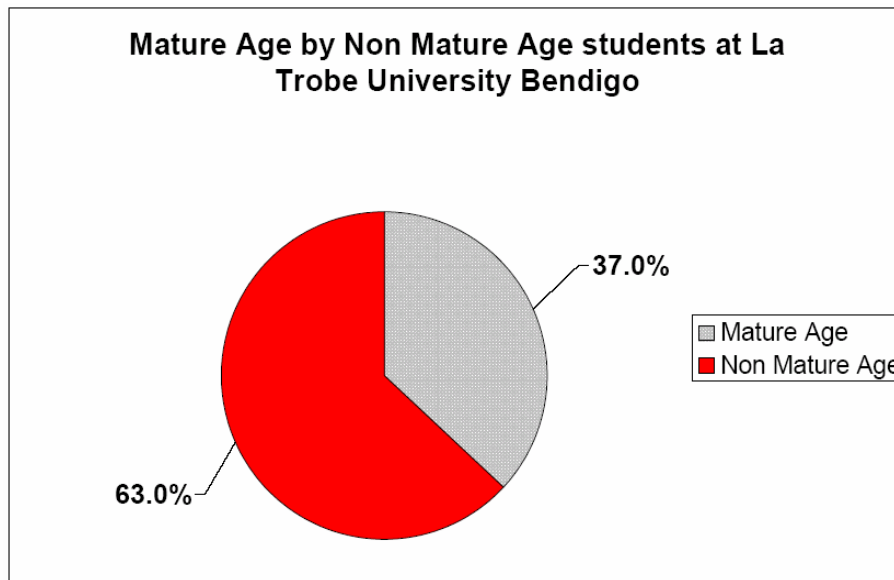


Figure 3 – Mature age, non mature age distribution of students at La Trobe University, Bendigo.

Based on the distribution of students at La Trobe University, Bendigo as detailed in Figure 3, the General Services Fee (GSF) will be apportioned accordingly:

Of the \$1.301m GSF derived revenue 37 percent will be attributed to mature aged students and 63 percent to the remaining students, as per Figure 3:

NB. GSF related revenue of \$1.301m includes revenue from other sources which is contingent upon seed funding from GSF derived revenue.

| | | |
|-----------------|----------|-------------------|
| Mature Age: | \$0.481m | } Total: \$1.301m |
| Non Mature Age: | \$0.820m | |

Under this scenario half of the \$0.481m contributed by mature age students will be maintained as BSA revenue and the other half, or \$0.241m represents a decline in BSA revenue as reflection of a decline in membership. These funds are redistributed within Bendigo’s regional economy according to typical household sector consumption patterns.

Of the \$0.820m contributed to BSA revenue by non-mature age students, spending is allocated depending on whether the students are from the City of Greater Bendigo, or from outside the region.

Figure 4 defines the commencing locations of students commencing study at La Trobe University, Bendigo. These are defined as either residing in the ‘City of Greater Bendigo’, or ‘Other’: (Source: NEWSIS, La Trobe University.)

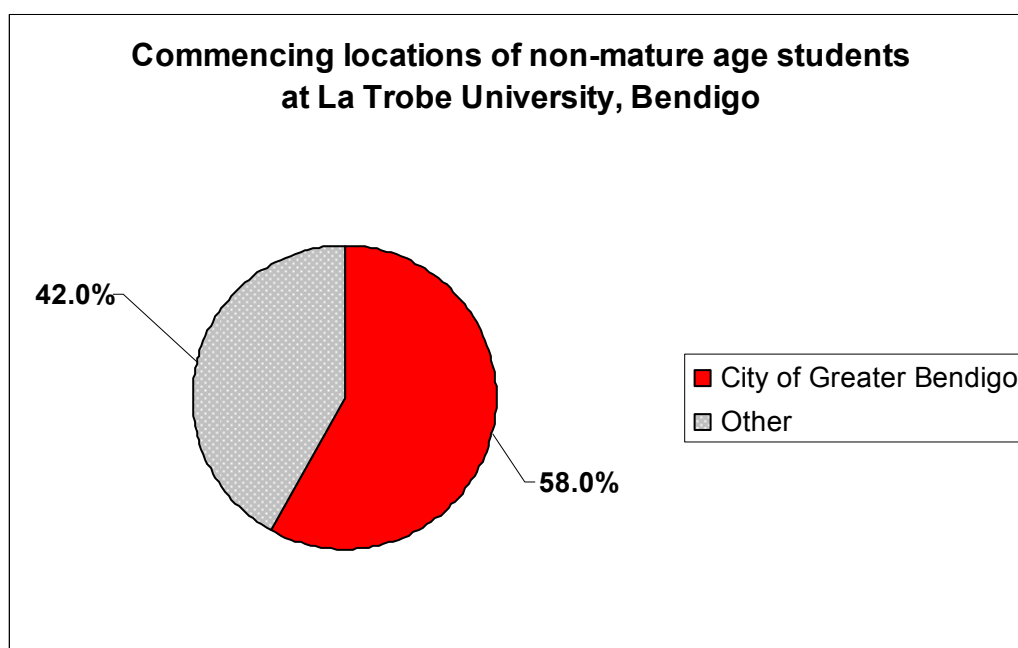


Figure 4 – Distributions of commencing locations of non-mature age students at La Trobe University, Bendigo

Based on the distribution of non-mature age students at La Trobe University, Bendigo as detailed in Figure 4, the General Services Fee (GSF) will be apportioned accordingly:

GSF related revenue currently derived by the BSA from non-mature age students of \$0.820m will be distributed 58 percent from students whose commencing location was located within the City of Greater Bendigo, and 42 percent to students whose commencing location was located elsewhere (i.e. Other), as detailed in Figure 4:

| | | | |
|--------------------------|----------|---|-----------------|
| City of Greater Bendigo: | \$0.476m | } | Total: \$0.820m |
| Other: | \$0.344m | | |

Of the \$0.476m associated with current BSA revenue contributed by non-mature age students from Bendigo, half, or \$0.238m will be maintained as GSF payments, while the other \$0.238m is redistributed within Bendigo's regional economy according to typical household sector consumption patterns.

The \$0.344m associated with BSA revenue contributed by non-mature age students from places other than the City of Greater Bendigo, half, or \$0.172m is maintained as GSF payments, while the other \$0.172m is redistributed outside of Bendigo's regional economy by those (parents etc) providing financial support.

Therefore, under this scenario the \$1.301m will be distributed as follows:

- \$0.651m of GSF related funding is maintained
- \$0.479m is redistributed within Bendigo's regional economy according to existing household sector consumption patterns
- \$0.172m is lost to the City of Greater Bendigo's regional economy

At the margin the changes to the region's economy under this scenario relate to a redistribution of \$0.479m within the regional economy, and a loss of \$0.172 to the regional economy.

The implications of these marginal changes for the economy of the City of Greater Bendigo are detailed below:

Output (\$m)

| | |
|---------------------|-----------|
| Direct change: | -\$0.171m |
| Industrial Effect: | -\$0.056m |
| Consumption Effect: | -\$0.222m |
| Total change: | -\$0.449m |

These output changes equate to the following changes in employment. The direct change in employment is the net effect of the losing 7 jobs from the 'Personal and Other Services' sector and gaining 4 jobs through the redistribution of \$0.479m within the regional economy.

Employment (non-equivalent full-time jobs)

| | |
|---------------------|------|
| Direct change: | -3.0 |
| Industrial Effect: | -0.4 |
| Consumption Effect: | -1.7 |
| Total change: | -4.7 |

Under this scenario, based on La Trobe University, Bendigo student data, the regional output in the City of Greater Bendigo is estimated to decline by \$0.449m. This corresponds to a loss of nearly 5 jobs in the region.

See Appendix 5 for further detail.

Scenario 4

As national voluntary student unionism hasn't been implemented as of yet, it is not possible to state categorically what membership rates will be. Therefore, for scenarios 1 to 3 the impact analysis assumed a middle position where 50 percent of students opted to take up membership and pay the GSF, and the other 50 percent of students would decline membership.

During 1994 – 2002 legislation was in place in Western Australia which saw student union membership rates at the various WA Universities range between 6 and 38 percent. For instance, in 1999 the membership rate at Curtin University was 30 percent. (Source: 2004. Hastings, G. 'VSU Legislation Experiences in WA, Victoria and Federally', NSU).

Applying the VSU experiences of Curtin University to La Trobe University, Bendigo, the estimated regional economic implications under a similar framework as those used in Scenario 3, are as follows:

Scenario 4 is based on La Trobe University Bendigo student data along with the following assumptions;

- All mature age students are largely financially independent. 30 percent of these students would pay the GSF, and the other 70 percent would redirect this consumption within the region's economy.
- All non-mature age students are partially financially dependent. Of the students who are originally from the Bendigo region, 30 percent will pay the GSF, and the other 70 percent (or those financially supporting them) will redirect their spending within the region's economy. For those students who are originally from outside the Bendigo region, 30 percent of these students will pay the GSF, and the other 70 percent will redirect this consumption outside the region's economy.

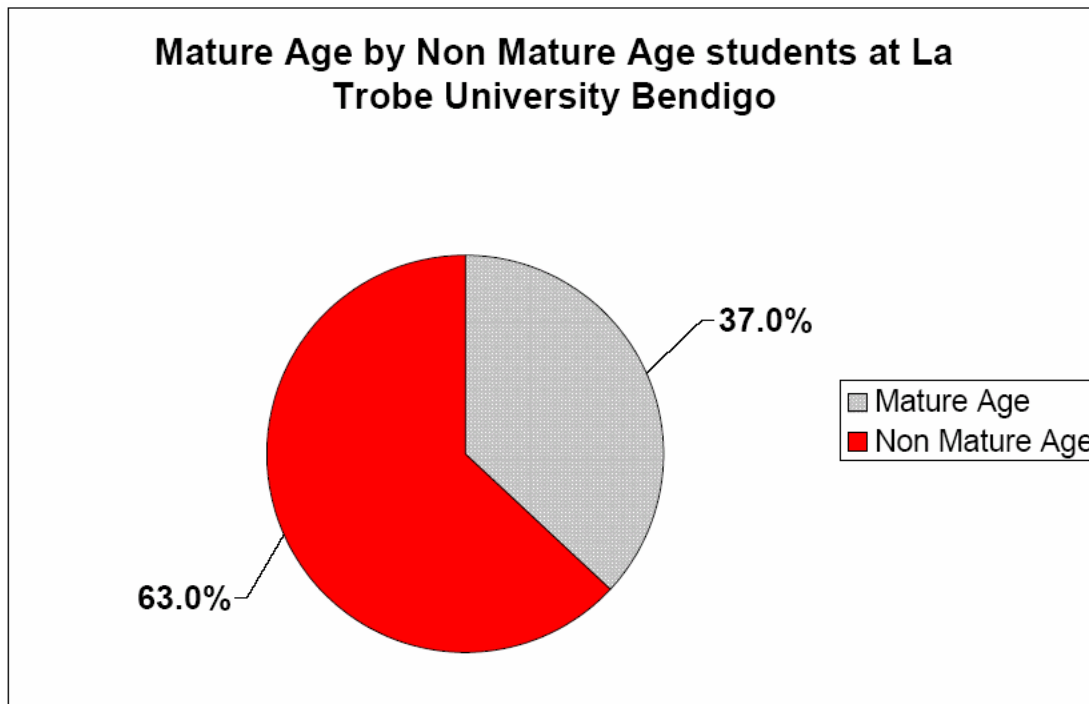


Figure 5 – Mature age, non mature age distribution of students at La Trobe University, Bendigo.

Based on the distribution of students at La Trobe University, Bendigo as detailed in Figure 5, the General Services Fee (GSF) will be apportioned accordingly:

Of the \$1.301m GSF derived revenue 37 percent will be attributed to mature aged students and 63 percent to the remaining students, as per Figure 5:

NB. GSF related revenue of \$1.301m includes revenue from other sources which is contingent upon seed funding from GSF derived revenue.

| | | |
|-----------------|----------|-------------------|
| Mature Age: | \$0.481m | } Total: \$1.301m |
| Non Mature Age: | \$0.820m | |

Of the \$0.481m associated with the mature age students, 30 percent, or \$0.144m is maintained by the BSA and the 70 percent, \$0.337m, represents a decline in BSA revenue as reflection of a decline in membership. These funds will be redistributed within Bendigo’s regional economy according to typical household sector consumption patterns.

Of the \$0.820m associated with non-mature age students spending is allocated depending on whether the students are from the City of Greater Bendigo, or from outside the City of Greater Bendigo.

Figure 6 shows the distribution of commencing locations for these students in terms of ‘City of Greater Bendigo’, or ‘Other’: (Source: NEWSIS, La Trobe University)

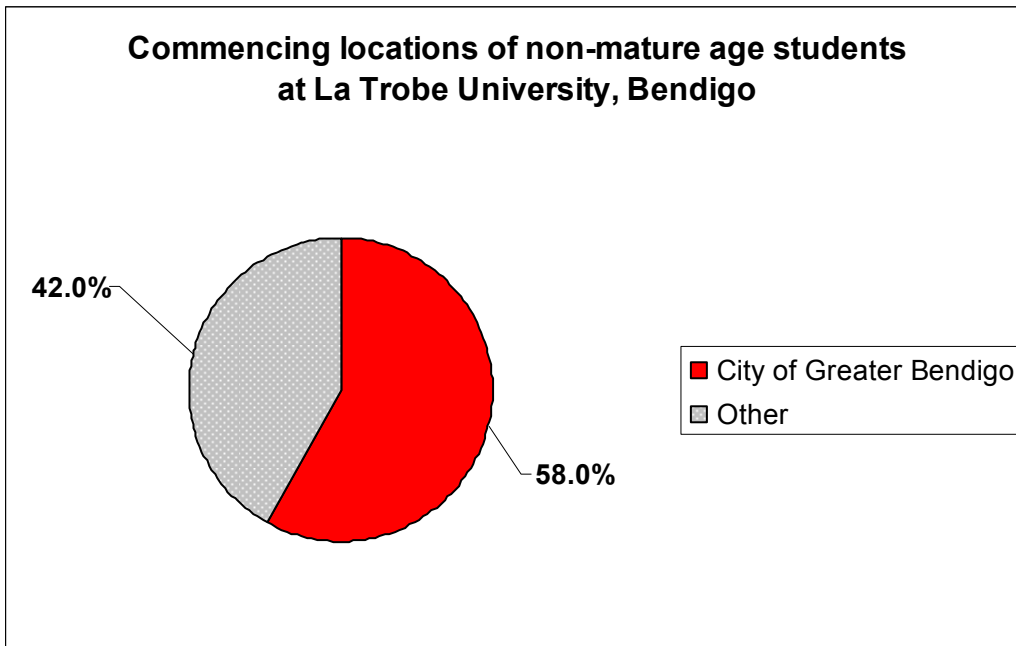


Figure 6 – Distributions of commencing locations of non-mature age students at La Trobe University, Bendigo

Based on the distribution of non-mature age students at La Trobe University, Bendigo as detailed in Figure 6, the General Services Fee (GSF) will be apportioned accordingly:

GSF related revenue currently derived by the BSA from non-mature age students of \$0.820m will be distributed 58 percent from students whose commencing location was located within the City of Greater Bendigo, and 42 percent to students whose commencing location was located elsewhere (i.e. Other), as detailed in Figure 6:

| | | | |
|--------------------------|----------|---|-----------------|
| City of Greater Bendigo: | \$0.476m | } | Total: \$0.820m |
| Other: | \$0.344m | | |

The \$0.476m associated with BSA revenue contributed by non-mature age students from Bendigo, 30 percent, or \$0.143m is maintained as GSF payments, while the other \$0.333m is redistributed within Bendigo’s regional economy according to typical household sector consumption patterns.

The \$0.344m associated with BSA revenue contributed by non-mature age students from places other than the City of Greater Bendigo, 30 percent, or \$0.103m is maintained as GSF payments, while the other \$0.241m is redistributed outside of Bendigo’s economy by those (parents etc) providing financial support.

Therefore, under this scenario the \$1.301m will be distributed as follows:

- \$0.390m of GSF related funding is maintained
- \$0.670m is redistributed within Bendigo's regional economy according to existing household sector consumption patterns
- \$0.241m is lost to the City of Greater Bendigo's regional economy

At the margin the changes to the region's economy under scenario 4 relate to a direct loss to the BSA of \$0.911m with \$0.670m of this redistributed within the Bendigo economy, and a loss of \$0.241 to the Bendigo economy.

The implications of these marginal changes for the economy of the City of Greater Bendigo are detailed below:

Output (\$m)

| | |
|---------------------|-----------|
| Direct change: | -\$0.241m |
| Industrial Effect: | -\$0.079m |
| Consumption Effect: | -\$0.312m |
| Total change: | -\$0.632m |

These output changes equate to the following changes in employment. The direct change in employment is the net effect of the losing 10 jobs from the 'Personal and Other Services' sector and gaining 6 jobs through the redistribution of \$0.670m within the regional economy.

Employment (non-equivalent full-time jobs)

| | |
|---------------------|------|
| Direct change: | -4.0 |
| Industrial Effect: | -0.6 |
| Consumption Effect: | -2.4 |
| Total change: | -6.7 |

Under this scenario, which is based on La Trobe University, Bendigo student data and the uptake of membership as experienced by Curtin University (WA) under VSU (Voluntary Student Unionism), regional output in the City of Greater Bendigo, is estimated to decline by \$0.632m. This would correspond to a loss of nearly 7 jobs in the region.

See Appendix 6 for further details.

References

Hastings, G. 2004. 'VSU Legislation Experiences in WA, Victoria and Federally', *Draft Version*. NSU

Resources

REMPPLAN, regional economic modelling and planning system. Developed by Ian Pinge – Principal Research Fellow (ret.) La Trobe University, Bendigo.

Appendices

Appendix 1 Input / Output Methodology

The Structure of an Input-Output or Transactions Matrix

The input-output matrix can be divided into four segments. These segments are shown in Table 2. In the actual model, 17 sectors will be used with the ability to “drill down” into 35 or 106 sectors. The industry sectors used in the example are Agriculture, Manufacturing and Services.

It is possible to divide the overall input-output or transactions table into four distinct quadrants.

| Industry Sector | <i>Q1. Intermediate Sector</i> | | | <i>Q2. Final Demand Sector</i> | | | | Total Output |
|---------------------|----------------------------------|------------|------------|--|-----------|------------|-----------|--------------|
| | 1. | 2. | 3. | H'holds | Govt | Investment | Exports | |
| 1. Agriculture. | 20 | 40 | 0 | 20 | 0 | 0 | 20 | 100 |
| 2. Manufacturing | 20 | 20 | 10 | 75 | 10 | 10 | 55 | 200 |
| 3. Services. | 0 | 40 | 10 | 25 | 20 | 5 | 0 | 100 |
| Payments for: | <i>Q3. Primary Inputs Sector</i> | | | <i>Q4. Primary Inputs Absorbed by Final Demand</i> | | | | Total Output |
| H,hold Services | 40 | 45 | 70 | 5 | 0 | 0 | 0 | |
| Govt Services | 10 | 15 | 5 | 0 | 0 | 0 | 0 | 30 |
| Imports | 10 | 40 | 5 | 0 | 0 | 0 | 5 | 60 |
| TOTAL INPUTS | 100 | 200 | 100 | 125 | 30 | 15 | 80 | 650 |

Table 2. A basic Input Output Matrix

Quadrant 1.

The Intermediate Sector is made up of transactions between firms in the local region. Working down column (Manufacturing) we can see that this sector purchases \$40 from Agriculture, \$20 from its own sector and \$40 from the services sector. Working across the rows, the Agricultural sector sells \$20 to its own sector, \$40 to Manufacturers and nothing to the service sector.

Quadrant 2.

The Final Demand sector, records sales of locally produced goods and services within the region (consumption and investment by Households, Government and Firms) and to people outside the region (Exports).

Quadrant 3.

Represents payments to Households (wages and salaries) Firms (gross operating surplus)*, governments (taxes on goods and services) and to producers outside the region (imports) all of which provide primary inputs (labour and capital).

*Gross Operating surplus is not included in this particular example

Quadrant 4.

The primary inputs for final demand is the smallest sector in terms of activity as it represents the provision of primary inputs for final demand.

Note that the columns and rows or the inputs and outputs, for the industry sectors (Agriculture, Manufacturing and Services) sector will all balance. The total of the column for the Manufacturing of \$200 matches the total for the Manufacturing sector's row and the same will be seen for the other two sectors.

It is also possible to compare regional exports (\$80) and regional imports (\$60) to see that there is a trading surplus.

Outlays by the Government sector in the above table by sheer coincidence match the revenue collected in the region but this is not generally the case. It also should be noted that taxes on income and profits are omitted from such data.

Assumptions Underlying Input-output Modelling

Some care needs to be taken in the use of input-output data and it is important the underlying assumptions are kept clearly in mind. Certain assumptions need to be made in the interests of the overall simplicity of I/O modelling.

- (i.) The first is one of fixed production coefficients, which imply constant returns to scale. That is to say that if we wanted to double output of sector j, we would have to double all of its inputs with no evidence of scale economies.
- (ii.) We are also assuming that regional performance matches national average performance. Some of these assumptions have been tested by local surveys in key sectors and will reduce margins of error.
- (iii.) For the life of the existing model we are saying that input proportions will remain the same and there will be no change in technology. As long as the model is kept up to date this latter concern should not pose a threat to its effectiveness, except as a tool for long-term forecasting.
- (iv.) Another assumption is one of homogeneity where it is assumed that each industry sector produces a fixed set of products that are not produced by any other sector. While it is possible to have some overlap e.g. liquor sold in hotels (the Retail sector) and in cafes (the Accommodation, Cafes and Restaurants sector). Such an assumption does not appear to be too far away from reality and should not inhibit the validity of the model to any great extent.
- (v.) Finally these models assume that there are no supply constraints and that the intermediate and household sectors will be able to service any increases in final demand. This assumption could weaken the predictive capacity of the model in those cases where increases in overall demand could bring about factor shortages and raise their prices in the short term. However in most day-to-day cases increased factor demand should not present a problem.

Appendix 2 BSA Economic Contribution Assessment

| 35 SECTOR ECONOMIC IMPACT ANALYSIS | | | | |
|--|------------------|-----------------------|-----------------------|--------------|
| OUTPUT \$m | | | | |
| City of Greater Bendigo | | | | |
| FILL IN EXPECTED ANNUAL CHANGES IN FINAL DEMAND COLUMN | | | | |
| SECTOR | Final Demand \$m | Industrial Effect | Consumpn Effect | Total |
| Agric Hunting & Trap | 0.000 | 0.011 | 0.040 | 0.051 |
| Forestry & Fishing | 0.000 | 0.001 | 0.002 | 0.002 |
| Mining | 0.000 | 0.003 | 0.002 | 0.005 |
| Meat & Dairy Products | 0.000 | 0.012 | 0.063 | 0.075 |
| Other Food Manufac | 0.000 | 0.008 | 0.053 | 0.060 |
| Beverages & Tobac Prod | 0.000 | 0.002 | 0.014 | 0.016 |
| Textiles | 0.000 | 0.007 | 0.007 | 0.013 |
| Clothing & Footware | 0.000 | 0.005 | 0.018 | 0.023 |
| Wood & Wood Prod | 0.000 | 0.001 | 0.003 | 0.004 |
| Paper Printing & Publ | 0.000 | 0.041 | 0.031 | 0.072 |
| Petrol & Coal Prod | 0.000 | 0.008 | 0.013 | 0.021 |
| Chemicals | 0.000 | 0.011 | 0.016 | 0.027 |
| Rubber & Plas Prod | 0.000 | 0.005 | 0.005 | 0.010 |
| Non-Met Mineral Prod | 0.000 | 0.006 | 0.002 | 0.008 |
| Basic Metals & Prod | 0.000 | 0.007 | 0.010 | 0.017 |
| Fabric Metal Prod | 0.000 | 0.002 | 0.001 | 0.003 |
| Transport Equipmt | 0.000 | 0.007 | 0.042 | 0.049 |
| Other Machinery & Equip | 0.000 | 0.011 | 0.011 | 0.022 |
| Miscellaneous Manufacturing | 0.000 | 0.001 | 0.010 | 0.011 |
| Elec Gas & Water | 0.000 | 0.037 | 0.071 | 0.107 |
| Construction | 0.000 | 0.003 | 0.003 | 0.006 |
| Wholesale Trade | 0.000 | 0.040 | 0.071 | 0.111 |
| Retail Trade | 0.000 | 0.021 | 0.259 | 0.280 |
| Repairs | 0.000 | 0.062 | 0.080 | 0.142 |
| Accom Cafes & Rest | 0.000 | 0.036 | 0.124 | 0.159 |
| Transport & Storage | 0.000 | 0.028 | 0.051 | 0.079 |
| Communic Services | 0.000 | 0.096 | 0.082 | 0.178 |
| Finance & Insurance | 0.000 | 0.039 | 0.136 | 0.175 |
| Ownership of Dwell | 0.000 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0.000 | 0.205 | 0.136 | 0.341 |
| Government & Admin | 0.000 | 0.017 | 0.011 | 0.028 |
| Education | 0.000 | 0.017 | 0.043 | 0.060 |
| Health & Comm Serv | 0.000 | 0.004 | 0.068 | 0.072 |
| Cult & Rec Services | 0.000 | 0.010 | 0.073 | 0.083 |
| Personal & Othr Serv | 1.798 | 0.017 | 0.075 | 1.890 |
| TOTALS | 1.798 | 0.784 | 1.624 | 4.205 |
| Output Multipliers | | Type 1 1.44 | Type 2 2.34 | |

35 SECTOR ECONOMIC IMPACT ANALYSIS

EMPLOYMENT

Job numbers

City of Greater Bendigo

| SECTOR | Direct Job Numbers | Industrial Effect | Consumpn Effect | Total |
|-----------------------------|--------------------|------------------------|-----------------|------------------------|
| Agric Hunting & Trap | 0 | 0.065 | 0.239 | 0.303 |
| Forestry & Fishing | 0 | 0.004 | 0.011 | 0.015 |
| Mining | 0 | 0.005 | 0.004 | 0.009 |
| Meat & Dairy Products | 0 | 0.023 | 0.119 | 0.142 |
| Other Food Manufac | 0 | 0.023 | 0.156 | 0.179 |
| Beverages & Tobac Prod | 0 | 0.006 | 0.051 | 0.057 |
| Textiles | 0 | 0.027 | 0.026 | 0.052 |
| Clothing & Footware | 0 | 0.034 | 0.115 | 0.150 |
| Wood & Wood Prod | 0 | 0.006 | 0.010 | 0.016 |
| Paper Printing & Publ | 0 | 0.198 | 0.150 | 0.348 |
| Petrol & Coal Prod | 0 | 0.006 | 0.009 | 0.014 |
| Chemicals | 0 | 0.026 | 0.036 | 0.062 |
| Rubber & Plas Prod | 0 | 0.021 | 0.019 | 0.040 |
| Non-Met Mineral Prod | 0 | 0.028 | 0.010 | 0.037 |
| Basic Metals & Prod | 0 | 0.019 | 0.026 | 0.045 |
| Fabric Metal Prod | 0 | 0.014 | 0.009 | 0.023 |
| Transport Equipmt | 0 | 0.024 | 0.140 | 0.164 |
| Other Machinery & Equip | 0 | 0.062 | 0.065 | 0.126 |
| Miscellaneous Manufacturing | 0 | 0.011 | 0.073 | 0.084 |
| Elec Gas & Water | 0 | 0.073 | 0.140 | 0.213 |
| Construction | 0 | 0.017 | 0.018 | 0.035 |
| Wholesale Trade | 0 | 0.259 | 0.455 | 0.713 |
| Retail Trade | 0 | 0.356 | 4.292 | 4.648 |
| Repairs | 0 | 0.208 | 0.271 | 0.479 |
| Accom Cafes & Rest | 0 | 0.327 | 1.126 | 1.453 |
| Transport & Storage | 0 | 0.141 | 0.254 | 0.395 |
| Communic Services | 0 | 0.358 | 0.307 | 0.665 |
| Finance & Insurance | 0 | 0.179 | 0.616 | 0.795 |
| Ownership of Dwell | 0 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0 | 1.079 | 0.716 | 1.795 |
| Government & Admin | 0 | 0.113 | 0.076 | 0.189 |
| Education | 0 | 0.264 | 0.661 | 0.925 |
| Health & Comm Serv | 0 | 0.066 | 1.046 | 1.111 |
| Cult & Rec Services | 0 | 0.082 | 0.576 | 0.658 |
| Personal & Othr Serv | 19 | 0.183 | 0.803 | 20.204 |
| TOTAL | 19 | 4.306 | 12.625 | 36.147 |
| Output Multiplier | | Type 1 1.22 | | Type 2 1.88 |

Appendix 3 Scenario 1

| 35 SECTOR ECONOMIC IMPACT ANALYSIS | | | | |
|--|------------------|-----------------------|-----------------|-----------------------|
| OUTPUT \$m | | | | |
| City of Greater Bendigo | | | | |
| FILL IN EXPECTED ANNUAL CHANGES IN FINAL DEMAND COLUMN | | | | |
| SECTOR | Final Demand \$m | Industrial Effect | Consumpn Effect | Total |
| Agric Hunting & Trap | 0.000 | -0.004 | -0.015 | -0.019 |
| Forestry & Fishing | 0.000 | 0.000 | -0.001 | -0.001 |
| Mining | 0.000 | -0.001 | -0.001 | -0.002 |
| Meat & Dairy Products | 0.000 | -0.004 | -0.023 | -0.027 |
| Other Food Manufac | 0.000 | -0.003 | -0.019 | -0.022 |
| Beverages & Tobac Prod | 0.000 | -0.001 | -0.005 | -0.006 |
| Textiles | 0.000 | -0.002 | -0.002 | -0.005 |
| Clothing & Footware | 0.000 | -0.002 | -0.006 | -0.008 |
| Wood & Wood Prod | 0.000 | -0.001 | -0.001 | -0.001 |
| Paper Printing & Publ | 0.000 | -0.015 | -0.011 | -0.026 |
| Petrol & Coal Prod | 0.000 | -0.003 | -0.005 | -0.008 |
| Chemicals | 0.000 | -0.004 | -0.006 | -0.010 |
| Rubber & Plas Prod | 0.000 | -0.002 | -0.002 | -0.004 |
| Non-Met Mineral Prod | 0.000 | -0.002 | -0.001 | -0.003 |
| Basic Metals & Prod | 0.000 | -0.003 | -0.004 | -0.006 |
| Fabric Metal Prod | 0.000 | -0.001 | 0.000 | -0.001 |
| Transport Equipmt | 0.000 | -0.003 | -0.015 | -0.018 |
| Other Machinery & Equip | 0.000 | -0.004 | -0.004 | -0.008 |
| Miscellaneous Manufacturing | 0.000 | -0.001 | -0.003 | -0.004 |
| Elec Gas & Water | 0.000 | -0.013 | -0.026 | -0.039 |
| Construction | 0.000 | -0.001 | -0.001 | -0.002 |
| Wholesale Trade | 0.000 | -0.015 | -0.026 | -0.040 |
| Retail Trade | 0.000 | -0.008 | -0.094 | -0.102 |
| Repairs | 0.000 | -0.022 | -0.029 | -0.051 |
| Accom Cafes & Rest | 0.000 | -0.013 | -0.045 | -0.058 |
| Transport & Storage | 0.000 | -0.010 | -0.018 | -0.029 |
| Communic Services | 0.000 | -0.035 | -0.030 | -0.064 |
| Finance & Insurance | 0.000 | -0.014 | -0.049 | -0.063 |
| Ownership of Dwell | 0.000 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0.000 | -0.074 | -0.049 | -0.124 |
| Government & Admin | 0.000 | -0.006 | -0.004 | -0.010 |
| Education | 0.000 | -0.006 | -0.015 | -0.022 |
| Health & Comm Serv | 0.000 | -0.002 | -0.025 | -0.026 |
| Cult & Rec Services | 0.000 | -0.004 | -0.026 | -0.030 |
| Personal & Othr Serv | -0.651 | -0.006 | -0.027 | -0.684 |
| TOTALS | -0.651 | -0.284 | -0.588 | -1.523 |
| Output Multipliers | | Type 1 1.44 | | Type 2 2.34 |

35 SECTOR ECONOMIC IMPACT ANALYSIS

EMPLOYMENT

Job numbers

City of Greater Bendigo

| SECTOR | Direct Job Numbers | Industrial Effect | Consumpn Effect | Total |
|-----------------------------|--------------------|------------------------|-----------------|------------------------|
| Agric Hunting & Trap | 0 | -0.023 | -0.086 | -0.110 |
| Forestry & Fishing | 0 | -0.001 | -0.004 | -0.005 |
| Mining | 0 | -0.002 | -0.001 | -0.003 |
| Meat & Dairy Products | 0 | -0.008 | -0.043 | -0.052 |
| Other Food Manufac | 0 | -0.008 | -0.057 | -0.065 |
| Beverages & Tobac Prod | 0 | -0.002 | -0.018 | -0.021 |
| Textiles | 0 | -0.010 | -0.009 | -0.019 |
| Clothing & Footware | 0 | -0.012 | -0.042 | -0.054 |
| Wood & Wood Prod | 0 | -0.002 | -0.004 | -0.006 |
| Paper Printing & Publ | 0 | -0.072 | -0.054 | -0.126 |
| Petrol & Coal Prod | 0 | -0.002 | -0.003 | -0.005 |
| Chemicals | 0 | -0.009 | -0.013 | -0.023 |
| Rubber & Plas Prod | 0 | -0.008 | -0.007 | -0.014 |
| Non-Met Mineral Prod | 0 | -0.010 | -0.004 | -0.014 |
| Basic Metals & Prod | 0 | -0.007 | -0.009 | -0.016 |
| Fabric Metal Prod | 0 | -0.005 | -0.003 | -0.008 |
| Transport Equipmt | 0 | -0.009 | -0.051 | -0.059 |
| Other Machinery & Equip | 0 | -0.022 | -0.023 | -0.046 |
| Miscellaneous Manufacturing | 0 | -0.004 | -0.026 | -0.031 |
| Elec Gas & Water | 0 | -0.026 | -0.051 | -0.077 |
| Construction | 0 | -0.006 | -0.007 | -0.013 |
| Wholesale Trade | 0 | -0.094 | -0.165 | -0.258 |
| Retail Trade | 0 | -0.129 | -1.554 | -1.683 |
| Repairs | 0 | -0.075 | -0.098 | -0.173 |
| Accom Cafes & Rest | 0 | -0.118 | -0.408 | -0.526 |
| Transport & Storage | 0 | -0.051 | -0.092 | -0.143 |
| Communic Services | 0 | -0.130 | -0.111 | -0.241 |
| Finance & Insurance | 0 | -0.065 | -0.223 | -0.288 |
| Ownership of Dwell | 0 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0 | -0.391 | -0.259 | -0.650 |
| Government & Admin | 0 | -0.041 | -0.027 | -0.068 |
| Education | 0 | -0.096 | -0.239 | -0.335 |
| Health & Comm Serv | 0 | -0.024 | -0.379 | -0.403 |
| Cult & Rec Services | 0 | -0.030 | -0.209 | -0.238 |
| Personal & Othr Serv | -7 | -0.066 | -0.291 | -7.317 |
| TOTAL | -7 | -1.559 | -4.572 | -13.091 |
| Output Multiplier | | Type 1 1.22 | | Type 2 1.88 |

Appendix 4 Scenario 2

| 35 SECTOR ECONOMIC IMPACT ANALYSIS | | | | |
|--|------------------|-------------------|-----------------|---------------|
| OUTPUT \$m | | | | |
| City of Greater Bendigo | | | | |
| FILL IN EXPECTED ANNUAL CHANGES IN FINAL DEMAND COLUMN | | | | |
| SECTOR | Final Demand \$m | Industrial Effect | Consumpn Effect | Total |
| Agric Hunting & Trap | 0.006 | 0.014 | -0.002 | 0.018 |
| Forestry & Fishing | 0.000 | 0.000 | 0.000 | 0.001 |
| Mining | 0.000 | 0.000 | 0.000 | 0.000 |
| Meat & Dairy Products | 0.022 | 0.010 | -0.004 | 0.029 |
| Other Food Manufac | 0.021 | 0.007 | -0.003 | 0.025 |
| Beverages & Tobac Prod | 0.006 | 0.002 | -0.001 | 0.007 |
| Textiles | 0.002 | -0.001 | 0.000 | 0.001 |
| Clothing & Footware | 0.009 | -0.001 | -0.001 | 0.008 |
| Wood & Wood Prod | 0.000 | 0.001 | 0.000 | 0.001 |
| Paper Printing & Publ | 0.006 | -0.003 | -0.002 | 0.002 |
| Petrol & Coal Prod | 0.006 | -0.001 | -0.001 | 0.004 |
| Chemicals | 0.006 | -0.001 | -0.001 | 0.004 |
| Rubber & Plas Prod | 0.001 | 0.000 | 0.000 | 0.001 |
| Non-Met Mineral Prod | 0.000 | -0.001 | 0.000 | -0.001 |
| Basic Metals & Prod | 0.000 | 0.003 | -0.001 | 0.003 |
| Fabric Metal Prod | 0.000 | 0.000 | 0.000 | 0.000 |
| Transport Equipmt | 0.017 | 0.005 | -0.002 | 0.020 |
| Other Machinery & Equip | 0.003 | -0.001 | -0.001 | 0.002 |
| Miscellaneous Manufacturing | 0.005 | 0.000 | -0.001 | 0.005 |
| Elec Gas & Water | 0.027 | 0.001 | -0.004 | 0.024 |
| Construction | 0.000 | 0.001 | 0.000 | 0.001 |
| Wholesale Trade | 0.025 | 0.002 | -0.004 | 0.023 |
| Retail Trade | 0.149 | -0.003 | -0.015 | 0.131 |
| Repairs | 0.024 | 0.001 | -0.005 | 0.021 |
| Accom Cafes & Rest | 0.063 | -0.003 | -0.007 | 0.053 |
| Transport & Storage | 0.016 | 0.004 | -0.003 | 0.017 |
| Communic Services | 0.026 | -0.012 | -0.005 | 0.009 |
| Finance & Insurance | 0.056 | 0.010 | -0.008 | 0.058 |
| Ownership of Dwell | 0.000 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0.009 | -0.003 | -0.008 | -0.002 |
| Government & Admin | 0.002 | -0.002 | -0.001 | 0.000 |
| Education | 0.023 | -0.004 | -0.002 | 0.017 |
| Health & Comm Serv | 0.039 | 0.000 | -0.004 | 0.035 |
| Cult & Rec Services | 0.036 | 0.003 | -0.004 | 0.035 |
| Personal & Othr Serv | -0.609 | -0.004 | -0.004 | -0.617 |
| TOTALS | 0.000 | 0.025 | -0.092 | -0.067 |
| Output Multipliers | | Type 1 | | Type 2 |
| | | - | | - |

35 SECTOR ECONOMIC IMPACT ANALYSIS

EMPLOYMENT

Job numbers

City of Greater Bendigo

| SECTOR | Direct Job Numbers | Industrial Effect | Consumpn Effect | Total |
|-----------------------------|--------------------|------------------------|-----------------|------------------------|
| Agric Hunting & Trap | 0 | 0.084 | -0.014 | 0.104 |
| Forestry & Fishing | 0 | 0.002 | -0.001 | 0.004 |
| Mining | 0 | 0.000 | 0.000 | 0.000 |
| Meat & Dairy Products | 0 | 0.020 | -0.007 | 0.055 |
| Other Food Manufac | 0 | 0.021 | -0.009 | 0.075 |
| Beverages & Tobac Prod | 0 | 0.008 | -0.003 | 0.025 |
| Textiles | 0 | -0.004 | -0.001 | 0.004 |
| Clothing & Footware | 0 | -0.005 | -0.007 | 0.049 |
| Wood & Wood Prod | 0 | 0.003 | -0.001 | 0.003 |
| Paper Printing & Publ | 0 | -0.014 | -0.008 | 0.008 |
| Petrol & Coal Prod | 0 | -0.001 | 0.000 | 0.003 |
| Chemicals | 0 | -0.002 | -0.002 | 0.010 |
| Rubber & Plas Prod | 0 | 0.001 | -0.001 | 0.003 |
| Non-Met Mineral Prod | 0 | -0.005 | -0.001 | -0.005 |
| Basic Metals & Prod | 0 | 0.008 | -0.001 | 0.007 |
| Fabric Metal Prod | 0 | -0.001 | -0.001 | 0.000 |
| Transport Equipmt | 0 | 0.016 | -0.008 | 0.066 |
| Other Machinery & Equip | 0 | -0.003 | -0.004 | 0.012 |
| Miscellaneous Manufacturing | 0 | 0.000 | -0.004 | 0.035 |
| Elec Gas & Water | 0 | 0.002 | -0.008 | 0.049 |
| Construction | 0 | 0.004 | -0.001 | 0.003 |
| Wholesale Trade | 0 | 0.012 | -0.026 | 0.149 |
| Retail Trade | 2 | -0.057 | -0.243 | 2.166 |
| Repairs | 0 | 0.002 | -0.015 | 0.070 |
| Accom Cafes & Rest | 1 | -0.031 | -0.064 | 0.484 |
| Transport & Storage | 0 | 0.021 | -0.014 | 0.085 |
| Communic Services | 0 | -0.045 | -0.017 | 0.035 |
| Finance & Insurance | 0 | 0.047 | -0.035 | 0.265 |
| Ownership of Dwell | 0 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0 | -0.015 | -0.041 | -0.008 |
| Government & Admin | 0 | -0.011 | -0.004 | -0.001 |
| Education | 0 | -0.059 | -0.037 | 0.258 |
| Health & Comm Serv | 1 | -0.008 | -0.059 | 0.535 |
| Cult & Rec Services | 0 | 0.022 | -0.033 | 0.278 |
| Personal & Othr Serv | -7 | -0.039 | -0.045 | -6.597 |
| TOTAL | -1 | -0.026 | -0.715 | -1.768 |
| Output Multiplier | | Type 1 1.03 | | Type 2 1.72 |

Appendix 5 Scenario 3

| 35 SECTOR ECONOMIC IMPACT ANALYSIS | | | | |
|--|------------------|------------------------|--------------------|------------------------|
| OUTPUT \$m | | | | |
| City of Greater Bendigo | | | | |
| FILL IN EXPECTED ANNUAL CHANGES IN FINAL DEMAND COLUMN | | | | |
| SECTOR | Final Demand \$m | Industrial Effect | Consumption Effect | Total |
| Agric Hunting & Trap | 0.004 | 0.009 | -0.005 | 0.008 |
| Forestry & Fishing | 0.000 | 0.000 | 0.000 | 0.000 |
| Mining | 0.000 | 0.000 | 0.000 | 0.000 |
| Meat & Dairy Products | 0.016 | 0.006 | -0.009 | 0.014 |
| Other Food Manufac | 0.016 | 0.004 | -0.007 | 0.013 |
| Beverages & Tobac Prod | 0.004 | 0.002 | -0.002 | 0.004 |
| Textiles | 0.002 | -0.001 | -0.001 | 0.000 |
| Clothing & Footware | 0.007 | -0.001 | -0.002 | 0.004 |
| Wood & Wood Prod | 0.000 | 0.001 | 0.000 | 0.000 |
| Paper Printing & Publ | 0.005 | -0.006 | -0.004 | -0.005 |
| Petrol & Coal Prod | 0.004 | -0.002 | -0.002 | 0.001 |
| Chemicals | 0.004 | -0.002 | -0.002 | 0.000 |
| Rubber & Plas Prod | 0.001 | 0.000 | -0.001 | 0.000 |
| Non-Met Mineral Prod | 0.000 | -0.001 | 0.000 | -0.002 |
| Basic Metals & Prod | 0.000 | 0.002 | -0.001 | 0.000 |
| Fabric Metal Prod | 0.000 | 0.000 | 0.000 | 0.000 |
| Transport Equipmt | 0.013 | 0.003 | -0.006 | 0.010 |
| Other Machinery & Equip | 0.003 | -0.001 | -0.002 | 0.000 |
| Miscellaneous Manufacturing | 0.004 | 0.000 | -0.001 | 0.003 |
| Elec Gas & Water | 0.020 | -0.003 | -0.010 | 0.008 |
| Construction | 0.000 | 0.000 | 0.000 | 0.000 |
| Wholesale Trade | 0.019 | -0.002 | -0.010 | 0.007 |
| Retail Trade | 0.109 | -0.005 | -0.035 | 0.069 |
| Repairs | 0.018 | -0.005 | -0.011 | 0.002 |
| Accom Cafes & Rest | 0.047 | -0.006 | -0.017 | 0.024 |
| Transport & Storage | 0.011 | 0.000 | -0.007 | 0.004 |
| Communic Services | 0.019 | -0.018 | -0.011 | -0.010 |
| Finance & Insurance | 0.041 | 0.004 | -0.019 | 0.026 |
| Ownership of Dwell | 0.000 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0.007 | -0.022 | -0.019 | -0.033 |
| Government & Admin | 0.002 | -0.003 | -0.002 | -0.002 |
| Education | 0.017 | -0.004 | -0.006 | 0.007 |
| Health & Comm Serv | 0.029 | -0.001 | -0.009 | 0.019 |
| Cult & Rec Services | 0.027 | 0.001 | -0.010 | 0.018 |
| Personal & Othr Serv | -0.620 | -0.004 | -0.010 | -0.635 |
| TOTALS | -0.171 | -0.056 | -0.222 | -0.449 |
| Output Multipliers | | Type 1 1.33 | | Type 2 2.62 |

35 SECTOR ECONOMIC IMPACT ANALYSIS

EMPLOYMENT

Job numbers

City of Greater Bendigo

| SECTOR | Direct Job Numbers | Industrial Effect | Consump n Effect | Total |
|-----------------------------|--------------------------|------------------------|------------------------|------------------------|
| Agric Hunting & Trap | 0 | 0.055 | -0.033 | 0.046 |
| Forestry & Fishing | 0 | 0.001 | -0.001 | -0.001 |
| Mining | 0 | 0.000 | -0.001 | -0.001 |
| Meat & Dairy Products | 0 | 0.012 | -0.016 | 0.026 |
| Other Food Manufac | 0 | 0.013 | -0.021 | 0.039 |
| Beverages & Tobac Prod | 0 | 0.005 | -0.007 | 0.013 |
| Textiles | 0 | -0.005 | -0.003 | -0.001 |
| Clothing & Footware | 0 | -0.007 | -0.016 | 0.023 |
| Wood & Wood Prod | 0 | 0.002 | -0.001 | 0.001 |
| Paper Printing & Publ | 0 | -0.029 | -0.020 | -0.026 |
| Petrol & Coal Prod | 0 | -0.001 | -0.001 | 0.000 |
| Chemicals | 0 | -0.004 | -0.005 | 0.001 |
| Rubber & Plas Prod | 0 | -0.001 | -0.003 | 0.000 |
| Non-Met Mineral Prod | 0 | -0.006 | -0.001 | -0.008 |
| Basic Metals & Prod | 0 | 0.004 | -0.004 | 0.001 |
| Fabric Metal Prod | 0 | -0.002 | -0.001 | -0.003 |
| Transport Equipmt | 0 | 0.009 | -0.019 | 0.034 |
| Other Machinery & Equip | 0 | -0.008 | -0.009 | 0.000 |
| Miscellaneous Manufacturing | 0 | -0.001 | -0.010 | 0.019 |
| Elec Gas & Water | 0 | -0.005 | -0.019 | 0.015 |
| Construction | 0 | 0.002 | -0.002 | -0.001 |
| Wholesale Trade | 0 | -0.016 | -0.062 | 0.044 |
| Retail Trade | 2 | -0.076 | -0.586 | 1.146 |
| Repairs | 0 | -0.018 | -0.037 | 0.005 |
| Accom Cafes & Rest | 0 | -0.054 | -0.154 | 0.221 |
| Transport & Storage | 0 | 0.002 | -0.035 | 0.022 |
| Communic Services | 0 | -0.067 | -0.042 | -0.038 |
| Finance & Insurance | 0 | 0.017 | -0.084 | 0.119 |
| Ownership of Dwell | 0 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0 | -0.113 | -0.098 | -0.174 |
| Government & Admin | 0 | -0.019 | -0.010 | -0.016 |
| Education | 0 | -0.068 | -0.090 | 0.104 |
| Health & Comm Serv | 0 | -0.012 | -0.143 | 0.290 |
| Cult & Rec Services | 0 | 0.008 | -0.079 | 0.144 |
| Personal & Othr Serv | -7 | -0.046 | -0.110 | -6.784 |
| TOTAL | -3 | -0.428 | -1.724 | -4.739 |
| Output Multiplier | | Type 1 1.17 | | Type 2 1.83 |

Appendix 6 Scenario 4

| 35 SECTOR ECONOMIC IMPACT ANALYSIS | | | | |
|--|------------------|-------------------|--------------------|----------------|
| OUTPUT \$m | | | | |
| City of Greater Bendigo | | | | |
| FILL IN EXPECTED ANNUAL CHANGES IN FINAL DEMAND COLUMN | | | | |
| SECTOR | Final Demand \$m | Industrial Effect | Consumption Effect | Total |
| Agric Hunting & Trap | 0.006 | 0.013 | -0.008 | 0.011 |
| Forestry & Fishing | 0.000 | 0.000 | 0.000 | 0.000 |
| Mining | 0.000 | 0.000 | 0.000 | -0.001 |
| Meat & Dairy Products | 0.023 | 0.009 | -0.012 | 0.020 |
| Other Food Manufac | 0.022 | 0.006 | -0.010 | 0.018 |
| Beverages & Tobac Prod | 0.006 | 0.002 | -0.003 | 0.005 |
| Textiles | 0.003 | -0.002 | -0.001 | -0.001 |
| Clothing & Footware | 0.010 | -0.002 | -0.003 | 0.005 |
| Wood & Wood Prod | 0.000 | 0.001 | -0.001 | 0.000 |
| Paper Printing & Publ | 0.007 | -0.009 | -0.006 | -0.008 |
| Petrol & Coal Prod | 0.006 | -0.002 | -0.002 | 0.001 |
| Chemicals | 0.006 | -0.002 | -0.003 | 0.001 |
| Rubber & Plas Prod | 0.001 | 0.000 | -0.001 | -0.001 |
| Non-Met Mineral Prod | 0.000 | -0.002 | 0.000 | -0.002 |
| Basic Metals & Prod | 0.000 | 0.002 | -0.002 | 0.001 |
| Fabric Metal Prod | 0.000 | 0.000 | 0.000 | 0.000 |
| Transport Equipmt | 0.018 | 0.004 | -0.008 | 0.014 |
| Other Machinery & Equip | 0.004 | -0.002 | -0.002 | -0.001 |
| Miscellaneous Manufacturing | 0.005 | 0.000 | -0.002 | 0.003 |
| Elec Gas & Water | 0.028 | -0.004 | -0.014 | 0.011 |
| Construction | 0.000 | 0.000 | -0.001 | 0.000 |
| Wholesale Trade | 0.026 | -0.003 | -0.014 | 0.009 |
| Retail Trade | 0.153 | -0.006 | -0.050 | 0.097 |
| Repairs | 0.025 | -0.008 | -0.015 | 0.002 |
| Accom Cafes & Rest | 0.065 | -0.008 | -0.024 | 0.033 |
| Transport & Storage | 0.016 | 0.001 | -0.010 | 0.007 |
| Communic Services | 0.027 | -0.025 | -0.016 | -0.014 |
| Finance & Insurance | 0.057 | 0.005 | -0.026 | 0.037 |
| Ownership of Dwell | 0.000 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0.009 | -0.030 | -0.026 | -0.047 |
| Government & Admin | 0.002 | -0.004 | -0.002 | -0.004 |
| Education | 0.024 | -0.006 | -0.008 | 0.009 |
| Health & Comm Serv | 0.040 | -0.001 | -0.013 | 0.026 |
| Cult & Rec Services | 0.038 | 0.001 | -0.014 | 0.025 |
| Personal & Othr Serv | -0.868 | -0.006 | -0.014 | -0.888 |
| TOTALS | -0.241 | -0.079 | -0.312 | -0.632 |
| Output Multipliers | | Type 1 1.33 | | Type 2 2.62 |

35 SECTOR ECONOMIC IMPACT ANALYSIS

EMPLOYMENT

Job numbers

City of Greater Bendigo

| SECTOR | Direct Job Numbers | Industrial Effect | Consump n Effect | Total |
|-----------------------------|--------------------------|------------------------|------------------------|---------------|
| Agric Hunting & Trap | 0 | 0.078 | -0.046 | 0.067 |
| Forestry & Fishing | 0 | 0.001 | -0.002 | 0.002 |
| Mining | 0 | 0.000 | -0.001 | -0.001 |
| Meat & Dairy Products | 0 | 0.017 | -0.023 | 0.038 |
| Other Food Manufac | 0 | 0.018 | -0.030 | 0.053 |
| Beverages & Tobac Prod | 0 | 0.008 | -0.010 | 0.018 |
| Textiles | 0 | -0.008 | -0.005 | -0.003 |
| Clothing & Footware | 0 | -0.010 | -0.022 | 0.031 |
| Wood & Wood Prod | 0 | 0.003 | -0.002 | 0.001 |
| Paper Printing & Publ | 0 | -0.041 | -0.029 | -0.038 |
| Petrol & Coal Prod | 0 | -0.002 | -0.002 | 0.001 |
| Chemicals | 0 | -0.005 | -0.007 | 0.002 |
| Rubber & Plas Prod | 0 | -0.002 | -0.004 | -0.003 |
| Non-Met Mineral Prod | 0 | -0.009 | -0.002 | -0.010 |
| Basic Metals & Prod | 0 | 0.006 | -0.005 | 0.001 |
| Fabric Metal Prod | 0 | -0.003 | -0.002 | -0.003 |
| Transport Equipmt | 0 | 0.013 | -0.027 | 0.046 |
| Other Machinery & Equip | 0 | -0.012 | -0.012 | -0.004 |
| Miscellaneous Manufacturing | 0 | -0.002 | -0.014 | 0.025 |
| Elec Gas & Water | 0 | -0.008 | -0.027 | 0.021 |
| Construction | 0 | 0.002 | -0.003 | -0.001 |
| Wholesale Trade | 0 | -0.022 | -0.087 | 0.058 |
| Retail Trade | 3 | -0.106 | -0.826 | 1.606 |
| Repairs | 0 | -0.025 | -0.052 | 0.007 |
| Accom Cafes & Rest | 1 | -0.076 | -0.217 | 0.303 |
| Transport & Storage | 0 | 0.003 | -0.049 | 0.034 |
| Communic Services | 0 | -0.094 | -0.059 | -0.054 |
| Finance & Insurance | 0 | 0.024 | -0.119 | 0.166 |
| Ownership of Dwell | 0 | 0.000 | 0.000 | 0.000 |
| Property & BusServ | 0 | -0.160 | -0.138 | -0.249 |
| Government & Admin | 0 | -0.027 | -0.015 | -0.026 |
| Education | 0 | -0.096 | -0.127 | 0.141 |
| Health & Comm Serv | 1 | -0.017 | -0.201 | 0.402 |
| Cult & Rec Services | 0 | 0.012 | -0.111 | 0.198 |
| Personal & Othr Serv | -9 | -0.065 | -0.154 | -9.498 |
| TOTAL | -4 | -0.604 | -2.428 | -6.666 |
| Output Multiplier | | Type 1 1.17 | Type 2 1.83 | |