Economic Impacts from Development of the Coastal Town in Queensland on Tourism and Regional Economy

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Abstract: This paper discusses the impacts of proposed development projects at Emu Park—a coastal town in Queensland, Australia—on regional economy. The input–output (IO) analysis is used to assess the economic benefits to the region. The economic impacts from the construction stage are identified. The ongoing benefits from the projects to the regional economy due to a potential increase in tourists' visits are investigated. The regional economy will grow more rapidly if the connections among the tourism related sectors and key industries are encouraged. Local procurement strategies can assist in enhancing the benefits from increased tourism to the region.

Keywords: regional development; tourism; input-output analysis; economic impacts; key sectors; procurement

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1. Introduction

Tourism is becoming an increasingly important industry in modern economies. It influences economic growth and development at national, state and regional levels. According to Australia Bureau of Statistics (ABS) [1], tourism's share of GDP in Australia was 3% in 2014–2015. The industry was employing more than 580,000 persons (4.9% of total persons employed). Queensland is one of the large tourism states in Australia. Tourism in Queensland makes a strong contribution to the state gross value added, taxes, Gross State Product and employment. Queensland's contribution to the total national tourism gross value added was the second largest in 2013–2014. Tourism Research Australia (TRA) estimated that Queensland's contribution to national tourism consumption was 24% in 2013–2014. Queensland made the second largest contribution to total national tourism employment in 2013–2014 [2].

Queensland has 12 tourism regions; each tourism region is made up of a number of Statistical Local Areas (SLAs). The case study of Emu Park (a coastal town) is situated within the Central Queensland tourism region. Central Queensland tourism region can be approximated by Fitzroy Statistical Division (SD) for data collection purposes. Tourism contributes substantially to the Central Queensland region's economy. However, the share of tourists to the coastal towns of Central Queensland (Yeppoon and Emu Park) was only 12% of the number of tourists to Central Queensland [3]. Saarinen [4] noted that tourism can boost economic development in peripheral regions. He suggested integrating tourism with regional development to reduce the uneven social development.

In order to increase tourists' visits to the coastal area of Central Queensland, the development of the near foreshore area at Emu Park has been proposed by the Livingstone Shire Council. Livingstone Shire Council has proposed to develop the Peace park paths and landscape, Kerr Park path and playground, Tenant Memorial Drive Bus Turnaround, Surf Lifesaving car park and landscape, Emu street re-construction (part) and Foreshore Kiosk. Rolfe et al. [3] predicted that the proposed new

infrastructure and facilities would increase the number of overnight tourists in this region by 20%. They estimated that this increase in the number of overnight visits would provide up to A$12M additional revenue in the Yeppoon and Emu Park region and A$85M additional revenue in the Central Queensland region.

An economic impact assessment of new projects can be done using simple spending multipliers, IO analysis or computable general equilibrium (CGE) modelling. While simple spending multipliers do not provide detailed information about how the effects spread through the economy, IO and CGE modelling can be used to assess the economic impacts in more detail. IO analysis shows the industry interdependence and the effect of the initial stimulus on industries' production. Some econometric IO models supplement the IO model with econometric equations. The empirical component of the CGE model is an IO table. CGE models are considered to have less limitations than IO models. However, CGE models require much more data than IO models. Required data might not be available at the regional level or at the necessary sectoral disaggregation. Furthermore, CGE models are based on more restrictive assumptions than IO models [5–7]. Given the disadvantages of CGE models at the regional level and simplistic nature of spending multipliers, IO analysis was used for the economic impact assessment of proposed development projects at Emu Park for the Fitzroy SD.

This papers discusses how to create more opportunities for the tourism industry to integrate better in the regional economy. It suggests the following methodology of increasing the value of an industry at a regional level. First, an economy under investigation needs to be analysed in terms of key industries. Key industries are those industries whose expansion boosts the economy more (in terms of employment, output, income and value added) than the equal expansion of other industries. Second, the connections among tourism related industries and key industries need to be identified. Third, the strategies to enhance the connections between the tourism industry and key industries need to be discussed with the community and local policy makers to outline the recommendations to increase the value of the tourism industry within the region according to the long-term vision of regional development. In this paper, several techniques are combined to investigate the impacts of additional spending resulted from the Emu Park foreshore development on regional economy. IO multipliers are derived to analyse the interdependency of tourism related industries within the region. Then, the estimated additional tourism expenditure is proportioned according to the Queensland Tourism Satellite Account data. Finally, the potential connections with key sectors within the region are investigated and procurement strategies are suggested to enhance these connections.

The rest of the paper is structured as follows. Section 2 outlines basics of IO analysis with respect to the tourism industry. Section 3 explains how IO analysis was applied to the case study. Section 4 describes the case study. Section 5 presents results from the projects to the regional economy. Section 6 concludes.

2. Input–Output Analysis with Respect to the Tourism Industry

The IO technique is widely used to understand the structure of economy, the effects of changes in a given industry(s) and/or final demand and a key industry analysis. IO analysis is a descriptive technique used to identify how different industries in the economy interact, and how changes in one industry generates "ripple" effects through the wider economy. These models are used to estimate the flow-on effects of changes in income, value added, expenditure and employment (for more details see [8]). In the economy, each industry is a seller of its output to other industries and each industry is a purchaser of the outputs from other industries (Table 1). Value added includes compensation of employees, gross operating surplus and mixed income, and net taxes. Final demand comprises of households and government final consumption expenditure, gross fixed capital formation, changes in inventories and exports.

Table 1. IO table, [8].

Purchasing Industries Selling Industries	Intermediate Consumption				Final Demand F	Total Output
	1	**2**	...	**n**		
1	x_{11}	x_{12}	...	x_{1n}	f_1	X_1
2	x_{21}	x_{22}	...	x_{2n}	f_2	X_2
⋮	⋮	⋮	...	⋮	⋮	⋮
n	x_{n1}	x_{n2}	...	x_{nn}	f_n	X_n
Value Added	V_1	V_2	...	V_n		**V**
Imports	M_1	M_2	...	M_n		**M**
Total Inputs	$\mathbf{X_1}$	$\mathbf{X_2}$	...	$\mathbf{X_n}$	**Y**	**X**

In IO analysis, A is the matrix of technical (or direct input) coefficients. It is calculated by dividing the transactions for each industry by their respective total output levels ($a_{ij} = x_{ij}/X_j$). The Leontief inverse (or total requirements) matrix is $(I-A)^{-1}$, where I is the identity matrix. The Leontief inverse matrix shows the links between the final demand and the industries' outputs [8]. IO analysis estimates the effects of the exogenous change on the economy through multipliers effect.

Type I (open model) multipliers include the direct and indirect business spending. A direct increase in business spending results from an increase in final demand for their product. An increase in final demand leads to an increase in production and therefore, an increase in direct business spending (direct impacts). As the business purchases more from their suppliers, the suppliers increase their spending to meet the increased demand (indirect impacts). Type II (closed model) multipliers include direct, indirect spending and household spending (induced impacts) as a result of higher employment and income across all industries. In closed models, households are treated as an industry and are included in the intermediate consumption matrix. In open models, households are excluded from the inter-industry matrix. Disaggregated multipliers for an industry show the effect of initial stimulus from that industry on the direct, indirect and induced impacts for each industry in the intermediate consumption matrix.

IO models were used in a variety of applications assessing the impact of tourism on economic activity [9–15]. For example, Atan and Arslanturk [14] provided an analysis of the tourism industry in Turkey using IO analysis. They used 15 aggregated sectors and found that the tourism sector makes a significant contribution to Turkey's economy. Surugiu [13] used IO analysis to estimate the economic impacts of tourism on the hotel and restaurant sector in Romania. Surugiu [13] analysed the impacts of hotels and restaurants for 2000 and 2005 and found that output and employment multipliers have increased, but value added and income multipliers had declined in 2005 compared to 2000. The results of linkages analysis have shown that hotels and restaurants have one of the lowest interdependence in the economy. Surugiu [13] suggested that in order to increase the flow-on effect of the tourism industry, strong transport infrastructure and diversified services are necessary.

Archer and Fletcher [10], using IO analysis, examined the impact from tourism on income, employment, public sector revenue and the balance of payments in the Seychelles. They used 18 aggregated IO sectors with separate industries related to tourism such as trade, accommodation, restaurants, and land, air and sea transport; that permitted the tourism expenditure patterns to be aligned directly with the relevant sectors of the economy without heavy aggregation. The tourism expenditure data was obtained from the airport exit surveys and the Central Bank of the Seychelles. Archer and Fletcher [10] stated that the impact from tourism was distributed over several productive sectors with a different magnitude. This information could assist governments to determine which tourist groups maximize the economic benefits and in which sectors tourists should be encouraged to spend.

The tourism industry, however, is not a "classic" input–output sector, but a complex of inter-related and inseparable activities such as travel, accommodation, sightseeing, entertainment and others [16]. Therefore, the economic impacts of tourism should flow to several industries.

Briassoulis [16] suggested that a modification of the export component of the demand vector, in order to reflect the distribution of tourist spending in the industrial sectors that participate directly in the tourism activity, can overstate the impacts of tourism on regional economy. She suggested accounting for a short-term upwards pricing effect, capacity constraints, varied consumption patterns of different types of visitors and changes in consumption patterns of the local population, in order to obtain more reliable estimates of tourism's impacts.

Harris [17] argued that in the application of IO analysis to tourism regional impacts analysis, the estimated employment multipliers are likely to overstate the effect of tourism at the regional level. He noted that an increase in sales does not necessarily lead to the hiring of additional employees. Fleischer and Freeman [18], however, suggested that results from IO modelling do not estimate the full impact of tourism. Frechtling and Horvath [11] found that tourism multipliers are relatively high for income and employment but low for output compared with other sectors.

The results from the IO analysis should be taken with caution due to the limitations of the IO technique. The limitations of IO analysis, such as measurement problems and the theoretical basis of IO models are well discussed in the IO literature. The limitations include the fixed production patterns, emphasis on short-term effect, the lack of supply constraints, limited use of interregional feedbacks, industry homogeneity, change in multipliers over time, and substitution effect [16,19–22].

Given that tourism is not a "classic" IO industry, Tourism Satellite Accounts (TSAs) has become popular in assessing the impact of tourism on the economy. TSAs allow to measure the direct economic contributions of tourism to the economy that is consistent with the IO table [23,24]. Jones et al. [25] suggested that the restrictive assumptions underlying IO frameworks and the inadequate representation of tourism as a source of final demand might provide inaccurate estimates of the impacts. TSAs, however, could assist in linking tourism activity to final demand. Dwyer et al. [26] provided an overview of the TSAs developments by the Centre for Economic Policy in Australia and noted some issue with using IO without taking into consideration the TSAs. Pratt [24] estimated additional expenditure on each of the tourism related industries using the projected tourism expenditure and the TSAs allocations.

Jones and Munday [12] examined tourism activity using Welsh IO tables and extended the IO model to comprise a set of TSAs. They aggregated 67 industries to 20 industry sectors, including six tourism related sectors (from TSA). The core tourism sectors were defined as the following:

- Hotels and accommodation
- Restaurants and other eating places
- Bars and public houses
- Museums and visitor gardens
- Amusement parks, fairs and other tourist attractions
- Other recreation activities not elsewhere classified [12].

Jones and Munday [12] identified industries that are ancillary to tourism, such as retail trade and distribution and transportation. They suggested that the level of backward linkages (multipliers) varies among tourism-related industries. For example, the local accommodation providers might purchase more in the region than the large national supply chain companies.

However, the application of TSA to IO analysis can be difficult due to data limitations and some methodological issues. For example, Surugiu [13] stated that TSA is a complex instrument that requires a variety of statistical data, usually collected at a national and state level. Jones et al. [25] discussed some methodological difficulties in constructing a TSA at the regional level. They noted that the IO framework can be used as a basis for more complex models, including the assessment of the regional tourism activity utilising information derived from a TSA. Jones and Munday [12] also noted that the IO framework can be utilised to analyse the significance of overall tourism activity at national, state and regional levels, but the scarcity of tourism industry data at the regional level presents a serious issue.

3. An Application of Input–Output Analysis to the Case Study

The economic models in this paper are based on the IO tables for the Australian economy in 2012/2013 with direct allocation of imports [1] with minor adjustments to account for regional characteristics. The IO table was calibrated by simple location quotients using employment by industry. Then, various data at state (regional) level was used to adjust/check the tables. For example, the output by industry, gross regional product and other indicators were used where appropriate and available. There are 20 industries of the economy considered in the analysis. The industries are:

1	Agriculture, forestry and fishing
2	Mining
3	Manufacturing
4	Electricity, gas, water and waste services
5	Construction
6	Wholesale trade
7	Retail trade
8	Accommodation and food services
9	Transport, postal and warehousing
10	Information media and telecommunications
11	Financial and insurance services
12	Rental, hiring and real estate services
13	Professional, scientific and technical services
14	Administrative and support services
15	Public administration and safety
16	Education and training
17	Health Care Services
18	Residential Care and Social Assistance Services
19	Arts and recreation services
20	Other services

Data about the details of potential investment in construction has been provided by the project proponent. For the impacts measured at state and regional levels, the following assumptions for the construction stage have been made:

- The existing Building and Construction industry in the National IO table [1] is representative of construction activity associated with the new developments
- The construction is completed within 12 months from the start of the project
- 100% of the construction workforce is based in Fitzroy SD
- There is no offsetting fall in public expenditure elsewhere in the region or state

    For the ongoing impacts, the following sectors were considered as being tourism related sectors.

- The retail trade sector (7), including fuel, food, motor vehicles and parts retailing.
- The accommodation and food services sector (8), including accommodation and food and beverage services.
- The transport, postal and warehousing sector (9), including road, rail, water, air and other transport, postal and courier services and transport support services and storage.
- The rental, hiring and real estate services sector (12), including rental and hiring services, ownership of dwellings, and non-residential property operations and real estate.
- The administrative and support services sector (14), including employment, travel agency and other administrative services, building cleaning, pest control and other support services.
- The art and recreation services sector (19), including heritage, creative and performing arts, sports and recreation and gambling.

In Australia, TSA estimates are developed by the Australian Bureau of Statistics (ABS). At the state level, TSAs were developed by the Tourism Research Australia (TRA) and the Centre for Economic Policy (CEP) [2,26]. For example, Ho et al. (2008) developed a set of TSAs for each Australian state and territory for 2003–2004 and 2006–2007. They used visitor expenditure from the two major Australian tourism surveys, the Australian Tourism Satellite Account and IO tables for each state. Ho et al. [27] noted that TSAs for Queensland were developed by the Queensland Treasury for 1998–1999 and 2003–2004. Deloitte [28] and CEP [26] have also examined tourism's contribution at the regional level in Queensland. Pham et al. [29] examined the feasibility of constructing TSAs for Queensland, Australia. They used region-specific expenditure patterns obtained from Tourism Research Australia. They noted that, while the regional TSAs might generate policy-relevant insights regarding the tourism activity, the construction of a TSA at the regional level is a complex and expensive task. Ragab [30] also noted that some of the Australian TSA tables are presented in an aggregated form without breakdowns that makes them unusable for the detailed IO analysis at the regional level.

For the assessment of ongoing economic impacts, the expected increase in final demand from tourism on Fitzroy SD industries was adjusted using TSAs for Queensland and available data for Central Queensland [2]. Direct tourism output by industry at basic prices in Queensland was used to allocate the share of final demand to each tourism related industry. Queensland TSAs are compiled to be comparable with IO tables. The impacts are summarized in terms of how they transfer into the economy as follows:

- Initial stimulus is the level of investment made by the industry in the economy
- Direct impacts are the flow-on effects that the industry has into the business industry through the purchase of goods and services from other industries in the economy
- Indirect impacts are the effects on other businesses due to an increase in demand for their products and services
- Induced impacts are the impacts on final household demand as a result of higher employment across all industries

Given the limitations discusses earlier, the estimates are likely to be the upper bound of the employment effect.

4. Case Study

Queensland contributed 25% to total direct tourism gross value added in Australia, which is about 4% to the state economy, in 2013–2014. Queensland contributed 25% to the total number of persons employed directly in tourism-related industries with tourism's direct share of Queensland jobs being 5.6% in 2013–2014. The tourism products and services that contributed most to tourism consumption nationally were takeaway and restaurant meals (15.6%), long-distance passenger transportation (15%), accommodation (11.7%), shopping (12.6%), fuel (9.7%) and food products (7%). In Queensland, the main products and services that contributed most to tourism consumption were accommodation (27.4%), cafes, travel agency and tour operator services (30%) and restaurants and takeaway food services and clubs and bars (26.9% each) [2].

Table 2 shows growth in tourism contribution in Queensland in gross value added, taxes and gross state product, while the number of persons employed has been through growth and decline between 2006–2007 and 2013–2014.

Table 2. Key direct tourism aggregates for Queensland, 2006–2014 ([2], Appendix).

Year	Tourism Gross Value Added, A$M	Tourism Net Taxes on Products, A$M	Tourism Total Gross State Product, A$M	Tourism Persons Employed, '000
2006–2007	7720	786	8506	130.2
2007–2008	8515	862	9377	136.1
2008–2009	8386	830	9215	131.4
2009–2010	8634	812	9446	128.2
2010–2011	8543	811	9353	126.7
2011–2012	9568	912	10,480	135.9
2012–2013	9950	937	10,887	138.8
2013–2014	9818	926	10,745	130.9

Emu Park is a small coastal town in the Livingstone Shire Council in Queensland, 21 km south of Yeppoon (Livingstone Shire Council's headquarter), 30 km south-west of Rockhampton, a regional city for the Central Queensland region and about 700 km north of Brisbane (Queensland's Capital). It has a population of more than 2000 people. Emu Park is part of Central Queensland (Fitzroy SD) tourism region (Figure 1).
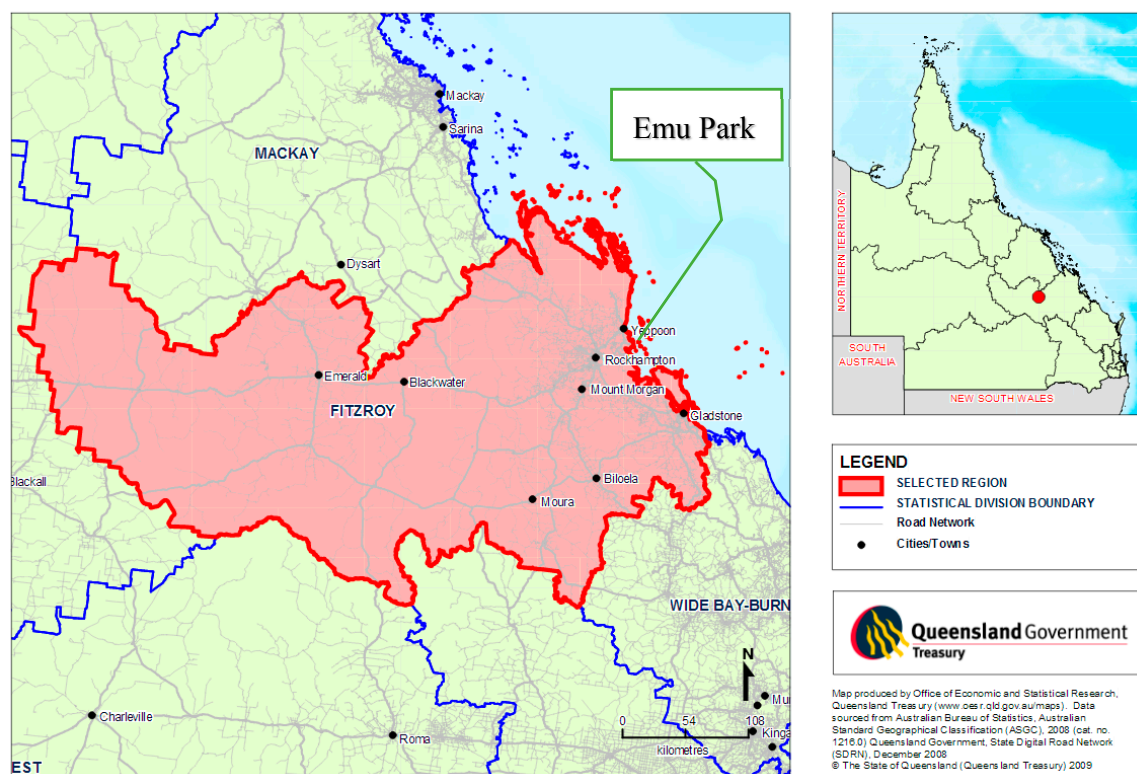

Figure 1. Queensland Fitzroy Statistical Division [31].

Table 3 provides a summary of the socio-demographics characteristics of the Livingstone Shire Council where Emu Park is located, Fitzroy SD and Queensland.

Table 3. Socio-demographic characteristics in Livingstone Shire, Fitzroy SD and Queensland, 2011.

Indicator	Livingstone	Fitzroy	Queensland
Total population	32,564	211,344	4,332,739
Median age of persons	39	41	35
Median total personal income (A$/weekly)	636	549	633
Median total household income (A$/weekly)	1534	1100	1406
Median mortgage repayment (A$/monthly)	1918	1780	1850
Median rent (A$/weekly)	248	250	300

Source: [32].

In 2013–2014, the tourism activity in Central Queensland generated A$0.7 billion in direct tourism output, A$0.343 billion in direct gross value added (or 3.1% of total gross value added), A$0.375 billion in gross regional product (or 1.9% of total gross regional product) and 4,600 direct jobs for people employed by the tourism industry (or 3.9% of the total regional employment). The tourism industries that generated the highest economic benefits, including gross value added, gross regional product and employment to Central Queensland in 2013–2014, were accommodation; retail trade; and cafe, restaurants and takeaway food services [28].

Emu Park is a popular tourist destination in Livingstone Shire [33]. However, Emu Park's infrastructure and services that cater for the tourists are not adequate to attract and retain more tourists in this region. Average annual income from the overnight staying visitors in Yeppoon/Emu Park communities was only 12% of the Central Queensland [3].

This lower share of tourist visitation in the Yeppoon and Emu Park region is one of the disadvantages that the Yeppoon and Emu Park region is facing. Livingstone Shire Council has proposed a number of projects to develop the Emu Park's near foreshore [34]. The new proposed infrastructure and facilities would attract up to 40 thousand more overnight visits in this region and up to A$12M per annum in tourism revenue [3]. This paper adopts a conservative estimate of A$5M per annum of the new tourism revenue that is expected to result from the project.

5. Economic Impacts from the Projects

5.1. Impacts from the Construction

Assuming an initial stimulus of A$4.5M for the construction stage, the following effects from the construction were estimated [3]. Direct effects: A$2.5M (A$2.7M) output, A$0.9M (A$1.0M) value added (VA), A$0.5M (A$0.6M) income, 7 Full-Time Equivalent (FTE) (8 FTE) on Fitzroy SD and Queensland respectively. Indirect effects: A$4.2M (A$6.1M) output, A$2.1M (A$3.1M) VA, A$1M (A$1.4M) income, 14 FTE (20 FTE) on Fitzroy SD and Queensland respectively. The resulting total impacts including induced effects: A$11.2M (A$13.3M) output, A$4.4M (A$5.5M) VA, A$2.2M (A$2.7M) income, 31 FTE (38 FTE) on Fitzroy SD and Queensland respectively [3].

Those estimates represent the upper bound of the impacts from the construction stage. It was assumed that during the construction, most additional supplies and services would be sourced from within the Fitzroy SD. Given that Fitzroy SD has a well-developed construction industry, this is not an unreasonable assumption. However, some supplies and services would be sources from other regions, reducing the estimated impacts. It should be noted that the impacts from the construction stage are temporarily. Nevertheless, the additional construction projects can provide continuous employment for the industry.

5.2. Potential Ongoing Benefits to Regional Economy

Once the project is completed, it could stimulate tourism in the region by increasing the number of tourists in the region. An increase in tourist numbers will further impact on the region with the following sectors being more likely recipients of tourists' expenditure: accommodation and food

services, including cafes and restaurants; transport; retail trade, including tourist shops and tourist enterprises; as well as some administrative and support services and recreational services. Therefore, those sectors were chosen to represent the tourism industry in the region. Table 4 illustrates the wage and labour distribution in Fitzroy SD. It shows that more than 17% of income and more than 11% of employment are generated by the mining industry. The manufacturing industry accounts for more than 10% of the income and employment in Fitzroy SD. Tourism related industries combined account for more than 21% of total income and about 28% of employment in Fitzroy SD.

Queensland Government identified job creation as its core policy objective [35]. Table 5 shows the employment disaggregated multipliers for tourism related sectors in Fitzroy SD. Multipliers are calculated using Fitzroy SD IO table derived from national IO tables. Disaggregated employment multipliers in Table 5 show total multiplier (initial, first round and industry support) from an A$1M increase in demand. For example, an increase in demand by A$1M in retail trade would increase total employment by 9.1 persons in Fitzroy SD through initial stimulus, first round and industrial support. The sector affected the most would be the retail trade sector with extra eight persons employed in total, bringing it to 87.1% of the total employment effect. The second largest sector affected by an increase in demand for retail trade industry goods and services is professional, scientific and technical services (2.4% of total employment effect). The expansion of the accommodation and food services sector would result in an increase in total employment in all sectors, including accommodation and food services by 9.2 persons in Fitzroy SD. Equal expansion of other sectors would bring less additional jobs to the region.

Table 4. Wage and Labour Distribution, Fitzroy SD.

	Sector	Wages, A$M	%	Employment, FTE	%
1	Agriculture, forestry and fishing	129	1.92	4597	5.16
2	Mining	1154	17.11	10,246	11.50
3	Manufacturing	683	10.13	9556	10.73
4	Electricity, gas, water and waste services	223	3.31	2490	2.80
5	Construction	601	8.92	8657	9.72
6	Wholesale trade	300	4.45	2936	3.30
7	Retail trade	363	5.39	7435	8.35
8	Accommodation and food services	192	2.85	4671	5.24
9	Transport, postal and warehousing	397	5.88	5516	6.19
10	Information media and telecommunications	41	0.61	523	0.59
11	Financial and insurance services	172	2.55	1375	1.54
12	Rental, hiring and real estate services	128	1.90	1533	1.72
13	Professional, scientific and technical services	363	5.38	4320	4.85
14	Administrative and support services	190	2.81	1698	1.91
15	Public administration and safety	466	6.92	5141	5.77
16	Education and training	559	8.28	6576	7.38
17	Health Care Services	334	4.96	4846	5.44
18	Residential Care and Social Assistance Services	255	3.79	3026	3.40
19	Arts and recreation services	19	0.28	456	0.51
20	Other services	173	2.56	3470	3.90

Table 5. Employment disaggregated multipliers, Fitzroy SD, open model [3].

	Sector	Retail Trade		Accommodation and Food Services		Transport, Postal and Warehousing		Rental, Hiring and Real Estate		Administrative and Support Services		Arts and Recreation Services	
		Multipliers	%	Multipliers	%	Multipliers	%	Multipliers	%	Multipliers	%	Multipliers	%
1	Agriculture, forestry and fishing	0.08	0.9	0.13	1.5	0.04	0.8	0.02	1.3	0.02	0.4	0.07	0.9
2	Mining	0.02	0.2	0.04	0.4	0.03	0.6	0.01	0.6	0.02	0.3	0.02	0.3
3	Manufacturing	0.17	1.9	0.48	5.2	0.30	5.7	0.06	4.3	0.11	1.9	0.22	3.1
4	Electricity, gas, water and waste services	0.05	0.5	0.07	0.7	0.03	0.7	0.03	1.9	0.04	0.7	0.04	0.5
5	Construction	0.07	0.7	0.07	0.8	0.12	2.4	0.14	9.9	0.07	1.3	0.06	0.8
6	Wholesale trade	0.07	0.8	0.11	1.2	0.09	1.8	0.02	1.5	0.06	1.1	0.11	1.6
7	Retail trade	7.95	87.1	0.17	1.8	0.16	3.0	0.03	2.0	0.08	1.5	0.29	4.1
8	Accommodation and food services	0.06	0.6	7.60	82.4	0.07	1.4	0.02	1.3	0.11	2.1	0.09	1.3
9	Transport, postal and warehousing	0.13	1.5	0.15	1.6	3.58	68.6	0.04	2.8	0.16	2.9	0.16	2.3
10	Information media and telecommunications	0.03	0.3	0.02	0.2	0.02	0.3	0.01	0.4	0.02	0.5	0.03	0.4
11	Financial and insurance services	0.04	0.4	0.04	0.4	0.05	0.9	0.11	7.9	0.04	0.8	0.03	0.4
12	Rental, hiring and real estate services	0.05	0.5	0.04	0.4	0.03	0.6	0.72	49.7	0.04	0.7	0.03	0.4
13	Professional, scientific and technical services	0.22	2.4	0.09	1.0	0.18	3.4	0.12	7.9	0.30	5.5	0.28	3.9
14	Administrative and support services	0.07	0.7	0.14	1.5	0.17	3.2	0.06	4.5	4.19	76.6	0.19	2.7
15	Public administration and safety	0.03	0.3	0.02	0.2	0.07	1.3	0.02	1.1	0.05	0.9	0.05	0.7
16	Education and training	0.01	0.1	0.01	0.1	0.02	0.3	0.01	0.5	0.03	0.6	0.04	0.5
17	Health Care Services	0.00	0.0	0.00	0.0	0.00	0.1	0.00	0.2	0.01	0.1	0.00	0.1
18	Residential Care and Social Assistance Services	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0
19	Arts and recreation services	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.1	0.00	0.1	5.34	74.9
20	Other services	0.09	1.0	0.05	0.5	0.26	5.0	0.03	2.1	0.12	2.1	0.08	1.1
	Total	9.13	100.0	9.22	100.0	5.22	100.0	1.45	100.0	5.48	100.0	7.12	100.0

Final demand from tourism on Fitzroy SD industries was adjusted using TSA, Queensland [2]. The results show that a A\$5M increase in tourism in Fitzroy SD will result in 37 FTE jobs in the open model and 47 FTE jobs if the closed (with respect to households) model is estimated (Table 6). The effects shown in Table 6 include the value of the initial stimulus for each sector. The largest effect is on the accommodation and food industries (15 FTE), followed by retail trade (6.8 FTE) and transport (5.1 FTE) industries. The results need to be taken with caution given that the increase in sales might not necessarily result in an increase in employment but in a higher capacity utilisation.

Table 6. Employment Final Demand Impacts: Fitzroy SD.

	Sector	Open Model	%	Closed Model	%
1	Agriculture, forestry and fishing	0.4	1.1	0.7	1.4
2	Mining	0.1	0.4	0.2	0.5
3	Manufacturing	1.6	4.4	2.5	5.4
4	Electricity, gas, water and waste services	0.2	0.7	0.5	1.0
5	Construction	0.4	1.2	0.6	1.3
6	Wholesale trade	0.5	1.3	0.9	1.9
7	Retail trade	6.8	18.3	8.8	18.7
8	Accommodation and food services	15.4	41.6	16.6	35.2
9	Transport, postal and warehousing	5.1	13.7	5.7	12.0
10	Information media and telecommunications	0.1	0.3	0.2	0.4
11	Financial and insurance services	0.2	0.6	0.5	1.1
12	Rental, hiring and real estate services	0.4	1.1	0.8	1.7
13	Professional, scientific and technical services	0.8	2.1	1.1	2.3
14	Administrative and support services	1.6	4.3	1.8	3.8
15	Public administration and safety	0.2	0.5	0.3	0.5
16	Education and training	0.1	0.2	1.0	2.2
17	Health Care Services	0.0	0.0	0.7	1.5
18	Residential Care and Social Assistance Services	0.0	0.0	0.4	0.8
19	Arts and recreation services	1.3	3.6	1.5	3.1
20	Other services	1.7	4.7	2.5	5.4
	Total	37.0	100.0	47.2	100.0

The disaggregated multipliers for each tourism related industry were calculated for Fitzroy SD and Queensland. Then, the ratios of Fitzroy SD and Queensland multipliers were taken (Table 7). Table 7 illustrates the potential for tourism related sectors to contribute more to the regional economy.

Table 7 shows that to increase the economic impact of the project at regional level, it is advisable to look into whether the connections of the tourism related industries with information, media and telecommunications, financial and insurance services, residential care and social assistance services and art and recreation services can be increased. For example, a one dollar increase in retail trade only uses 35% of required supply from art and recreation services in Fitzroy SD compared with Queensland. The rest of the required supply comes from outside the region. To improve regional purchases, local procurement strategies need to be considered to boost the regional economy further.

Table 7. Ratio of employment multipliers, Fitzroy to Queensland, open model [3].

	Sector	Retail Trade	Accommodation and Food Services	Transport, Postal and Warehousing	Rental, Hiring and Real Estate Services	Administrative and Support Services	Arts and Recreation Services
1	Agriculture, forestry and fishing	0.97	0.98	0.94	0.92	0.88	0.92
2	Mining	0.91	0.96	0.94	0.88	0.89	0.87
3	Manufacturing	0.93	0.98	0.96	0.87	0.88	0.90
4	Electricity, gas, water and waste services	0.94	0.96	0.91	0.92	0.89	0.87
5	Construction	0.83	0.84	0.86	0.89	0.81	0.77
6	Wholesale trade	0.74	0.76	0.75	0.66	0.71	0.72
7	Retail trade	1.00	0.86	0.85	0.76	0.81	0.84
8	Accommodation and food services	0.82	1.00	0.83	0.70	0.84	0.80
9	Transport, postal and warehousing	0.91	0.92	1.00	0.80	0.91	0.87
10	Information media and telecommunications	0.39	0.37	0.36	0.32	0.38	0.37
11	Financial and insurance services	0.46	0.47	0.47	0.49	0.45	0.41
12	Rental, hiring and real estate services	0.82	0.82	0.79	0.82	0.80	0.74
13	Professional, scientific and technical services	0.59	0.53	0.57	0.54	0.60	0.57
14	Administrative and support services	0.54	0.59	0.59	0.53	0.97	0.57
15	Public administration and safety	0.69	0.65	0.75	0.65	0.71	0.68
16	Education and training	0.76	0.76	0.84	0.69	0.90	0.88
17	Health Care Services	0.52	0.55	0.56	0.41	0.63	0.52
18	Residential Care and Social Assistance services	0.86	0.46	0.47	0.38	0.80	0.46
19	Arts and recreation services	0.35	0.35	0.31	0.31	0.34	0.97
20	Other services	0.90	0.84	0.95	0.81	0.90	0.83

5.3. Key Sectors and Local Content Procurement Strategies

Key industries are those industries that increase the initial economic stimulus by more than the average industries in the region. Comparison of the backward and forward linkages in regional economies allows the identification of the key industries that can be used to enhance economic development through the inter industry linkages in regional economies. The identification of key industries can be useful for economic planning, aiming at generating above average economic activity [36]. Economic impact assessment should take into consideration the key industries in the region.

Fitzroy SD has several key industries, such as wholesale trade, media and telecommunication and transport [37]. Fitzroy SD will grow more rapidly if those key industries are encouraged to grow. For example, in Fitzroy SD, one dollar of expansion in the road transport industry will result in 15% more employment compared to the equal expansion in other industries [37]. The transport industry is both a key industry and a tourism related industry. Table 7 illustrates that the connection between the transport industry and other industries in the region can be strengthened. For example, a one dollar increase in the transport industry only uses 36% of the required supply from information media and the telecommunication industry from within the region compared with Queensland.

Therefore, the region can enhance the value of Emu Park development by adding more local procurement strategies aimed at enhancing connections between the tourism industry and the key industries in Fitzroy SD [38]. It should be noted that key industries can change in the region over time. Therefore, for the new development, an up-to-date analysis of key industries is required.

Local procurement can bring significant social and economic benefits to the Fitzroy SD economy. It can improve the regional economy by increasing local employment, increasing the skill base at local level, enhancing community wellbeing as well as stimulating the development of local business and strengthening competitiveness. By investing in local supplier development, industry can benefit by having higher security of supply, lower logistical costs, reduced delivery time, fast access to inputs, easier to travel for management purposes or site inspections, local knowledge and increased competitiveness of supplier market.

Local procurement policies need to be based on competitiveness principles, such as value for money. Strategies that improve access to local contracts, accommodate different capabilities and competiveness of local industries need to be developed. These strategies include

- assigning higher preference weightings to local businesses in competitive bidding processes;
- sole sourcing arrangements with local suppliers;
- price matching, that is, allowing local suppliers to match the price of other suppliers;
- breaking large contracts into smaller ones (unbundling) to create opportunities for smaller local suppliers;
- requiring non-local suppliers to subcontract locally or to enter joint ventures with local suppliers;
- providing technical and management training and mentoring; and
- linking local businesses to other service providers and agencies that promote technological innovation and provide access to finance [39].

For example, tourism businesses can identify and switch to products and services that could be sourced locally, such as local food, transport and cleaning services. Tourism businesses can also identify which contracts can be divided into smaller parts and be sourced locally. It is important that local activities, heritage and cultural experiences were advertised by tourism businesses such as accommodation and food services.

6. Summary and Discussion

An analysis of the direct and indirect economic impacts of the construction stage of the project has identified large and positive gains for the regional and state economies. During the construction,

the total impacts on the Fitzroy region are expected to be A\$11.2M of output, A\$4.4M in value added, A\$2.2M of income, and an additional 31.2 jobs. At the state level, the total impacts of the construction stage are expected to be A\$13.3M of output, A\$5.5M in value added, A\$2.7M of income, and an additional 38.2 jobs.

Some level of caution needs to be attached to these estimates, particularly those relating to employment impacts. The model that is used assumes that the bulk of additional services and supplies can be sourced from the regional area and then from the state or national economies. As economies become more integrated it becomes easier to source services and supplies from other regions and overseas, suggesting that impacts on the regional area may be overstated.

Rolfe et al. [3] found that similar developments could increase the visitor rates between 10% and 60%. They predicted that this increased number of visitors would provide up to A\$12M additional revenue to the Livingstone Shire. The conservative estimate for A\$5M was used in this paper to analyse the effect of developments on regional economy. The results showed that an equal expansion of each tourism related industry would result in an unequal increase in employment by industry. These are similar results to those of Jones and Munday [12]. For example, trade and accommodation and food services would experience a larger increase in employment than the rental, hiring and real estate sector.

Tourism related industries in Fitzroy SD have a strong potential to contribute more to the regional economy. Similar to [13] we found that tourism related industries do not have strong interconnections within the region. For example, tourism related industries can source more from within the region from information media and communication and art and cultural services sectors. Presently, less than 40% of their required suppliers from those industries are coming from within the region compared with Queensland. Additionally, the connections with the key industries can be encouraged. To improve the local supply, strategies such as local procurement strategies can be employed.

This paper suggests a methodology on how to increase the benefits of an industry at the regional level. It might be possible to further increase direct and indirect employment, income and other benefits of the project by, first, examining the tourism related industries and the share of tourism expenditure for each industry in the region. Second, key industries in the region need to be identified. Third, the connections between the tourism related industries and those key industries at regional level need to be investigated. Fourth, strategies promoting connections among key industries and tourism related industries, such as local procurement policies, need to be suggested. The regional economy will grow more rapidly if those connections are encouraged.

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