



Fitzroy Falls Visitor Centre

The Economic Impact of Management and Visitor Expenditure



FITZROY FALLS VISITOR CENTRE:

The Economic Impact of Management and Visitor Expenditure

Technical Report

Robert Gillespie
Gillespie Economics

Prepared for

Conservation Economics Group
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PREFACE

National parks and other protected areas play a very significant role in the conservation of natural and cultural heritage. Protected areas are also being recognised by policy makers and communities as valuable public assets in terms of their potential to encourage economic activity in rural and regional areas.

The National Parks and Wildlife Service Conservation Economics Group has investigated the economic and social benefits of protected areas for rural and regional communities. The present study examines the regional economic impacts associated with the management and visitor use of the Fitzroy Falls Visitor Centre in the NSW Southern Highlands.

EXECUTIVE SUMMARY

Protected areas provide a range of economic benefits including those associated with recreation and the protection of natural and cultural heritage. These areas can also contribute to regional economic activity through generating demand for additional park management services and attracting visitors who purchase goods and services from local businesses.

This study is part of a program undertaken by the NSW National Parks and Wildlife Service (NPWS) to assess the regional economic impacts of protected areas. The study examines the contribution of the Fitzroy Falls Visitor Centre to economic activity in the regional economy comprising the Kiama, Wingecarribee and Shoalhaven local government areas (LGAs).

The Fitzroy Falls Visitor Centre is located 40 km north-west of Nowra, within two hours drive of Sydney, Canberra and Wollongong, and acts as a northern gateway to Morton National Park. The site includes a Visitor Centre, café, picnicking and barbecue facilities, a number of walks along the escarpment, and a boardwalk to the main Falls lookout. The Centre currently receives around 386,000 visitors each year.

As well as being a destination in its own right, the Visitor Centre plays an important role in directing visitors to other tourism activities and destinations within the Kiama, Wingecarribee and Shoalhaven region, and is affiliated with the three major tourism associations in the region.

This study used input-output analysis to determine the regional economic impact of the Visitor Centre. The first stage of the analysis involved the development of a regional input-output table to examine the Kiama, Wingecarribee and Shoalhaven regional economy. This showed that the building/construction sector and business services sector were the most significant industry sectors in the region in terms of gross regional output (GRO) and gross regional product (GRP). In terms of employment, retail trade was the largest employer, followed by building/construction, a range of service sectors and accommodation/restaurants. The high ranking of the retail sector and tertiary sectors here reflected the labour intensive nature of these industries.

The tertiary sectors were also substantial contributors to total wages to households, together with retail trade and the building/construction sectors. The majority of exports from the region were from the paper manufacturing sector, while imports were more evenly spread across the other sectors. The top five importing sectors were the business services sector, building/construction sector, the equipment manufacturing sector, retail trade and accommodation/restaurants.

The input-output table developed for this study was also used to examine the regional economic impacts of:

- the operation of the Visitor Centre (including the café, which is leased to a private operator); and
- expenditure in the region by visitors to the Centre.

A financial survey was used to obtain information on the direct revenues, expenditure and employment of the Visitor Centre, while a visitor survey was used to obtain information on the direct regional expenditure pattern of visitors.

This data was manipulated to make it consistent with the conventions of the regional input-output table, and the table was then used to estimate the flow-on, and total, impacts of these two types of economic activity.

Table ES1: Regional Economic Impacts From Visitor Centre Operations

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	TOTAL EFFECT
GRO (\$'000)	494	156	324	481	975
GRP (\$'000)	264	68	158	226	490
Household Income (\$'000)	183	40	107	147	330
Employment (No. of Jobs)	11	1	3	4	15

As shown in Table ES1 above, the operation of the Fitzroy Falls Visitor Centre by the NPWS contributed an estimated \$975,000 in direct and indirect gross regional output (or business turnover) per year. Direct and indirect gross regional product constituted \$490,000 of this, and included \$330,000 in household income. The direct and indirect annual employment impacts of Visitor Centre operations were estimated at 15 jobs.

Visitor Centre operations impact on a broad range of sectors including retail trade, wholesale trade, accommodation/cafes/restaurants, legal and accounting services, other business services, road transport and government administration.

Table ES2 below shows that the aggregate direct and indirect impacts arising from total expenditure in the region by visitors to the Centre were \$60.3m in annual gross regional output, of which \$28.2m represented direct and indirect gross regional product, including \$18.9m in household income. The direct and indirect annual employment impacts were estimated at 577 jobs.

Table ES2: Regional Economic Impact of Expenditure in the Region by Centre Visitors

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	TOTAL EFFECT
GRO (\$'000)	27,59	14,39	18,287	32,68	60,278
	4	7		4	
GRP (\$'000)	12,57	6,800	8,884	15,68	28,260
	6			4	
Household Income (\$'000)	8,587	3,973	6,047	10,02	18,607
				0	
Employment (No. of Jobs)	330	86	161	247	577

In contrast to Visitor Centre operational expenditure, visitor expenditure primarily impacts on the accommodation, cafes and restaurants sector, the retail trade sector and the wholesale trade sector.

The visitor expenditure estimates used in the study represent the total expenditure in the regional economy by people who visit the Centre. As part of this expenditure would in many cases be driven by other attractions in the region, it would be incorrect to attribute all of this expenditure to the Centre itself.

The Visitor Centre is likely to stimulate additional economic activity in the region through its role in directing visitors (and thus visitor expenditure) to other regional tourism destinations, including other protected areas. For example, information provided by the Visitor Centre may encourage longer stays in the region, or subsequent repeat visits. However, the impacts of this expenditure would need to be assessed through specific studies of the destinations involved, or through a larger study of the impacts of multiple regional attractions.

This potential for the Centre to stimulate additional economic activity may have implications for agencies involved in regional economic development, as it may be possible to provide enhanced economic benefits to the region by developing programs which integrate the management and promotion of protected areas into an overall tourism development package. This issue however, is beyond the scope of the present study.

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1. INTRODUCTION

1.1 The Study

Protected areas provide a range of economic benefits, including those associated with recreation and conservation of natural and cultural heritage. Protected areas also contribute to regional economic activity through operational expenditure, and through attracting visitors and visitor expenditure to an area.

The present study examines the contribution of the Fitzroy Falls Visitor Centre to economic activity in the combined economy of the Kiama, Wingecarribee and Shoalhaven local government areas (LGAs).

1.2 Fitzroy Falls Visitor Centre

The Visitor Centre is located on the Nowra Road, 40 km north-west of Nowra and is within two hours drive of Sydney, Canberra and Wollongong. The Centre acts as a northern gateway to Morton National Park (see Figure 1.1), and receives around 386,000 visitors per annum.

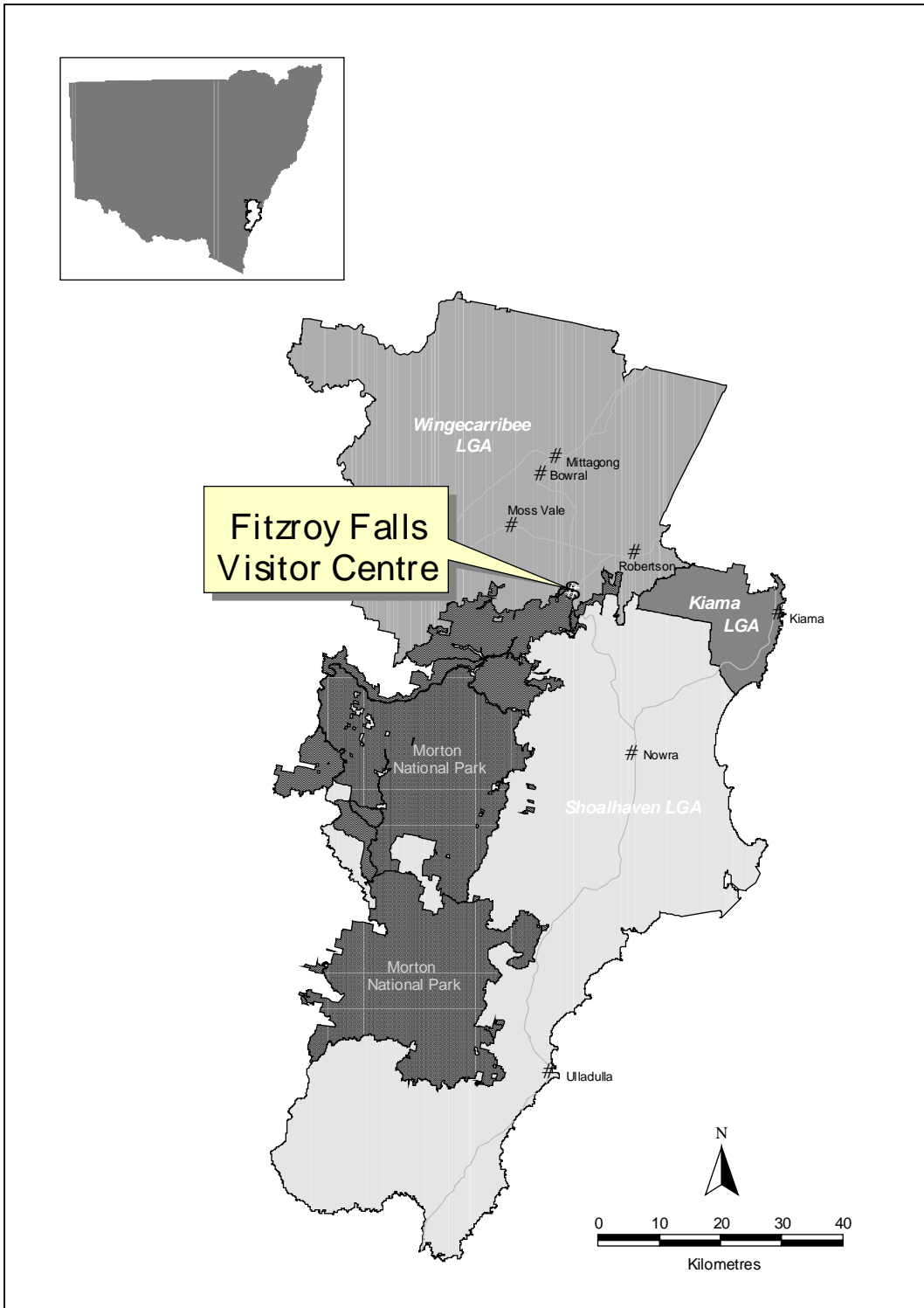
Visitors to the Falls can enjoy:

- a short boardwalk to the waterfall and lookout;
- two longer walks along the western or eastern edge of the escarpment offering magnificent views of the valley and rainforest gullies;
- picnicking and barbecuing in the shelters provided;
- meals in the café;
- souvenir shopping and
- an interpretive/education room.

As well as being a destination in its own right, the Centre is affiliated with the three major tourism associations in the region (i.e. Tourism Shoalhaven, Tourism Southern Highlands and Tourism Kiama), and plays an important role in providing information, displays and maps on other tourism activities and destinations within the broader Kiama, Wingecarribee and Shoalhaven region such as:

- The Open Gardens in the Southern Highlands;
- Tulip Time in spring;
- The Bradman Museum;
- Berrima Historic Village;
- Kangaroo Valley;
- Jervis Bay;
- Albatross Naval Museum; and
- Minnamurra Rainforest Centre.

Figure 1-1: Location of Fitzroy Falls Visitor Centre



2. REGIONAL ECONOMIC IMPACT ASSESSMENT AND ECONOMIC PROFILE OF THE REGION

2.1 Introduction

Regional economic impact assessment is primarily concerned with the effect of an impacting agent on an economy, expressed in terms of a number of specific indicators such as gross regional output (GRO), gross regional product (GRP), household income and employment.

These indicators can be defined as follows:

Gross regional output: the gross value of regional business turnover;

Gross regional product: the gross value of regional business turnover less the costs of imports of raw materials, components and services used to produce local goods and services.

Household income: the wages paid to employees including imputed wages for the self-employed and business owners; and

Employment: the number of people employed (including full-time and part-time employees).

An impacting agent may be a change to a local economy or an existing activity within an economy, which can range in size from a township to an entire country (Powell *et al.*, 1985, Jensen and West, 1986).

The present assessment is concerned with the likely impact of an existing activity (the Fitzroy Falls Visitor Centre) on a regional economy. The area selected to represent this regional economy needs to be big enough to capture the local expenditure associated with the Visitor Centre, but not so large that the impact of the Centre becomes trivial (see Powell and Chalmers, 1995). Thus the regional economy used in this study has been defined as the area making up the surrounding local government areas of Shoalhaven, Wingecarribee and Kiama.

A range of methods can be used to examine the regional economic impacts of an activity on an economy, including economic base theory, Keynesian multipliers, econometric models, mathematical programming models and input-output models (Powell *et al.*, 1985). This study uses regional input-output analysis.

Input-output analysis essentially involves two steps:

1. construction of an appropriate input-output table (or regional transactions table) that can be used to identify the economic structure of the region and multipliers for each sector of the economy; and
2. identification of the initial impact, or stimulus, of the activity being assessed, in a form which is compatible with the input-output equations, so that the input-output multipliers and flow-on effects can then be estimated (West, 1993, p 2-1).

2.2 Input-Output Table and Economic Structure of the Region

A 1996 Input-Output table of the regional economy was developed for this study using the Generation of Regional Input-Output Tables (GRIT) procedure. This procedure was developed at the University of Queensland and is recognised internationally (see Appendix 1 for an overview of the GRIT procedure). The table comprised 106 industry sectors, and was developed from the recently released 1996/97 National Input-Output Table and 1996 Census data on employment by ANZSIC Industry Class, produced by the Australian Bureau of Statistics. For the purpose of impact assessment, 1996 values were then indexed to the year 2002.

This 106 sector input-output table of the Shoalhaven, Wingecarribee and Kiama economy was then aggregated to 6 sectors for the purpose of describing this economy. However, the full 106 sector input-output table was used for the impact assessment.

A highly aggregated 1996 input-output table for the Shoalhaven, Wingecarribee and Kiama economy is provided in Table 2.1¹. The rows of the table indicate how the gross regional output of an industry is allocated as sales to other industries, to households, to exports and Other Final Demands (i.e. OFD, which includes stock changes, capital expenditure and government expenditure). The corresponding column shows the sources of inputs purchased to produce that gross regional output. These include purchases of intermediate inputs from other industries, the use of labour (household income), the returns to capital or Other Value Added (OVA, which includes gross operating surplus, depreciation and net indirect taxes and subsidies) and goods and services imported from outside the region. The number of people (from the region) employed in each industry is also indicated in the final row.

¹ It should be noted that the input-output table is indicative only, with most uncertainty surrounding the OFD and exports columns since the derivation of these was based on residual elements being allocated in proportion to the national input-output table.

Table 2-1: Aggregated Transactions Table: Kiama, Shoalhaven, Wingecarribee 1996, \$'000

	Ag/Forest/ Fish	Mining	Manufact- uring	Utilities	Building	Services	TOTAL	H-hold Exp	O.F.D	Exports	Total
Ag/ Forest/Fi sh	14,821	79	40,522	16	642	9,264	65,344	16,835	41,544	53,248	176,970
Mining	183	5,725	37,623	12,788	4,876	5,239	66,434	0	5,464	126,917	198,815
Manufacturi ng	15,728	12,413	164,833	5,117	153,878	130,836	482,804	161,662	-297,614	712,352	1,059,205
Utilities	2,300	2,539	27,579	14,470	1,096	33,870	81,854	44,222	34,031	765	160,873
Building	689	437	250	151	535	15,420	17,482	13,255	550,539	617	581,893
Services	22,958	26,155	165,715	17,008	88,046	655,630	975,513	748,308	919,759	339,450	2,983,029
TOTAL	56,679	47,348	436,523	49,551	249,073	850,259	1,689,432	984,282	1,253,722	1,233,349	5,160,785
H-hold Income	45,848	27,570	205,307	22,732	140,956	1,126,569	1,568,982	0	0	0	1,568,982
O.V.A.	34,841	93,969	150,008	69,491	123,041	581,068	1,052,418	107,010	0	0	1,159,427
Imports	39,603	29,929	267,367	19,099	68,823	425,134	849,954	428,929	0	0	1,278,883
TOTAL	176,970	198,815	1,059,205	160,873	581,893	2,983,029	5,160,785	1,520,221	1,253,722	1,233,349	9,168,077
Employment	2,025	352	5,132	495	4,076	33,379	45,459				

Source: Gillespie Economics

Table 2.1 shows the value of the gross regional output for the regional economy in 1996 as being \$5,161m. However, it is generally considered that gross regional product is a better measure of economic activity, as it avoids double counting associated with purchases of intermediate products. Gross regional product for the Shoalhaven, Wingecarribee and Kiama economy is estimated at \$2,621m including \$1,569m paid to households as wages and salaries (including imputed payments to self-employed and employers), and \$1,052m in OVA.

The employment total for the Shoalhaven, Wingecarribee and Kiama economy was estimated as 45,459 jobs, with average wage and salary earned estimated as \$34,500 per person.

The economic structure of the Shoalhaven, Wingecarribee and Kiama region may be partly compared with that for NSW through a comparison of Figure 2.1 and Figure 2.2. This reveals that the Shoalhaven, Wingecarribee and Kiama economy is not dissimilar proportionally from the NSW economy. The main difference between these economies is that mining and building are of slightly greater relative importance in the Shoalhaven, Wingecarribee and Kiama economy when compared with the NSW economy, while services are of slightly less relative importance.

The economy appears to import (\$1,279m) a slightly greater value of goods and services than it exports (\$1,233m). Almost all (96%) exports relate to manufacturing, mining and services, with the contribution of each of these sectors to exports being 58%, 28% and 10%, respectively. The destination of

imports in the local region from all sources (overseas, inter-regional and interstate) are shown in aggregate in Figure 2.3, and in detail by industry in Figure 2.9. As is the case with most regions, the largest import items are goods for consumption by local households, which comprise 33.5% of all imports. With respect to the six aggregated intermediate sectors, the most imports were to the services sector (33%), followed by the manufacturing sector (21%).

Household income for the regional economy was calculated as \$1,569m (i.e. 60% of the gross regional product of \$2,621m), and slightly more than estimated household expenditure.

Figure 2-1: Summary of Aggregated Sectors: Shoalhaven, Wingecarribee and Kiama (2001)

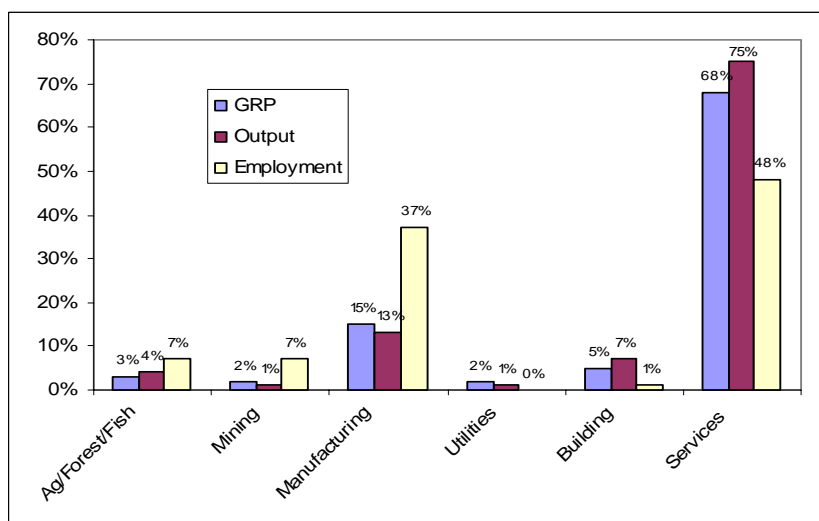
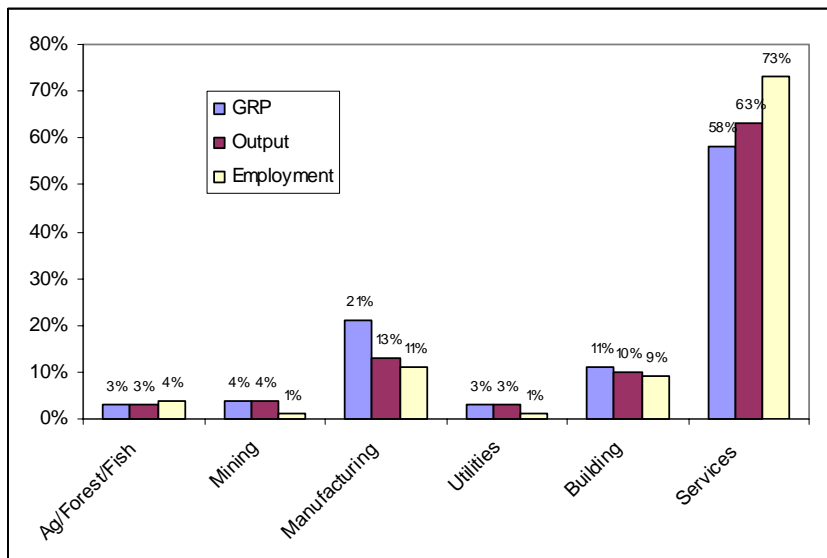
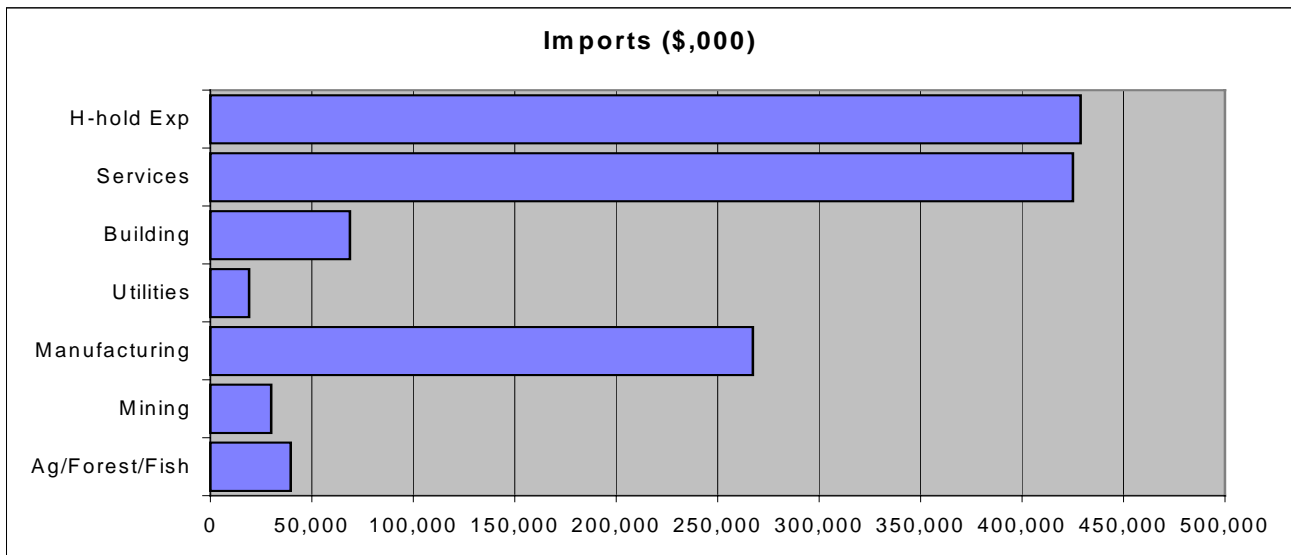


Figure 2-2: Summary of Aggregated Sectors: NSW (1995-96)

Source: Powell et al. (1999).

Figure 2-3: Distribution of Imports by Destination Sector



Figures 2.4 to 2.11 provide a more detailed picture of the sectoral distribution of gross regional output, gross regional product, household income, employment, exports, imports, productivity, and average wages and salaries. These figures can be used to provide a more comprehensive description of the economic structure of the regional economy.

In terms of gross regional output and gross regional product, the building/construction sector and business services sector are the most significant industry sectors in the regional economy. In the case of employment, retail trade is the largest employer, followed by building/construction, a range of service sectors and accommodation/restaurants. The high ranking of the retail sector and tertiary sectors reflect the labour intensive nature of these industry sectors.

In terms of total wages to households, the tertiary sectors again are substantial contributors, together with retail trade and the building/construction sectors. The majority of exports from the region are from the paper manufacturing sector, while imports are more evenly spread across sectors. The top five importing sectors are the business services sector, the building/construction sector, the equipment manufacturing sector, retail trade, and accommodation/restaurants.

Figure 2-4: Sectoral Distribution of Gross Regional Output (\$'000)

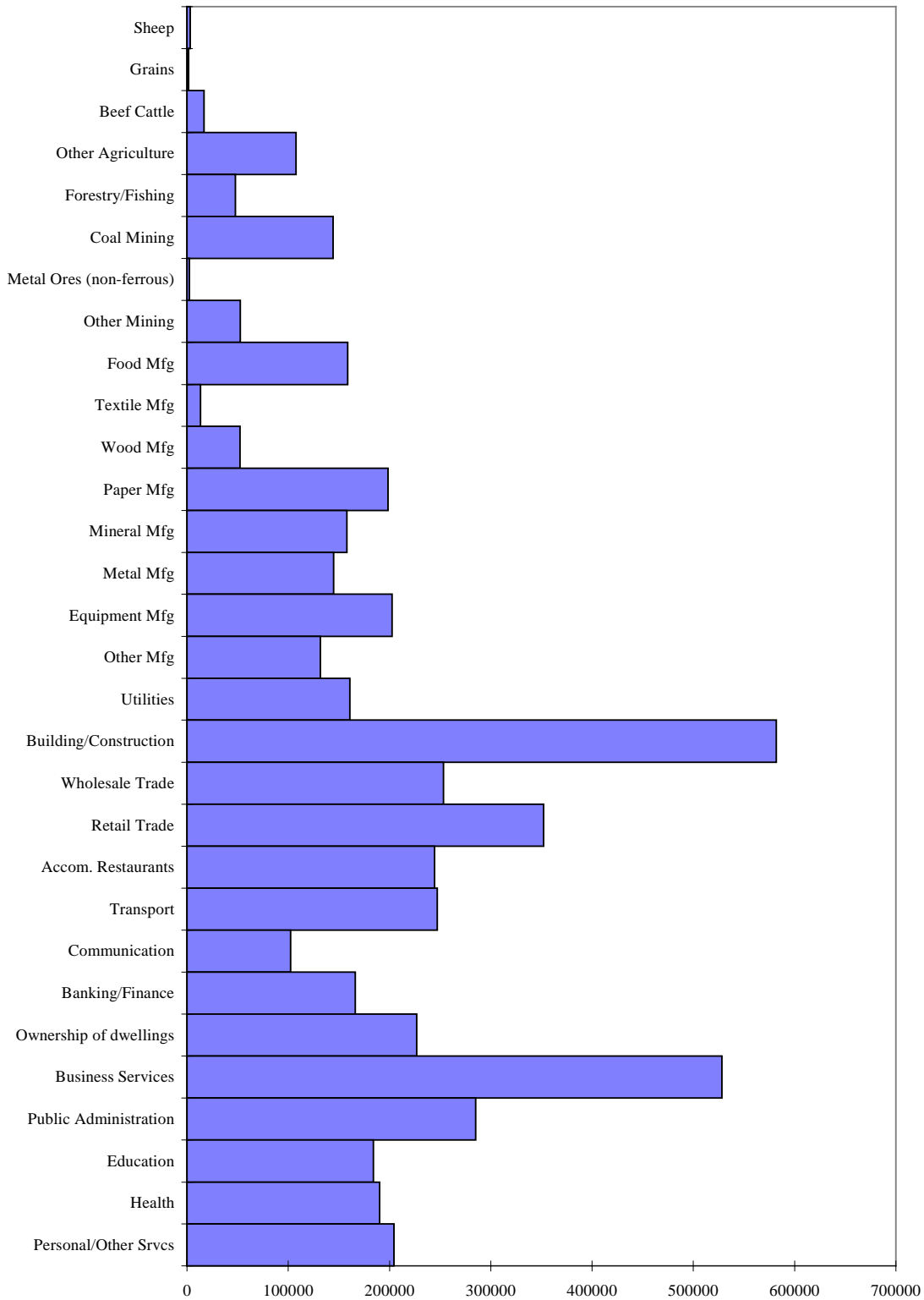


Figure 2-5: Sectoral Distribution of Gross Regional Product (\$'000)

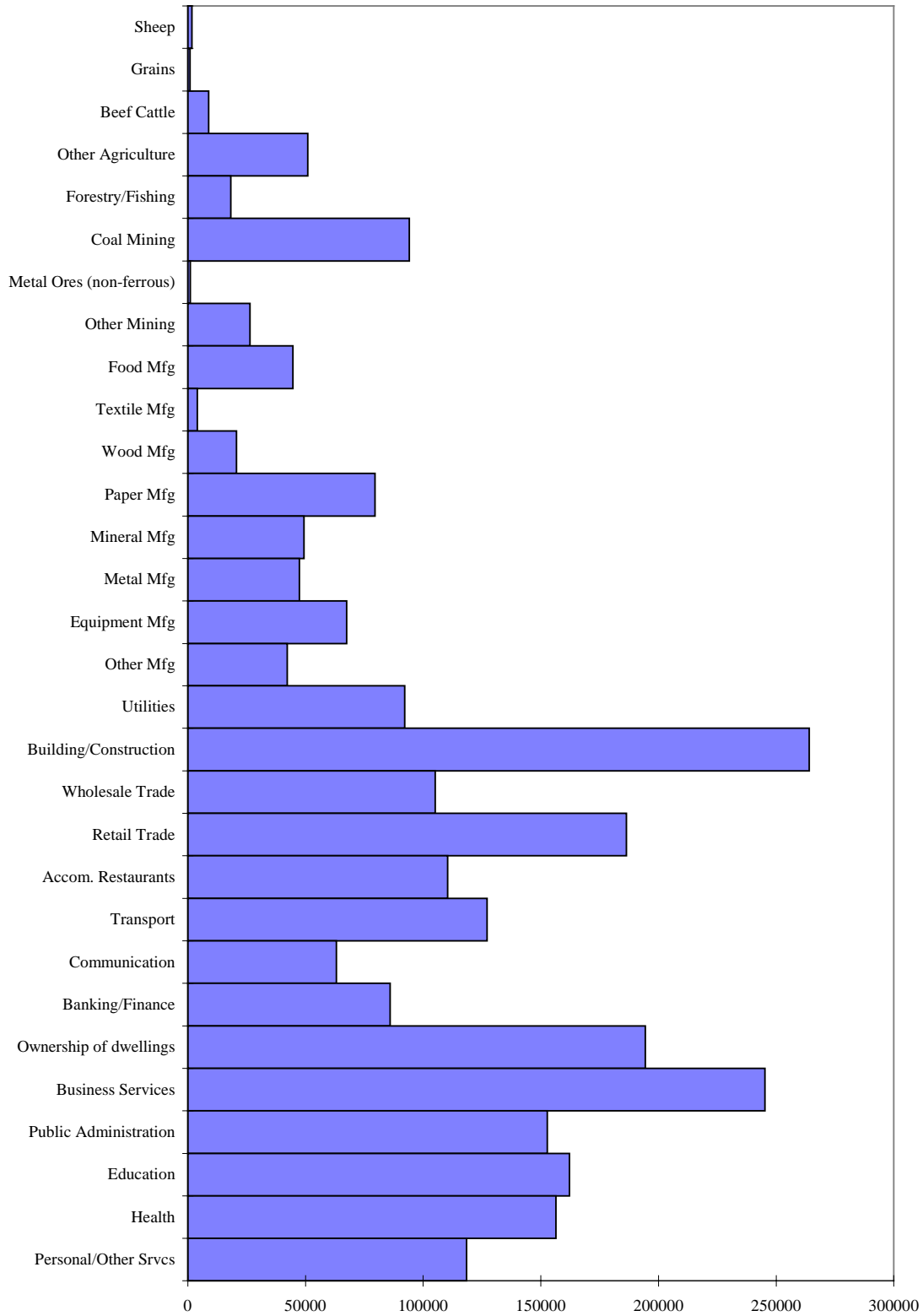


Figure 2-6: Sectoral Distribution of Income (\$'000)

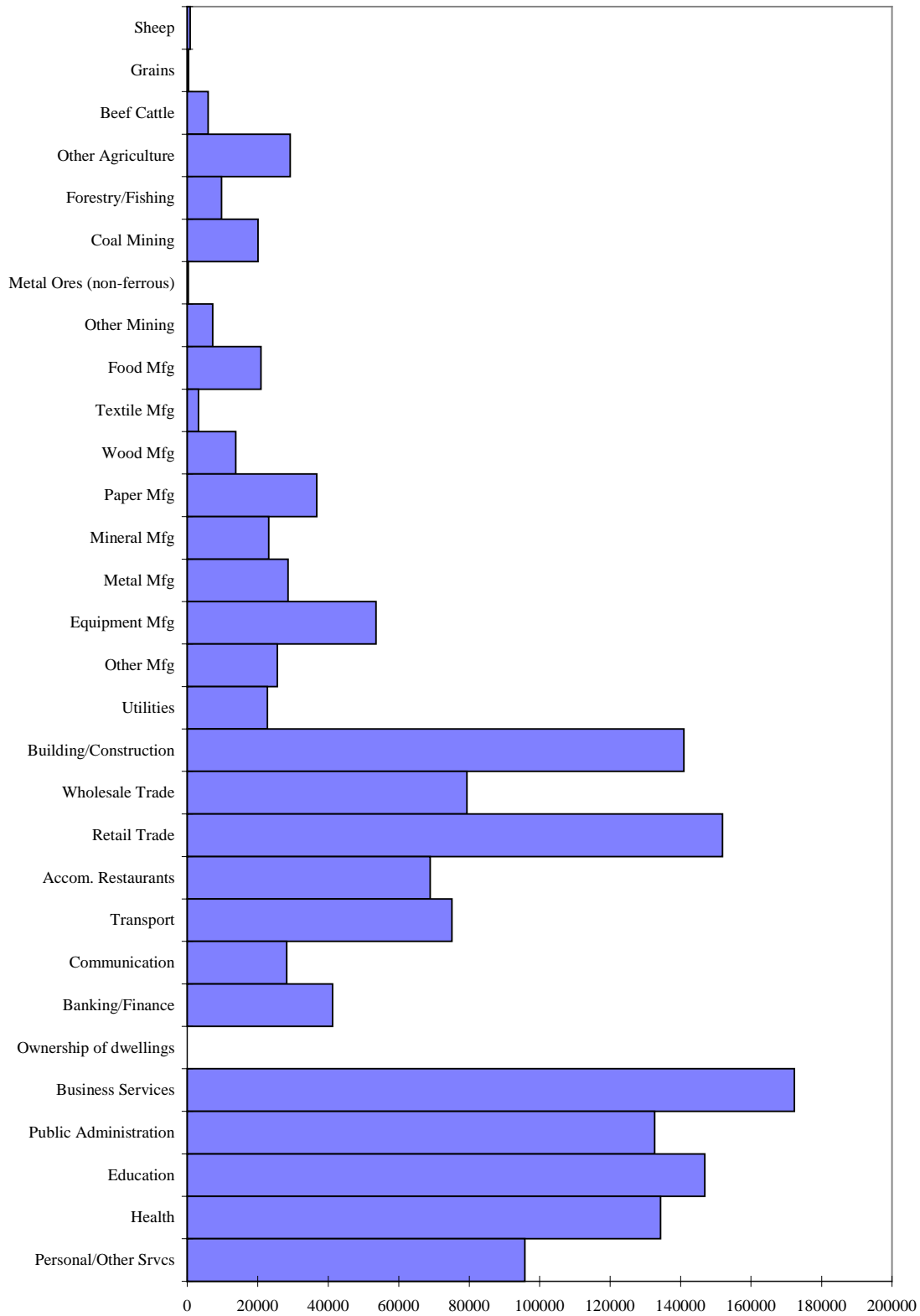


Figure 2-7: Sectoral Distribution of Employment (No's)

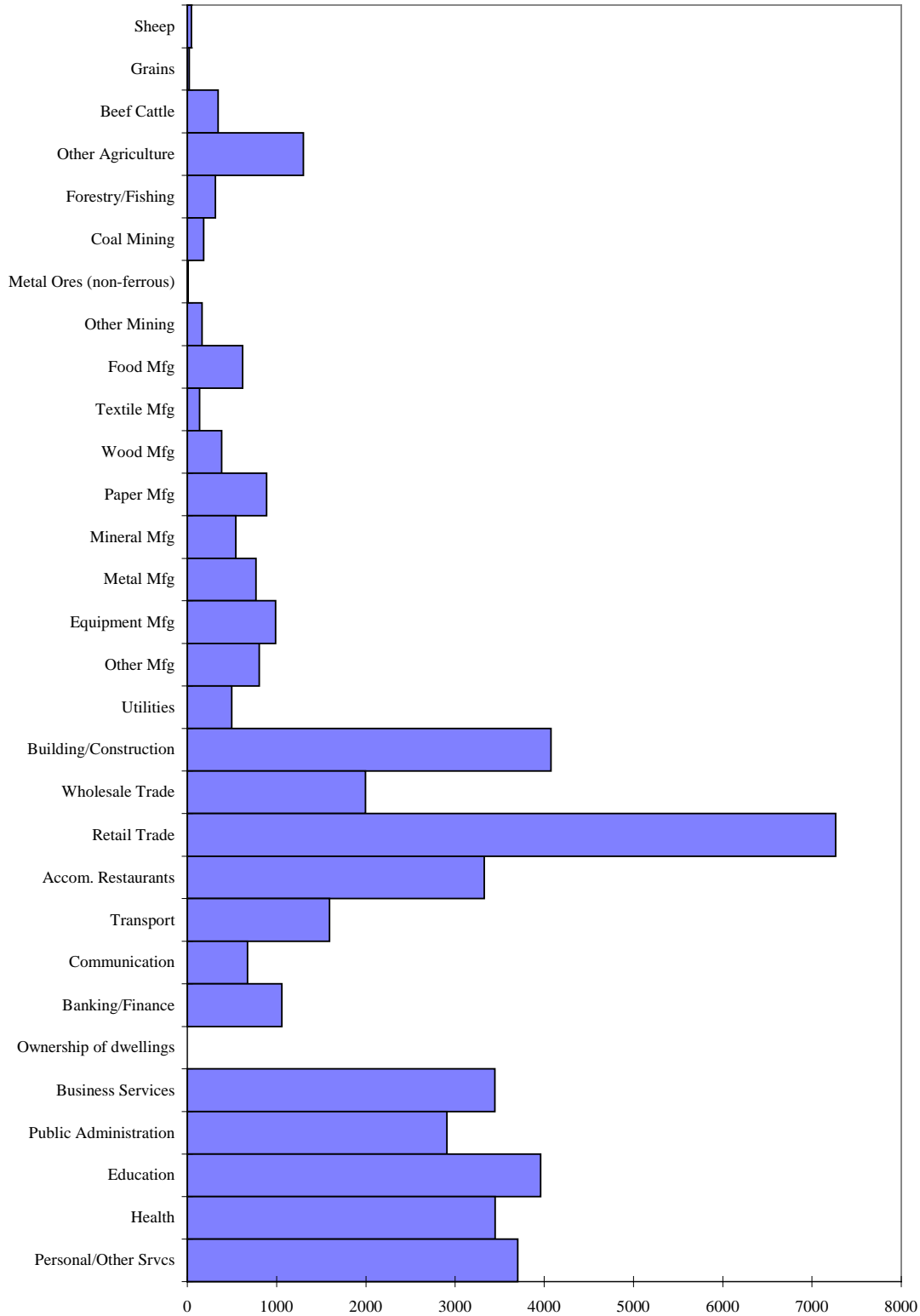


Figure 2-8: Sectoral Distribution of Exports (\$'000)

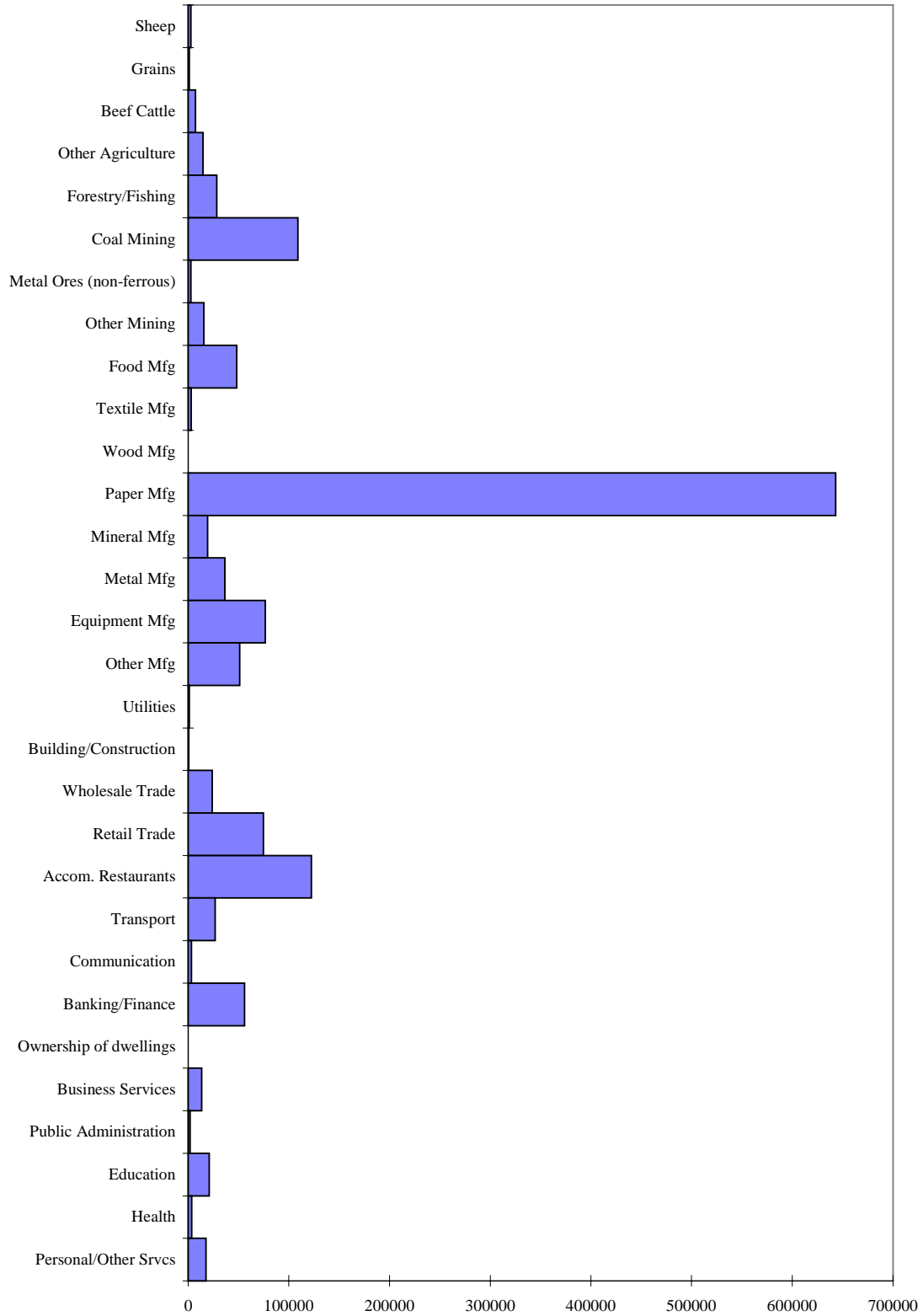


Figure 2-9: Sectoral Distribution of Imports (\$'000)

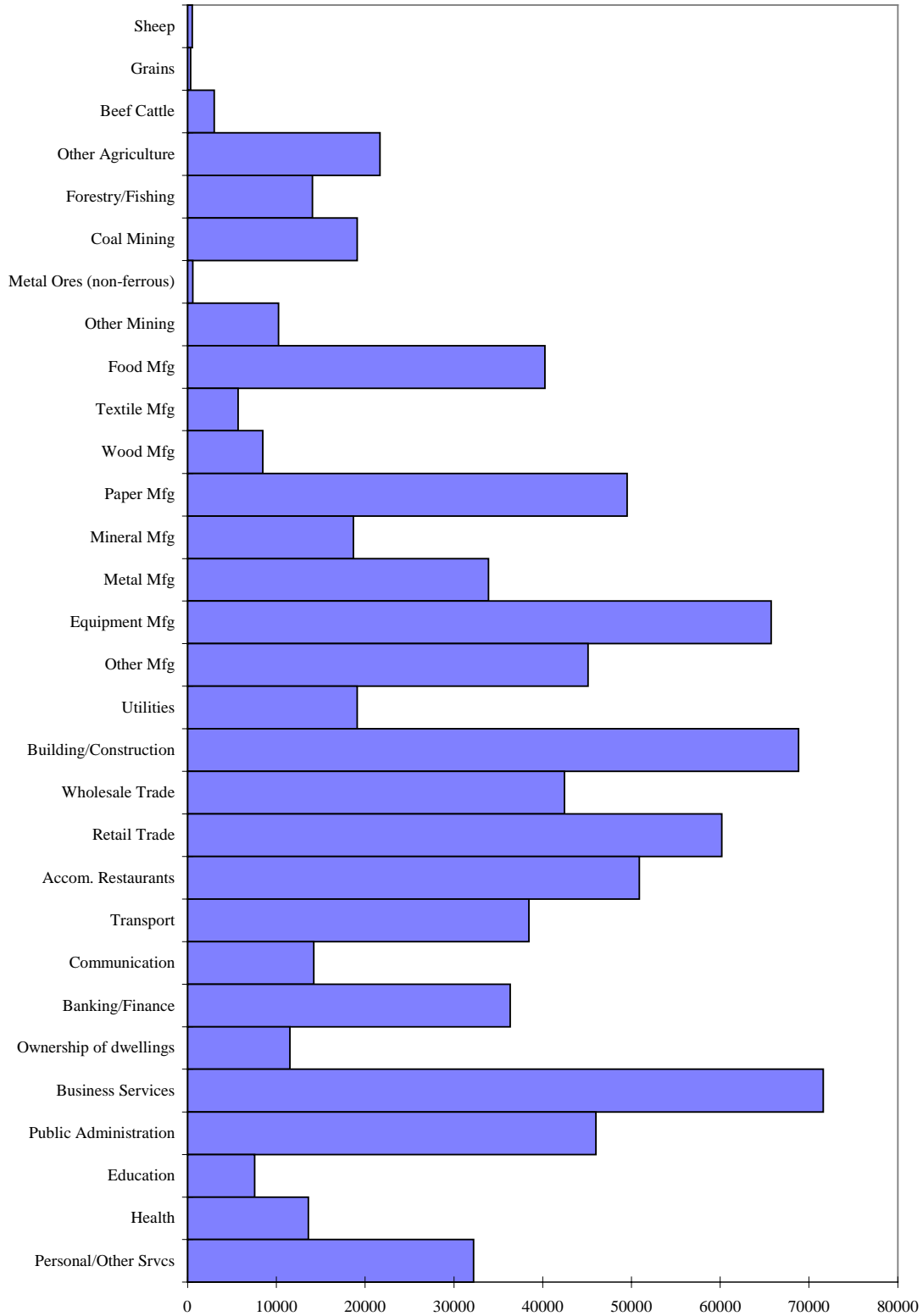


Figure 2-10: Sectoral Distribution of Productivity (GRP (\$'000)/person)

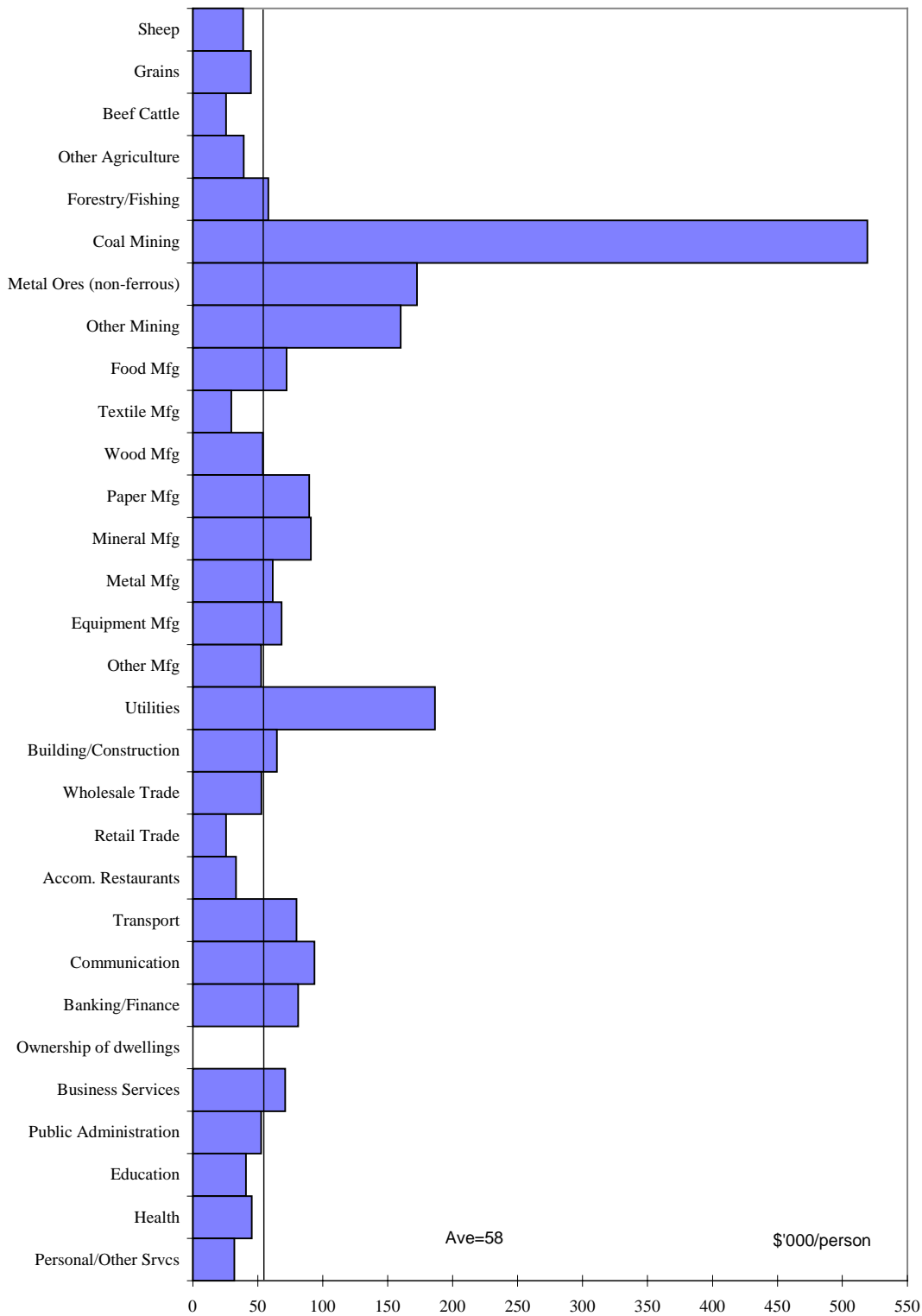
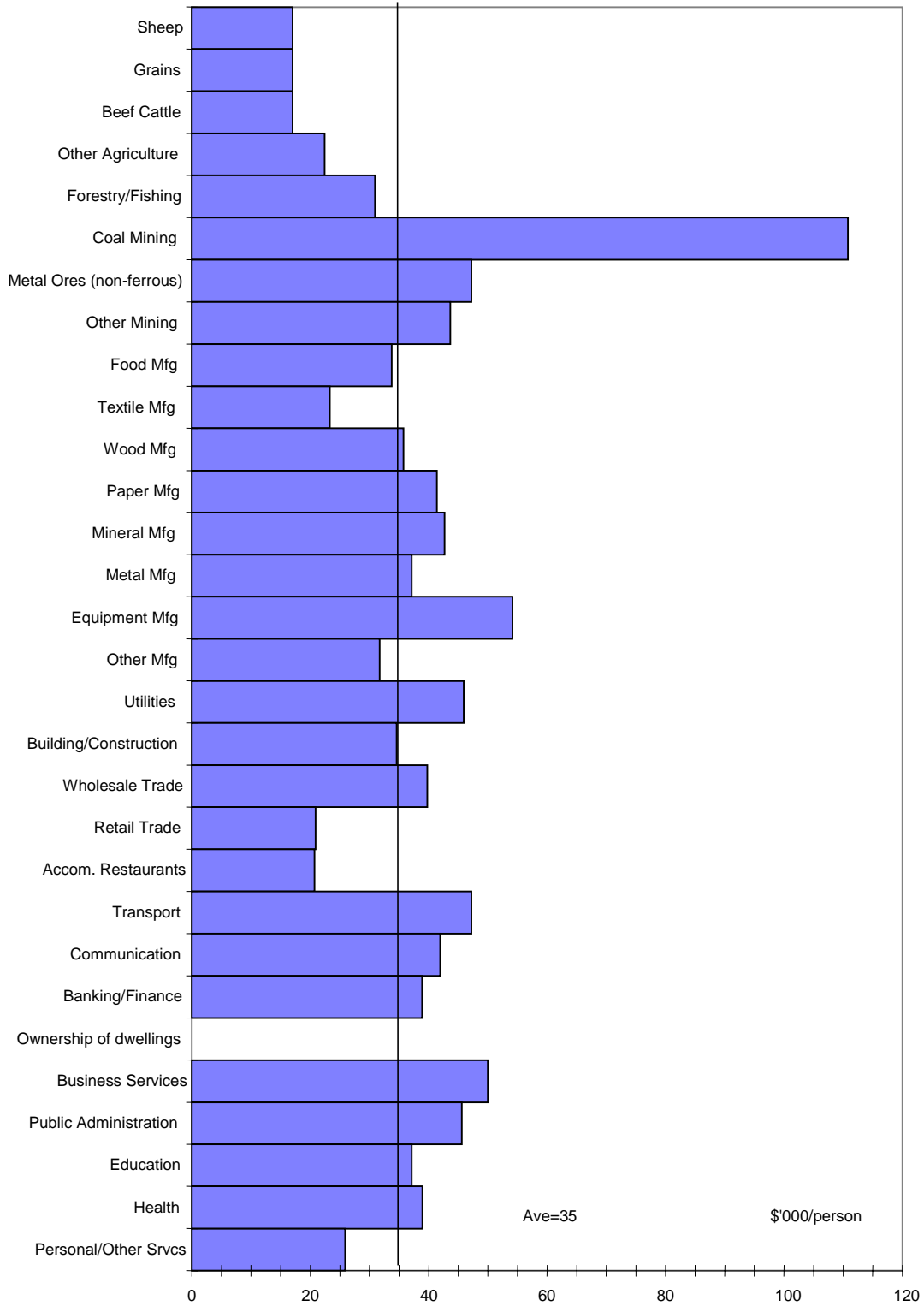


Figure 2-11: Sectoral Distribution of Average Wages and Salaries



2.3 Multipliers

Multipliers for each sector of the economy can be derived from the input-output table for the Kiama, Shoalhaven and Wingecarribee economy.

The calculation of these multipliers is based on the following underlying assumptions:

- “...there is a fixed input structure in each industry, described by fixed technological coefficients...;
- all products of an industry are identical or are made in fixed proportions to each other;
- each industry exhibits constant returns to scale in production;
- unlimited labour and capital are available at fixed prices...; and
- there are no other constraints, such as the balance of payments or the actions of government, on the response of each industry to a stimulus.” (ABS, 1995, p 24).

Multipliers therefore do not take account of economies of scale, unused capacity or technological change, since they describe average effects rather than marginal effects (ABS, 1995).

Multipliers indicate the total impact of changes in demand for the output of any one industry on all industries in an economy (ABS, 1995). Multipliers for conventional gross regional output, gross regional product, income and employment, show the responses of each of these indicator to an initial gross regional output stimulus (Jensen and West, 1986).

The conventional gross regional output multiplier is made up of the following components (Powell and Chalmers, 1995; ABS, 1995):

Initial Effect - which is the initial output stimulus, usually a \$1 change in output from a particular industry.

First round effects - the amount of output from all intermediate sectors of the economy required to produce the initial \$1 change in output from the particular industry.

Industrial support effects - the subsequent or induced extra output from intermediate sectors arising from the first round effects.

Production induced effects - the sum of the first round effects and industrial support effects i.e. the total amount of output from all industries in the economy required to produce the initial \$1 change in output.

Consumption induced effects - the spending by households of the extra income they derive from the production of the extra \$1 of output and production induced effects. This spending in turn generates further production by industries.

The *simple multiplier* is the initial effect plus the production induced effects.

The *total multiplier* is the sum of the initial effect plus the production-induced effect and consumption-induced effect.

Multipliers for conventional gross regional product, income and employment have similar components to the gross regional output multiplier. However, through conversion using the respective coefficients, these multipliers show the gross regional product, income and employment responses to an initial gross regional output stimulus (Jensen and West 1986).

In the case of gross regional product, income and employment, it is also possible to derive relationships between the initial, or own sector, effect and flow-on effects; for example, the flow-on income effects from an initial income effect, or the flow-on employment effects from an initial employment effect etc. These own-sector relationships are referred to as ratio multipliers, although they are not technically multipliers, as there is no direct line of causation between the various elements which make up the multiplier. For instance, it is not the initial change in income that leads to income flow-on effects; both are the result of an output stimulus (Jensen and West 1986).

A description of the different ratio multipliers is given below.

$$\text{Type IA Ratio Multiplier} = \frac{\text{Initial} + \text{First Round Effects}}{\text{Initial Effects}}$$

$$\text{Type IB Ratio Multiplier} = \frac{\text{Initial} + \text{Production Induced Effects}}{\text{Initial Effects}}$$

$$\text{Type IIA Ratio Multiplier} = \frac{\text{Initial} + \text{Production Induced} + \text{Consumption Induced Effects}}{\text{Initial Effects}}$$

$$\text{Type IIB Ratio Multiplier} = \frac{\text{Flow-on Effects}}{\text{Initial Effects}}$$

(Centre for Farm Planning and Land Management 1989, p.207)

Type IIA ratio multipliers are used in Section 4 of this report to estimate the total regional economic impact of operational expenditure at the Fitzroy Falls Visitor Centre, plus all expenditure made in the region by visitors to the Centre.

3. EXPENDITURE ASSOCIATED WITH FITZROY FALLS VISITOR CENTRE

The input-output table developed for this study was also used to examine the regional economic impacts of:

- the operation of the Visitor Centre (including the café, which is leased to a private operator); and
- expenditure in the region by visitors to the Centre.

3.1 Operation of the Visitor Centre

Information on expenditure associated with the operation of the Visitor Centre was obtained from the Visitor Centre Business Manager.

Although the Centre is managed by the NPWS, the Service contracts (leases) an area to the private sector which is operated as a café. The revenues and expenditures associated with the entire Centre, including the café, potentially contribute to the regional economy, and hence were included in the analysis.

Revenues generated from the Visitor Centre and café totalled \$534,000 in the 2000/2001 financial year. The café generated income from sales to visitors and NPWS staff, while the NPWS generated income from park use fees and shop sales.

Expenditure associated with the operation of the Visitor Centre amounted to \$496,000, including a rental payment from the café to the NPWS.²

Employment comprised 3 full time, 7 casual, and 1 part-time, positions.

A summary of income and expenditure items and Centre employment for the year ending June 2001 is given in Table 3.1. The location of expenditure, either inside or outside regional economy is also provided.

² While this rental payment is a bona fide expenditure of the café and a revenue to NPWS, when treating the entire visitor centre as one economic entity, this rental is a transfer payment and hence both revenue and expenditure was adjusted downwards to reflect this.

Table 3-1: Financial Summary of Fitzroy Falls Visitor Centre

INCOME ITEMS			
Visitor Centre, Café and Shop Operations	Employment:	No.	
	Full-time	3	
	Casual	7	
	Part-time	1	
EXPENDITURE ITEMS			
		Expenditure Location	
		Study Area	Elsewhere
Labour	Fulltime	100%	
	Part-time	100%	
	Casual	100%	
	On-costs	100%	
Energy	Electricity		100%
	Gas		100%
	Fuel/Oil/Etc	100%	
Repairs and Maintenance.	Buildings/Structures	100%	
	Motor Vehicles		
	Roads/Tracks		
	Other repairs	80%	20%
Administration	Phone/Fax/Post		100%
	Accountancy/Legal		100%
	Bank Fees		100%
	Interest		
	Insurance		100%
	Vehicle Rego		100%
	Rates	100%	
	Rent/Taxes/Levies	100%	
	Depreciation	100%	
	Advertising	80%	20%
	Travel		100%
	Entertainment		
	Office Supplies	40%	60%
	Catering		
Computer Equipment			
Uniforms	20%	80%	
Safety equipment		100%	
Fees:	Cleaning	100%	
	Contractors	50%	50%
Other:	Shop and Café retail items	70%	30%
	Vehicle lease		100%
	Plant hire	100%	
	Asset purchases	40%	60%

The impacts of these expenditures on the regional economy were assessed by converting them to a format consistent with the input-output table for the region.

Thus:

- net revenue was allocated to OVA;
- wages were allocated to the household row;
- on-costs were allocated to OVA;
- where intermediate sector expenditures were identified as being made outside the region, these expenditures were allocated to imports;
- where intermediate expenditures were identified as being made within the region these expenditures were:
 - allocated to the relevant intermediate sector;
 - adjusted for margins and taxes, with margins allocated to the appropriate margins sector, taxes allocated to the OVA and basic values (purchaser prices less margins and taxes) allocated to appropriate intermediate sector;
 - location quotients were used to adjust basic values allocated to intermediate sectors to reflect the region's capability to produce these goods. This was particularly necessary for primary and manufacturing sector purchases, where purchasers would be unable to readily determine if the products they purchased were manufactured or grown locally.

Table 3.2 identifies the sectors to which local expenditures were allocated, prior to adjustment for margins, taxes and location quotients.

Table 3-2: Sectoral Expenditure Allocation

Expenditure Item		Sector Allocation
Labour	Fulltime	H-hold
	Part-time	H-hold
	Casual	H-hold
	On-costs	OVA
Energy	Fuel/Oil/Etc	Petroleum and Coal Products
Repairs and Maintenance	Buildings/Structures	Other Construction
	Other repairs	Mechanical repairs, Other repairs
Administration	Rates	Government administration
	Depreciation	OVA
	Advertising	Legal, accounting, advertising services
	Office Supplies	Other manufacturing, other chemical products, Printing /services to printing
	Uniforms	Clothing, footwear
Fees	Cleaning	Other business services
	Contractors	Other construction
Other	Shop and Café retail items	Clothing, leather products, printing, publishing, Cosmetics/toiletries, rubber products, plastic products, glass products, ceramic products, other manufacturing, meat products, dairy products, fruit and vegetable products, oil and fats, four and cereal foods, bakery products, confectionery, other food products, soft drinks, tobacco products.
	Plant hire	Other property services

	Asset purchases	Other machinery and equipment, Other electrical equipment, Household appliances
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In order to determine the total impact of NPWS and café expenditure associated with the operation of the Visitor Centre, the regional input-output table was manipulated by inserting the expenditures of a new sector, i.e. the Fitzroy Falls Visitor Centre sector.

Regional economic impacts of the operation of the Visitor Centre are reported in Section 4.

3.2 Visitor Expenditure

Visitor expenditures in the region were estimated from a visitor survey undertaken by the NPWS. The survey was conducted over the counter at the Visitor Centre during March and April 2002, with 82 survey responses obtained. Of these, 74 were complete and usable responses.

Respondents were asked to provide information about their expenditure in the towns of Kiama, Nowra/Kangaroo Valley and Bowral/Moss Vale on items such as accommodation, prepared meals and drinks, other shopping, own vehicle costs, transport fares and car rentals, non-NPWS guided tour costs, admission fees, entertainment, and other items. This information was then converted to an annual figure, based on group size and an estimate of the average annual visitation levels to the Centre.

On average, visitors to the Centre were found to spend in the order of \$91 per person per trip in the region. When aggregated across annual visitation levels this amounted to \$35m per year. Average per person expenditure patterns and a total annual expenditure pattern for all visitors are shown in Table 3.3.

Table 3-3: Visitor Expenditure Data

Expenditure Item	Expenditure per person (\$)	Expenditure Total Visitors (386,000 pa) (\$)	% of Total Expenditure
Accommodation	33	12,627,930	36%
Meals	24	9,438,906	27%
Shopping	19	7,483,273	21%
Own Vehicle Costs	9	3,528,281	10%
Transport Fares	2	612,172	2%
Tours (other than NP)	1	304,578	1%
Entertainment	3	1,213,789	3%
Non-Specified Items	0	30,156	0%
Total	\$91	\$35,239,086	100%

These final demand expenditures made in the local region by visitors to the Centre, were calculated on the following basis:

- allocation to the appropriate intermediate sector of the regional economy as shown in Table 3.4;
- adjustment for margins and taxes using private final consumption margin and tax relationships taken from the national input-output table, with margins allocated to the appropriate margins sector, taxes allocated to the OVA, and the basic values (purchaser prices less margins and taxes) allocated to the appropriate intermediate sector;
- use of location quotients to adjust basic values between local production and imports, to reflect the region’s capability to produce these goods.

Table 3-4: Initial Allocation of Visitor Final Demands to Intermediate Sectors

Expenditure Item	Sectoral Allocation
Accommodation	Accommodation, cafes, restaurants
Prepared Meals	Accommodation, cafes, restaurants
Shopping	Confectionery, Soft Drinks, Tobacco Products, Clothing, Footwear, Printing: services to printing, Publishing: recorded media, Pharmaceuticals, Rubber Products, Plastic Products, Glass Products
Own Vehicle Costs	Petroleum and coal products
Transport Fares	Road transport, Other Property Services
Tours (other than NP)	Road transport, Libraries, museums, arts
Entertainment	Motion picture, radio etc, Libraries, museums, arts, Sport, gambling etc
Non-Specified Items	Confectionery, Soft Drinks, Tobacco Products, Clothing, Footwear, Printing: services to printing, Publishing: recorded media, Pharmaceuticals, Rubber Products, Plastic Products, Glass Products, Communication services, Health Services, Libraries, museums, arts, Sport, gambling etc

Table 3.5 summarises the final resultant allocation of visitor expenditure to appropriate sectors of the regional economy.

Table 3-5: Allocation of Visitor Expenditure to Local Final Demand Sectors

Sectors	Final Demand Allocation (\$'000)
Confectionery manufacturing	156
Soft drinks, cordials, syrups	40
Clothing	145
Publishing; recorded media etc	230
Petroleum and coal products	360
Pharmaceuticals etc	15
Rubber products	145
Plastic products	24
Glass and glass products	100
Wholesale trade	774
Retail trade	3,344
Accommodation, cafes & restaurants	20,359
Road transport	703
Rail, pipeline, other transport	5
Water transport	2
Air and space transport	2
Services to transport; storage	1
Other property services	122
Health services	6
Motion picture, radio etc	259
Libraries, museums, arts	563
Sport, gambling etc	239
TOTAL	\$27,594

4. REGIONAL ECONOMIC IMPACTS

Based on the assumptions and processes described in Section 3 above, the annual disaggregated, and total, impacts of Visitor Centre operations and regional expenditure by Centre visitors on the regional economy were estimated. These impacts are described below.

4.1 Operation of the Visitor Centre

Table 4-1 below shows that the operation of the Fitzroy Falls Visitor Centre contributed an estimated \$975,000 in annual direct and indirect gross regional output, which comprised \$490,000 in direct and indirect gross regional product, including \$330,000 in household income. The direct and indirect annual employment impacts were estimated at 15 jobs. These total impacts are based on estimates of the average annual direct effects of \$494,000 in gross regional output, \$264,000 in gross regional product, \$183,000 in income and 11 jobs, and Type IIA ratio multipliers of 1.97 for gross regional output, 1.85 for gross regional product, 1.81 for income and 1.35 for employment.

Table 4-1: Regional Economic Impacts from Visitor Centre Operations

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	TOTAL EFFECT
GRO (\$'000)	494	156	324	481	975
GRP (\$'000)	264	68	158	226	490
Income (\$'000)	183	40	107	147	330
Employment (No. of Jobs)	11	1	3	4	15

4.2 Visitor Expenditure

The total impacts arising from total expenditure in the region by Centre Visitors were \$60.3m in annual direct and indirect gross regional output, which comprised \$28.2m in direct and indirect gross regional product including \$18.6m in household income (See Table 4-2 below). The direct and indirect annual employment impacts of visitor expenditure were estimated at 577 jobs. These total impacts are based on estimates of average annual direct effects of \$27.6m in gross regional output, \$12.6m in gross regional product, \$8.6m in income and 330 jobs, and Type IIA ratio multipliers of 2.19 for gross regional output, 2.25 for gross regional product, 2.17 for income and 1.75 for employment.

Table 4-2: Regional Economic Impact of Total Expenditure in the Region by Centre Visitors

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	TOTAL EFFECT
GRO (\$'000)	27,594	14,397	18,287	32,684	60,278
GRP (\$'000)	12,576	6,800	8,884	15,684	28,260
Income (\$'000)	8,587	3,973	6,047	10,020	18,607
Employment (No. of Jobs)	330	86	161	247	577

4.3 Multipliers

The Multipliers for the Visitor Centre operations and visitor expenditure are shown in Table 4-3 below. Type IIA ratio multipliers were in the order of 1.35 to 1.97 for the operation of the Visitor Centre and between 1.75 and 2.25, for visitor expenditure. The lower multipliers for Visitor Centre operation relate to large leakages of operational expenditure from the local economy. That is, substantial operational expenditure is made outside the region, and even where purchases are made inside the region it is often only the margins that accrue to the regional economy because the product is not manufactured or grown locally.

Table 4-3: Multipliers

	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	TOTAL EFFECT
GRO (\$'000)					
Visitor Centre Operation	1.00	0.32	0.66	0.97	1.97
Visitor Expenditure	1.00	0.52	0.66	1.19	2.19
GRP (\$'000)					
Visitor Centre Operation	1.00	0.26	0.60	0.85	1.85
Visitor Expenditure	1.00	0.54	0.71	1.25	2.25
Income (\$'000)					
Visitor Centre Operation	1.00	0.22	0.59	0.81	1.81
Visitor Expenditure	1.00	0.46	0.70	1.17	2.17
Employment (No. of Jobs)					
Visitor Centre Operation	1.00	0.09	0.26	0.35	1.35
Visitor Expenditure	1.00	0.26	0.49	0.75	1.75

The lowest multipliers derived from the input-output table, for both operational expenditure and visitor expenditure, are the employment multipliers. This reflects the high direct employment numbers per dollar of gross regional output in the Visitor Centre and sectors servicing tourists, and is due to the high level of part-time and casual employment.

As expected, the consumption-induced component of the multipliers is the largest component (Jensen and West 1986).

Overall, the multipliers identified in this study were higher than those found in many of the other studies of the regional economic impact of NSW National Parks. This reflects the larger size (i.e. relatively greater diversity) of the Kiama, Wingecarribee and Shoalhaven regional economy in comparison to that of many other regional economies.

4.4 Main Sectors Affected

The sectors of the regional economy impacted by the operation of the Visitor Centre differ from those impacted by visitor expenditure. Visitor Centre operations affect a broad range of sectors including retail trade, wholesale trade, accommodation/cafes/restaurants, legal and accounting services, other business services, road transport and government administration.

In contrast, visitor expenditure impacts primarily fall on:

- the accommodation, cafes and restaurants sector (37.6% of gross regional output impacts, 34% of income impacts, 44.7% of employment and 34.9% of gross regional product);
- the retail trade sector (10% of gross regional output impacts, 14.8% of income impacts, 20.2 % of employment impacts and 10.1% of gross regional product); and
- the wholesale trade sector (4.9% of gross regional output impacts, 4.9% of income impacts, 3.4% of employment impacts and 4.3% of gross regional product).

5. CONCLUSION

Fitzroy Falls Visitor Centre is an important tourism destination within the Southern Highlands and also plays a key role in directing tourists to other tourism activities and destinations within the region through the provision of tourist information, displays and maps.

Using input-output analysis, this study examined the regional economic impacts of:

- the operation of the Fitzroy Falls Visitor Centre; and,
- expenditure in the region by visitors to the Centre.

The study found that the operations of the Fitzroy Falls Visitor Centre contributed an estimated \$975,000 in annual direct and indirect gross regional output, which comprised \$490,000 in direct and indirect gross regional product, including \$330,000 in household income. The direct and indirect annual employment impacts were estimated at 15 jobs.

The impacts of Visitor Centre operations were found to fall on a broad range of sectors including retail trade, wholesale trade accommodation/cafes/restaurants, legal and accounting services, other business services, road transport and government administration.

The study also found that the aggregate impacts arising from total expenditure in the region by Centre visitors were \$60.3m in annual direct and indirect gross regional output, which comprised \$28.2m in direct and indirect gross regional product including \$18.6m in household income. The direct and indirect annual employment impacts of visitor expenditure were estimated at 577 jobs.

The regional impacts from visitor expenditure predominantly fall on the accommodation, cafes and restaurants sector, the retail trade sector and the wholesale trade sector.

The visitor expenditure used in the study represents the total expenditure in the regional economy by people who visit the Centre. As part of this expenditure would in many cases be driven by other attractions in the region, it would be incorrect to attribute all of the local expenditure to the Centre, unless specified. Notwithstanding this, all of the impacts associated with the NPWS expenditure in operating Fitzroy Falls Visitor Centre can be attributed to the existence of the Centre itself.

The Visitor Centre may also stimulate additional economic activity in the region through its role in directing visitors (and thus visitor expenditure) to other regional tourism destinations, including other protected areas.

For example, information provided by the Visitor Centre may encourage longer stays in the region, or subsequent repeat visits. However, the impacts of this expenditure would need to be assessed through specific studies of the destinations involved, or through a larger study of the impacts of multiple regional attractions.

This potential for the Centre to stimulate additional economic activity may have implications for agencies involved in regional economic development, as it may be possible to provide enhanced economic benefits to the region by developing programs which integrate the management and promotion of protected areas into an overall tourism development package. This issue however, is beyond the scope of the present study.

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APPENDIX 1 – GENERATION OF REGIONAL ECONOMIC IMPACT TABLES

“The GRIT system was designed to:

- combine the benefits of survey based tables (accuracy and understanding of the economic structure) with those of non-survey tables (speed and low cost);
- enable the tables to be compiled from other recently compiled tables;
- allow tables to be constructed for any region for which certain minimum amounts of data were available;
- develop regional tables from national tables using available region-specific data;
- produce tables consistent with the national tables in terms of sector classification and accounting conventions;
- proceed in a number of clearly defined stages; and
- provide for the possibility of ready updates of the tables.

The resultant GRIT procedure has a number of well-defined steps. Of particular significance are those that involve the analyst incorporating region-specific data and information specific to the objectives of the study. The analyst has to be satisfied about the accuracy of the information used for the important sectors; in this case the national parks sectors. The method allows the analyst to allocate available research resources to improving the data for those sectors of the economy that are most important for the study. It also means that the method should be used by an analyst who is familiar with the economy being modeled, or at least someone with that familiarity should be consulted.

An important characteristic of GRIT-produced tables relates to their accuracy. In the past, survey-based tables involved gathering data for every cell in the table, thereby building up a table with considerable accuracy. A fundamental principle of the GRIT method is that not all cells in the table are equally important. Some are not important because they are of very small value and, therefore, have no possibility of having a significant effect on the estimates of multipliers and economic impacts. Others are not important because of the lack of linkages that relate to the particular sectors that are being studied. Therefore, the GRIT procedure involves determining those sectors and, in some cases, cells that are of particular significance for the analysis. These represent the main targets for the allocation of research resources in data gathering. For the remainder of the table, the aim is for it to be 'holistically' accurate (Jensen 1980). That means a generally accurate representation of the economy is provided by the table, but does not guarantee the accuracy of any particular cell. A summary of the steps involved in the GRIT process is shown in Table A1 (Powell and Chalmers 1995, p13-14)

Table A1 - The GRIT Method

Phase	Step	Action
PHASE 1		ADJUSTMENTS TO NATIONAL TABLE
	1	Selection of national input-output table. (106 sector table with direct allocation of all imports, in basic values)
	2	Adjustment of national table for updating.
	3	Adjustment for international trade.
PHASE II		ADJUSTMENTS FOR REGIONAL IMPORTS
		<i>(Steps 4-14 apply to each region for which input-output tables are required)</i>
	4	Calculation of 'non-existent' sectors.
	5	Calculation of remaining imports.
PHASE III		DEFINITION OF REGIONAL SECTORS
	6	Insertion of disaggregated superior data.
	7	Aggregation of sectors.
	8	Insertion of aggregated superior data.
PHASE IV		DERIVATION OF PROTOTYPE TRANSACTIONS TABLES
	9	Derivation of transactions values.
	10	Adjustments to complete the prototype tables.
	11	Derivation of inverses and multipliers for prototype tables.
PHASE V		DERIVATION OF FINAL TRANSACTIONS TABLES
	12	Final superior data insertions and other adjustments.
	13	Derivation of final transactions tables.
	14	Derivation of inverses and multipliers for final tables.

Source: Table 2 in Bayne and West (1988)

Date of Survey ____/____/____

FITZROY FALLS VISITOR CENTRE

VISITOR SURVEY



This questionnaire is being distributed to people visiting Fitzroy Falls Visitor Centre during March and April 2002.

The questionnaire has been prepared by the NSW National Parks and Wildlife Service. We hope that you will take a few minutes to carefully read and answer the questions provided.

The information you provide will assist the NSW National Parks and Wildlife Service in developing a clearer understanding of the sustainable use and enjoyment of protected areas in NSW. This will in turn, help to ensure that these areas will meet the needs of the community both now and in the future.

ALL OF YOUR ANSWERS WILL REMAIN STRICTLY CONFIDENTIAL
THANK YOU FOR YOUR ASSISTANCE

HOW TO FILL OUT THIS QUESTIONNAIRE

Please select a member of your group - *your group leader* - to answer the questions.

THE QUESTIONNAIRE

In this questionnaire, we would like to ask you a few questions about your group and your group's trip to Fitzroy Falls Visitor Centre.

Please note that when a question mentions your group's trip, it means the overall trip from your group's usual place of residence to the Fitzroy Falls Visitor Centre and back to your home base, including other destinations and activities.

To answer some questions, simply write your answer in the space provided. For other questions you will need to circle a number. Please circle the number that best represents your situation or opinion.

QUESTION 1

Including yourself, how many people visiting Fitzroy Falls Visitor Centre are there in your group?

Adults _____ Children (*16 years or under*) _____

QUESTION 2

In which city or town is your group's usual home base?
(*If you live out of town, please indicate your nearest city or town*)

City/Town _____ Postcode _____

Country (*if not Australia*) _____

QUESTION 3

How did your group travel to Fitzroy Falls Visitor Centre?

Privately owned vehicle _____ 1

Other (*please specify*) _____ 2

QUESTION 4

Is a visit to the Fitzroy Falls Visitor Centre the sole purpose of your group's overall trip?

Yes _____ 1 \Rightarrow *If 'yes' please go to question 6*

No _____ 2 \Rightarrow *If 'no' please go to question 5*

QUESTION 5 (complete only if you answered 'no' to Question 4)

How important is your group's visit to Fitzroy Falls Visitor Centre, relative to the other things your group is doing on your overall trip?

- Very important _____ 1
 Fairly important _____ 2
 A little important _____ 3
 Not very important _____ 4

QUESTION 6

Using the items listed in the table below as a guide, please give your best estimate of the amount your group has spent (or intends to spend) on these items in the following locations: Kiama, Nowra and/or Kangaroo Valley, Bowral and/or Moss Vale.

Expenditure Items	Kiama	Nowra/ Kangaroo Valley	Bowral/ Moss Vale
Accommodation – motels, caravan park site and non- NPWS camping fees etc.			
Prepared meals and drinks – in restaurants, cafes, pubs, clubs etc.			
<u>Other Shopping:</u> eg. souvenirs, other food and groceries, films/processing, camping gear, sunscreen etc.			
Own vehicle costs: eg. petrol/diesel, oil, repairs, etc.			
Transport fares, car rentals.			
Non-NPWS Guided tour costs, admission fees etc.			
Entertainment: eg. cinema, theatre, shows, fun parks etc.			
Other (please specify).			

THANK YOU VERY MUCH FOR YOUR HELP
 IN COMPLETING THIS QUESTIONNAIRE. PLEASE RETURN THIS COMPLETED
 FORM TO AN NPWS STAFF MEMBER OR PLACE IN THE BOX PROVIDED.