IMPACT OF NATIONAL PARKS ON THE REGIONAL ECONOMIES OF THE NSW WHEAT-SHEEP BELT

Report to the:

NSW Department of Environment and Conservation

Final Report

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CARE

EXECUTIVE SUMMARY

The Parks and Wildlife Division of the Department of Environment and Conservation (DEC) has sought to evaluate the regional economic impact of all protected areas (PAs) in the wheat-sheep (WS) belt of NSW. The economic impacts arise from park management expenditure and the expenditure of visitors to those parks. The approach indicated the use of input-output analysis.

The study involves three separate regions: the Northern WS region contains 3 national parks and 14 nature reserves; the Central WS region contains 6 national parks, 14 nature reserves, 3 historical sites and 2 state conservation areas; the Southern WS region contains 6 national parks, 28 nature reserves and 1 historical site.

The Regions

The Northern WS region economy is dominated by primary industry and related activities. There has been little development of a more diverse industry base serving many markets. Thus, when primary industry and related activities encountered a difficult decade in the 1990s, the Northern WS region economy performed poorly and declined. Jobs were lost, household income declined and the dependence on welfare payments increased. Those local trends were reinforced by other adjustments made in service industries such as transport, communications and banking and the absence of a major regional centre within the region (Tamworth is outside this region). The population of the region has been declining and ageing with a preponderance of jobs that favour males.

The Northern WS region represents about one per cent of the NSW economy. The export pattern is highly primary industry dependent and it has a trading deficit with the rest of the world with high levels of imports by the primary industries and households. Households spend much more than they earn from employment with additional income derived from own operated businesses, from government benefits and from borrowings.

The Central WS region has a geographic advantage located west of Sydney with much of the region relatively close to the capital. It is also astride the main transport routes to the west and the north-south connection along the Newell Highway. The land resource includes tablelands, slopes and plains providing the resources for a range of agricultural activities and irrigation. The region includes the substantial regional centres of Orange, Bathurst and Dubbo to provide a substantial manufacturing and service industry base.

The Central WS region has generally shared in the growth of the NSW economy. The Central WS region economy is over twice the size of the Northern WS region and is less dependent on export markets given that it is a larger economy. Primary products and related processed products dominate the export pattern and there is a trading deficit with the rest of the world. Households spend more than they earn from employment.

The Southern WS region is the largest of the three WS regions in geographic and economic terms, at triple the size of the Northern WS region and one-third larger than the Central WS region. The region is closest to the NSW economy in terms of its economic structure and performance. The natural resource base, the range of land types and access to water for irrigation provides a strong base for agricultural production.

The Southern WS region has a large manufacturing base that includes processing primary products and other manufacturing operations of high value in the main cities. There are substantial transport and trade capacities to facilitate the primary and manufacturing industries. Combined, the primary and manufacturing industries have provided the region with the basis for steady growth over the past two decades. The existence of a substantial defence presence in the region adds to that structure.

The region has high export dependence and a trading deficit with the rest of the world but it is a smaller deficit than in the other regions. Households use other sources of income and borrowings to fill the gap between earnings from employment and expenditure. Overall, this is a mature, steady growth region economy. It may be impacted by major changes in water policy.

The Economic Impact Analysis

The analysis is focused on the economic impacts of expenditures on PA management and operations and the expenditures of visitors to the PAs. The required data were provided by DEC and constitute the direct impacts. Those data were configured to the input-output format to estimate multipliers and flow-on impacts. The total impacts were then related to the overall size of the regional economies.

Expenditure on the management and operation of the PAs amounted to \$8.4m with \$2.6m allocated to the Northern WS region, \$3.3m in the Central WS region and \$2.5m to the Southern WS region. Employment was 38 in the Northern WS region, 37 in the Central WS region and 24 in the Southern WS region. Wages and salaries were the largest part of the total expenditure and many of the materials used were imported to the regions.

The flow-on effects were relatively small as indicated by multipliers with a value between 1.3 and 1.6. The flow-on impacts are associated with the spending of household income (consumption-induced impacts) and most accrue to the business services and trade and accommodation groups of industries. The total impacts amounted to \$7.5m of GRP with \$2.3m accruing in the Northern WS region, \$3.3m in the Central WS region and \$1.9m in the Southern WS region. The total employment impact was 138 jobs accrued with 47, 56 and 35 in the Northern WS, Central WS and Southern WS regions, respectively.

The total number of visitors to the WS Belt regions was 261,000. Their total expenditure amounted to $17.4m of which $11.7m accrued to businesses in the region. The Central WS region accounted for around 44 per cent of visitor expenditure, the Northern WS region 35 per cent and the Southern WS region about 10 per cent. The flow-on impacts were larger than those for PA management reflecting the higher expenditure and higher multiplier values of the order of 1.6 but depending on the economic measure used. For these expenditures, the production-induced effects were larger than the consumption-induced impacts.

The total impacts amounted to $8.8m of GRP with $2.7m accruing in the Northern WS region, $5.1m in the Central WS region and $0.9m accruing in the Southern WS region. In employment terms these amounted to 157 jobs in total: 51 in the Northern WS region, 88 in the Central WS region and 17 in the Southern WS region. The flow-on effects accrued to the trade and accommodation and business services groups of industries and manufacturing in the Central and Southern WS regions.

The total impacts were small relative to the regional economy and represented a little more than 0.25 per cent in the Northern WS region, around 0.15 per cent in the Central WS region and about 0.05 per cent in the Southern WS region.

The WS regions of NSW include the main agricultural areas of NSW. The intensity of land use for primary production is high and the amount of land in PAs is relatively low. The consequences of these fundamentals are:

- The economic activities associated with the management and operations of the PAs are modest in total and relative terms.

- The number of visitors to the PAs is modest at about 260,000 per year and the contribution of the expenditure of these visitors to the regional economies is small in relative terms.

- For the three economies, the role of visitors to the region is small relative to other regions on the coast and ranges. That is a reflection of both the attraction of the regions for visitation and the substantial other economic activities in the WS regions.

- It seems likely that further accessions to the PAs in the regions will have modest impacts on the level and nature of visitation to the PAs given trends in the level of visitation to the region. However, some localities may experience substantial impacts.

- Further accessions to the PAs may involve significant opportunity costs given the high level of land development in the WS regions.

ACKNOWLEDGEMENTS

CARE wishes to acknowledge the assistance provided by the Department of Environment and Conservation who compiled the data used in the analyses of the economic impacts. The time taken by all these individuals to provide data and to comment on drafts of the report is greatly appreciated.

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ACRONYMS

ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industry Classification
DEC	NSW Department of Environment and Conservation
GRP	Gross Regional Product
LGA	Local Government Area
LQ	Location Quotient
PA	Protected Areas
PER	Population Employment Ratios
Northern WS region	Northern Wheat Sheep Belt region
Central WS region	Central Wheat Sheep Belt region
Southern WS region	Southern Wheat Sheep Belt region

1 INTRODUCTION

National parks are part of the capital of communities and play a role in the development of the community and the economy. As well as serving environmental objectives, the national parks form part of the attraction of a region that influences people in decisions about where they live and where they visit. As a result, national parks are part of the economic development of a region. The management and operation of the parks is an economic activity in its own right contributing to the local economy. The attraction of visitors and the expenditures that they make during those visits is part of the total demand in those economies that support business activity and employment, and provides household income to residents.

1.1 STUDY OBJECTIVE

The Wheat Sheep (WS) Belt of NSW consists of a large area covering the entire length of NSW from the Queensland border to the Victorian border. This is NSW agricultural heartland embracing most of the cereal growing areas and much of the irrigated farmlands of NSW. The areas are extensively cleared for cropping and grazing. The region has a relatively low proportion of lands in Protected Areas (PAs) as might be expected in the main agricultural areas. The PAs include 15 national parks, 56 nature reserves, four historical sites and two state conservation areas. There have been a number of additions to the PAs since 2000.

The WS belt is represented in this study as three sub-regions, namely the Northern WS region, the Central WS region and the Southern WS region. The Northern WS region is the smallest of the regions and does not include a major regional centre equivalent to those of the other regions (Tamworth, the nearest regional centre is not included). The Central WS region includes the major centres of Dubbo, Orange and Bathurst. In the Southern WS region, Wagga Wagga and Albury are the main centres.

This economic impact analysis includes the management and operation of the PAs and the expenditures incurred by visitors when visiting the PAs in the region.

The DEC has provided information on expenditures associated with the operation of the PAs. They have also provided a set of data on the expenditure of visitors to the PAs. These data are used in the analysis to estimate the size and nature of the flow-on effects that these expenditures generate, and to indicate the relative importance of those activities to the regional economy.

There are four main components to this work. First, there is the construction of the input-output tables for each of the regions. These tables describe the economic structure of the regions in 2005-06.

Second, there is an analysis of trends in the regional economies. A set of analyses based on the population census data from 1981 to 2001 and other data highlights how those economies have changed over that period and at the same time compares those changes with the trends in the NSW economy.

Third, there is the impact analysis of the expenditures incurred by the agencies in operating and maintaining the PAs and by those visiting the PAs. The flow-on effects are estimated through the use of the input-output models.

Fourth, the above analysis is projected to 2011 to provide an indication of how the economic contribution of the PAs may change. That takes into account the likely trends in the economies, national park operation expenditures and visitor expenditures along with any accessions to the PAs through to 2011. This is to gain an indication of whether the relative contributions of the PAs to the regional economies are increasing or decreasing up to 2011.

To make the analysis possible, appropriate input-output tables were required. In general, input-output tables are constructed for Population Census years because the census provides key data for those tables. The most recent Population Census data are for 2001, five years ago. The development of appropriate input-output tables involved building the tables for 2000-01 and then developing projections of key data forward to 2006 and 2011 to enable tables for 2005-06 and for 2010-11 to be estimated

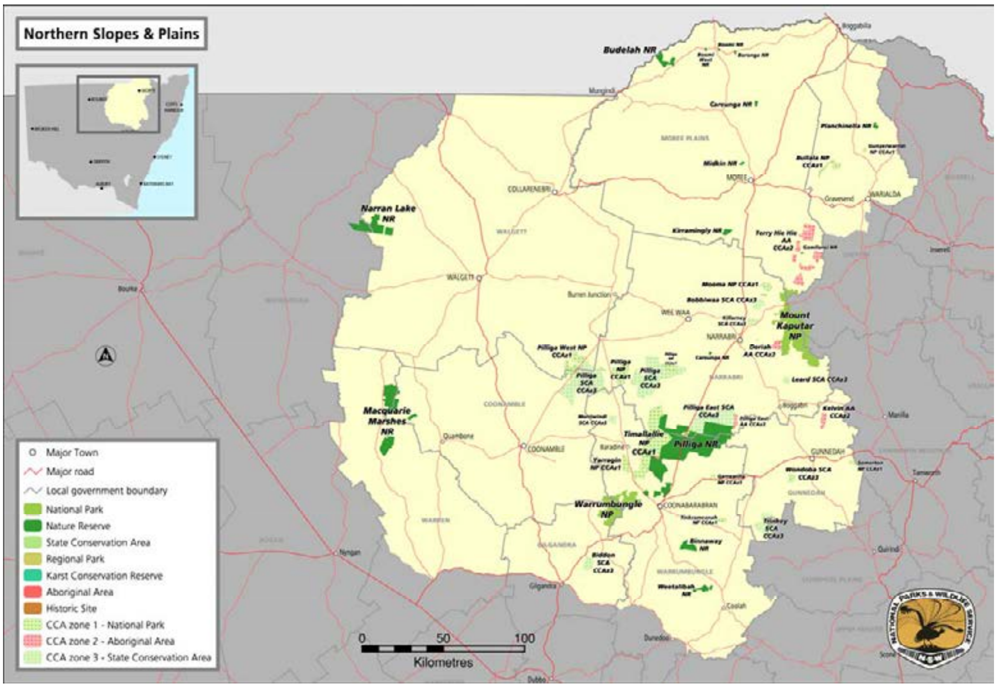
1.2 THE REGION

The study area has been divided into three regions: Northern, Central and Southern.

1.2.1 Northern Wheat-Sheep Region

A map of the Northern WS region is shown in Figure 1-1. Three national parks and 14 nature reserves are located within the Northern WS region. The significant PAs include the Warrumbungle National Park, Macquarie Marshes Nature Reserve and Mount Kaputar National Park. In recent times, there have been significant additions to the reserves in the Pilliga area.

Figure 1-1: Northern WS Region



The Northern WS region includes all of the following LGAs.

- Moree
- Narrabri
- Walgett
- Gunnedah
- Coonamble

The region as defined also includes part of:

- Warren LGA, but excluding Warren itself which is in Central WS region
- Gilgandra LGA, but excluding Gilgandra itself which is in the Central WS region
- Warrumbungle LGA, but excluding the part around Dunnedo.

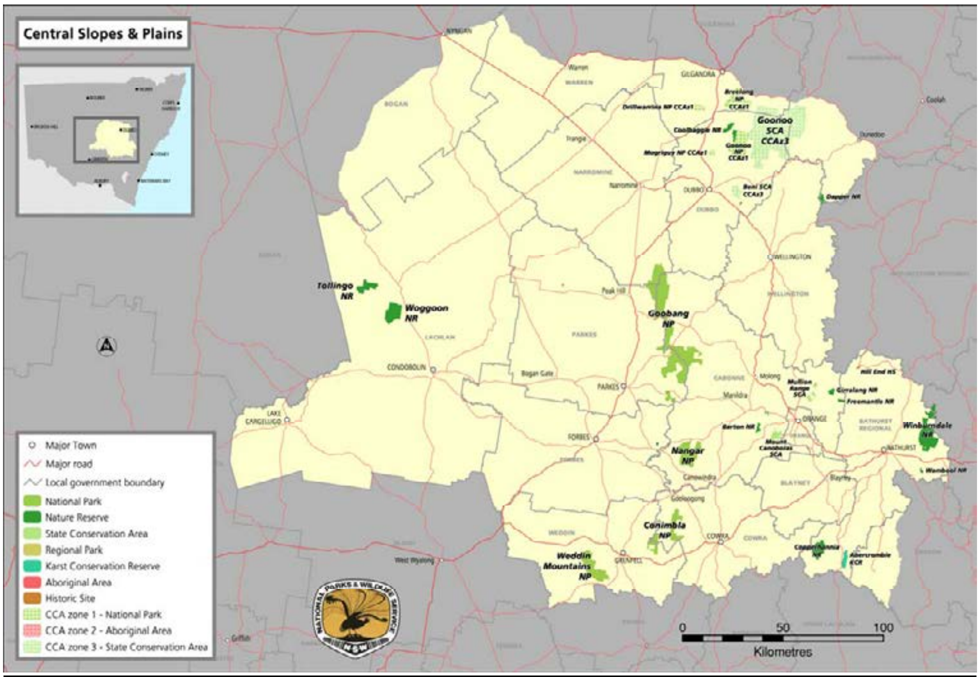
The analysis for the Northern WS region is based on an input-output table that includes all of the Warrumbungle LGA and one-third of the Warren and Gilgandra LGAs.

The Northern WS region includes most of the northern cereal growing areas which can be used for both winter and summer crops. It also includes the irrigation areas along the MacIntyre, Gwydir and Namoi rivers where cotton production is the main enterprise. It is also a major cattle producing area of NSW. The region is serviced by transport systems that link to Newcastle and Sydney within NSW and via the Newell and other highways to Brisbane in the north and Melbourne and Adelaide in the south.

1.2.2 Central Wheat-Sheep Region

The Central WS region is shown in Figure 1-2. This region includes six national parks, 14 nature reserves, three historical sites and two state conservation areas.

Figure 1-2: Central WS Region



The follow LGAs are located within the Central WS Region:

- Lachlan
- Narromine
- Parkes
- Forbes
- Weddin
- Cowra
- Blayney
- Cabonne
- Orange
- Bathurst
- Wellington
- Dubbo
- 2/3 of Warren LGA
- 2/3 of Gilgandra LGA.

The Central WS region is predominately a cereal and livestock region and includes irrigation areas along the Macquarie and Lachlan rivers. Dubbo and Parkes represent key centres that service both the region and transport systems that lead to western NSW. It also includes the cities of Orange and Bathurst along the corridor that extends west from Sydney. These cities bring significant manufacturing and other specialist industries to the region. The Newell Highway provides the north-south linkages for this region.

1.2.3 Southern Wheat-Sheep Region

The Southern WS region includes six national parks, 28 nature reserves and one historical site. There have been a number of accessions to this list since 2000.

Figure 1-3: Southern WS Region

The LGAs located within the Southern WS region are.

- Albury
- Carrathool
- Hay
- Wakool
- Murray
- Conargo
- Berrigan
- Jerilderie
- Murrumbidgee
- Griffith
- Leeton
- Bland

- Temora
- Narranderra
- Coolamon
- Cootamundra
- Junee
- Gundagai
- Wagga Wagga
- Lockhart
- Urana
- Corowa
- Greater Hume

The Southern WS region includes the sweeping plains of the Riverina famous for wool and cereal production. It also includes the irrigation areas around the Murrumbidgee and Murray rivers focused on rice, viticulture and horticulture production. Albury and Wagga Wagga provide substantial cities with a range of manufacturing and other specialised industries and services.

The region is linked to Sydney via the Hume Highway and the rail systems. Much of the southern part of the region is linked to Melbourne and other parts of Victoria. The Newell Highway is the link to the north while the Mid-Western Highway is a major link through to Adelaide and South Australia.

1.3 THE STRUCTURE OF THE REPORT

The following sections provide a perspective on the three regions in terms of demographic and employment analyses. The economic structure and size of the regional economies is then developed through the input-output tables that have been compiled for this study.

The economic impact estimates are presented in Section 6. A summary of the study and conclusions are included in the final section.

This report does not include the projections for the regions to 2010-11 or the projections in PA management and operations and visitor numbers. This information is presented in a supplementary report.

2 THE NORTHERN WS REGION ECONOMY

2.1 DEMOGRAPHIC CHARACTERISTICS

2.1.1 Population

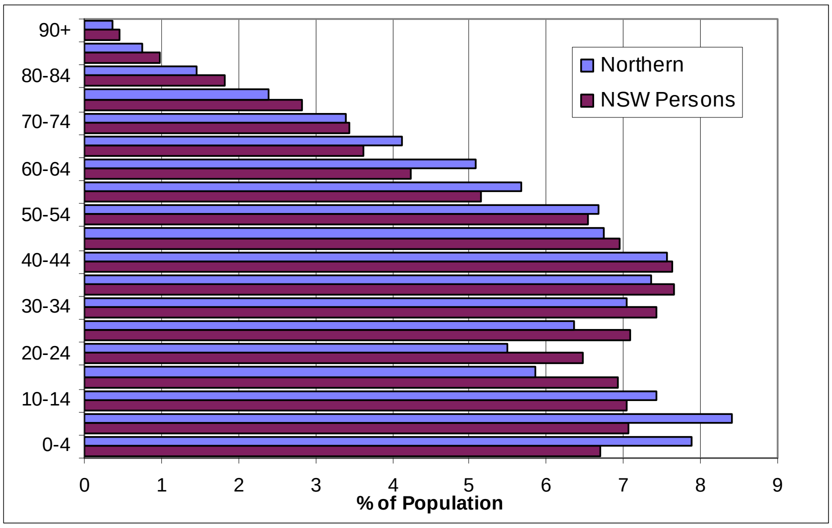
The trends in population and employment are displayed in Table 2-1. There has been a decrease in population and employment throughout the last two decades however a slight improvement in employment was experienced in the years to 2001. The employment share of the population decreased over 1986 to 1996 and increased to 2001, but is still below the NSW state average of 43 per cent. That improvement is a reflection of the better economic conditions between 1996 and 2001 that have continued into the 2000s even though drought has had some impact. It is a reflection of some factors causing adjustment in the region in the 1990s abating and some key primary industries enjoying better economic conditions. The coal mining industry is notable for a rapid change in prospects, while there has been an improvement in the returns to many agricultural industries.

Table 2-1: Population and Employment Trends, Northern WS Region

Census Year	Total Employment	Total Population	Employment Share of Population	Average Annual Change Between Census Years		Total Change Between Census Years	
				Employment	Population	Employment	Population
			%	%	%	no.	no.
1976		77,400					
1981	33,183	78,617	42.2		0.31		1,217
1986	31,277	77,403	40.4	-1.18	-0.31	-1,906	-1,213
1991	30,590	76,507	40.0	-0.44	-0.23	-687	-897
1996	28,609	73,024	39.2	-1.33	-0.93	-1,982	-3,483
2001	28,856	70,351	41.0	0.17	-0.74	247	-2,673

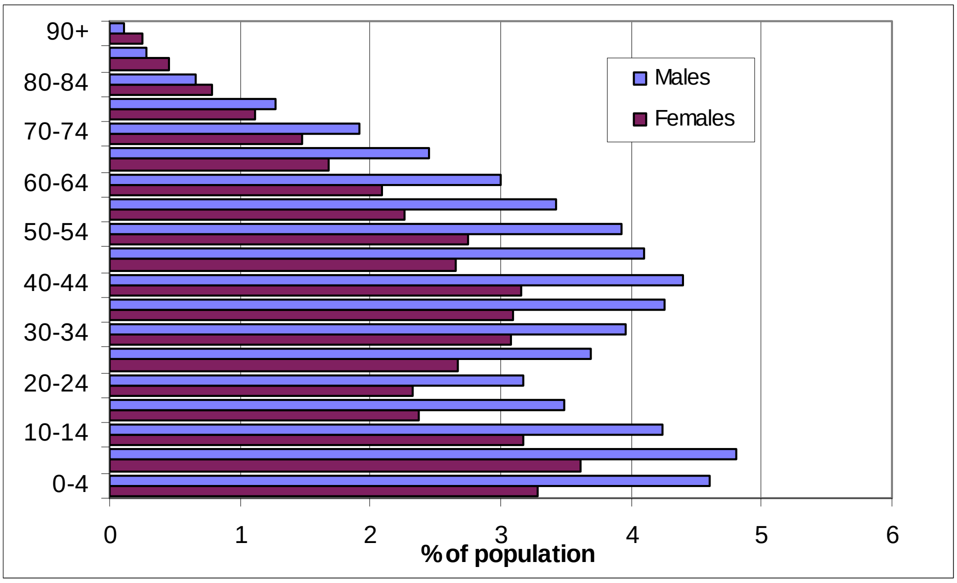
One of the factors that results in the low share of the regional population in employment is the ageing of the population. Figure 2-1 shows the age profile for the Northern WS region compared to NSW. While there is variation among the LGAs, the pattern shown is common to most areas. The ageing of the population is shown by the higher proportion of the population in the Northern WS region in the age groups of 55 and above compared to the NSW average. The Northern WS region has a lower proportion of the population in the working age groups and is particularly deficient in the 15 to 29 age groups. It is apparent that many young people leave the region after schooling to take up education and employment opportunities in larger centres. This has led to a situation where the number in the younger working ages are less than those in the older working ages and approaching retirement. In some areas, there is a high number of children in the population suggesting that the Northern WS region has a birth rate that is above the NSW average. That is particularly apparent in relation to the indigenous population.

Figure 2-1: Age Profile, Northern WS Region 2001



The age profile by sex shown in Figure 2-2 reflects another important factor. There are a higher percentage of males compared to females in all but the highest age groups (80+). The prominence of males within the region may be attributed to the employment opportunities available within the region. The agriculture and mining industries tend to employ more males than females. Retail trade, education and health provide employment opportunities for the female labour force. The Northern WS region does not include the main regional centre of Tamworth where there are many more opportunities for females to gain employment. The journey-to-work data available for this region indicates that there is a high level of commuting to work in Tamworth and many of these are likely to be females.

Figure 2-2: Age Profile by Sex, Northern WS Region, 2001



2.1.2 Employment and Unemployment

A perspective on employment and unemployment is available based on data on unemployment and information from the labour force survey. The data on the labour force are estimates and so include some random variations from year to year that are not able to be explained. The data are a useful indicator of trend, while the unemployment indicator is likely to be a reasonable estimate, although the definition of unemployment changes over time.

These data make it possible to estimate the size of the labour force and shows the level and percentage of the labour force that is unemployed. These estimates are shown in Table 2-2 using the June quarter data. This indicates a decreasing trend in the labour force and employment over most of the two decades. There is a sign of a revival in employment in the data for recent years.

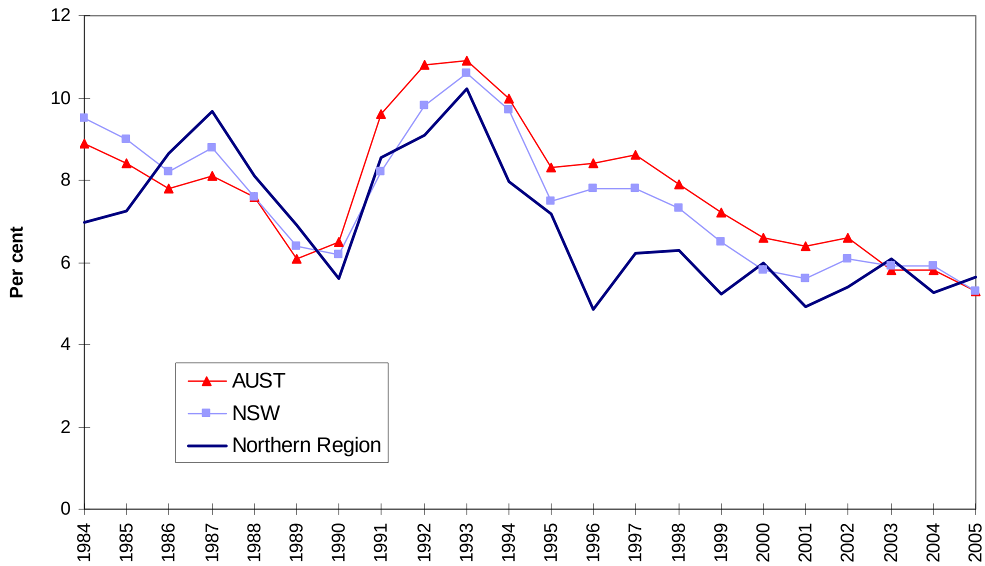
Table 2-2: Employment and Unemployment Northern WS region

Year	Northern Region				Unemployment	
	Labour Force no.	Derived Employment no.	Unemployment no	%	NSW %	AUST %
1984	84,392	79,463	2,840	7.0	9.5	8.9
1985	76,672	71,952	2,360	7.2	9.0	8.4
1986	75,674	70,086	2,794	8.7	8.2	7.8
1987	69,723	63,741	2,991	9.7	8.8	8.1
1988	78,682	73,377	2,653	8.1	7.6	7.6
1989	85,304	80,909	2,197	6.9	6.4	6.1
1990	73,097	69,508	1,794	5.6	6.2	6.5
1991	79,757	73,884	2,936	8.5	8.2	9.6
1992	74,376	68,474	2,951	9.1	9.8	10.8
1993	73,204	66,644	3,280	10.2	10.6	10.9
1994	68,166	63,544	2,311	8.0	9.7	10.0
1995	64,113	59,769	2,172	7.2	7.5	8.3
1996	77,192	73,912	1,640	4.8	7.8	8.4
1997	63,937	60,192	1,873	6.2	7.8	8.6
1998	66,551	62,596	1,977	6.3	7.3	7.9
1999	71,260	67,918	1,671	5.2	6.5	7.2
2000	72,055	68,281	1,887	6.0	5.8	6.6
2001	74,248	71,276	1,486	4.9	5.6	6.4
2002	77,160	73,928	1,616	5.4	6.1	6.6
2003	79,845	76,252	1,796	6.1	5.9	5.8
2004	79,975	76,414	1,781	5.3	5.9	5.8
2005	83,859	80,435	1,712	5.6	5.3	5.3

Source: DEWR (2002), June quarter

For most of the period the Northern WS region experienced a similar level of unemployment compared to NSW (Table 2-2 and Figure 2-3). In the early to mid 1990s the fall in unemployment in the Northern WS region was more rapid than in NSW. Since 1996, there has been little change in the unemployment rate while there has been a steady decline in the rate for NSW and Australia. As a result, the three rates have converged in the mid 2000s. The Northern WS region is now in a situation where growth in employment is likely to require some in-migration as in the case of many other regions in NSW. There will also be additional interest in retaining a large share of those who have completed their schooling.

Figure 2-3: Unemployment, Northern WS Region



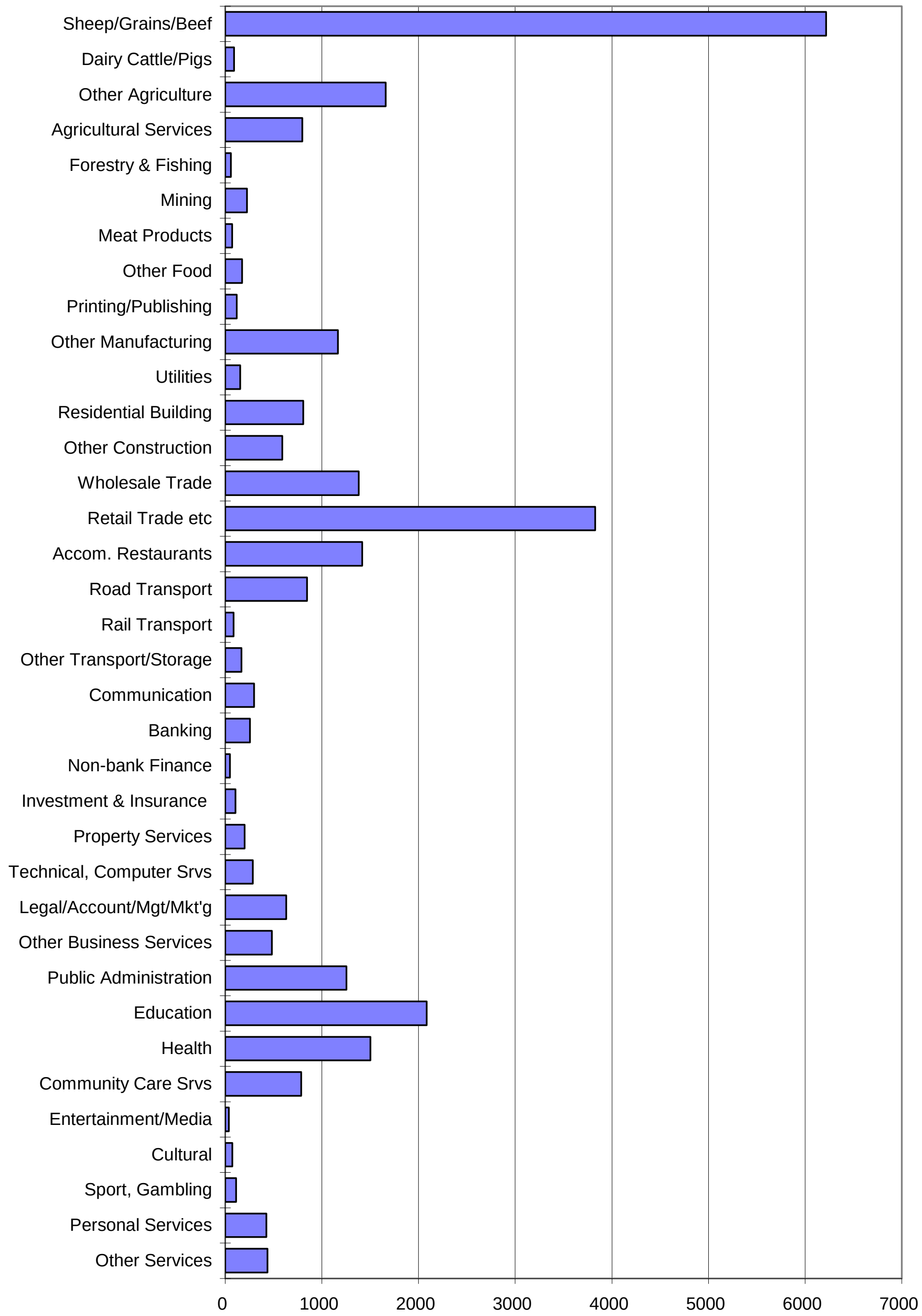
The trends in employment by industry are shown in Table 2-3. Primary industry is the most important sector within the region employing 31 per cent of the labour force in 2001. Employment in the primary industry has deceased since 1991. Business and financial services is the second most important sector employing 24 per cent of the labour force, followed by the trade sector which employs 23 per cent. Overall, the number of people employed has decreased over the early 1990s and has been steady since then. This decline may be attributed to rising labour productivity in many of the core industries, including agriculture and other adjustments in the economy. On the other hand, there has been limited development of new industries in the region although the performance of many existing industries improved in the late 1990s and into the 2000s such as coal mining.

Table 2-3: Industry Composition of Employment, Northern WS Region

	Employment (No.)			Employment (%)		
	1991	**1996**	**2001**	**1991**	**1996**	**2001**
Primary industry	10,650	9,235	9,045	35	32	31
Manufacturing	1,580	1,569	1,529	5	5	5
Utilities & building	1,804	1,367	1,550	6	5	5
Trade	6,584	6,336	6,624	22	22	23
Transports & communication	1,731	1,396	1,398	6	5	5
Buiness & financial services	6,639	6,889	6,838	22	24	24
Public sector services	710	1,040	1,009	2	4	3
Personal services	885	777	861	3	3	3
Total	**30,583**	**28,609**	**28,853**	**100**	**100**	**100**

A more detailed industry composition of employment for 2001 is shown in Figure 2-4. This pattern is typical of regional economies with a high dependence on primary industries and related activities such as other manufacturing and wholesale trade. Apart from those industries, the other activities in the region are primarily focused on servicing the needs of households giving prominence to the trade and accommodation sectors and those services with a large public funding base, public administration, education, health and community care. Sectors that primarily service businesses are operating in relatively small markets and so their share tends to be well below the NSW average share.

Figure 2-4: Employment Distribution by Industry, Northern WS Region 2001



Broadacre agriculture is of particular significance in the Northern WS region, along with other agriculture, which comprises the various types of horticulture and cotton production. Other manufacturing is also a noteworthy industry within the region although that is likely to include cotton ginning that should be allocated to agricultural services. In terms of number employed, retail trade stands out. Public administration, education and health make up the other major service industries in the Northern WS region. It is likely that the importance of rail transport within the region will increase in years to come with the introduction of an inland rail link between Brisbane and Melbourne.

2.1.3 Household Income

The main source of household income in the Northern WS region is wages and salaries contributing 61 per cent of overall income (Table 2-4), and considerably below the share for NSW. Income from government cash benefits contribute 17 per cent of income which is much higher than the NSW average. The high level of payments made by the government may be attributed to the higher than average birth rate, a significant indigenous population and the overall ageing of the population.

Table 2-4: Composition of Household Income Northern WS region

Income Category	Northern	Percentage	NSW	Percentage
Wages and salary ($m)	686.47	61.08	99,869.20	71.95
Own unincorporated buiness ($m)	135.40	12.05	8,733.10	6.29
Investment ($m)	98.43	8.76	12,121.00	8.73
Superannuation and annuity ($m)	12.07	1.07	2,962.30	2.13
Government cash benefits ($m)	188.93	16.81	13,919.00	10.03
Other income ($m)	2.67	0.24	1,203.10	0.87
Total income form all sources ($m)	**1,123.97**	**100.00**	**138,807.70**	100.00
Net tax ($m)	197.89	17.61	31,388.50	22.61
Average weekly household disposable ($)	580.98		**895.00**	

The importance of own unincorporated businesses in the structure of the economy is reflected in their 12 per cent contribution to household income which is almost double the average for NSW. On the other hand, income from superannuation is low while earnings from investment are at the NSW average. The average weekly household disposable income is $580.98 or 65 per cent of the NSW average. This is a reflection of many factors including the relatively poor seasonal conditions in 2000-01.

2.2 MAJOR INDUSTRIES

2.2.1 Agricultural Production

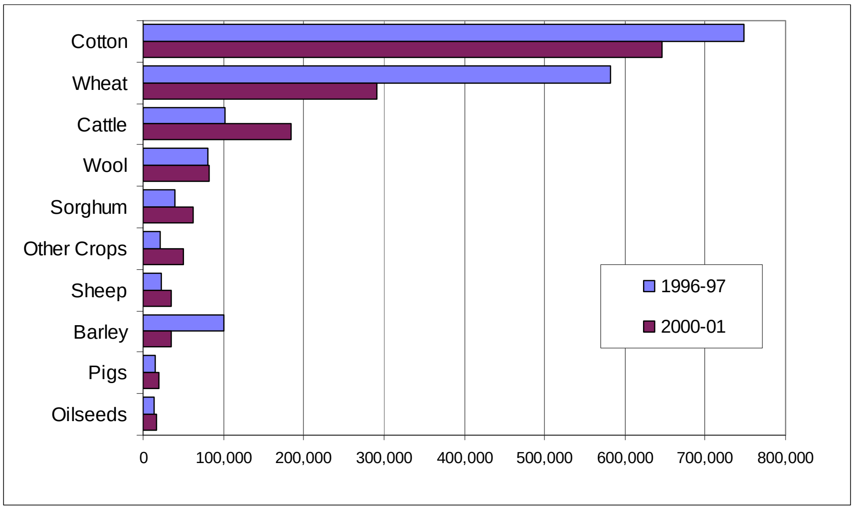
An agricultural census undertaken for the 2000-01 year provides information on the structure and value of production. Agriculture is a core industry in the Northern WS region as indicated in Table 2-5, and

Figure 2-5 highlights the low level of production in 2000-01 when late floods damaged very good cereal crops and early stage cotton crops.

Table 2-5: Gross Value of Agricultural Production

Commodity	1996-97	2000-01
Cotton	748,952	646,197
Wheat	581,373	291,209
Cattle	102,720	184,866
Wool	80,017	82,392
Sorghum	40,319	62,054
Other Crops	20,730	50,534
Sheep	22,387	35,043
Barley	100,028	34,961
Pigs	14,915	20,556
Oilseeds	13,965	16,516
Other Cereals	16,274	9,118
Hay	5,625	3,846
Milk	1,380	2,713
Other Fruit	4,488	2,222
Vegetables	1,032	1,659
Bees	1,179	987
Grapes	78	958
Pasture Seed	289	424
Eggs	329	403
Poultry	114	373
Total	1,756,193	1,447,031

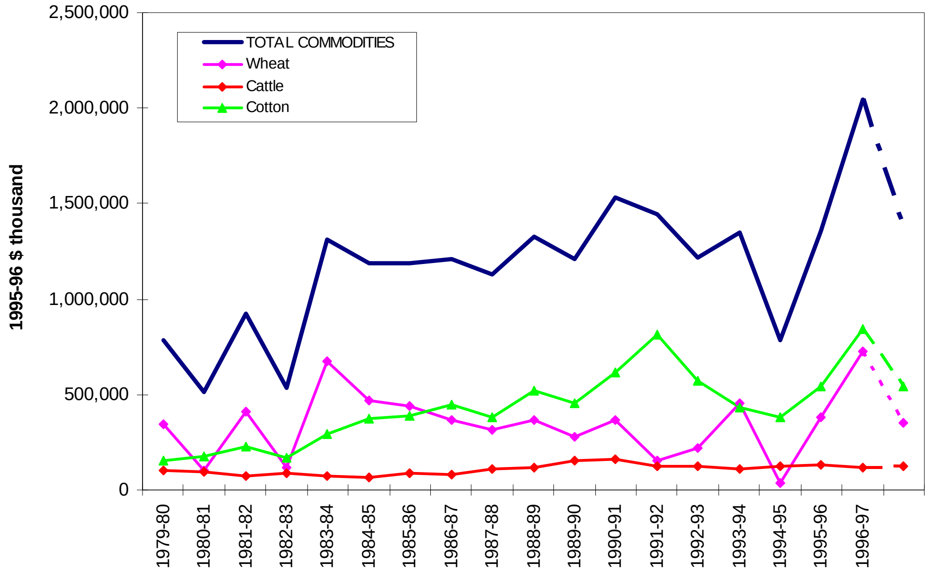
Figure 2-5: Gross Value of Agricultural Production



Agricultural production includes substantial amounts of cotton, wheat, cattle, wool and sorghum. The vast area, the predominately summer rainfall and access to irrigation water in parts of the region has resulted in the Northern WS region producing a wide variety of commodities as well as the products from grazing. Production is variable from year to year depending on rainfall and other conditions. Cotton is by far the most important crop within the region although the total production value for cereals is of similar value. Within the grazing activities, there has been a substantial shift away from sheep and into cattle.

The trend in agricultural production for the Northern WS region is shown in Figure 2-6 in constant value terms to reflect the real trend in production. Annual data are not available since 1996-97 and the most recent data refer to 2000-01. There has been a strong trend to increased agricultural production for almost three decades. Increased productivity, increased use of irrigation and changes in the product mix has generated that growth. From 1980 the main driver of growth has been cotton production and some increase in cattle production. Wheat production has been unstable and declining for much of the period as it has been substituted by cotton and the diversification into other grains, including sorghum and barley.

Figure 2-6: Gross Value of Agricultural Production Constant Value ($'000, 1995-96)



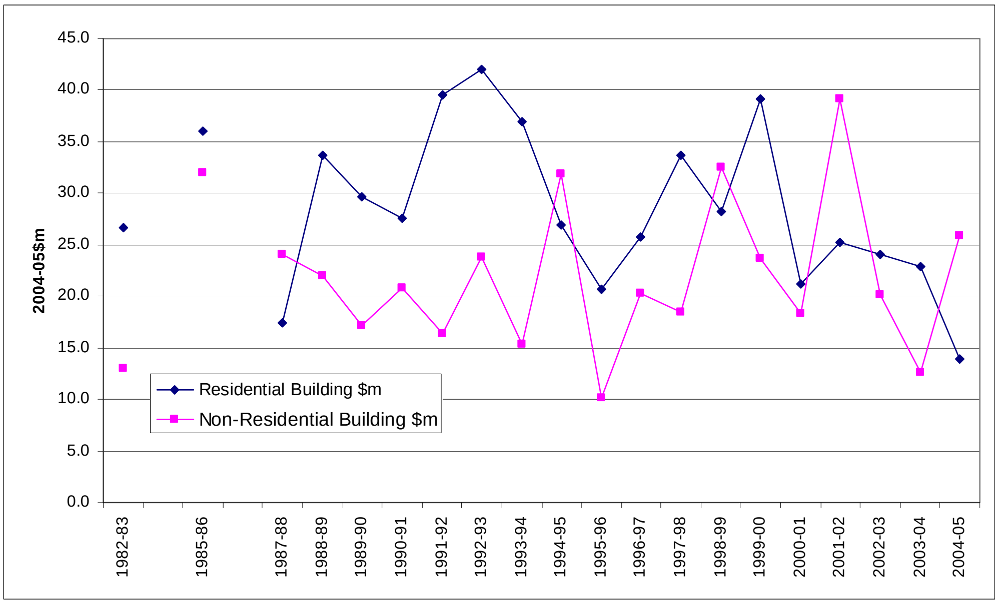
The drought periods are clearly evident in Figure 2-6 and include the early 1980s, mid 1990s and the early 2000s. Irrigation, including some from groundwater sources, and the summer rainfall conditions provides robustness for this region in the case of the less significant droughts but not in the case of the major droughts.

2.2.2 Building and Utilities

Building activity is a significant contributor to economic activity in regions but is responsive to the level of economic growth. Thus, it is a useful indicator of the performance of an economy. Residential construction is an indicator of population growth while non-residential construction is an indicator of the overall level of business investment. The level of residential and non-residential building activity is shown in Figure 2-7.

There has been a high level of year-to-year variation in both residential and non-residential building. The variation within the non-residential building sector is linked to major development projects. There is no strong growth trend up to 2004 in the region that would underpin consistent new investment in business capacity and premises. In any case, after the decline through most of the 1990s, there is likely to be some excess capacity to be taken up prior to new investment.

Figure 2-7: Building Approvals Northern WS Region



Residential building has been declining from the peak in the early 1990s after some growth in the late 1990s. In the early 2000s, residential building has decreased significantly for reasons that are difficult to understand apart from drought conditions. The resurgence of coal mining and a build-up of optimism would normally have indicated a growth in residential building.

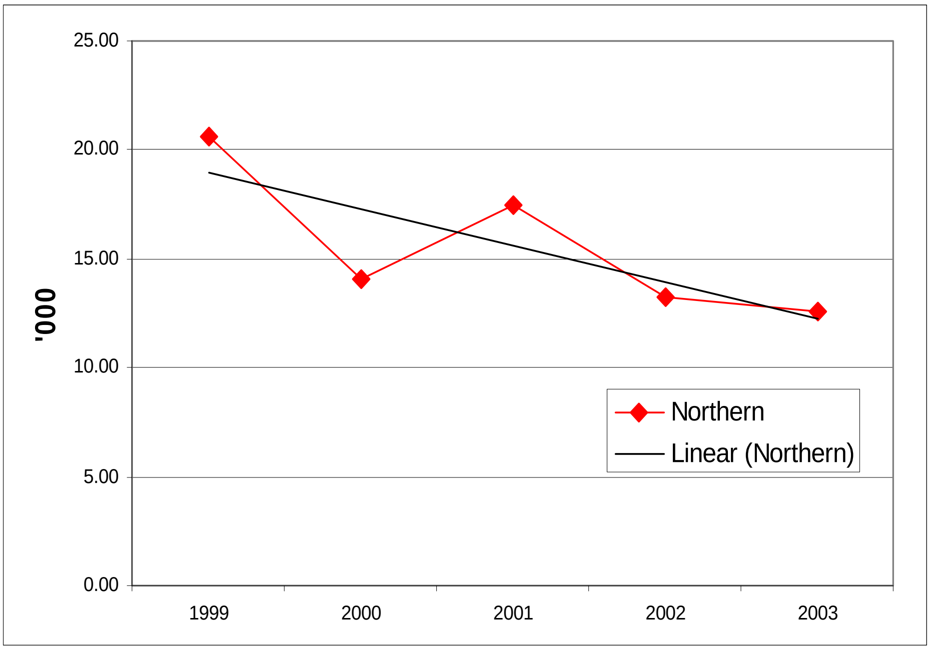
2.2.3 Tourism

A limited amount of data related to visitation to the Northern WS region is available from the national data on tourism. These data are sample-based and are compiled independently of local data. The information is shown in Figure 2-8 for the day and overnight visitor categories and Figure 2-9 for the international visitors.

There are a substantial number of day and overnight visitors to the region but a very small number of international visitors. The number of day visitors, who are likely to be responsive to local economic conditions, has been decreasing. On the other hand, the number of overnight visitors has been increasing. This increase may be linked to the growth in traffic along the Newell Highway as well as the appeal of the region which includes some notable attractions in the Warrumbungle and Mt Kaputar National Parks. The observatory facilities adjacent to the Warrumbungle NP are notable as attracting international visitors.

Figure 2-8: Tourism Northern WS region: Day trips and overnight visitors

Figure 2-9: Tourism Northern WS Region: International visitors



2.3 TRENDS IN THE ECONOMY

2.3.1 Major Industries: Location Quotients

This analysis is primarily based on employment data from the population censuses since 1981. Location quotients (LQ) are an indicator of the specialist industries in an economy. The value indicates the importance of the industry to the region relative to the importance to the nation. Thus a value of 1.0 indicates the same level of importance while a value of 19.7 for beef cattle in 2001 indicates that this industry is 19.7 times more important to the Northern WS region than it is to Australia. Where the value is high (greater than 2) it indicates that those industries are likely to be key strengths in the region. The location quotients are shown in Table 2-6.

Table 2-6: Location Quotients Northern WS Region

	LQs					Employment
Ranked Sectors by 2001	1981	1986	1991	1996	**2001**	**2001**
Beef cattle	10.4	5.2	8.9	5.6	**19.7**	1658
Services to agric.; hunting	12.5	13.1	14.5	11.1	**12.2**	798
Grains	8.5	16.5	16.3	18.6	**11.2**	3676
Textile fibres, yarns etc	0.0	0.3	0.2	0.6	**8.8**	217
Leather and leather products	3.0	3.5	5.7	4.5	**6.6**	89
Pigs	4.4	5.3	6.4	7.8	**6.4**	83
Sheep	7.9	4.8	8.1	5.7	**6.3**	881
Oils and fats	13.7	9.4	11.2	16.1	**5.7**	37
Other mining	3.6	3.2	4.9	5.7	**5.3**	143
Other agriculture	2.8	3.7	5.2	4.4	**4.7**	1618
Sawmill products	1.4	1.1	1.3	2.5	**2.4**	116
Poultry	0.6	0.8	0.9	0.6	**1.7**	42
Forestry and logging	1.9	1.3	1.4	1.8	**1.4**	57
Flour and cereal foods	1.7	0.7	0.8	1.3	**1.4**	36
Mechanical repairs	1.1	1.1	1.1	1.3	**1.3**	650
Road transport	2.9	1.1	1.1	1.1	**1.3**	846
Public administration	1.0	1.0	0.9	1.1	**1.1**	1243
Community care services	0.6	0.9	0.9	1.1	**1.1**	787
Agricultural, mining etc machinery	0.1	0.8	1.2	0.3	**1.0**	88
Education	0.9	0.9	0.9	1.0	**1.0**	2082
Accom. & restaurants	1.3	1.2	1.1	1.1	**1.0**	1417
Concrete, cement, lime	0.6	0.6	0.6	1.4	**1.0**	27
Wholesale trade	0.7	0.7	0.8	0.8	**0.9**	1380
Other services	0.6	0.5	0.9	0.7	**0.9**	435
Retail trade	0.8	0.8	0.8	0.8	**0.8**	3139
Personal services	0.7	0.6	0.7	0.7	**0.8**	425
Health services	0.6	0.7	0.7	0.8	**0.7**	1501
Other business services	0.7	0.6	0.6	0.5	**0.6**	482
Other property services	0.3	0.3	0.5	0.5	**0.5**	200
Scientific research etc	0.6	0.5	0.5	0.4	**0.3**	284

Table 2-6 highlights the importance of agriculture which comprises most of the high LQ industries. There is also a set of agricultural processing industries that comprise most of the remaining industries with LQs above

2.0. Other mining is prominent and includes the opal mining in Walgett Shire while sawmilling is notable based on the logs supplied from the Pilliga forest.

In recent times, there has been a resurgence of coal mining and a loss of sawmilling jobs as a result of the accessions of forests to the Pilliga PAs. Up to the mid 1990s, there had been a substantial meat processing industry in Gunnedah, but new and expanded processing facilities now operate in Tamworth. The notable leather processing industry in Gunnedah continues to operate.

2.3.2 Industry Employment Analysis

This section involves analyses to assess the performance of industries in the Northern WS region and benchmarking those industries against relevant NSW standards. The data used in the analyses are the detailed employment by residence data obtained from the Population Census. The data within this section can be used to highlight the structural changes that are occurring within the region.

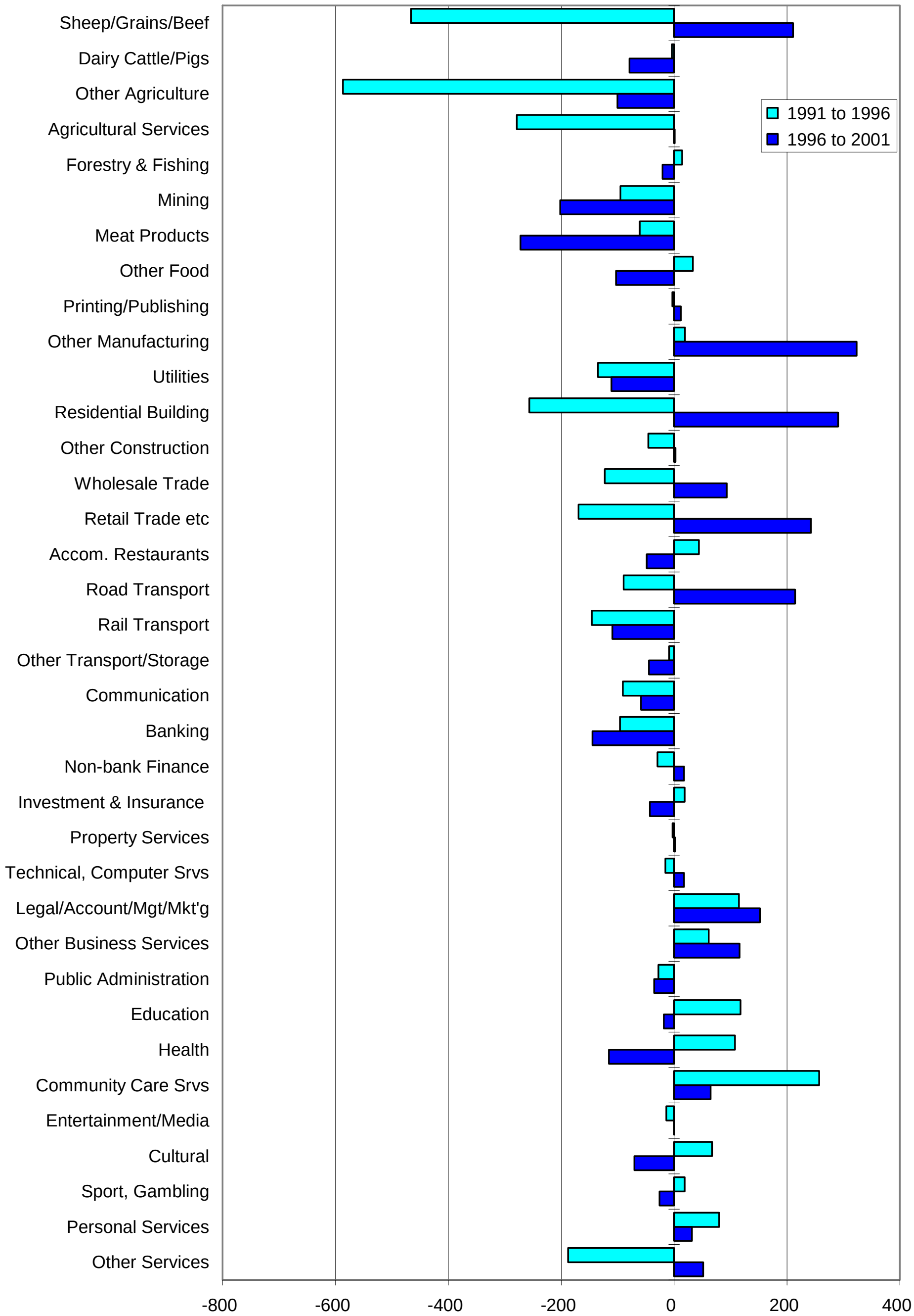
A profile of employment by industry has been developed and used in a shift share analysis of the industries in the economy. Shift share analysis is a procedure for analysing the growth in each industry relative to total State growth and total industry growth. It is a form of benchmarking that identifies the contribution of each industry to economic growth.

Industry growth is determined by a wide variety of factors including technological development, market access and growth, industry leadership and management and government policy. As a result different industries will experience different levels of growth. Shift share analysis is used to separate those factors that are local from those that are general to the industry. For example, a growing industry may achieve that growth by sharing in the overall NSW growth in that industry, or it may be growing because there are local competitive advantages that allow the local industry to increase its share of the NSW market.

The key characteristics of the industry structure in the Northern WS region were outlined earlier (see Figure 2-4). Broadacre agriculture, other agriculture, retail trade, wholesale trade, other manufacturing, public administration, education, health and community care were key sectors in the Northern WS region economy.

The changes in employment over the 1990s by each intercensal period are shown in Figure 2-10. In the period 1991 to 1996 employment in most industries declined along with the decline in the population. Notably large decreases were experienced in broadacre agriculture, other agriculture, agriculture services, residential building, trade and other services. Over this period there were few significant increases, the most notable in services to households. That indicates the maintenance of household expenditure even though the economy was declining.

Figure 2-10: Total Change in Employment 1991 to 2001



The 1996 to 2001 period was a period of very mixed fortunes. Significant decreases in employment were experienced within the mining and meat products sectors. Increases were experienced within broadacre agriculture, other manufacturing (probably cotton ginning), residential building, retail trade and road transport. An assortment of increases and decreases were experienced within the other service sectors. The business service sectors were generally in decline apart from the legal/accounting services and other business services. Overall, the situation in the second half of the 1990s was considerably better than in the first half, which experienced low commodity prices and poor seasons that compounded the impacts of the national recession.

Shift-share analysis is also used to separate out the effects of local changes from change in the economy overall and in particular industries. This enables the analyst to assess whether there are particular competitive advantage factors operating in the local economy that are generating growth (overall or in particular industries) or whether the economy is just sharing in the growth of NSW or the industry as a whole. The overall pattern is shown in Table 2-7.

This confirms that the second half of the 1990s was much more favourable for the Northern WS region than the first half as indicated by the Total Change column. The poor performance in the second half of the 1900s can be attributed to local factors as indicated by the large negative number within the local column. If the Northern WS region had shared in the growth of the NSW economy, employment would have increased by 2,881 in the second half of the 1990s. Compared to the early 1990s, that was relatively good because local factors resulted in the loss of over 5,000 jobs in the early 1990s. That loss of jobs was from employment of over 30,000 in 1991 and indicates just how devastating that period was for the Northern WS region.

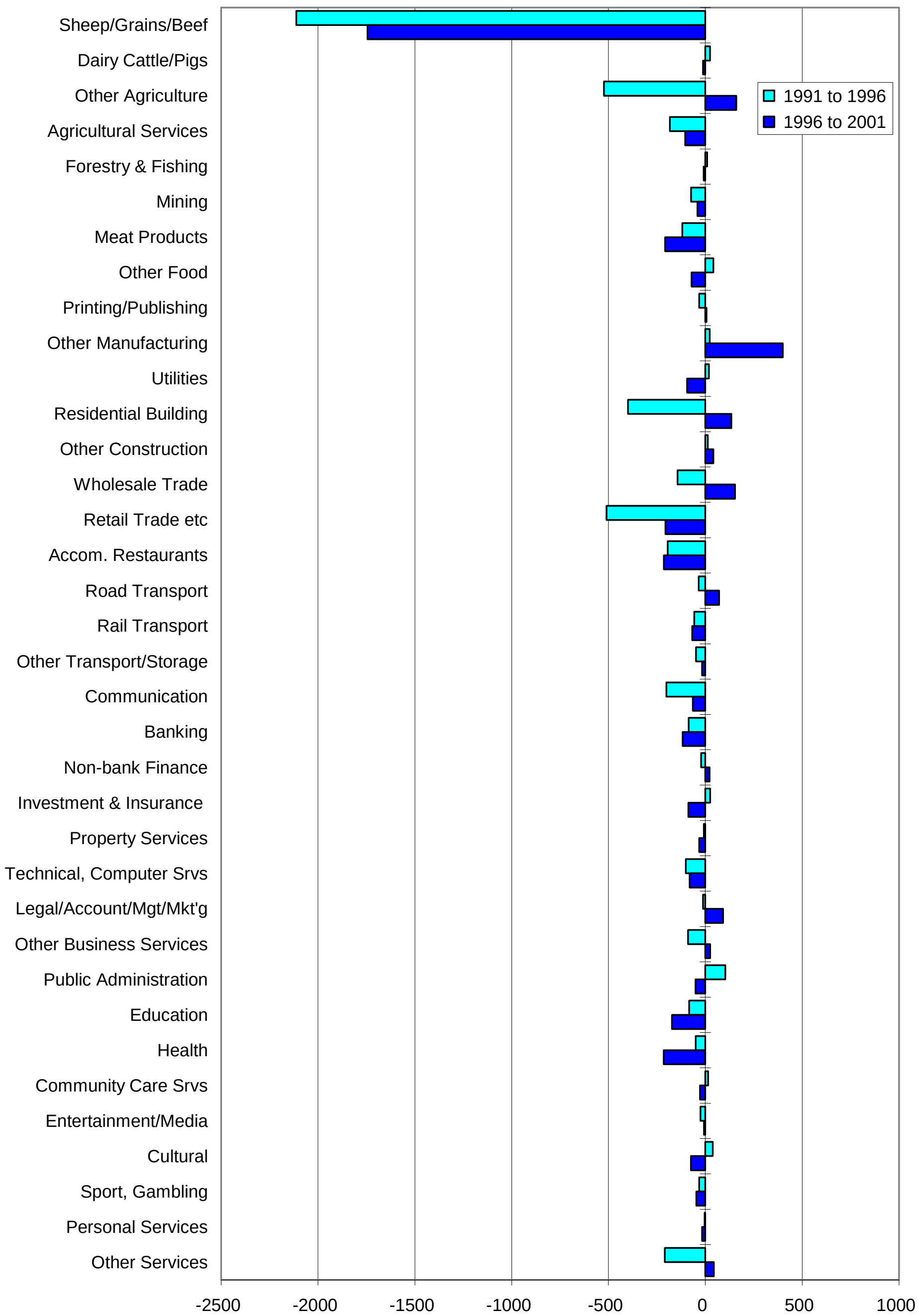
Table 2-7: Shift-share Analysis Summary, 1991 to 2001

	Component				**Total**
	State	Industry	**Total State**	**Local**	**Change**
	No.	No.	**No.**	**No.**	**No.**
1996-2001					
Positive Effects	2,128	2,610	**4,738**	**2,614**	**7,352**
Negative Effects	-	(1,857)	**(1,857)**	**(5,251)**	**(7,108)**
Total Effects	**2,128**	**753**	**2,881**	**(2,637)**	**244**
1991-1996					
Positive Effects	1,984	4,497	**6,481**	**667**	**7,148**
Negative Effects	-	(3,407)	**(3,407)**	**(5,715)**	**(9,123)**
Total Effects	**1,984**	**1,090**	**3,073**	**(5,048)**	**(1,975)**

The changes in employment noted above for the 1990s can be considered on an industry basis as shown in Figure 2-11. This shows the local effect of changes in employment relative to a zero change represented by the "0" line. Industries to the left of the "0" line indicates that the industry did not grow as quickly as the industry at the NSW level, and thus this regional industry lost a share of the NSW industry. An industry to the right of the

"0" is indicative of an increase in the share of the NSW industry. This information can be interpreted as a general indicator of the competitive advantage of the industry in the Northern WS region relative to the industry in NSW. In this case, the dramatic changes in broadacre agriculture in both periods dwarf the changes in all the other industries. Thus, this chart should be interpreted with some care and with regard to the horizontal scale.

Figure 2-11: Local Influence on Employment Change 1991 to 2001

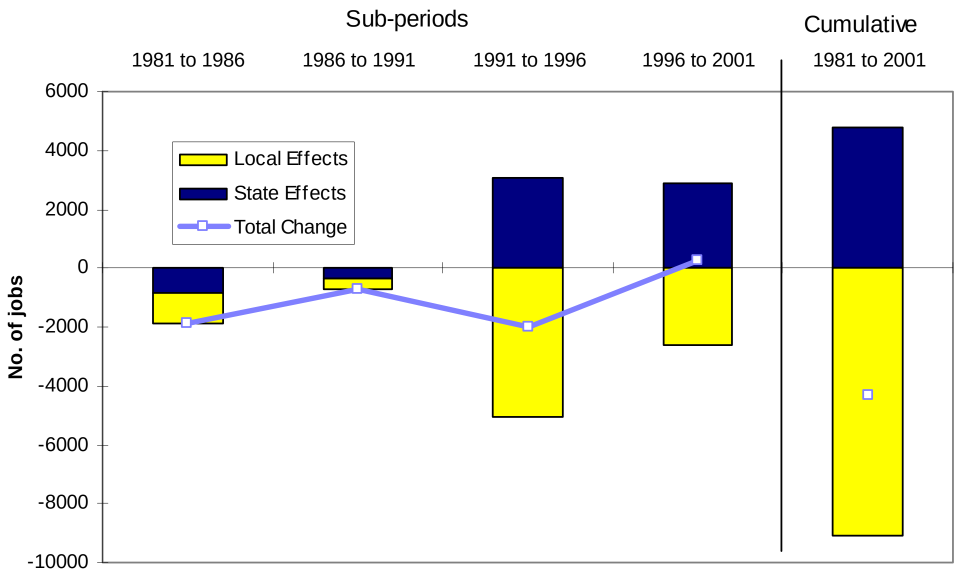


The local factors in the Northern WS region are strongly negative for broadacre agriculture as indicated in Figure 2-11. That translates into negative local factors over most industries for the 1991 to 1996 period. Other industries to suffer a loss due to local factors were other agriculture, residential building, retail trade, accommodation and restaurants, communications and other services. There were few positive local effects in the 1991 to 1996 period with the only noticeable gain being public administration.

The loss experienced in broadacre agriculture in the early 1990s continued into the 1996 to 2001 period. Other losses occurred in meat processing, mining, utilities, trade, education, health and most business services. There were gains in other agriculture, other manufacturing, residential building, wholesale trade, road transport and legal/accounting services. Overall, the local situation was substantially negative and offset the potential gains that might have been made from the strong growth in the NSW economy.

A two-decade perspective on development is provided in Figure 2-12. The first half of each decade included major job losses. The losses were lower in the second half of both decades. The dependence on agriculture and related industries was a critical local factor generating these trends. Over the two decades, there was an actual loss of jobs of almost 5,000. If the region had shared in the growth in the NSW economy, employment would have grown by around 5,000.

Figure 2-12: Shift-share Analysis Summary 1981 to 2001



2.3.3 Service Delivery Levels

A benchmarking process for measuring the level of services in a region is to calculate for each industry the ratio between the population and the number employed in the particular service industry (know as a Population Employment Ratio – PER). This is a simple measure of the intensity of service provision in an area which can be compared with other regions and the State. This works best where the services are essentially local and not ‘exported’ to users from outside the region. A low PER is to be preferred to a high PER. The service delivery levels are shown in Table 2-8.

Table 2-8: Service Delivery (PER) Northern WS Region

	Northern Wheat Sheep					NSW		Change	
Service Sectors	1981	1986	1991	1996	2001	1996	2001	Local 2001 vs 1996	2001 NSW vs local
Residential building	88	116	99	142	87	62	49	54	-38
Other construction	99	94	121	124	119	88	97	5	-23
Wholesale trade	57	60	54	57	51	38	41	6	-10
Retail trade	24	23	23	26	22	21	18	3	-4
Mechanical repairs	199	197	203	105	108	136	138	-4	29
Other repairs	1227	1486	1067	1543	1799	710	779	-256	-1021
Accom. & restaurants	59	61	54	50	50	47	43	0	-6
Road transport	101	103	106	116	83	123	102	32	19
Rail & other transport	119	118	224	373	812	372	482	-440	-330
Water transport	0	0	0	0	0	1984	1834	0	1834
Air and space transport	2820	4082	2567	2276	2888	314	296	-612	-2592
Transport srvs, storage	522	319	401	406	492	175	214	-87	-279
Communication services	107	121	171	205	237	112	112	-32	-124
Banking	136	141	154	183	276	104	114	-93	-162
Non-bank finance	2009	1438	1292	2463	1483	355	410	980	-1074
Insurance	1028	1026	885	2130	1004	247	187	1126	-817
Services to finance etc	1289	1386	1794	641	2004	263	208	-1362	-1796
Ownership of dwellings	0	0	0	0	0	0	0	0	0
Other property services	768	667	382	370	353	163	142	17	-211
Scientific research etc	284	302	272	275	248	91	68	27	-180
Legal, accounting srvs	245	258	211	153	112	58	53	41	-59
Other business services	298	313	251	200	146	91	74	54	-72
Public administration	52	51	58	57	57	70	71	0	14
Defence	3213	4087	0	23509	6842	249	339	16667	-6503
Education	41	41	39	35	34	35	33	1	-1
Health services	57	52	51	45	47	33	32	-2	-15
Community care services	493	229	165	101	89	108	98	12	8
Motion picture, radio etc	1348	1414	1507	1959	1868	369	316	91	-1552
Libraries, museums, arts	1432	924	1013	512	974	330	327	-463	-647
Sport, gambling etc	498	599	644	530	629	236	209	-98	-420
Personal services	297	319	244	186	165	133	120	20	-45
Other services	257	265	134	190	162	131	130	29	-31
TOTAL SERVICES (excluding building & construction)	**4.8**	**4.7**	**4.6**	**4.4**	**4.2**	**3.2**	**3.0**	**0.2**	**-1.2**

The overall level of service provision within the Northern WS region is shown in the last line of Table 2-8. The Northern WS region level for 2001 indicates a PER of 4.2 which is much higher than the NSW level of 3.0. This may reflect the absence of a major regional centre in the region defined for this project (such as Tamworth). The level of service within the region has improved considerably over the past decades as shown by the declining value since 1991.

The situation for each of the services compared to NSW in 2001 is shown in the last column, where a positive value indicates that the level of service is better than in NSW. That occurs in only four sectors: mechanical repairs, road transport, public administration, and community care. The high level of service in a number of these industries reflect the poor social conditions in parts of the region or the capacity for the region to provide special services that meet the needs of the region such as road transport and mechanical repairs.

The Northern WS region situation is compared to the NSW situation and is shown in an index form (Figure 2-13). In this case, a value of 100 indicates parity between the Northern WS region and the NSW levels of service and less than 100 indicates a lower level of service than that for NSW. This shows that those services with significant public funding, such as community care, education and public administration are near or above the NSW level. The health sector falls well below the NSW level. Personal services are generally better than those services that primarily support business activity such as the range from rail transport to other business services. This pattern exists across most of inland NSW and is an impediment to business development. The high level of service within the mechanical repairs sector and the road transport sector is highlighted.

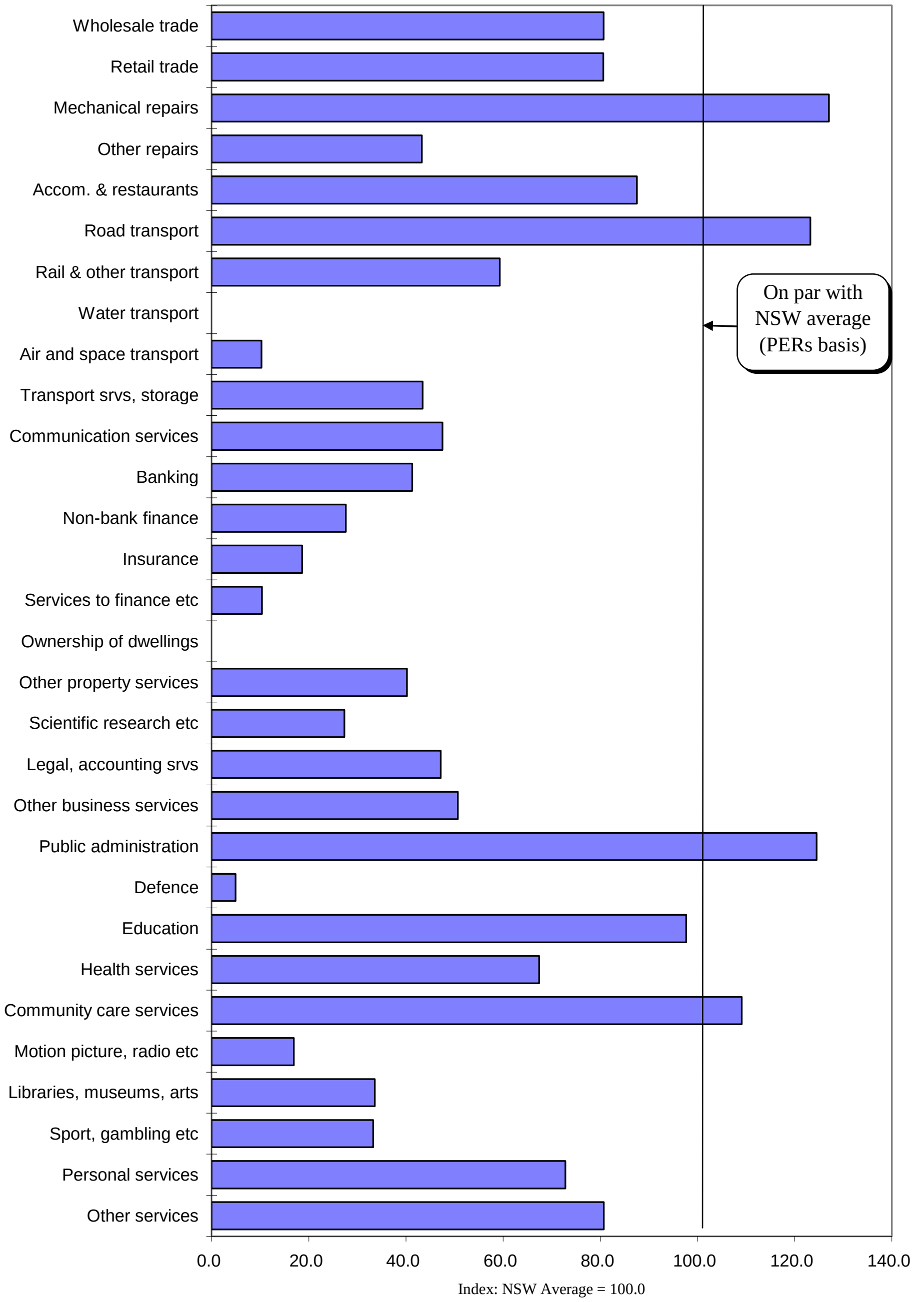
2.4 SUMMARY

The Northern WS region economy is dominated by primary industry and related activities. Irrigated cotton, cereals and cattle are of great importance. These industries are internationally competitive and have been increasing productivity rapidly over many years. That has the implication of generating less employment in the economy unless it is offset by new industries that service both local and export markets. There has been little development of a more diverse industry base serving diverse markets. Thus, when primary industry and related activities encountered a difficult decade in the 1990s, the Northern WS region economy performed poorly and declined. Jobs were lost, household income declined and the dependence on welfare payments increased. Those local trends were reinforced by other adjustments made in the service industries such as transport and communications and banking. Some of these characteristics are also related to the absence of a major regional centre within the region (Tamworth is outside this region).

The population of the region has been declining and ageing with a preponderance of jobs that favour males. As a result, the opportunities for females have been limited with many commuting to work in Tamworth or leaving the region. However, the prospects for the 2000s are better. The agricultural situation has improved, notwithstanding the effects of the drought, and there is a rebound in coal mining. Some of the factors that led to less economic activity in the region in the 1990s have abated so that employment is again increasing along with investment and the population.

The fact remains that there are economic structure issues in the Northern WS region economy that need to be addressed to provide a robust economy and an improved array of employment opportunities (especially for females). A reduced dependence on primary industries is a necessary step based on the development of new industries with a focus on markets beyond the region. Some of those developments are occurring in Tamworth, but more needs to be achieved in the Northern WS region itself.

Figure 2-13: Service Delivery Index 2001 Northern WS region



CARE

3 THE CENTRAL WS REGION ECONOMY

3.1 DEMOGRAPHIC TRENDS

3.1.1 Population

The trends in population and employment are shown in Table 3-1. Unlike the Northern WS region there has been an increase in the population of the Central WS region. A slight decrease in employment was experienced between 1981 and 1986 however there has been continuous growth since 1986. The Central WS region is considerably larger than the Northern region and includes a number of large regional centres including Orange, Bathurst and Dubbo.

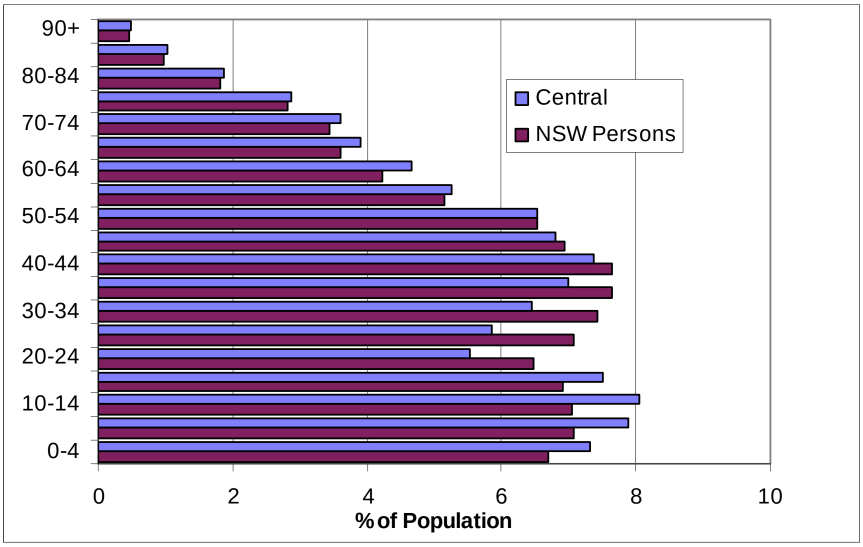
Table 3-1: Population and Employment Trends Central WS region

Census Year	Total Employment	Total Population	Employment Share of Population	Average Annual Change Between Census Years		Total Change Between Census Years	
				Employment	Population	Employment	Population
			%	%	%	no.	no.
1976		171,450					
1981	72,184	178,683	40.4		0.83		7,233
1986	69,555	181,647	38.3	-0.74	0.33	-2,629	2,963
1991	73,887	190,373	38.8	1.22	0.94	4,332	8,727
1996	78,623	195,118	40.3	1.25	0.49	4,737	4,745
2001	82,243	194,214	42.3	0.90	-0.09	3,620	-904

The employment share of the population has fluctuated over the last two decades reaching low levels in the 1986 to 1991 period. In 2001 it was close to the NSW average of 43 per cent.

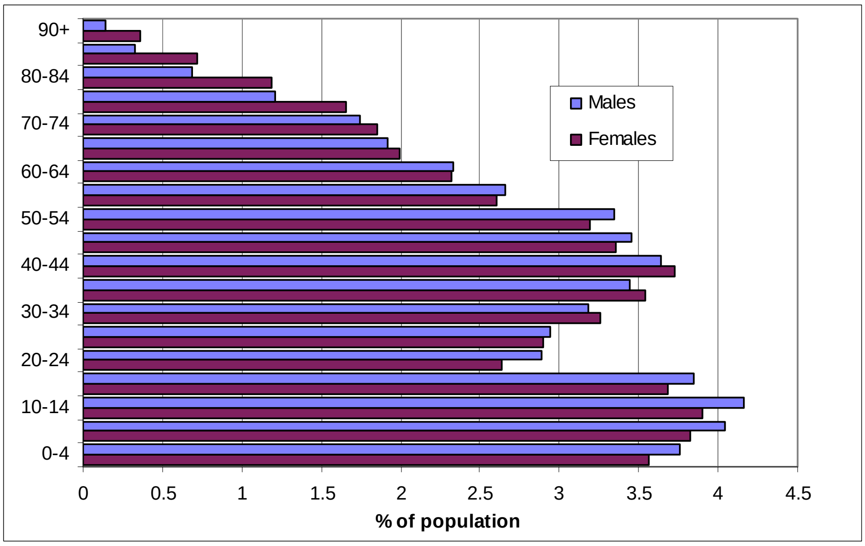
Figure 3-1 shows the age profile for the Central WS region compared to NSW. While there is variation among the LGAs, the pattern shown is common to most areas. Like the Northern WS region the Central WS region population is ageing so that the shares in the age groups of 55 and above tend to be higher than for NSW. There is a high level of children in the population relative to NSW. However, many apparently leave the region after schooling so that the share of population in the 15 to 29 years age groups is deficient relative to NSW as a whole. Like most regions, there is a need to give attention to the possibilities of retaining a large number of young people in the region, especially as the large number of baby boomers is approaching retirement.

Figure 3-1: Age Profile Central WS Region



The age profile for the Central WS region according to sex is shown in Figure 3-2. There are a higher percentage of males compared to females in most age groups but the differences are small. There may be a slight tendency for more young males to leave the region relative to young females. The considerable retail trade, education and health employment opportunities in the region tends to favour female employment and may be the basis for a higher retention of females in the labour force in the 30 to 40 years age groups.

Figure 3-2: Age Profile by Sex



3.1.2 Employment and Unemployment

An alternate perspective on employment and unemployment is provided from the data prepared from unemployment data and information from the labour force survey. The data on the labour force are estimates and so include some random variations, but remains as a useful indicator of trend. The unemployment indicator is likely to be a reasonable estimate, although the definition of unemployment changes over time.

These data make it possible to estimate the size of the labour force and shows the level and percentage of the labour force that is unemployed. These estimates are shown in Table 3-1 using the June quarter data. This indicates an increasing trend in the labour force and employment over most of the two decades albeit with some variations in particular years that appears to be statistical problems. The data indicate a region with steady growth over the past two decades.

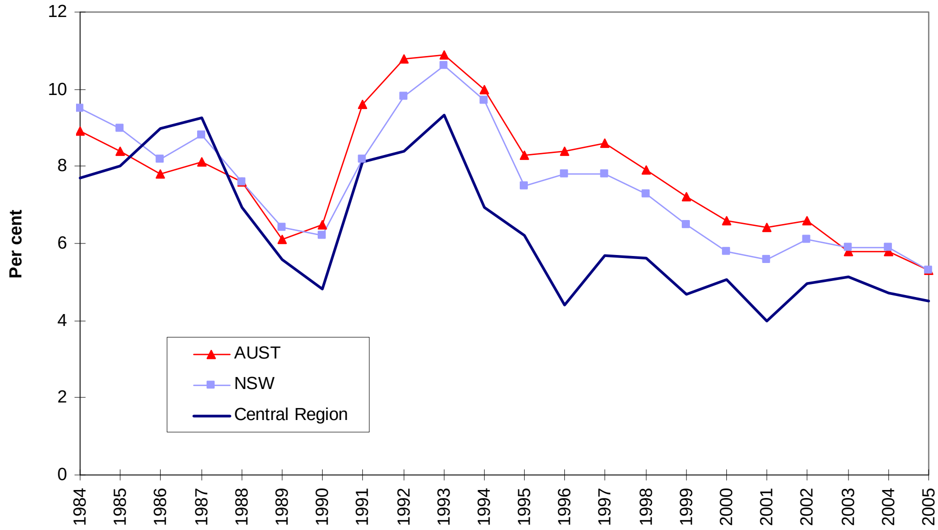
Table 3-2: Employment and Unemployment Central WS region

	Central Region				Unemployment	
Year	Labour Force no.	Derived Employment no.	Unemployment no	%	NSW %	AUST %
1984	73,220	67,036	6,184	7.7	9.5	8.9
1985	78,406	71,647	6,759	8.0	9.0	8.4
1986	77,768	70,146	7,622	9.0	8.2	7.8
1987	75,587	67,973	7,614	9.2	8.8	8.1
1988	82,125	76,175	5,950	6.9	7.6	7.6
1989	78,682	74,065	4,617	5.6	6.4	6.1
1990	83,547	79,557	3,990	4.8	6.2	6.5
1991	90,494	83,157	7,337	8.1	8.2	9.6
1992	85,995	78,884	7,111	8.4	9.8	10.8
1993	87,271	79,308	7,963	9.3	10.6	10.9
1994	80,436	74,862	5,574	6.9	9.7	10.0
1995	83,919	78,660	5,259	6.2	7.5	8.3
1996	88,577	84,440	4,137	4.4	7.8	8.4
1997	90,531	85,101	5,429	5.7	7.8	8.6
1998	91,239	86,052	5,188	5.6	7.3	7.9
1999	90,184	85,868	4,316	4.7	6.5	7.2
2000	89,376	84,835	4,542	5.1	5.8	6.6
2001	86,376	82,900	3,476	4.0	5.6	6.4
2002	84,819	80,467	4,352	5.0	6.1	6.6
2003	68,144	64,526	3,618	5.1	5.9	5.8
2004	92,928	88,471	4,456	4.7	5.9	5.8
2005	95,180	90,796	4,384	4.5	5.3	5.3

Source: DEWR (2002), June quarter

The Central WS region has experienced a similar pattern of unemployment compared to NSW (Figure 3-3), with the unemployment level remaining consistently below the NSW and Australian levels since 1992. These data are indicative of an economy that is performing at least as well as NSW as a whole.

Figure 3-3: Unemployment and Employment Central WS region



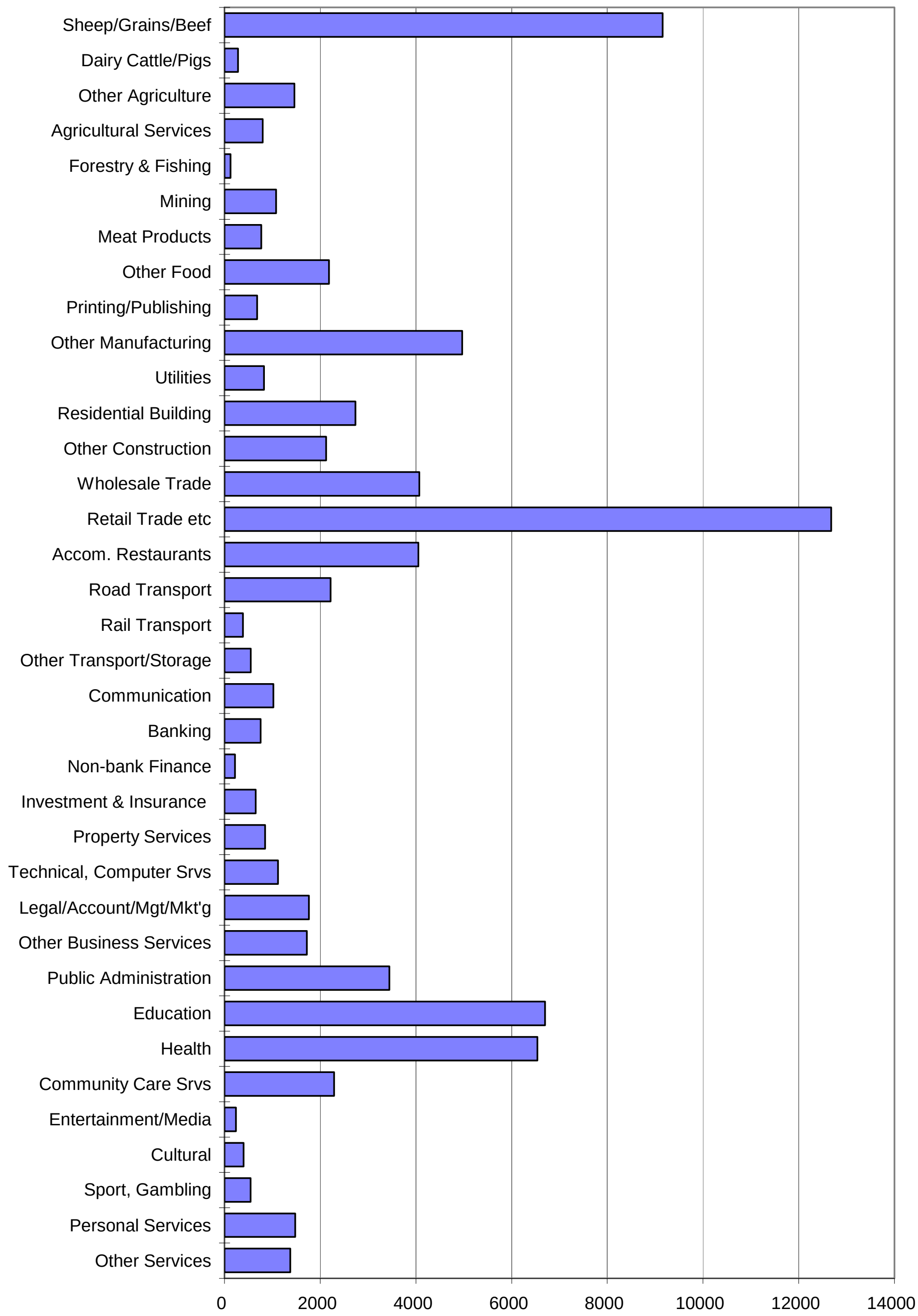
The trends in employment by industry are shown in Table 3-3. The trade sector (consisting of wholesale, retail trade, restaurants and accommodation sectors) along with the public sector services (including public administration, education, health and community care) are the dominant industries with each group employing 25 per cent of employment. The importance of primary industry within the region is notable and employs 16 per cent of the workforce. The level of manufacturing employment is also significant and is not far from the NSW share. Over the past decade there has been little change in the composition of the economy with most sectors maintaining a consistent share of employment. There was however an increase in total employment.

Table 3-3: Industry Composition of Employment

	Employment (No.)			Employment (%)		
	1991	**1996**	**2001**	**1991**	**1996**	**2001**
Primary industry	13,001	12,598	12,896	18	16	16
Manufacturing	7,857	8,549	8,596	11	11	10
Utilities & building	5,224	5,421	5,688	7	7	7
Trade	17,633	19,159	20,800	24	24	25
Transports & communication	4,494	4,633	4,171	6	6	5
Buiness & financial services	5,779	5,847	7,075	8	7	9
Public sector services	17,551	19,775	20,159	24	25	25
Personal services	2,348	2,637	2,852	3	3	3
Total	**73,887**	**78,620**	**82,237**	**100**	**100**	**100**

A more detailed industry composition of employment for 2001 is shown in Figure 3-4. This pattern is similar to much of inland NSW with a high proportion of people employed in primary industry, the trade and accommodation sectors and those services with a large public funding base, including education and health. However, the Central WS region has a large other manufacturing sector and building and construction activity that is consistent with the needs of a growing region economy. In these respects, it takes on some of the structural characteristics of the NSW economy as a whole.

Figure 3-4: Employment Distribution by Industry Central WS Region 2001



3.1.3 Household Income

The main source of household income in the Central WS region is wages and salaries which contribute 66 per cent of overall income (Table 3-4) which is smaller than the share in NSW. Income from government cash benefits contributes 14 per cent of income which is three per cent higher than for NSW. The government benefits share is lower than in many inland areas and may reflect a low level of unemployment and a less pronounced ageing of the population. Own unincorporated businesses contribute 11 per cent to household income and is a higher share than the average for NSW. The average weekly household disposable income is $716.78 which is 81 per cent of the NSW level (and considerably higher than in the Northern WS regional economy).

Table 3-4: Composition of Household Income Central WS Region

Income Category	Central	Percentage	NSW	Percentage
Wages and salary ($m)	2,238.03	66.11	99,869.20	71.95
Own unincorporated business ($m)	383.80	11.34	8,733.10	6.29
Investment ($m)	232.17	6.86	12,121.00	8.73
Superannuation and annuity ($m)	56.43	1.67	2,962.30	2.13
Government cash benefits ($m)	461.97	13.65	13,919.00	10.03
Other income ($m)	10.23	0.30	1,203.10	0.87
Total income form all sources ($m)	**3,385.43**	**100.00**	**138,807.70**	100.00
Net tax ($m)	610.40	18.03	31,388.50	22.61
Average weekly household disposable ($)	716.78		**895.00**	

3.2 MAJOR INDUSTRIES

3.2.1 Agricultural Production

An agricultural census is completed every five years with the most recent being undertaken for the 2000-01 year. This provides information on the structure and value of production. Agriculture is a core industry in the Central WS region as indicated in Table 3-5.

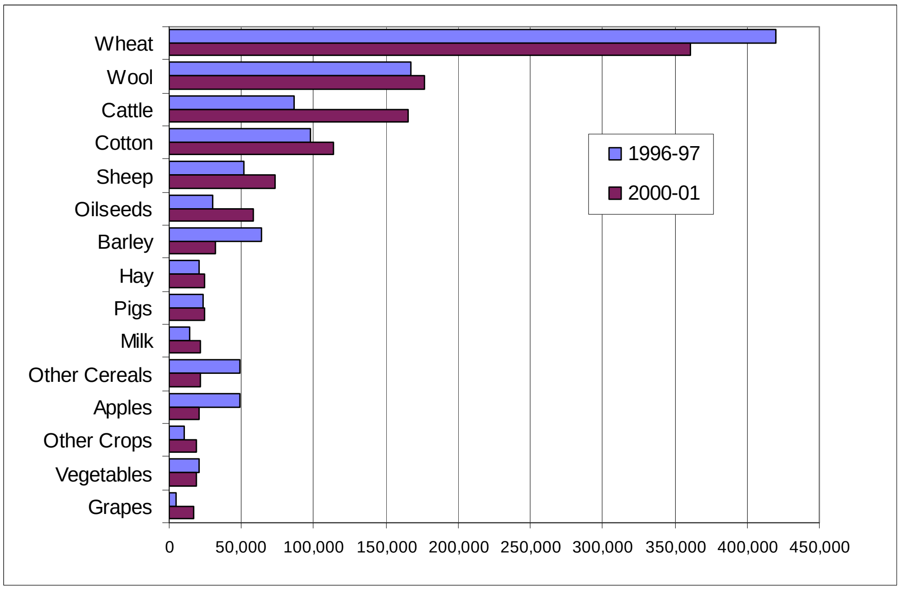
Agricultural production is substantial and had an estimated value in 2000-01 of $1,170m. There is a diverse array of production given the substantial land base and irrigation activities. There is the dominance of the broadacre products including wheat, wool, cattle and sheep. Production of these products is variable from year to year depending on rainfall and other conditions. The second line activities include cotton, horticultural crops, viticulture, other cereals and specialist livestock industries such as pigs and dairy production.

The change in the gross value of agricultural output between 1996-97 and 2000-01 is shown in Figure 3-5. Overall, there is little change in the gross value of production as the Central WS region avoided some of the climatic events that were prominent in the Northern WS region. There were increases in the production of wool, cattle, sheep, cotton, and oilseeds. There was a small decrease in wheat and barley production and in some of the horticultural industries. In sum, the range of agricultural products in the region, the spread of land resources from the tablelands to the plains and the presence of irrigation provides some stability to this important industry in the central WS region economy.

Table 3-5: Gross Value of Agricultural Production

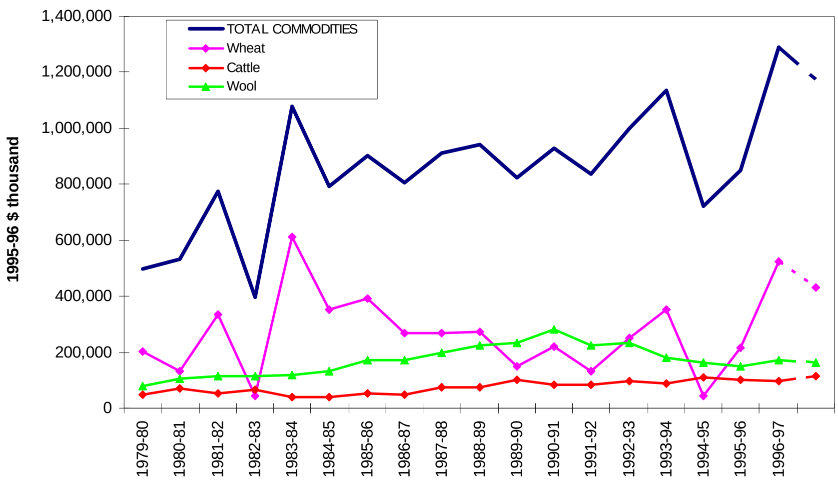
Commodity	1996-97	2000-01
Wheat	420,168	360,305
Wool	167,450	176,951
Cattle	86,296	165,180
Cotton	97,318	113,966
Sheep	52,112	73,204
Oilseeds	29,857	58,660
Barley	64,186	32,401
Hay	20,212	24,016
Pigs	23,393	23,987
Milk	14,248	21,509
Other Cereals	48,952	21,395
Apples	49,146	21,078
Other Crops	10,748	18,617
Vegetables	21,012	18,592
Grapes	4,592	17,032
Other Fruit	10,100	11,522
Citrus	3,278	3,081
Eggs	3,252	2,932
Pasture Seed	1,461	2,073
Bees	3,754	1,808
Sorghum	595	601
Rice	0	489
Poultry	426	327
Total	**1,132,556**	**1,169,725**

Figure 3-5: Gross Value of Agricultural Production



The trend in agricultural production for the Central WS region is shown in Figure 3-6 in constant value terms to reflect the real trend in production. Annual data are not available since 1996-97 and the most recent data refer to 2000-01. There is an overall trend for production to increase slowly, subject to occasional drought effects. Relative to the Northern WS region this is a relatively mature agricultural region. There is evidence of the switching among wheat, wool and cattle related to relative market prices. Some of the growth in production has been associated with the development of new industries in the region including horticulture, cotton in the Macquarie Valley and viticulture.

Figure 3-6: Gross Value of Agricultural Production Constant Value ($'000, 1995-96)

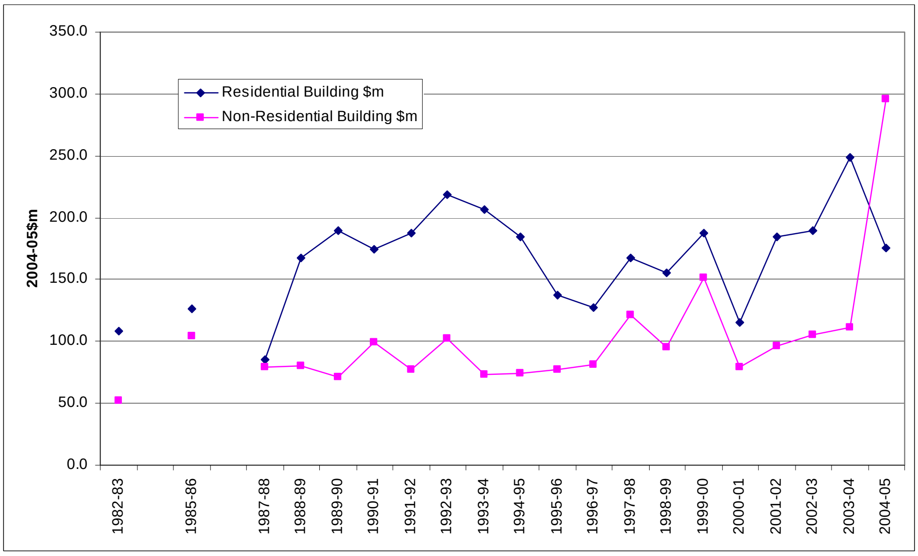


3.2.2 Building and Utilities

Building activity is a significant contributor to economic activity in regions but is responsive to the level of economic growth. Thus, it is a useful indicator of the performance of an economy. Residential construction is an indicator of population growth while non-residential construction is an indicator of the overall level of business investment. The level of residential and non-residential building activity is shown in Figure 3-7.

Building activity in the Central WS region is substantial for residential construction given the population increase. The level was lower in the mid 1990s and began to increase from then through to the 2000s although there has been some volatility in residential building. Non-residential construction has tended to be lower than residential construction. There has been a large increase in 2004-05 related to large projects in the Parkes area. The irregularity of non-residential projects often leads to large variations from year to year. However, there is a trend to an increase in non-residential construction in recent years.

Figure 3-7: Building Approvals Central WS Region



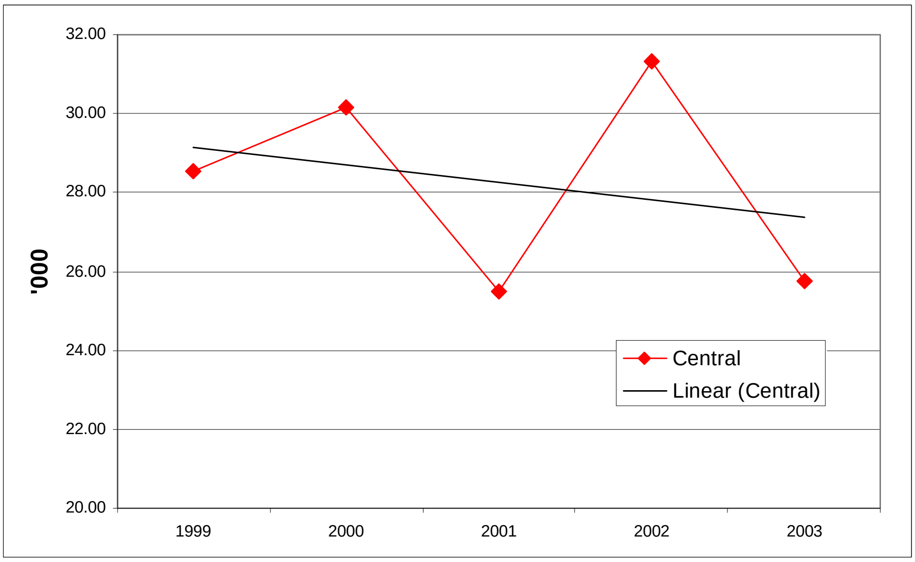
3.2.3 Tourism

The tourism data are sample-based and are compiled independently of local data. The information is shown in Figure 3-8 for the day, and overnight visitor categories. These data show that the number of day trips made were greater than overnight visits although the number of day trips was tending to decrease. The most popular place for both day and overnight visits was Dubbo where the Western Plains Zoo is an important attraction. Bathurst and Orange are also major destinations within the Central WS region.

Figure 3-8: Tourism Central WS Region: Day & Overnight Visitors

The number of international visitors to the Central WS is relatively low and varies from year to year as shown in Figure 3-9. The number of visitors peaked in 2002. Overall there has been a decreasing trend in the number of visitors. Bathurst and Orange are the most popular destinations for international tourists within the Central WS region, followed by Dubbo. International visitors to the Central WS region outnumber international visitors to the Northern WS region.

Figure 3-9: Tourism Central WS Region: International Visitors



3.3 TRENDS IN THE ECONOMY

3.3.1 Major Industries: Location Quotients

This analysis is primarily based on employment data from the population censuses since 1981. Location quotients (LQ) are an indicator of the specialist industries in an economy. The value indicates the importance of the industry to the region relative to the importance to the nation. Thus a value of 1.0 indicates the same level of importance while a value of 10.1 for house appliances in 2001 indicates that this industry is 10.1 times more important to the Central WS region than it is to Australia. Where the value is high (greater than 2) it indicates that those industries are likely to be key strengths in the region. The location quotients are shown in Table 3-6.

The production of household appliances is a major local manufacturing industry producing for the national market – a rarity in inland regions. The next most highly ranked industries are agricultural, highlighted by the fact that four of the five most important industries are beef, sheep, grains and services to agriculture. Manufacturing of agricultural products is also important with other food production, flour and cereals, textiles and leather products all in the top ten most important industries.

Table 3-6: Location Quotients Central WS Region

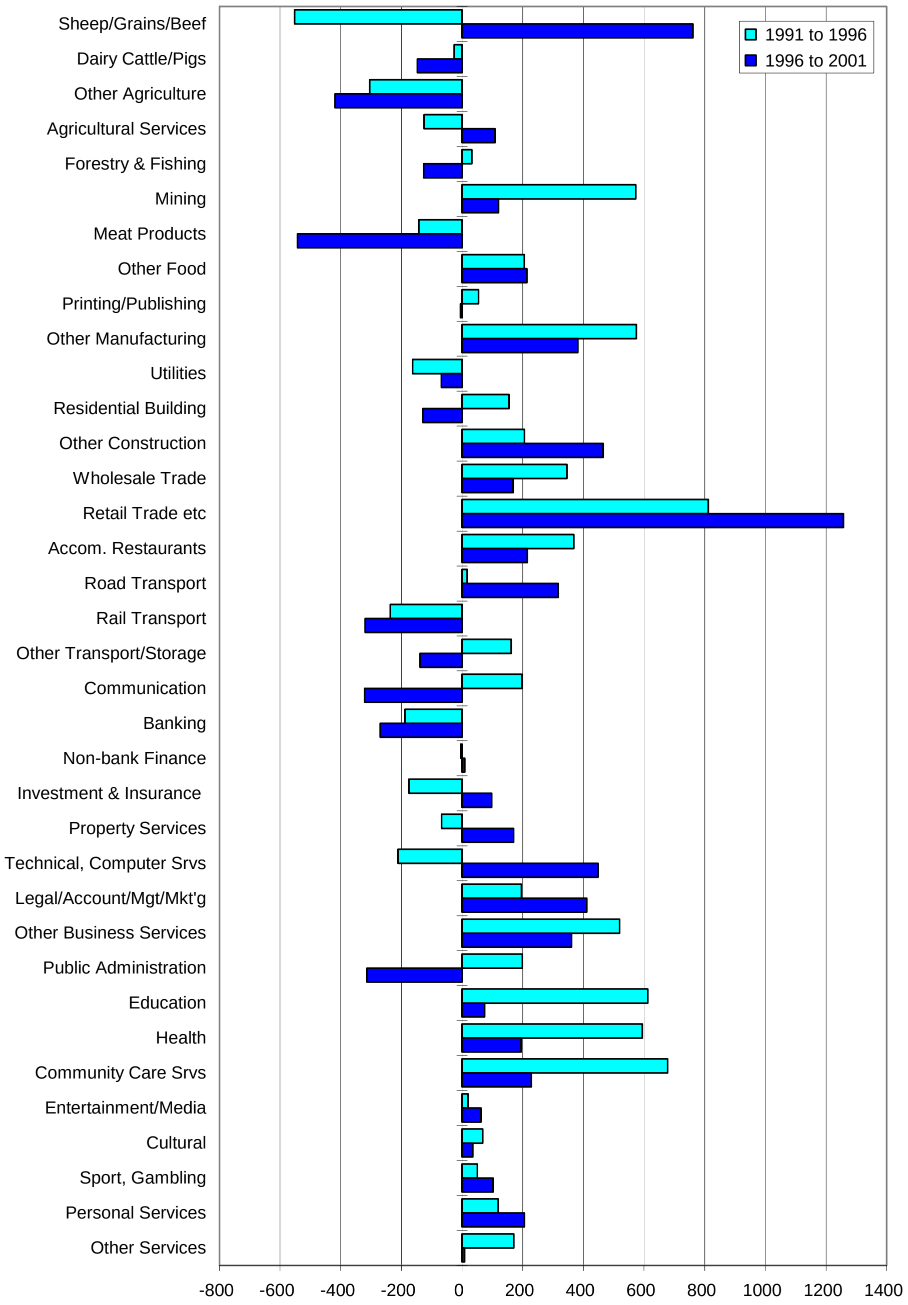
	LQs					Employment
Ranked Sectors by 2001	1981	1986	1991	1996	**2001**	**2001**
Household appliances	4.7	7.9	8.0	11.3	**10.1**	1269
Beef cattle	4.2	1.9	3.1	2.8	**7.7**	1837
Sheep	6.9	5.1	8.5	6.9	**7.0**	2816
Grains	4.4	7.9	5.8	7.4	**4.8**	4502
Services to agric.; hunting	4.6	4.5	4.6	3.5	**4.3**	797
Other food products	0.9	1.8	3.5	3.6	**4.1**	1111
Textile fibres, yarns etc	1.3	1.6	1.2	1.8	**3.4**	240
Flour and cereal foods	0.8	0.5	1.1	1.1	**3.3**	244
Leather and leather products	1.7	2.0	2.2	1.9	**3.1**	118
Non-ferrous metal ores	0.1	0.2	0.6	1.0	**2.9**	774
Pigs	4.4	3.5	4.1	3.7	**2.9**	106
Fruit and vegetable products	3.6	5.2	3.0	3.5	**2.5**	292
Concrete, cement, lime	0.7	0.7	0.8	1.0	**2.1**	169
Meat and meat products	2.3	1.5	3.2	2.8	**2.0**	767
Prefabricated buildings	0.0	0.0	0.0	1.0	**2.0**	84
Services to mining	0.5	0.4	0.8	2.6	**1.7**	182
Electricity	1.1	1.0	1.3	1.6	**1.6**	609
Other agriculture	1.8	2.0	2.0	1.7	**1.5**	1422
Wine and spirits	0.2	0.1	0.2	0.3	**1.3**	225
Railway equipment	0.4	1.2	1.6	1.9	**1.3**	52
Rail & other transport	1.7	1.9	1.4	1.8	**1.2**	388
Road transport	3.0	1.2	1.2	1.2	**1.2**	2216
Mechanical repairs	1.1	1.2	1.1	1.1	**1.2**	1655
Education	1.0	1.1	1.1	1.2	**1.1**	6699
Other wood products	0.6	0.7	0.8	0.9	**1.1**	413
Community care services	1.5	1.5	1.1	1.1	**1.1**	2287
Public administration	0.9	0.9	1.0	1.2	**1.1**	3382
Health services	1.0	1.0	1.1	1.1	**1.1**	6537
Other construction	0.7	0.7	0.6	0.8	**1.1**	2126
Forestry and logging	1.4	1.8	1.9	2.1	**1.1**	118
Retail trade	1.0	1.0	1.0	1.0	**1.0**	10855
Agricultural, mining etc machinery	0.9	1.3	1.2	1.0	**1.0**	253
Sawmill products	0.6	0.9	1.5	1.2	**1.0**	136
Accom. & restaurants	1.2	1.1	1.1	1.0	**1.0**	4052
Water, sewerage & drainage	0.5	0.6	0.6	1.2	**1.0**	194
Other services	0.7	0.8	0.8	0.9	**0.9**	1374
Wholesale trade	0.8	0.8	0.8	0.8	**0.9**	4071
Other business services	0.8	0.7	0.7	0.7	**0.7**	1721
Other property services	0.6	0.5	0.7	0.6	**0.7**	848
Scientific research etc	0.8	0.6	0.6	0.3	**0.4**	1119

The large number of industries with values greater than 1.0 is an indicator of the diversity of the region economy. There is also manufacturing other than the processing of primary products with the manufacturing of household appliances being the most important. The array of industries includes building products and rail transport and equipment, while there are gold mines near Orange and Parkes.

3.3.2 Industry Employment Analysis

The key characteristics of the industry structure in the Central WS region were outlined earlier (Figure 3-4). The changes in employment over the 1990s by each intercensal period are shown in Figure 3-10. In the period 1991 to 1996 employment increased in a number of sectors including, mining, other manufacturing, retail trade, other business services, education, health and community care. Only a few industries experienced significant decreases in employment over this period. These included broadacre agriculture and other agriculture, rail transport, banking and technical and computing services. Given the overall situation in the Australian economy, this was a good result.

Figure 3-10: Total Change in Employment 1991 to 2001



In the 1996 to 2001 period the changes in employment were also considerable but more variable among industries than in the previous five years. There were large increases in broadacre agriculture, retail trade, other construction, technical and computer services, legal and accounting and other business services. The main job losses over the period occurred in other agriculture, meat products, rail transport, communications, banking and public administration.

A summary of the overall pattern is shown in Table 3-7. This confirms that the first half of the 1990s was more favourable for the Central WS region than the second half as indicated by the Total Change column. In the first half of the 1990s, the Central WS region shared in the growth of the NSW economy. However, the poor performance in the second half of the 1990s was mainly due to local factors offsetting the share of growth in the NSW economy (in the first half local factors were almost neutral). If the Central WS region had shared in the growth of the NSW economy, then it would have increased employment by 6,198 in the second half of the 1990s. Local factors resulted in an offsetting loss of 2581 jobs.

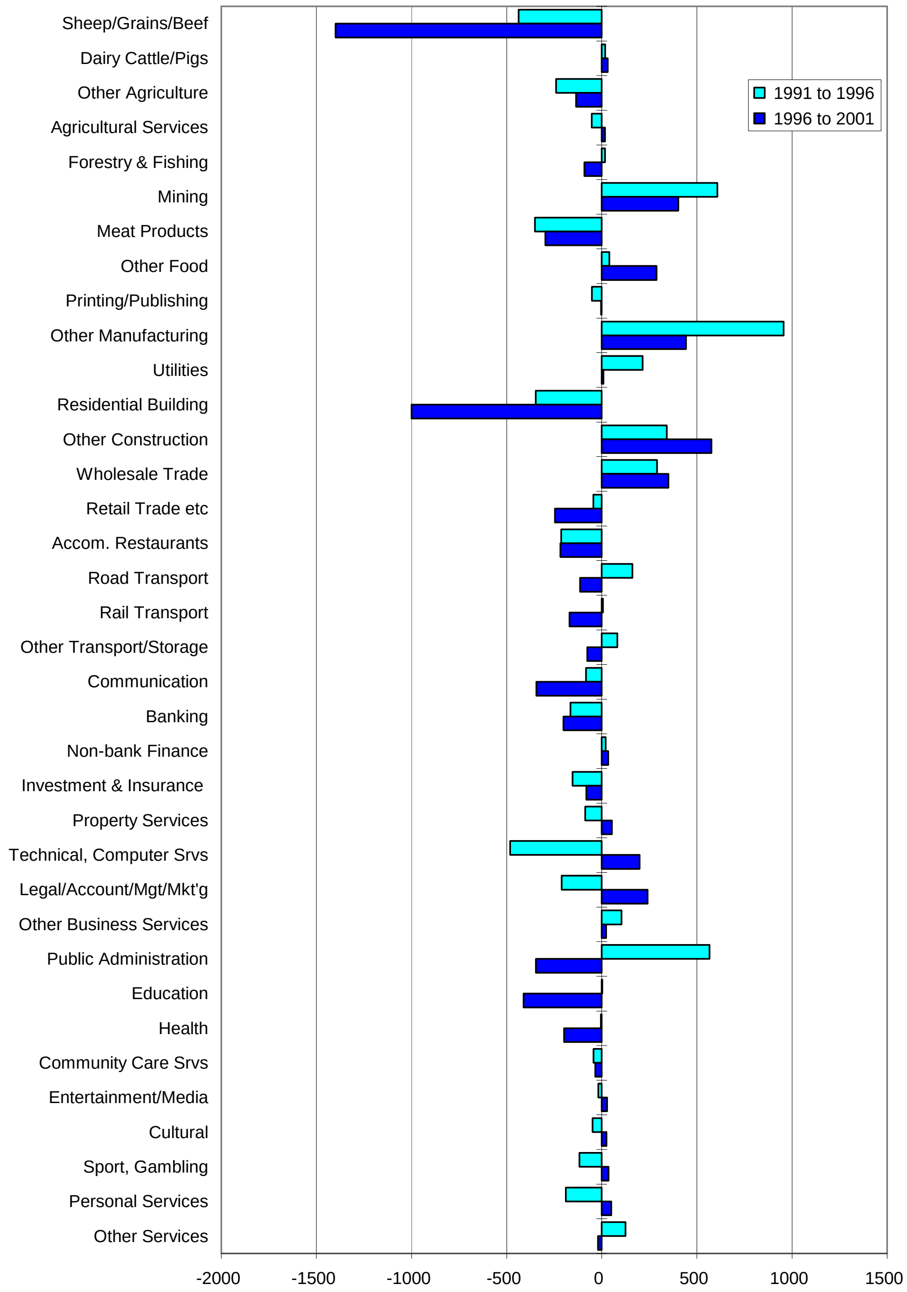
Table 3-7: Shift-share Analysis Summary, 1991 to 2001

	Component				Total
	State	Industry	**Total State**	**Local**	**Change**
	No.	No.	**No.**	**No.**	**No.**
1996 - 2001					
Positive Effects	5,848	5,094	**10,942**	**5,268**	**16,210**
Negative Effects	-	(4,744)	**(4,744)**	**(7,849)**	**(12,593)**
Total Effects	**5,848**	**350**	**6,198**	**(2,581)**	**3,617**
1991 - 1996					
Positive Effects	4,792	7,118	**11,910**	**4,199**	**16,110**
Negative Effects	-	(7,389)	**(7,389)**	**(3,987)**	**(11,376)**
Total Effects	**4,792**	**(271)**	**4,521**	**212**	**4,734**

The shift-share analysis allows the local effects to be viewed on a sector basis. This identifies those Central WS region industries that are increasing or decreasing their share of the NSW economy. The local factors by sector results for the Central WS region are indicated in Figure 3-11. There were just a few industries that consistently improved their position ie. to the right of the “0” line. These included mining, other manufacturing, other construction and wholesale trade. Those that were significant and consistent losers included broadacre agriculture, meat products, residential building and accommodation and restaurants.

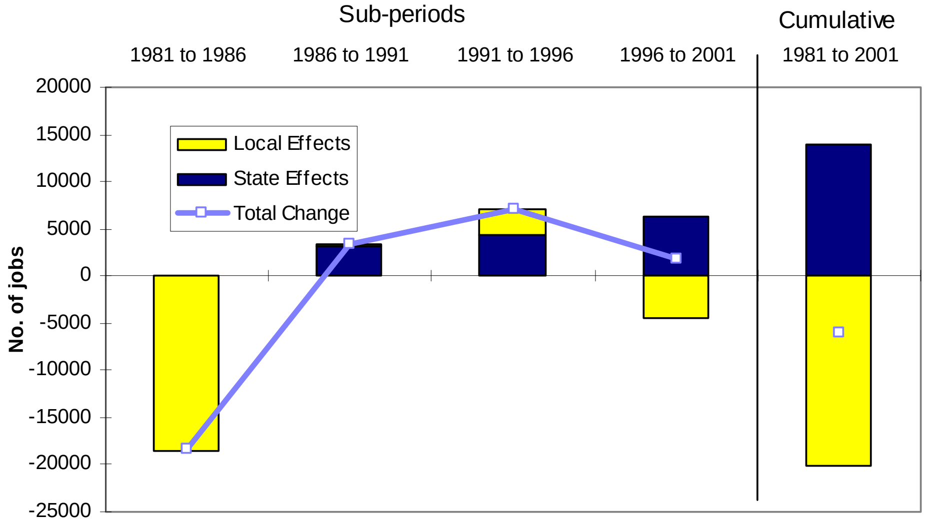
The chart also indicates that the local factors were strongly negative across all industries in the 1996 to 2001 period. In 1991 to 1996 period, the negative effects were felt across a wide range of industries but tended to be small. On the other hand, there were a few sectors with significant gains including mining, other manufacturing, other construction, wholesale trade and public administration.

Figure 3-11: Local Influence on Employment Change 1991 to 2001



A two-decade perspective on development is provided in Figure 3-12. This highlights the negative local effects in the early 1980s and 1990s. Since the middle of the 1980s, the Central WS region has shared in much of the growth of the NSW economy. That was tempered in the second half of the 1990s when there was high growth in NSW, and some continuing adjustments in the Central WS region generating some negative local effects. Overall, this is a good performance relative to other inland regions. The inclusion of major regional centres and the diversity in industry structure that they bring to the economy would be an important factor.

Figure 3-12: Shift-share Analysis Summary 1981 to 2001



3.3.3 Service Delivery Levels

A benchmarking process for measuring the level of services in a region is to calculate for each industry the ratio between the population and the number employed in the particular service industry (know as a Population Employment Ratio – PER). This is a simple measure of the intensity of service provision in an area which can be compared with other regions and the State. This works best where the services are essentially local and not 'exported' to users from outside the region. A low PER is to be preferred to a high PER.

The service delivery levels are shown in Table 3-8. The overall level of service provision within the Central WS region is shown in the last line of that table. The Central WS region level for 2001 indicates a PER of 3.2 which is close to the NSW level of 3.0 The level of service provision has improved considerably over the past decades as shown by the declining value.

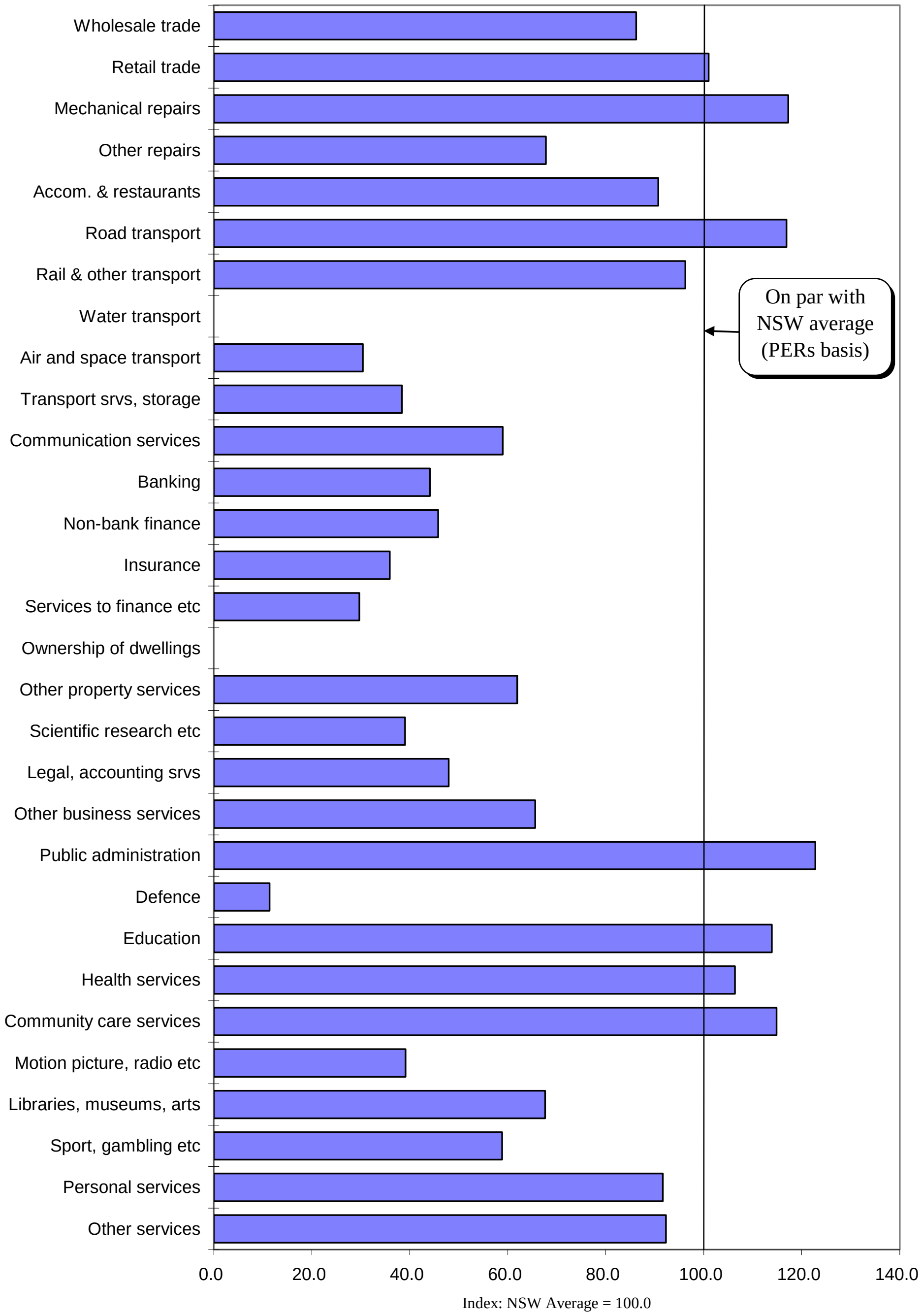
The situation for each of the services compared to NSW in 2001 is shown in the last column where a positive value indicates that the level of service is better than in NSW. That occurs in the other construction, mechanical repairs, road transport, public administration, community care, education, and health sectors. Retail trade is on the NSW level. These sectors are traditionally strong sectors in regional centres and it is likely that some of these services are provided to residents beyond the region (such as the Far West) and to visitors.

Table 3-8: Service Delivery (PER) Central WS Region

	Central Wheat Sheep					NSW		Change	
Service Sectors	1981	1986	1991	1996	2001	1996	2001	Local 2001 vs 1996	2001 NSW vs local
Residential building	73	95	70	68	71	62	49	-3	-22
Other construction	93	95	131	117	91	88	97	26	5
Wholesale trade	53	62	54	50	48	38	41	2	-7
Retail trade	21	20	20	20	18	21	18	3	0
Mechanical repairs	198	200	209	119	117	136	138	2	20
Other repairs	1282	1186	926	892	1149	710	779	-257	-370
Accom. & restaurants	63	67	55	51	48	47	43	3	-4
Road transport	99	104	101	103	88	123	102	15	15
Rail & other transport	92	98	202	276	501	372	482	-225	-19
Water transport	0	0	16030	0	0	1984	1834	0	1834
Air and space transport	1364	1448	1049	910	974	314	296	-64	-677
Transport srvs, storage	598	422	575	414	557	175	214	-143	-343
Communication services	99	115	167	146	191	112	112	-45	-78
Banking	152	153	157	191	258	104	114	-67	-144
Non-bank finance	677	747	895	938	895	355	410	44	-485
Insurance	499	545	455	606	521	247	187	86	-334
Services to finance etc	1003	623	611	840	698	263	208	142	-491
Ownership of dwellings	0	0	0	0	0	0	0	0	0
Other property services	386	410	255	288	229	163	142	59	-87
Scientific research etc	207	227	216	291	173	91	68	117	-106
Legal, accounting srvs	194	213	164	144	110	58	53	34	-57
Other business services	300	294	227	143	113	91	74	31	-39
Public administration	59	59	56	53	57	70	71	-5	13
Defence	861	1048	1172	3211	2974	249	339	237	-2636
Education	37	34	32	29	29	35	33	0	4
Health services	37	35	33	31	30	33	32	1	2
Community care services	217	148	138	95	85	108	98	10	13
Motion picture, radio etc	832	855	1206	1093	808	369	316	285	-492
Libraries, museums, arts	898	709	640	533	484	330	327	49	-157
Sport, gambling etc	548	489	484	439	355	236	209	84	-146
Personal services	206	200	165	153	131	133	120	22	-11
Other services	236	194	159	143	141	131	130	2	-11
TOTAL SERVICES (excluding building & construction)	**4.2**	**4.1**	**4.0**	**3.7**	**3.5**	**3.2**	**3.0**	**0.2**	**-0.5**

The PER in the Central WS region compared to NSW is shown in an index form in Figure 3-13. In this case, a value of 100 indicates parity between the Central WS region and the NSW levels of service and less than 100 indicates a lower level of service than that for NSW. This shows that those services with significant public funding, such as education, health community care and public administration are above the NSW level. Transport and mechanical repairs are well serviced within the region along with the various forms of personal service. However, services to business such as legal and accounting services are relatively low. This pattern exists across most of inland NSW and is an impediment to business development.

Figure 3-13: Service Delivery Index 2001 Central WS Region



3.4 SUMMARY

The Central WS region has a geographic strategic advantage located west of Sydney with much of the region relatively close to the capital. It is also astride the main transport routes to the west and the north-south connection along the Newell Highway. The land resource includes tablelands, slopes and plains providing the basis for a range of agricultural activities and the possibility for irrigation to stabilise and diversify the range of products grown in the region. Finally, the inclusion of three substantial regional centres, Orange, Bathurst and Dubbo supports a substantial manufacturing and service industry base.

The diversity within the Central WS region is greater than within the Northern WS region. The primary industries sector in the region is strong and provides the basis for a range of processing and wholesale trade operations. The region includes a national household appliance manufacturer and some significant mining operations that add diversity to the economy. The larger total economy also provides the basis for the provision of many services at near to the NSW level of service. The main deficiency is the limited array of services to support business development and management.

Overall, the Central WS region has generally tended to share in the growth of the NSW economy. However, there were factors operating in the region that reduced that performance in the second half of the 1990s. Some of those factors, such as the run of poor seasons impacting on agriculture, have continued into the 2000s.

4 SOUTHERN WHEAT-SHEEP REGION

The Southern WS region is a vast area spanning many LGAs and including areas from the southern slopes to the plains of the Riverina. The region includes substantial grazing lands, cereal cropping and a large share of the irrigation areas of NSW along the Murray and Murrumbidgee Rivers. Much of the region is geographically closer to Melbourne than Sydney and so some of the trading relationships extend into Victoria. The region also includes two major commercial and regional centres of Albury-Wodonga and Wagga Wagga.

4.1 DEMOGRAPHIC CHARACTERISTICS

The trends in population and employment are displayed in Table 4-1. Like the Central WS region there has been a steady increase in the population of the Southern WS region since the mid 1970s although there has been a decline in the late 1990s. Employment declined in the early 1980s but has increased since then. The region can claim to be a region of steady growth.

Table 4-1: Population and Employment Trends Southern WS region

Census Year	Total Employment	Total Population	Employment Share of Population	Average Annual Change Between Census Years: Employment	Population	Total Change Between Census Years: Employment	Population
			%	%	%	no.	no.
1976		217,950					
1981	96,460	226,800	42.5		0.80		8,850
1986	93,233	229,340	40.7	-0.68	0.22	-3,227	2,540
1991	96,258	237,250	40.6	0.64	0.68	3,025	7,910
1996	99,603	241,006	41.3	0.69	0.31	3,345	3,756
2001	104,395	237,710	43.9	0.94	-0.28	4,792	-3,296

The employment share of the population fell between 1981 and 1986 at a time of falling employment. Since this fall however the employment share of the population has increased and is now above the NSW level at 43.9 per cent. That is an indicator of a growing economy.

Figure 4-1 shows the age profile for Southern WS region compared to NSW. The WS region has an age profile that is close to that of NSW and does not show the significant ageing evident in the Northern WS region. The birth rate is also high relative to NSW as a whole, but it is clear that many school leavers are also region leavers. There is also a deficiency in the early working age population between 20 and 45. The region will face problems in filling employment positions in the future as baby boomers retire. The problem will not be as severe as in some other parts of inland NSW.

Figure 4-1: Age Profile Southern WS region.

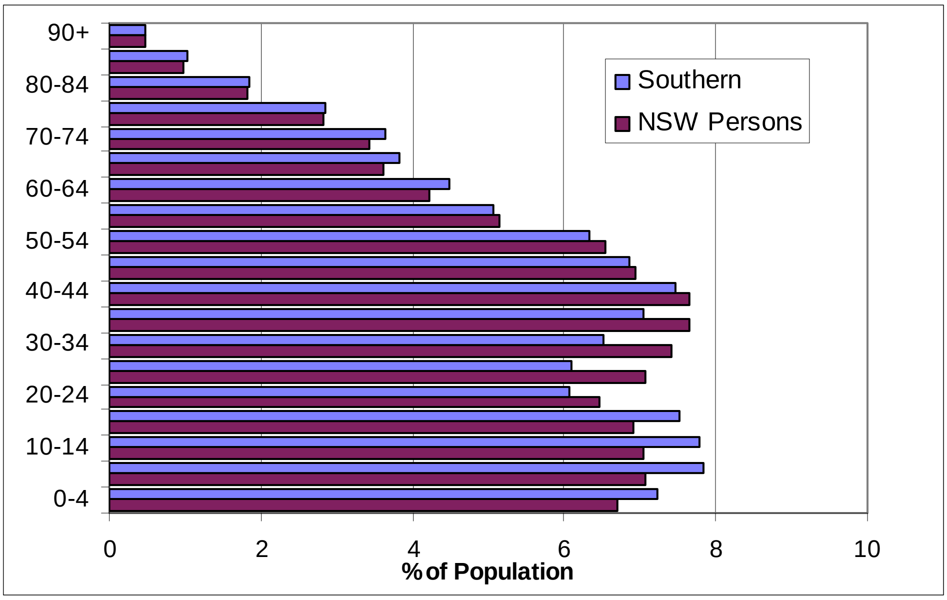
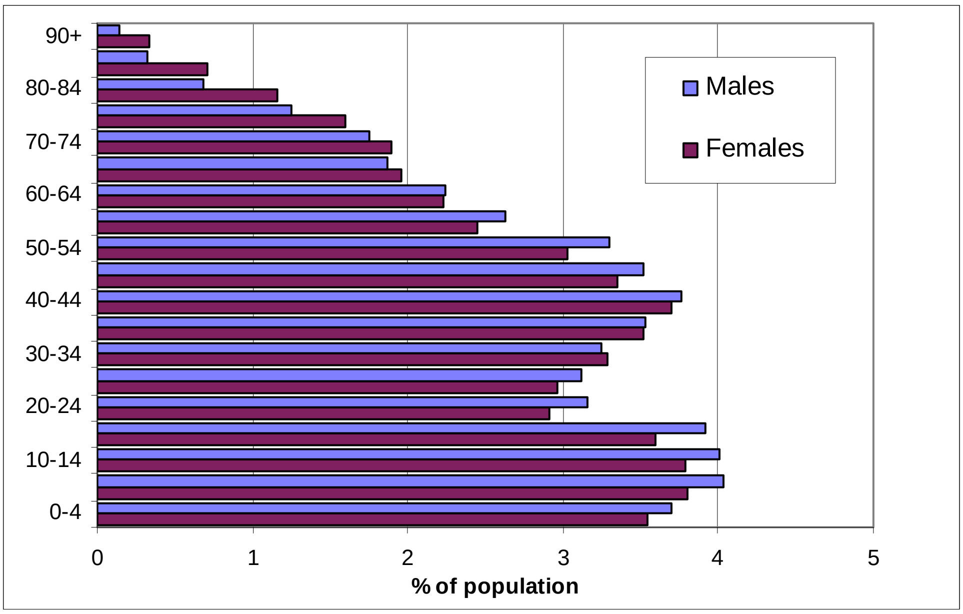


Figure 4-2 shows the age profile for the Southern WS region according to sex. There are a higher percentage of males compared to females in most age groups, but it is not likely to be a major problem in the region as a whole. However, given the vastness of the region and the remoteness of some of the Western parts of the region, it is likely that some areas will have a deficiency in the employment opportunities for females.

Figure 4-2: Age Profile by Sex



4.1.1 Employment and Unemployment

An alternate perspective on employment and unemployment is provided from the data prepared from unemployment data and information from the labour force survey. These data make it possible to estimate the size of the labour force and shows the level and percentage of the labour force that is unemployed. These estimates are shown in Table 4-2 using the June quarter data. This indicates a fluctuating level for the labour force and employment that is difficult to explain. For most of the period from the early 1990s, employment has been increasing. At the same time, unemployment has been trending down in similar fashion to the NSW and Australian trends.

The Southern WS region experienced a similar pattern of unemployment compared to NSW (Figure 4-3). The unemployment rate has mirrored the NSW trends, but has always been below the NSW and Australian levels. This is indicative of a region that is closely linked to the NSW and national labour markets which, together with local growth, provides good employment opportunities for its residents and school leavers.

Table 4-2: Employment and Unemployment Southern WS region

	Southern Region				Unemployment	
Year	Labour Force no.	Derived Employment no.	Unemployment no	%	NSW %	AUST %
1984	108,879	100,651	8,228	6.5	9.5	8.9
1985	99,200	92,479	6,721	6.1	9.0	8.4
1986	111,581	103,547	8,034	6.6	8.2	7.8
1987	111,079	102,856	8,223	6.7	8.8	8.1
1988	115,341	107,196	8,145	6.4	7.6	7.6
1989	108,621	102,163	6,458	5.4	6.4	6.1
1990	104,970	99,468	5,502	4.6	6.2	6.5
1991	104,280	97,208	7,072	6.3	8.2	9.6
1992	110,973	102,051	8,922	7.9	9.8	10.8
1993	100,927	92,778	8,149	7.8	10.6	10.9
1994	107,222	99,076	8,146	7.0	9.7	10.0
1995	117,521	112,288	5,233	4.2	7.5	8.3
1996	129,378	121,047	8,331	5.5	7.8	8.4
1997	120,441	110,735	9,706	6.8	7.8	8.6
1998	119,640	111,428	8,212	6.3	7.3	7.9
1999	113,800	105,994	7,806	6.0	6.5	7.2
2000	120,795	113,396	7,399	5.4	5.8	6.6
2001	126,619	119,648	6,971	4.8	5.6	6.4
2002	131,835	125,003	6,832	4.4	6.1	6.6
2003	101,720	96,095	5,625	5.0	5.9	5.8
2004	128,707	122,899	5,808	4.5	5.9	5.8
2005	126,252	119,915	6,337	4.2	5.3	5.3

Source: DEWR (2002), June quarter

The trends in employment by industry are shown in Table 4-3. The trade sector, consisting of wholesale, retail trade, repairs and accommodation and restaurants is a major sector in the region employing 26 per cent of the labour force. The public service sector industries employ 22 per cent of the labour force. In this region there is a significant defence training and operations presence that is not in the other WS regions. Primary industries remain as a core sector with 17 per cent but trending down and manufacturing at 11 per cent is at a level similar to the level for NSW as a whole. This region is significant as a manufacturer with some very notable industries in Albury and Wagga Wagga, some of which are related to the primary industry resource base of the region. There has been little change in the composition of the labour force over the two decades indicating that this region has a relatively mature economy that continues to grow steadily.

Figure 4-3: Unemployment and Employment Southern WS Region

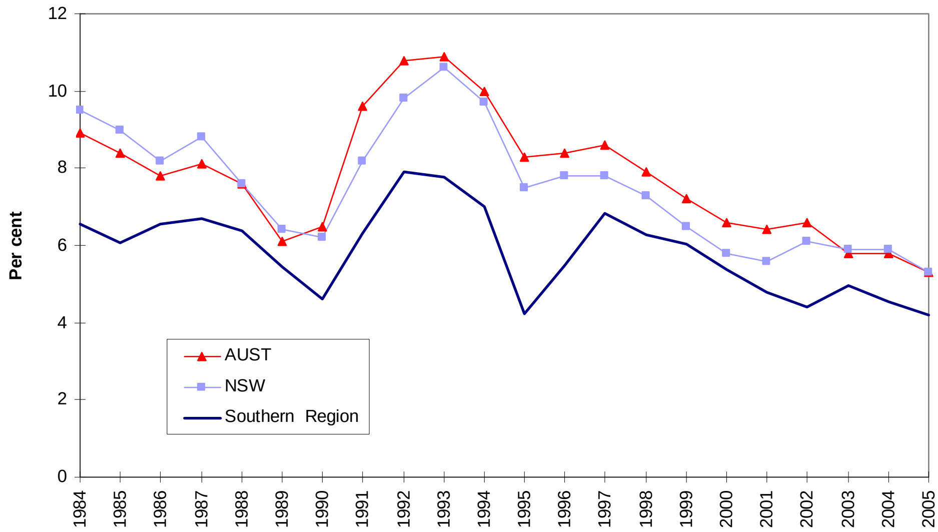
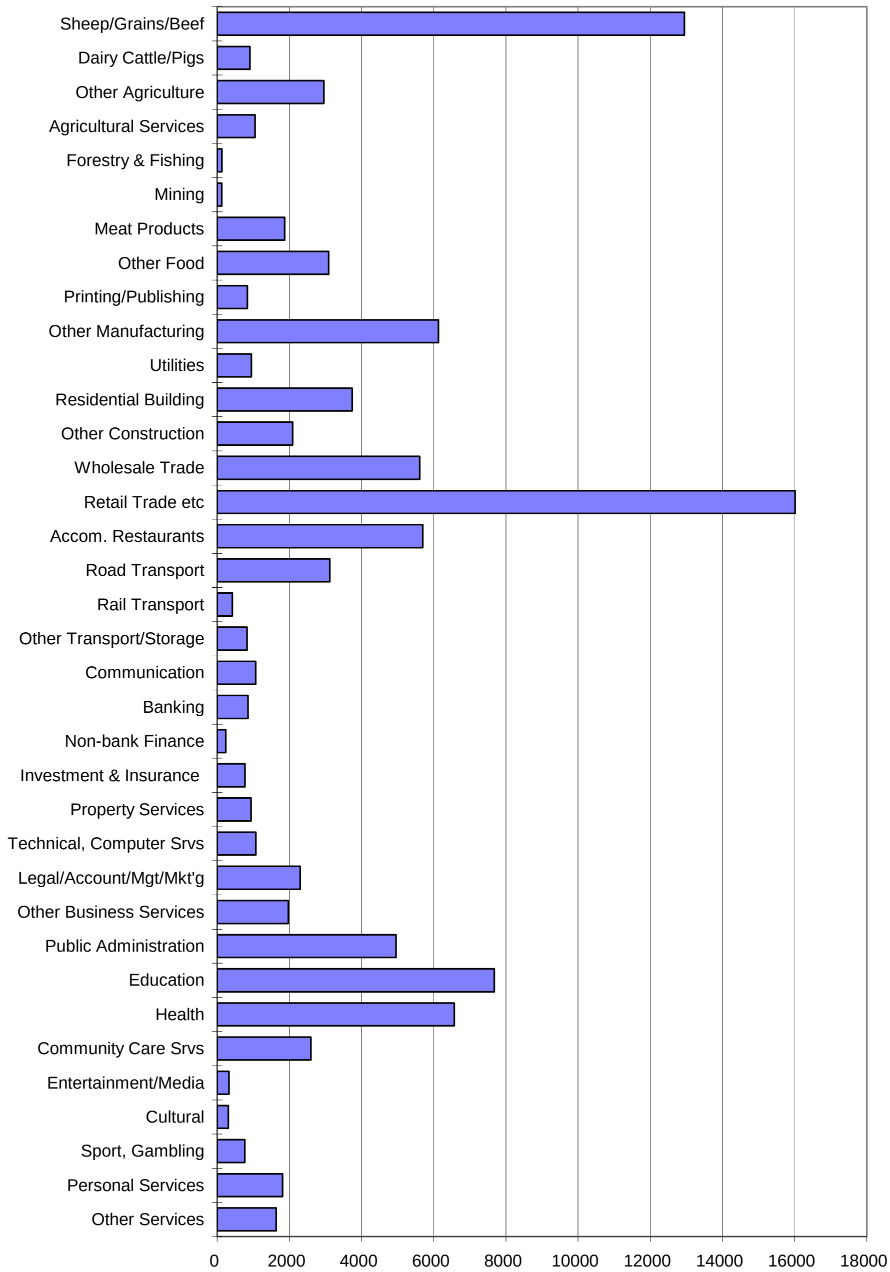


Table 4-3: Industry Composition of Employment Southern WS Region

	Employment (No.)			Employment (%)		
	1991	**1996**	**2001**	**1991**	**1996**	**2001**
Primary industry	18,261	17,855	18,120	19	18	17
Manufacturing	10,091	11,070	11,936	10	11	11
Utilities & building	6,822	6,439	6,785	7	6	6
Trade	23,675	25,112	27,322	25	25	26
Transports & communication	5,510	5,372	5,436	6	5	5
Buiness & financial services	7,001	7,631	8,149	7	8	8
Public sector services	22,254	23,053	23,196	23	23	22
Personal services	2,644	3,063	3,451	3	3	3
Total	**96,258**	**99,594**	**104,395**	**100**	**100**	**100**

A more detailed industry composition of employment for 2001 is shown in Figure 4-4. This pattern is generally similar to much of inland NSW with a high proportion of people employed in primary industry, the trade sector and those sectors with public funding. The significance of other manufacturing and food manufacturing is notable. The employment in those sectors that support business appears relatively small and includes those activities from rail transport through to other business services. The limited capacities in those sectors are common throughout much of inland NSW and would be particularly significant in the smaller LGAs in the region.

Figure 4-4: Employment Distribution by Industry Southern WS Region 2001



4.1.2 Household Income

The main source of household income in the Southern WS region is wages and salaries contributing to 63 per cent of overall income (see Figure 4-4). This is lower than for NSW by a significant amount with the difference being taken up in part by the higher share of household income accruing from own operated businesses. The income obtained through government cash benefits contributes 12 per cent of income, two per cent higher than the NSW average. This is indicative of a relatively robust Southern WS region economy. The average household income is close to the NSW level and is the highest among the WS regions. It is likely that there is a large difference between household income in the remote areas of the region and the major regional centres.

Table 4-4: Composition of Household Income Southern WS Region

Income Category	Southern	Percentage	NSW	Percentage
Wages and salary ($m)	2,746.50	63.15	99,869.20	71.95
Own unincorporated business ($m)	623.80	14.34	8,733.10	6.29
Investment ($m)	356.50	8.20	12,121.00	8.73
Superannuation and annuity ($m)	79.40	1.83	2,962.30	2.13
Government cash benefits ($m)	532.90	12.25	13,919.00	10.03
Other income ($m)	12.20	0.28	1,203.10	0.87
Total income form all sources ($m)	**4,349.50**	**100.00**	**138,807.70**	100.00
Net tax ($m)	871.80	20.04	31,388.50	22.61
Average weekly household disposable ($)	848.17		**895.00**	

4.2 MAJOR INDUSTRIES

4.2.1 Agricultural Production

Agriculture is a core industry in the Southern WS region as indicated in Table 4-5. Wheat and rice are by far the most important crops within the region. Pig, cattle and wool make up the top five agricultural industries in the Southern WS region.

What is particularly notable is the diverse range of agricultural products that are produced in large amounts. This reflects the natural resource base for the region and access to water resources that support high intensity irrigation farming. This region is an important producer of fruit and vegetable crops and grapes.

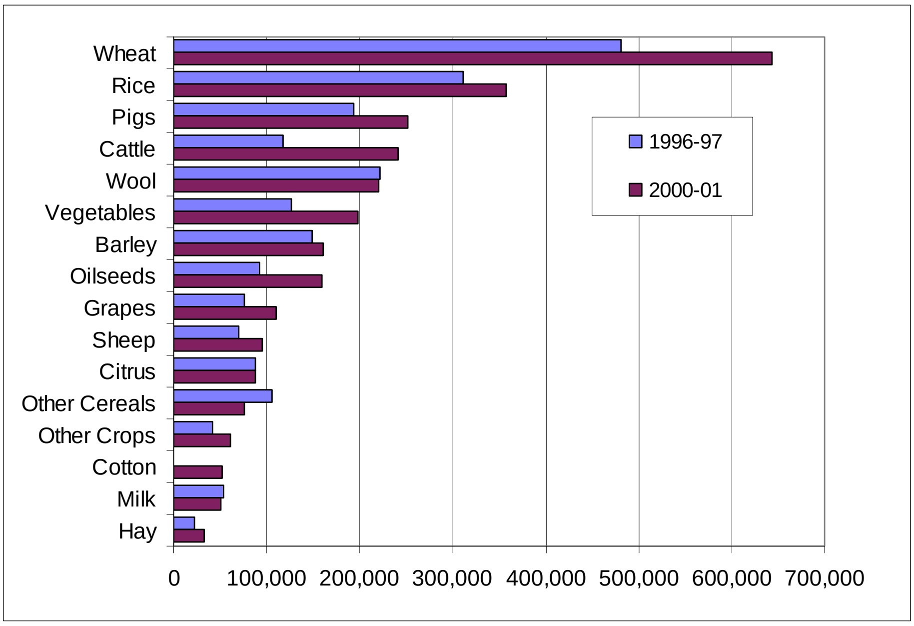
The change in the gross value of agricultural output between 1996-97 and 2000-01 is shown in Figure 4-5. There has been substantial growth in the agriculture sector between 1996 and 2001 that involved most of the major industries. The only industry not to experience some growth was the wool industry. While there is likely to be some seasonal effects generating that growth in production, such as wheat and cereal production, there is likely to be high productivity growth as new technologies are applied in agriculture.

There is also a substantial growth in some of the intensive animal industries such as pigs, poultry and cattle lot feeding which represent an intensification of production and the development of highly integrated industries. That integration includes stock breeding, the production of feedstuffs, and the processing of the livestock. This underpins some of the manufacturing operations that exist in the region.

Table 4-5: Gross Value of Agricultural Production: Southern WS Region

Commodity	1996-97	2000-01
Wheat	481,668	643,133
Rice	310,592	356,978
Pigs	193,762	251,666
Cattle	117,500	241,856
Wool	221,213	219,929
Vegetables	126,682	198,801
Barley	148,946	161,301
Oilseeds	92,236	159,089
Grapes	76,095	110,937
Sheep	70,177	95,811
Citrus	88,535	88,138
Other Cereals	106,146	75,673
Other Crops	41,846	61,678
Cotton	1,046	52,248
Milk	54,078	51,366
Hay	22,582	32,228
Eggs	16,276	27,360
Other Fruit	16,595	19,658
Bees	7,674	9,151
Sugar	1,701	2,694
Sorghum	1,753	2,404
Pasture Seed	3,547	1,991
Apples	214	457
Poultry	2,105	220
Bananas	24	2
Total	**2,202,995**	**2,864,769**

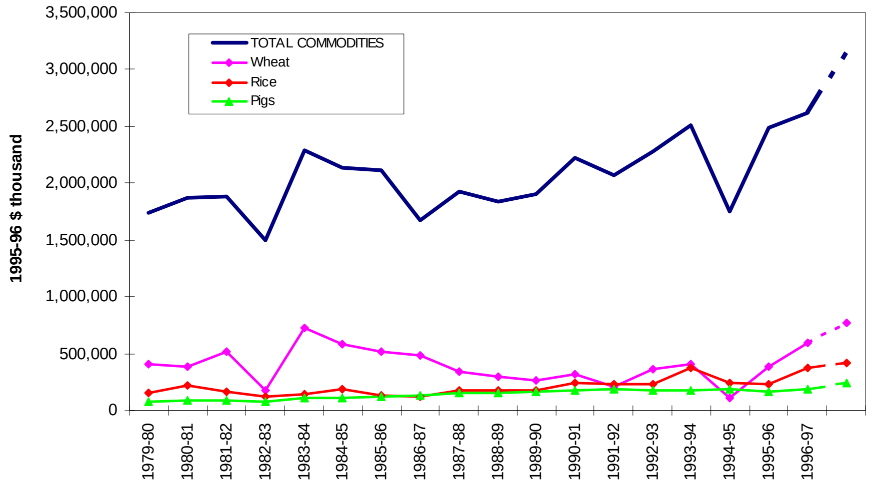
Figure 4-5: Gross Value of Agricultural Production: Southern WS Region



The overall trend in agricultural production in constant prices for the Southern WS region is shown in Figure 4-6. There is a strong growth trend, punctuated by periodic dips due to drought, although they seem to be less significant in this case because of the influence of irrigation.

Agriculture represents both a core sector of the Southern WS region and a growth industry. However, that track record may be difficult to sustain given current events that are transitory in the case of the current drought, but will be longer term in terms of the way water policy develops in the next few years.

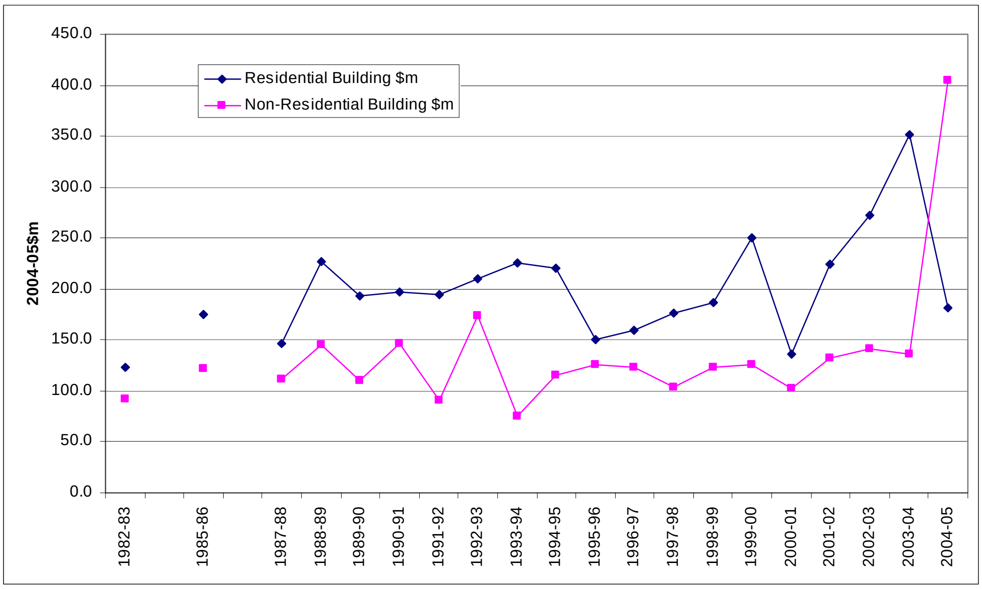
Figure 4-6: Gross Value of Agricultural Production Constant Value ($'000, 1995-96)



4.2.2 Building and Utilities

The level of residential and non-residential building activity is shown in Figure 4-7. Building activity in the Southern WS region has been relatively steady for both residential and non-residential building. That is indicative of a mature region economy with steady growth. The evidence suggests a speeding up of building and construction in the 2000s although that may have slowed in the current adverse seasonal conditions. Even so, the main centres of Albury and Wagga Wagga have a level and diversity of economic activity that would provide some insulation from those local seasonal conditions. In that respect, their trend may be different from that in most of the rest of the region.

Figure 4-7: Building Approvals: Southern WS Region



4.2.3 Tourism

The Southern WS region attracts a substantial number of visitors including some international visitors. The growth in overnight visitors is notable given the general trend for the number of visitors in NSW to be at best static or in decline. On the other hand the decline in day visitors may be a reflection of local conditions. These trends are shown in Figure 4-8. Most of the day visits occur in Wagga Wagga (32 per cent), followed by Albury (19 per cent). These major centres also dominate the destinations for the overnight visitors.

Figure 4-9 shows the number of international visitors which have visited the Southern WS region between 1999 and 2003. This level is around twice the level of the Central WS region and three times the level in the Northern WS region. There has been a decline in the number of international visitors to the region after the number of visitors peaked in 2000, the year of the Sydney Olympics, which attracted a wide variety of international visitors to NSW. The most popular destination for international visitors within the Southern WS region was Albury 37 per cent of visitors, followed by Wagga Wagga 20 per cent of visitors.

Figure 4-8: Southern WS Region: Day and Overnight Visitors

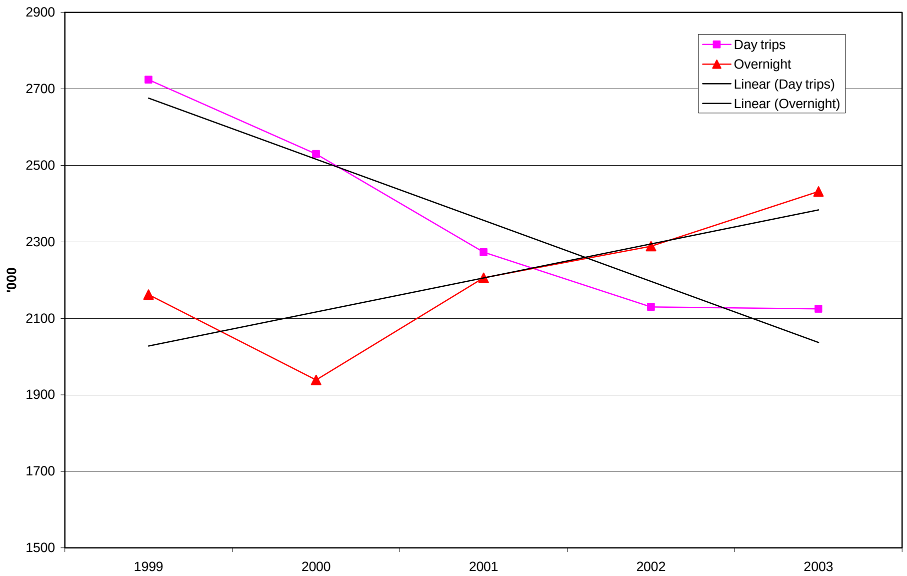
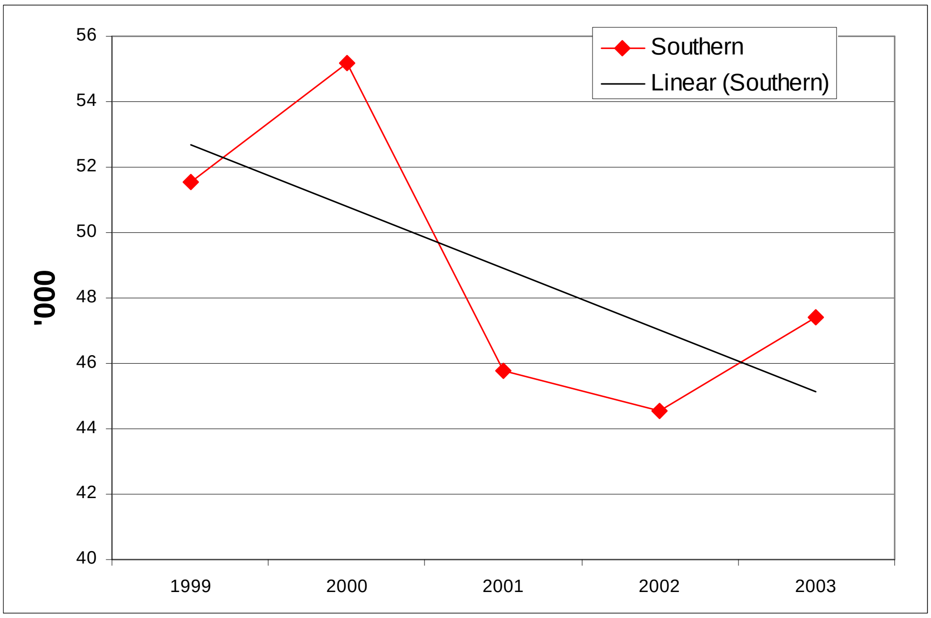


Figure 4-9: Southern WS Region: International Visitors



4.3 TRENDS IN THE ECONOMY

4.3.1 Major Industries: Location Quotients

This analysis is primarily based on employment data from the Population Censuses since 1981. Location quotients (LQ) are an indicator of the specialist industries in an economy. The value indicates the importance of the industry to the region relative to the importance to the nation.

Table 4-6: Location Quotients Southern WS Region

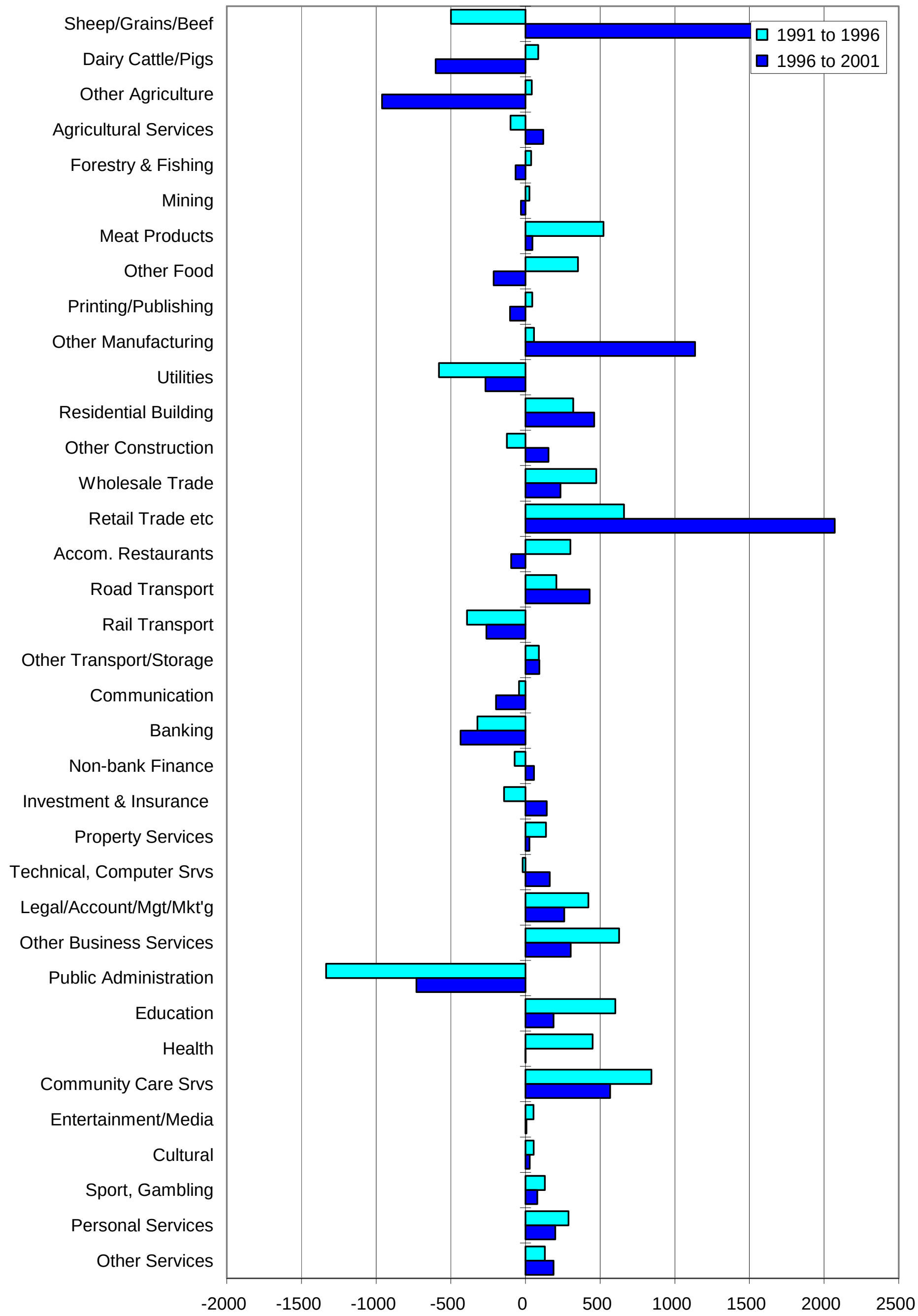
	LQs					Employment
Ranked Sectors by 2001	1981	1986	1991	1996	**2001**	**2001**
Flour and cereal foods	7.3	7.8	9.3	12.4	**7.8**	736
Grains	8.7	9.1	9.4	9.1	**7.5**	8934
Pigs	4.2	5.3	8.3	9.5	**6.5**	304
Beef cattle	2.0	1.7	2.4	2.3	**5.5**	1683
Poultry	1.1	1.7	5.9	8.9	**5.0**	449
Sheep	4.2	4.5	6.8	5.3	**4.6**	2331
Textile fibres, yarns etc	0.7	1.3	2.3	2.1	**4.5**	405
Services to agric.; hunting	3.9	3.9	4.4	3.7	**4.5**	1050
Meat and meat products	1.4	1.7	2.2	3.1	**3.9**	1873
Wine and spirits	3.5	3.6	3.6	4.4	**3.6**	802
Pulp, paper and paperboard	1.5	2.7	2.4	3.3	**3.1**	301
Water, sewerage & drainage	1.8	1.8	2.2	2.3	**2.1**	546
Other agriculture	1.9	2.1	2.1	2.0	**2.0**	2507
Fruit and vegetable products	2.0	2.4	2.9	1.7	**2.0**	287
Other food products	0.9	1.6	1.7	1.2	**1.8**	626
Prefabricated buildings	0.0	0.0	0.0	1.0	**1.8**	95
Defence	2.2	2.3	2.5	1.9	**1.7**	1381
Dairy cattle	0.9	0.9	1.3	1.5	**1.6**	605
Oils and fats	0.1	0.3	0.4	0.1	**1.4**	32
Leather and leather products	0.5	0.7	1.4	1.1	**1.4**	67
Other chemical products	0.8	0.7	0.9	0.5	**1.4**	97
Dairy products	0.7	0.7	1.3	1.4	**1.3**	300
Road transport	3.1	1.2	1.2	1.4	**1.3**	3121
Sawmill products	0.6	0.6	0.8	0.7	**1.3**	232
Mechanical repairs	1.2	1.1	1.1	1.2	**1.2**	2188
Sheet metal products	0.5	0.3	0.4	0.7	**1.2**	158
Accom. & restaurants	1.3	1.4	1.3	1.2	**1.1**	5695
Concrete, cement, lime	0.7	0.5	0.7	0.9	**1.1**	108
Rail & other transport	1.5	1.3	1.2	1.4	**1.0**	420
Wholesale trade	0.9	0.8	0.8	0.9	**1.0**	5613
Motor vehicles and parts etc	0.8	0.8	0.7	0.8	**1.0**	898
Education	0.9	1.0	1.0	1.0	**1.0**	7674
Retail trade	1.0	1.0	1.0	1.0	**1.0**	13606
Community care services	0.6	0.9	0.7	0.9	**1.0**	2597
Public administration	0.8	0.9	0.9	0.9	**0.9**	3575
Personal services	0.9	0.9	0.9	0.9	**0.9**	1815
Other services	0.6	0.6	0.7	0.8	**0.9**	1636
Health services	0.8	0.8	0.9	0.9	**0.9**	6569
Other business services	0.8	0.6	0.6	0.7	**0.6**	1972
Other property services	0.5	0.6	0.6	0.6	**0.6**	941
Scientific research etc	0.5	0.5	0.5	0.4	**0.3**	1073

Like the Northern and Central WS region, agriculture plays an important role in the economy with five of the top industries being primary production. The dominant industry within the region is flour and cereal food which is 7.8 times more important to the region compared to Australia. The other most important industries in the region are grains, pigs beef, poultry, textiles, services to agriculture and sheep all with a LQ of 4 or above. These are followed by meat processing and wine production. A number of other industries have a LQ above 1 which is indicative of a diverse economy. Defence is one of those industries. The Southern WS region is much more diverse than the Northern and Central WS region economies.

4.4 INDUSTRY EMPLOYMENT ANALYSIS

The key characteristics of the industry structure in the Southern WS region were outlined earlier (see Figure 4-4). The changes in employment over the 1990s by each intercensal period are shown in Figure 4-10. This shows that there is considerable change in employment in many industries in each five years, and that the change in successive periods is not necessarily in the same direction.

Figure 4-10: Total Change in Employment 1991 to 2001



In the period 1991 to 1996 a few industries experienced a significant loss in employment with the stand out changes including public administration, utilities, broadacre agriculture, rail transport and banking. This was a period of considerable rationalisation in government operations and some services such as banking, while there were drought impacts and adjustments occurring within agriculture.

The reductions in employment were exceeded by the gains in other industries. These included manufacturing, trade, accommodation and restaurants some business services including accounting, and other business services, and the activities with substantial public funding including education, health and community care. That growth was consistent with the continuing growth in the population and employment in the region.

The situation in the 1996 to 2001 period was generally more favourable than the previous five years assisted by stronger growth in the economy as a whole. The main increases in employment occurred in broadacre agriculture, other manufacturing and retail trade with smaller gains in many sectors. Decreases in employment were notable in the dairy cattle and pigs, other agriculture and public administration (including defence). Changes in employment in most other sectors were small. Overall there were fewer decreases over this period compared to 1991 to 1996 giving a period of steady and broadly-based growth.

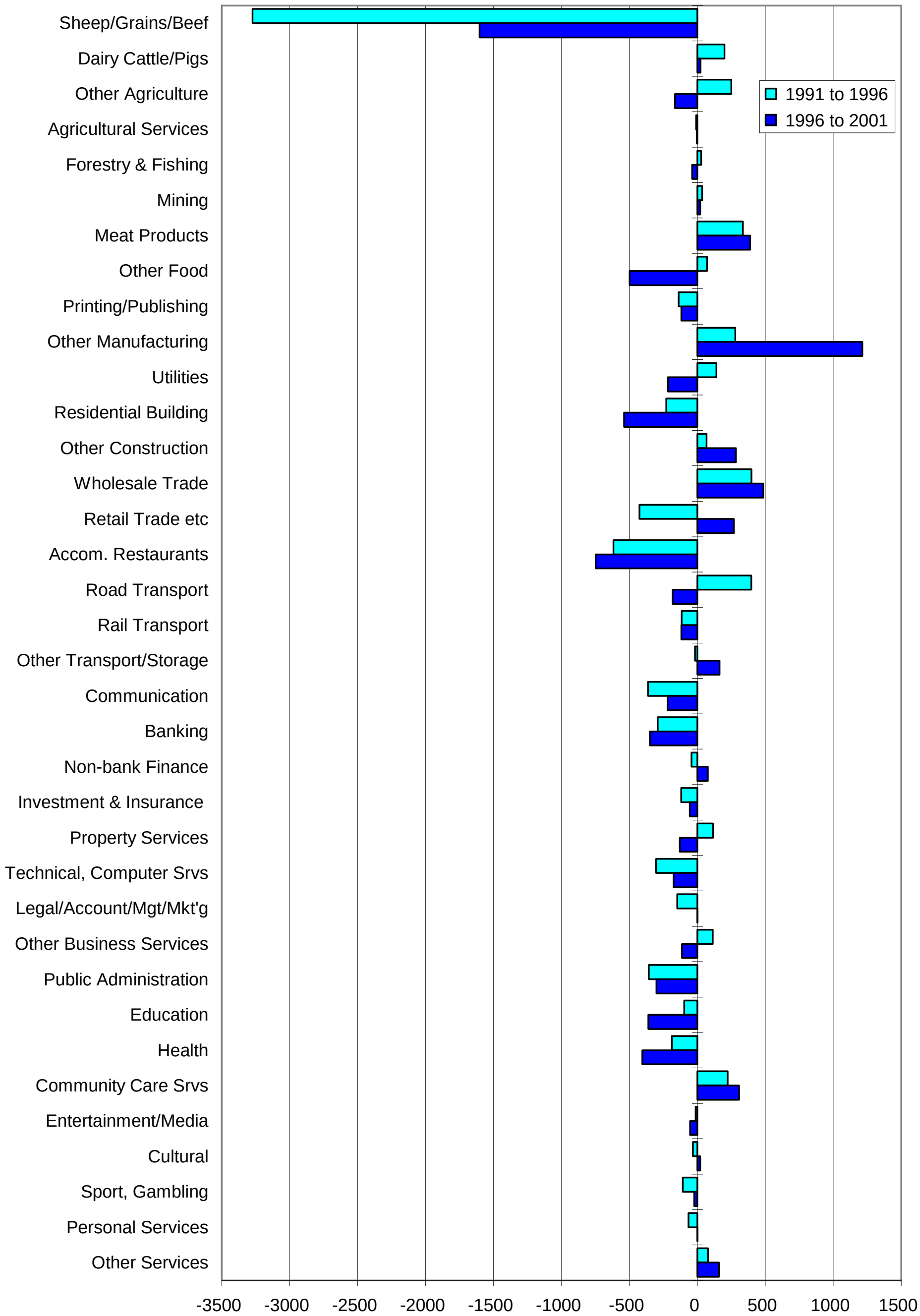
The overall pattern of growth from the shift-share analysis is shown in Table 4-7. This confirms that the second half of the 1990s was much more favourable for the Southern WS region than the first half as indicated by the Total Change column. To a large degree the Southern WS region shared in the growth of the NSW economy. However, there were some negative local factors that meant that the region grew at rates that were below what they would have been if the region had replicated the NSW trends. For example, in the second half of the 1990s the region would have added 7,789 to employment if it had matched the NSW growth performance. Instead, the Southern WS region fell short by 2,988.

Table 4-7: Shift-share Analysis Summary, 1991 to 2001

	Component				**Total**
	State No.	Industry No.	**Total State No.**	**Local No.**	**Change No.**
1996 - 2001					
Positive Effects	7,408	7,528	**14,936**	**5,237**	**20,174**
Negative Effects	-	(7,148)	**(7,148)**	**(8,225)**	**(15,373)**
Total Effects	**7,408**	**381**	**7,789**	**(2,988)**	**4,801**
1991 - 1996					
Positive Effects	6,243	10,883	**17,126**	**4,543**	**21,669**
Negative Effects	-	(9,577)	**(9,577)**	**(8,756)**	**(18,333)**
Total Effects	**6,243**	**1,306**	**7,549**	**(4,213)**	**3,336**

The changes in employment noted above for the 1990s can be considered on an industry basis as shown in Figure 4-11. This indicates the sectors which contributed to the negative local factors.

Figure 4-11: Local Influence on Employment Change 1991 to 2001

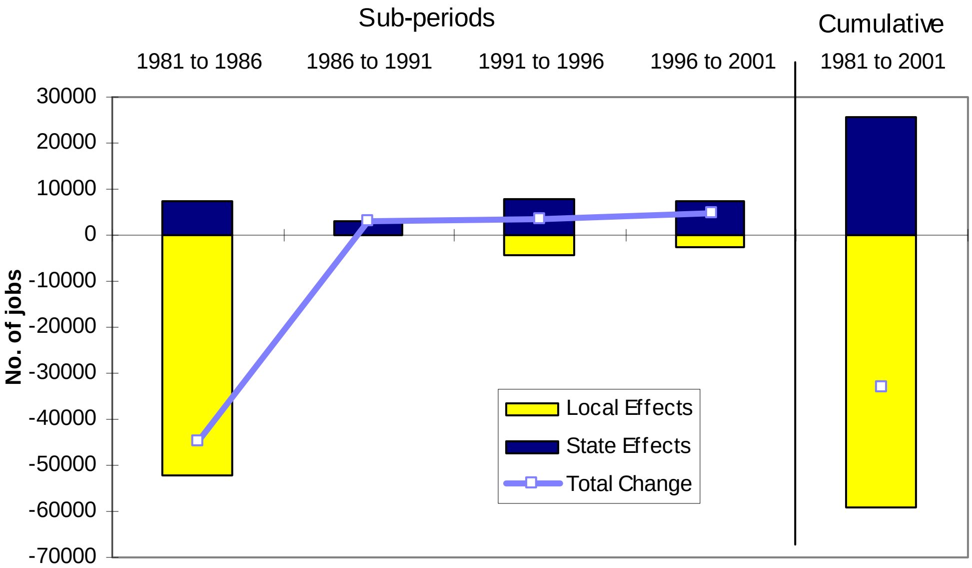


The main negative local loss of employment in both periods was broadacre agriculture. In the 1991 to 1996 period, the remaining negative factors were widespread among the service sectors. There were positive local factors favouring dairy and pigs, other agriculture, meat and other manufacturing, wholesale trade and road transport. Overall, the negative factors exceeded the positive factors.

The second half of the 1990s was similar to the first half with a smaller reduction in broadacre agriculture and some strong development in meat and other manufacturing. While the overall result was still negative, the result was more favourable than for the previous five years.

A two-decade perspective on development is provided in Figure 4-12. In the early part of the 1980s the local effect was significantly negative, mainly due to some substantial adjustments in agriculture and defence. Since then, the pattern of change has been one of steady growth consistent with many other indicators developed previously.

Figure 4-12: Shift-share Analysis Summary 1981 to 2001



4.5 SERVICE DELIVERY LEVELS

The service delivery levels are benchmarked against the NSW situation as a whole through the use of PERs as shown in Table 4-7. The overall level of service provision within the Southern WS region in 2001 is shown in the final row of the table. While the level of service provision has been improving as indicated by the declining values, the 2001 PER of 3.5 is still significantly higher than the NSW level of 3.0. With a region as large and diverse as the Southern WS region, there would be parts of the region that have lower levels of service, while the major centres would operate at levels at least that of NSW because they also service surrounding areas. Albury and Wagga Wagga would fall into that category.

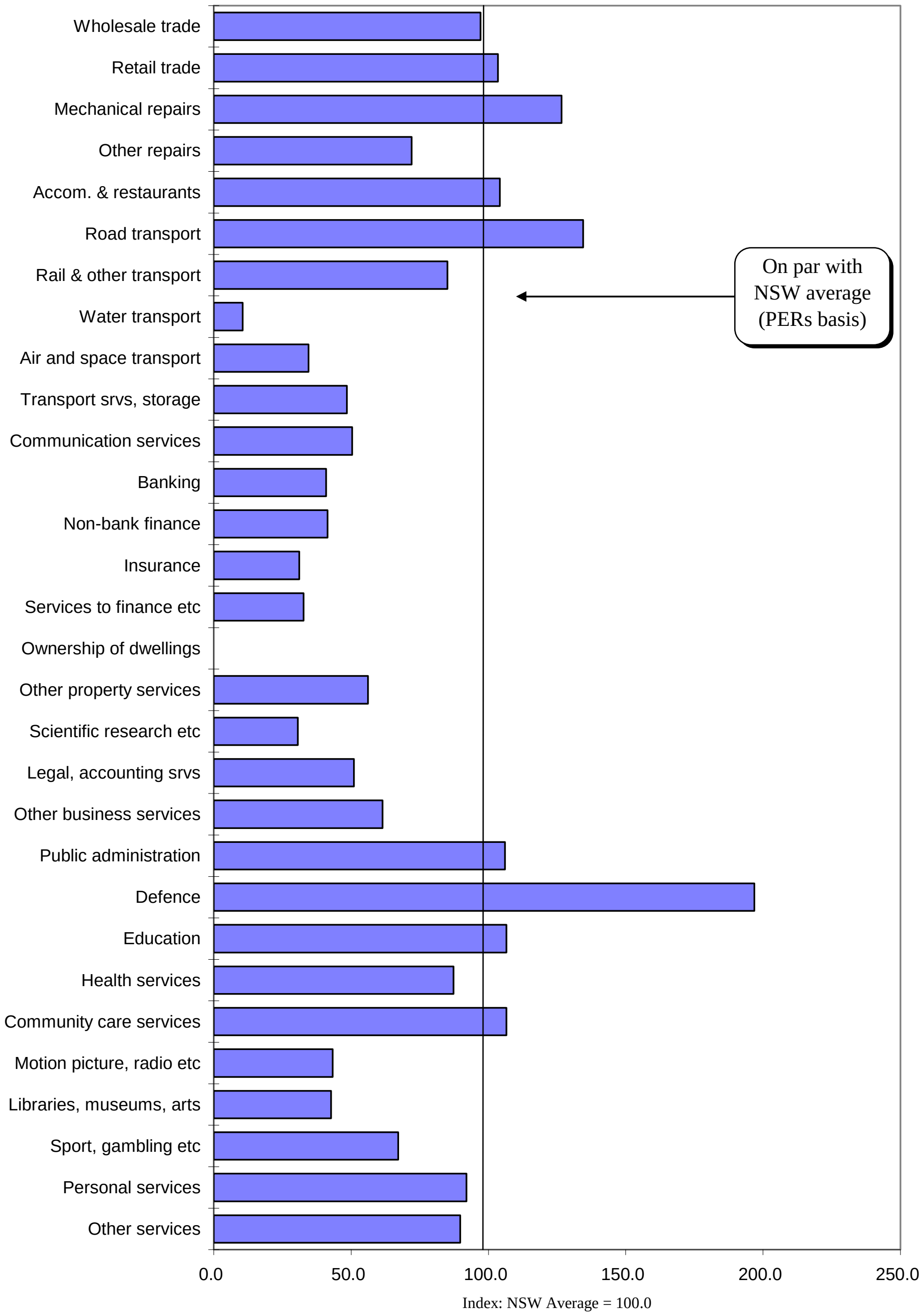
The situation for each of the services compared to NSW in 2001 is shown in the last column of Table 4-8 where a positive value indicates that the level of service is better than in NSW. That occurs in the retail trade, mechanical repairs, accommodation, road transport, public administration, defence, education and community care sectors. These tend to represent strengths of the region for services that service agriculture, transport products and service the growing population. There is also a substantial defence force presence in the region that is a great asset but can generate variations linked to changes in the strategies adopted by the Defence Department about the deployment of members of the force and the location of training facilities.

Table 4-8: Service Delivery (PER) Southern WS Region

	Southern Wheat Sheep					NSW		Change	
Service Sectors	1981	1986	1991	1996	2001	1996	2001	Local 2001 vs 1996	2001 NSW vs local
Residential building	76	81	80	73	63	62	49	10	-15
Other construction	65	79	115	124	114	88	97	11	-17
Wholesale trade	46	58	48	45	42	38	41	2	-1
Retail trade	21	20	20	21	17	21	18	4	1
Mechanical repairs	178	202	204	108	109	136	138	-1	29
Other repairs	1052	1218	987	957	1081	710	779	-124	-303
Accom. & restaurants	57	54	43	42	42	47	43	0	2
Road transport	93	94	96	90	76	123	102	13	26
Rail & other transport	104	129	221	353	566	372	482	-213	-85
Water transport	14769	9092	12199	14498	17457	1984	1834	-2959	-15622
Air and space transport	1456	1766	1512	1245	857	314	296	387	-561
Transport srvs, storage	584	366	505	458	441	175	214	17	-228
Communication services	128	140	182	191	223	112	112	-32	-111
Banking	148	148	147	187	279	104	114	-92	-165
Non-bank finance	645	697	923	1309	988	355	410	322	-578
Insurance	594	676	530	761	601	247	187	159	-414
Services to finance etc	809	693	740	779	635	263	208	144	-428
Ownership of dwellings	0	0	0	0	0	0	0	0	0
Other property services	410	341	306	264	253	163	142	11	-111
Scientific research etc	330	290	256	265	222	91	68	43	-154
Legal, accounting srvs	188	180	147	118	103	58	53	15	-51
Other business services	267	302	228	144	121	91	74	24	-47
Public administration	65	59	60	64	66	70	71	-3	4
Defence	69	72	77	126	172	249	339	-46	167
Education	38	37	34	32	31	35	33	1	2
Health services	46	42	39	37	36	33	32	1	-5
Community care services	508	227	200	119	92	108	98	27	6
Motion picture, radio etc	736	645	898	758	731	369	316	27	-415
Libraries, museums, arts	1655	1190	1050	856	767	330	327	89	-439
Sport, gambling etc	554	460	429	353	311	236	209	41	-102
Personal services	225	208	179	149	131	133	120	18	-11
Other services	265	245	180	166	145	131	130	21	-15
TOTAL SERVICES (excluding building & construction)	**4.1**	**4.1**	**3.9**	**3.8**	**3.5**	**3.2**	**3.0**	**0.2**	**-0.5**

The delivery of services in the Southern WS region is benchmarked against the whole of NSW as shown in an index form in Figure 4-13. A value of 100 indicates a level of service comparable to NSW with higher values indicating a higher level than NSW. This shows those services that are well supplied in the Southern WS region, particularly the situation with defence. It also shows that many of the services that support businesses such as transport other than road, legal and accounting, banking and communication services are poorly supplied. This pattern exists across most of inland NSW and is an impediment to business development. The retail trade and accommodation and restaurant services are strong and reflect, among other things, a high level of visitors to the region.

Figure 4-13: Service Delivery Index 2001 Southern WS Region



4.6 SUMMARY

The Southern WS region is the largest of the three WS regions both geographically and in terms of the economy. It is a region that is closest to the NSW economy in terms of its structure and performance. The natural resource base, the range of land types and access to water for irrigation provides a strong base for agricultural production. The region is notable for the range of crop and livestock production that occurs within ready reach of the two largest cities in Australia. The transport infrastructure is also well developed to facilitate that access.

The Southern WS region has a substantial manufacturing base. The processing of primary products is a significant part but it does include other manufacturing operations of high value in cities such as Albury-Wodonga. There are also substantial transport and trade capacities to facilitate the primary and manufacturing industries. Combined, the primary and manufacturing industries have provided the region with the basis for steady growth over the past two decades.

The size of the region provides the basis for a well-developed set of service activities in the region. The existence of a substantial defence presence in the region adds to that structure. However, even in this region, there is a relatively weak presence of those activities that support businesses such as banking, finance, communications and accounting. The region is much better serviced in terms of public administration, health, education and community care. That is at least the case for the major centres. It is probable that the level of services available in the more remote parts of the region will be much less adequate.

5 THE INPUT-OUTPUT TABLES

The input-output tables are required for this project to estimate the flow-on impacts from park management expenditures and the expenditure of visitors to the PAs. This is reported in the next section. In addition, they are one way of representing the economic structure of the respective economies as indicated in this section.

5.1 NORTHERN WS REGION

The input-output table for the Northern WS region for 2005-06 is shown in an aggregated form in Table 5-1 and in Figure 5-1. The table was developed first for 2000-01 using the 2001 Population Census and other data. It is then projected forward to 2005-06 using estimates of employment growth for each industry, and allowing for an increase in labour productivity of 1.5 per cent per year. The projections take into account key characteristics and trends discussed in the previous sections.

Table 5-1: Aggregated Input-Output Table: Northern WS Region, 2005-06

	Ag Forestry Fishing	Mining	Manufacturing	Utilities	Building	Trade Acommodati on	Business Services	Public Personal Services	TOTAL	H-hold Exp	O.F.D	Exports	Total
Ag/Forest/Fish	205104	45	20868	1	31	307	116	335	226805	5993	71897	1616737	1921433
Mining	1442	7897	6748	4339	836	1714	457	834	24268	1088	1209	158687	185252
Manufacturing	28088	4548	30532	479	9172	16317	7693	6900	103729	51824	28576	151036	335165
Utilities	10025	789	3627	2333	84	4465	2334	2482	26139	20350	3649	923	51061
Building	2952	705	60	40	56	1167	6503	626	12109	0	104915	0	117024
Trade/Accommodati	92007	6393	18255	1670	6396	40567	40395	18809	224494	372185	41423	113116	751218
Business Srvs	97394	12120	24381	3028	7329	88564	67377	33903	334096	383827	61132	58964	838018
Public/Personal Srv	5772	1312	2268	272	318	6251	9322	20386	45902	149265	405211	35274	635652
TOTAL	442785	33808	106740	12162	24223	159352	134196	84275	997540	984531	718011	2134739	4834822
H-hold Income	399919	16123	54079	9313	41340	203007	126139	247112	1097032	0	0		1097032
O.V.A.	664224	93286	54081	20513	15992	129601	412492	180149	1570338	265205	30627		1866170
Imports	414505	42035	120265	9072	35469	259258	165191	124116	1169911	599626	233113		2002651
TOTAL	1921433	185252	335165	51061	117024	751218	838018	635652	4834822	1849362	981752	2134739	9800674
Employment	9396	365	1449	173	1903	7484	4041	7431	32242				

The characteristics of the Northern WS region economy in 2005-06 were:

Gross Regional Product (GRP)	$2,963m
Gross Regional Product per person employed	$91,905
Exports from the Northern WS region	$2,135m
Imports to the Northern WS region	$2,000m
Number employed	32,242
Average earnings from employment	$34,025
Household income from employment	$1,097m
Household expenditure	$4,835m

These estimates provide some important information about the structure of the regional economy in comparison with the NSW economy that is discussed below. This Northern WS region represents around one per cent of the NSW economy.

Small economies generally have a much lower level of industry diversification than larger economies. As a result, the regional economies are normally more dependent on accessing extra-regional markets for the products that they produce and the supplies that they need than do large economies such as NSW. For the Northern WS region, the level of exports is very high and is equivalent to 72 per cent of GRP. There is also a high level of imports given that there is limited capacity to supply many of the goods and materials needed by businesses and households from local sources.

There is also a large gap between the earnings of households from employment and the spending of households. The difference is made up by net income from government benefits less taxes, earnings from own operated businesses and other investments, the imputed value of owner household rent, and changes in net borrowings. The extent of the difference between employment earnings and household expenditure remains large. In the absence of more recent data, that level of expenditure for households is conjectural, although for several years aggregate household expenditure in Australia has been growing much more rapidly than earnings, with consequent increases in household debt.

A comparison of the industry structure of the Northern WS region economy in 2005-06 and the NSW economy in 2000-01 is shown in Figure 5-2 and in Figure 5-2 respectively.

The main differences in the industry structure are:

- Under all of the measures, the primary industries are dominant parts of the Northern WS region economy.
- Manufacturing is less important in the Northern WS region economy.
- The building sector is smaller than in NSW reflecting the lower growth in the region compared to NSW as a whole.
- Utilities represent a small part of the Northern WS region economy.
- Trade and accommodation services and the public/personal services sectors are all below the NSW share;
- Business services are notably a much smaller share of the Northern WS region economy relative to NSW.

- Over all of the service industries, there is a notably small amount of services that are exported from the Northern WS region. The region does not include Tamworth which is a major centre in the region where the provision of services and the potential to export services is relatively large.

Figure 5-1: Aggregated Industry Structure, Northern WS Region, 2005-06

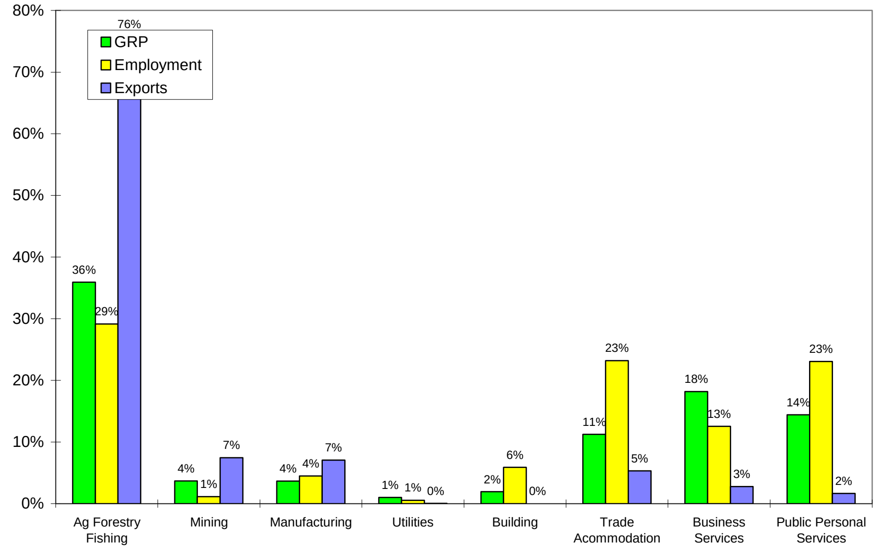
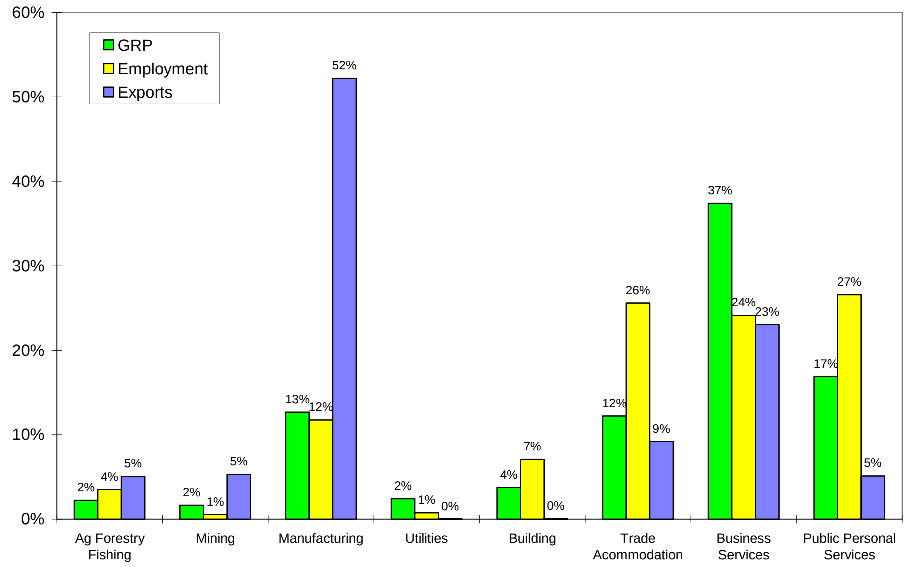


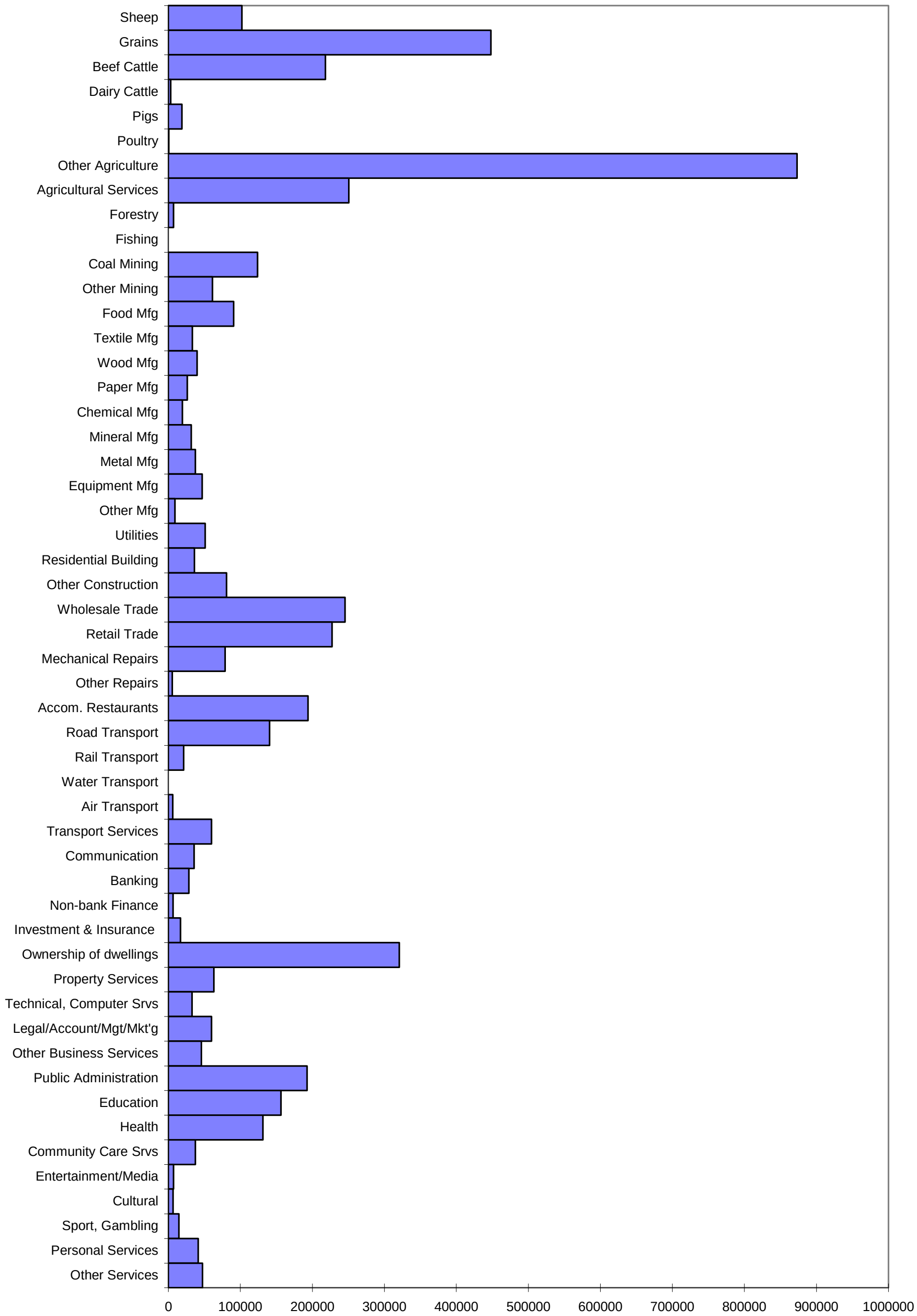
Figure 5-2; Aggregated Industry Structure, NSW, 2000-01



A detailed industry composition of the Northern WS region economy in 2006 is shown in Figure 5-3 through to Figure 5-7. The charts highlight key characteristics of the economy.

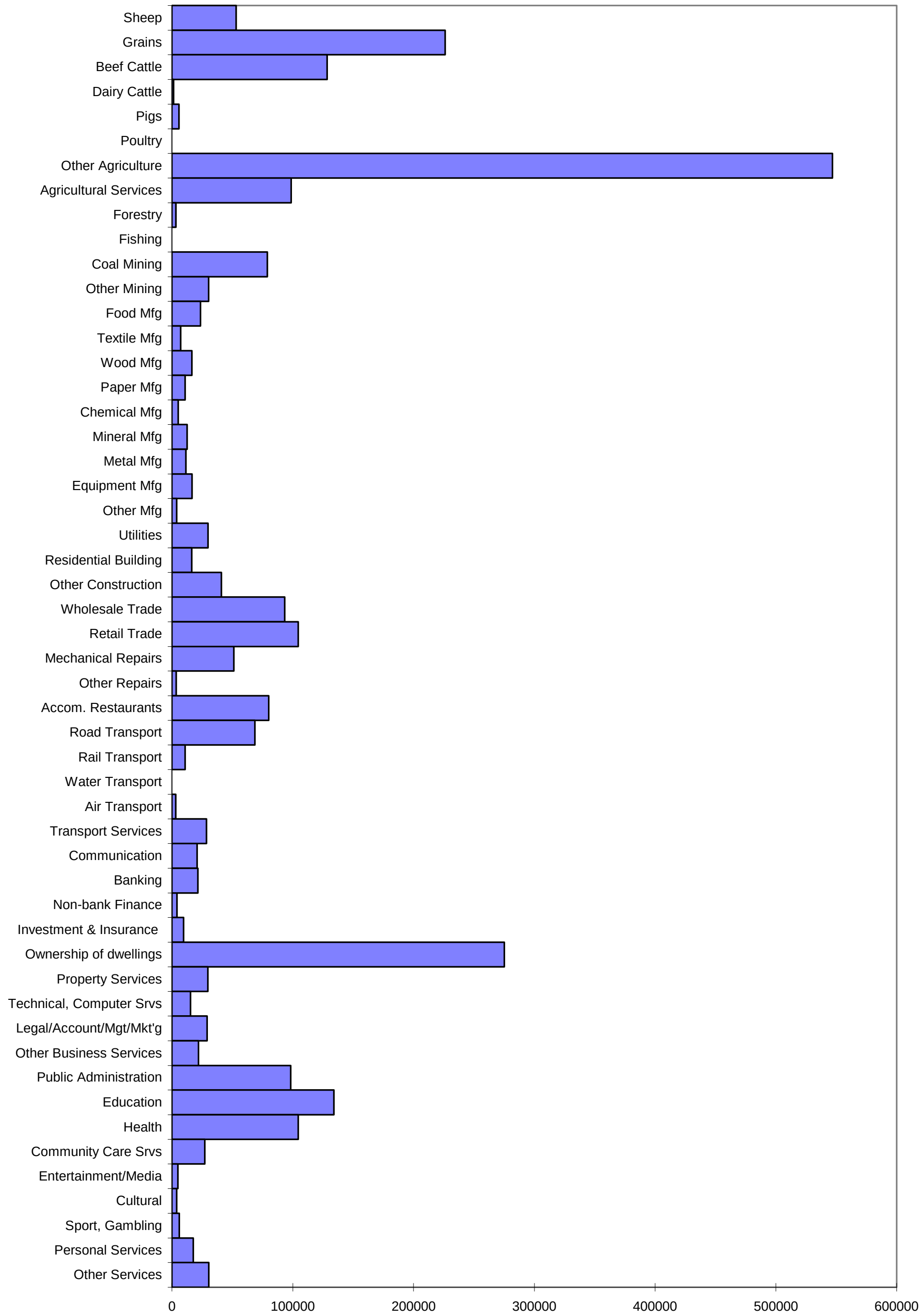
The industry composition of gross output for the Northern WS region is shown in Figure 5-3. This dominance of primary industry is very evident especially for the cotton industry that is the main part of other agriculture. The cotton industry is also a heavy user of agricultural services that includes the ginning of cotton. Grains and beef cattle are also important industries in the region. Coal mining is significant but will become more important under the development plans that are occurring in the region in the mid 2000s while opal mining is an important part of other mining.

Figure 5-3: Industry Composition of Gross Output, Northern WS Region 2006



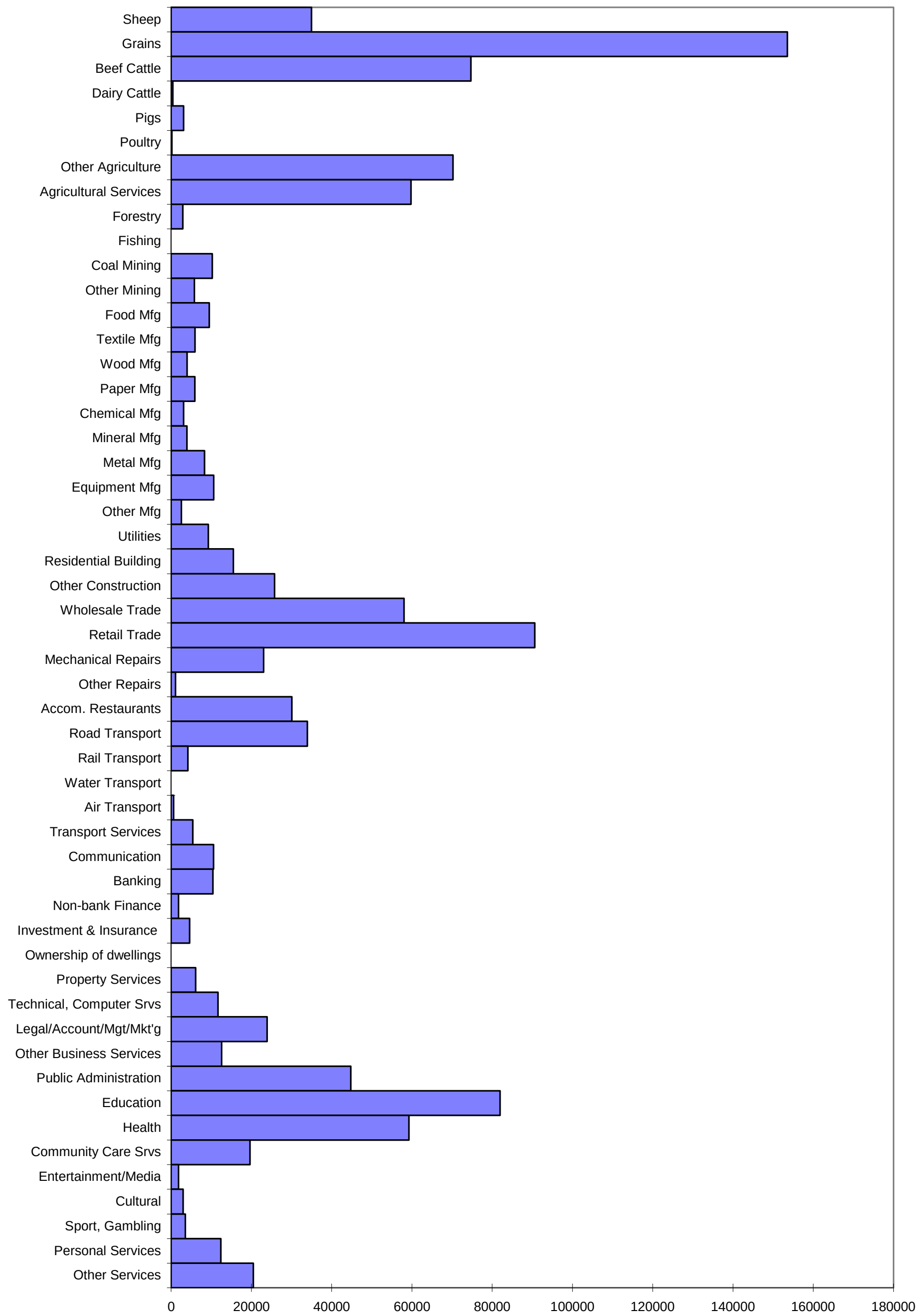
Among the other notable industries are wholesale trade (servicing sales of the agricultural industries), retail trade, the public-funded services of education, health and community care, and the ownership of dwellings that includes the imputed value of housing as well as housing rentals. Accommodation and restaurants are significant along with road transport that is essential for the movement of products into and out of the region.

Figure 5-4: Industry Composition of GRP, Northern WS Region, 2005-06



A similar structure is evident for the industry contribution to GRP shown in Figure 5-4 The main industries, other agriculture, grains and beef, and the ownership of dwellings are even more prominent. There is also high importance to those sectors that are publicly funded such as public administration, education, health and community care.

Figure 5-5; Industry Composition of Household Income, Northern WS Region, 2005-06



The industry composition to household income is shown in Figure 5-5. This measure reflects the number employed and the average earnings in the respective industries. The importance of some industries increases because of the high level of earnings (such as public administration, health and education) with a high proportion of employees holding professional qualifications. In other cases, the large number of employees leads to a higher level of importance of the industry such as retail trade. The primary industries are also substantial contributors to household income, most notably once again from other agriculture.

Figure 5-6: Industry Composition of Exports, Northern WS Region, 2005-06

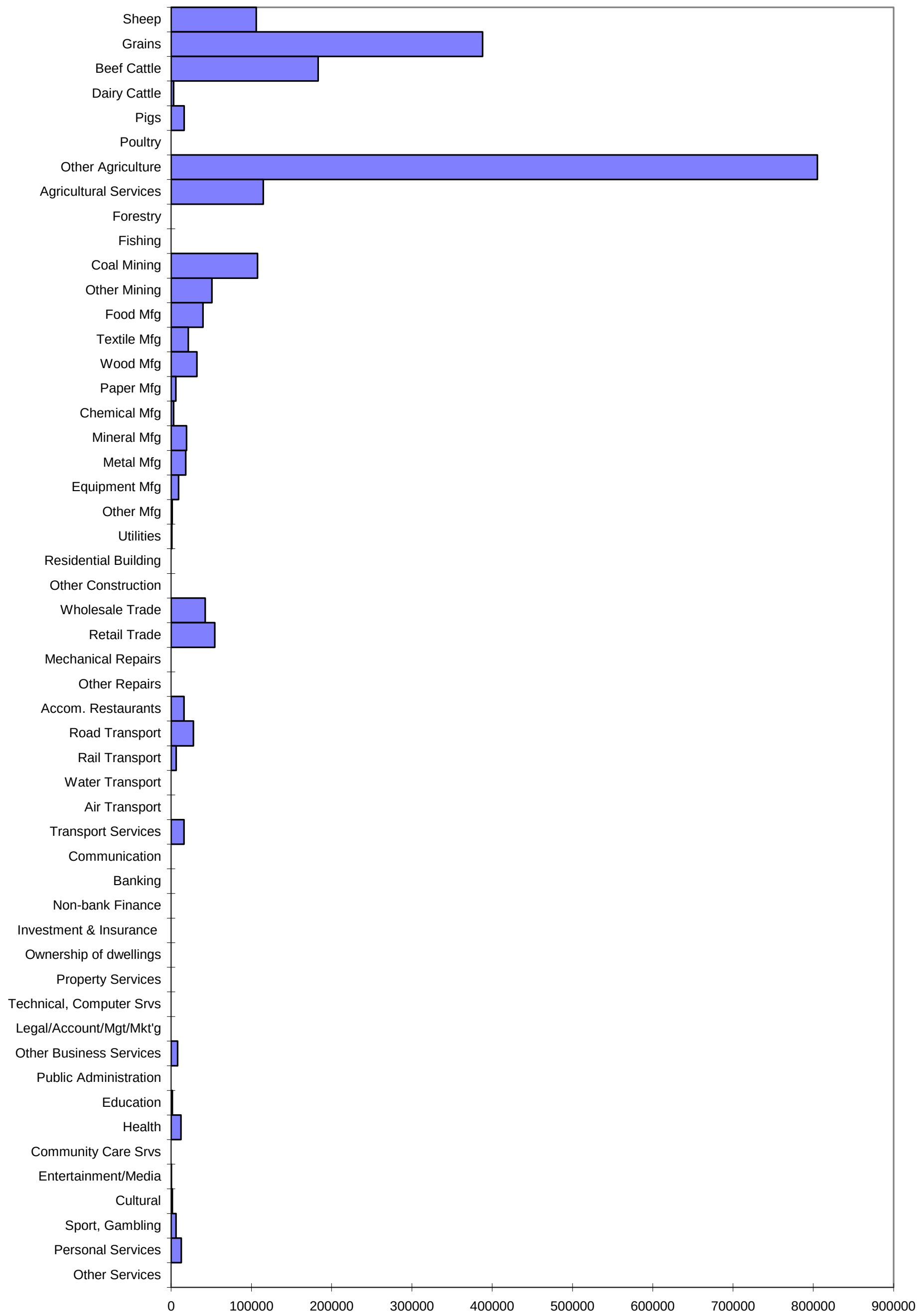
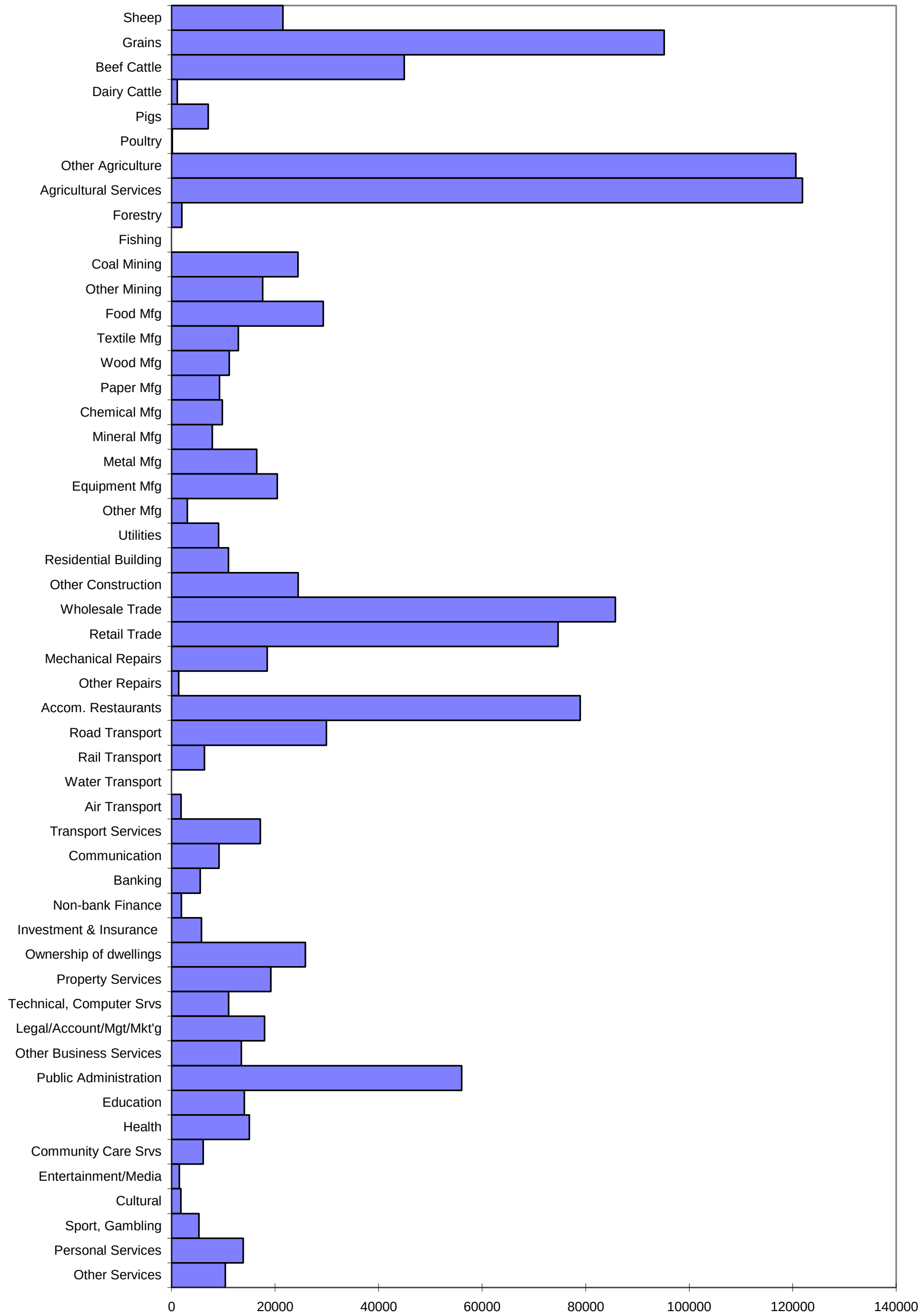


Figure 5-6 and Figure 5-7 indicate the relationship of the Northern WS region to the rest of Australia and the world through the trade patterns. These data are difficult to develop and verify given the paucity of any specific data collections. As a result they are estimated from other sources and should be interpreted with some care. The main primary industries are the principal exporters and importers. That is to be expected as the users of their products are not located in the region (which is itself a very small market). Further, most of the materials used in their production have to be imported.

Figure 5-7: Industry Composition of Imports, Northern WS Region, 2005-06



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The other main need for imports lies in the households. With modern transport systems, there are relatively few foods and other household requirements produced locally so that most household goods are imported and the local expenditure is heavily focused on services.

5.2 CENTRAL WS REGION

The input-output table for the Central WS region for 2005-06 is shown in an aggregated form in Table 5-2 and in Figure 5-8. The table was developed first for 2000-01 using the 2001 Population Census data. It is then projected forward to 2005-06 using estimates of employment growth for each industry, and allowing for an increase in labour productivity of 1.5 per cent per year. The projections also take into account the characteristics and trends in the economy as discussed in earlier sections.

Table 5-2: Aggregated Input-Output Table, Central WS Region, 2005-06

	Ag Forestry Fishing	Mining	Manufacturing	Utilities	Building	Trade Acommodation	Business Services	Public Personal Services	TOTAL	H-hold Exp	O.F.D	Exports	Total
Ag/Forest/Fish	159364	431	178358	13	405	5250	746	2737	347305	30205	36604	976706	1390820
Mining	237	92140	15416	1256	1975	590	536	894	113044	531	12403	670264	796241
Manufacturing	37870	29490	241733	2840	69051	156537	41838	37124	616482	397064	139010	742607	1895163
Utilities	14029	17283	21149	13070	641	18130	13222	13428	110952	90761	13506	3235	218453
Building	3102	15299	170	170	296	3894	16182	2039	41151	0	488022	0	529173
Trade/Accommodati	76232	36343	111560	7762	30967	123519	122612	66472	575467	1240641	117280	276543	2209931
Business Srvs	93569	46264	149418	12976	43332	328301	291315	145534	1110709	1039652	207146	164641	2522149
Public/Personal Srv	5063	5280	14412	1220	1540	26295	32030	68888	154729	561609	1306228	110937	2133503
TOTAL	389467	242529	732216	39307	148207	662516	518479	337116	3069837	3360463	2320199	2944933	11695433
H-hold Income	420345	89776	314111	45975	192027	563995	425350	943246	2994825	0	0		2994825
O.V.A.	306334	227625	280741	91174	61008	386738	1132625	513003	2999248	791592	83610		3874451
Imports	274674	236312	568096	41996	127931	596683	445694	340137	2631523	1259020	601252		4491794
TOTAL	1390820	796241	1895163	218453	529173	2209931	2522149	2133503	11695433	5411075	3005061	2944933	23056504
Employment	10941	1351	8542	804	5250	22355	12375	24758	86375				

The key characteristics of the Central WS region economy in 2005-06 were:

Gross Regional Product (GRP)	$6,899m
Gross Regional Product per person employed	$79,528
Exports from the Central WS	$2,945m
Imports to the Central WS	$4,492m
Number employed	86,375
Average earnings from employment	$34,672
Household income from employment	$2,995m
Household expenditure	$4,411m

For the Central WS region, the level of exports is not as high as the Northern WS region at 42 per cent of the GRP. The level of imports at 65 per cent of GRP is similar to the Northern WS region.

Like much of inland NSW there is a large gap between the earning of households from employment and the spending of households. The gap is not has big as in the Northern WS region, however the gap is still large. The difference is made up by net income from government benefits less taxes, earnings from own operated businesses and other investments, the imputed value of owner household rent, and changes in net borrowings.

A comparison of the industry structure of the Central WS region economy in 2005-06 and the NSW economy in 2000-01 is shown in Figure 5-8 and in Figure 5-9 respectively.

Figure 5-8: Aggregated Industry Structure, Central WS Region, 2005-06

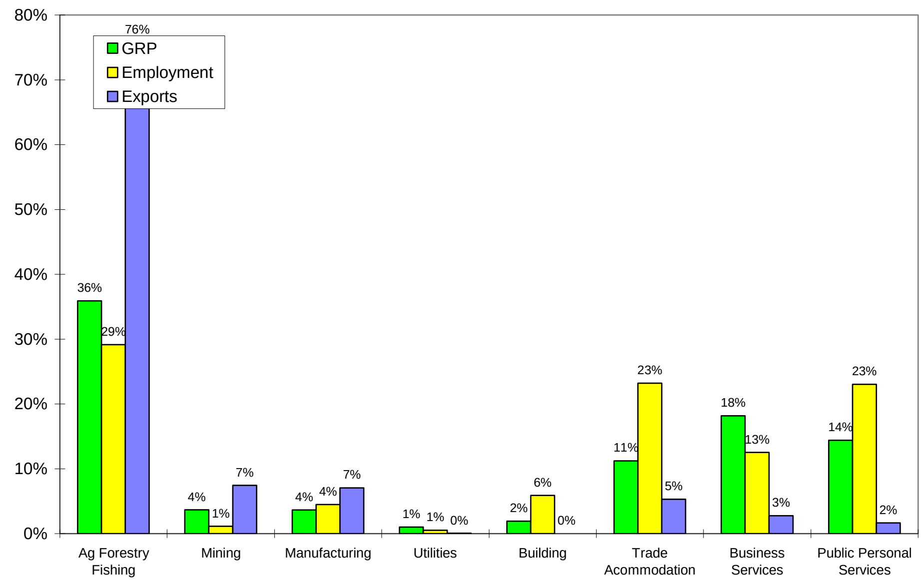
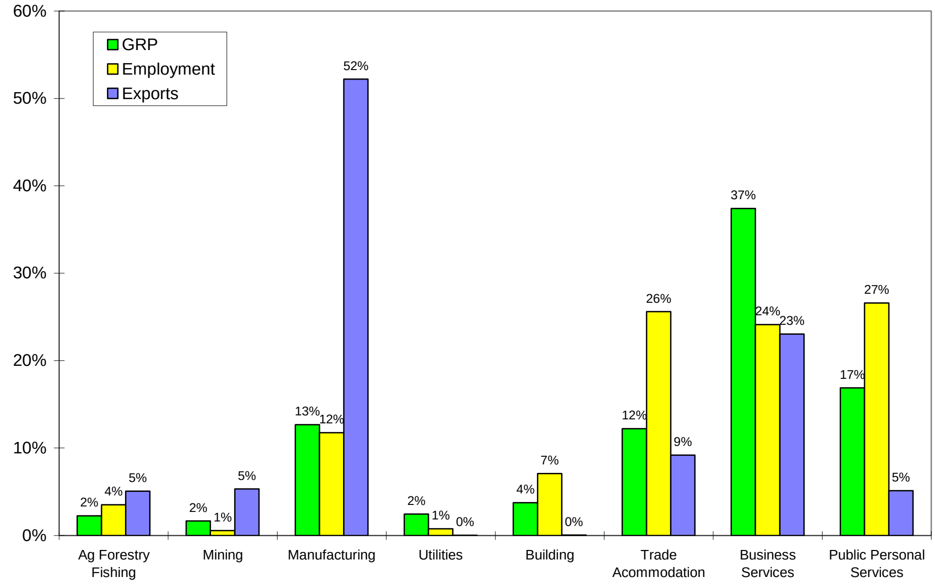


Figure 5-9; Aggregated Industry Structure, NSW, 2000-01



The main characteristics of the industry structure compared with NSW as a whole are:

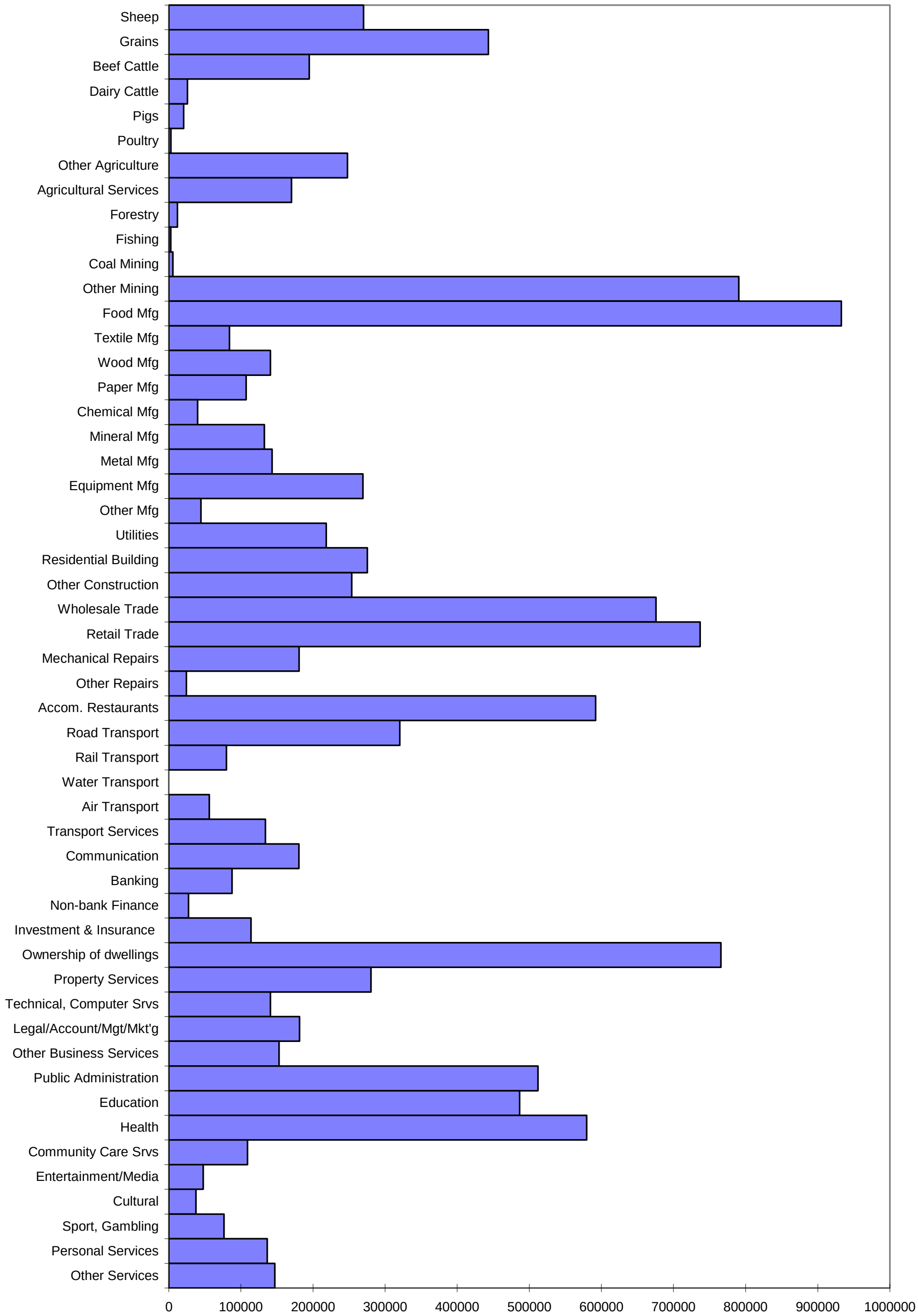
- The primary industries are dominant in the Central WS region economy, especially in terms of exports.
- Mining is more important within the Central WS region compared to the whole of NSW, mainly as a result of the large gold mining operations near Orange and Parkes.
- Manufacturing is well developed in the Central WS region although it is still a relatively smaller contributor to the economy than it is in NSW.
- Building and utilities are relatively small contributors to the region economy relative to those sectors in the NSW economy.
- Trade and accommodation services are comparable to NSW as a whole, along with the personal and public services sectors.
- Business services are notably a much smaller share of the Central WS region economy relative to NSW.

A detailed industry composition of the Central WS region economy in 2005-06 is shown in Figure 5-10 through to Figure 5-14. The charts highlight key characteristics of the economy. In all cases, the diversity of the industry structure is much greater than that in the Northern WS region as shown by the density and size of the bars for the various sectors.

The industry composition of gross output for the Central WS region is shown in Figure 5-10. The Central WS region economy is much larger and more diverse than the Northern WS region. The Central WS region has a range of manufacturing sectors (including food manufacturing) that build much of that diversity. The region is generally closer to Sydney and is astride major east-west and north south transport routes that provides a basis for many activities including those in the trade, accommodation and restaurant sectors. The business service sector although not overly strong is more developed compared to the Northern WS region.

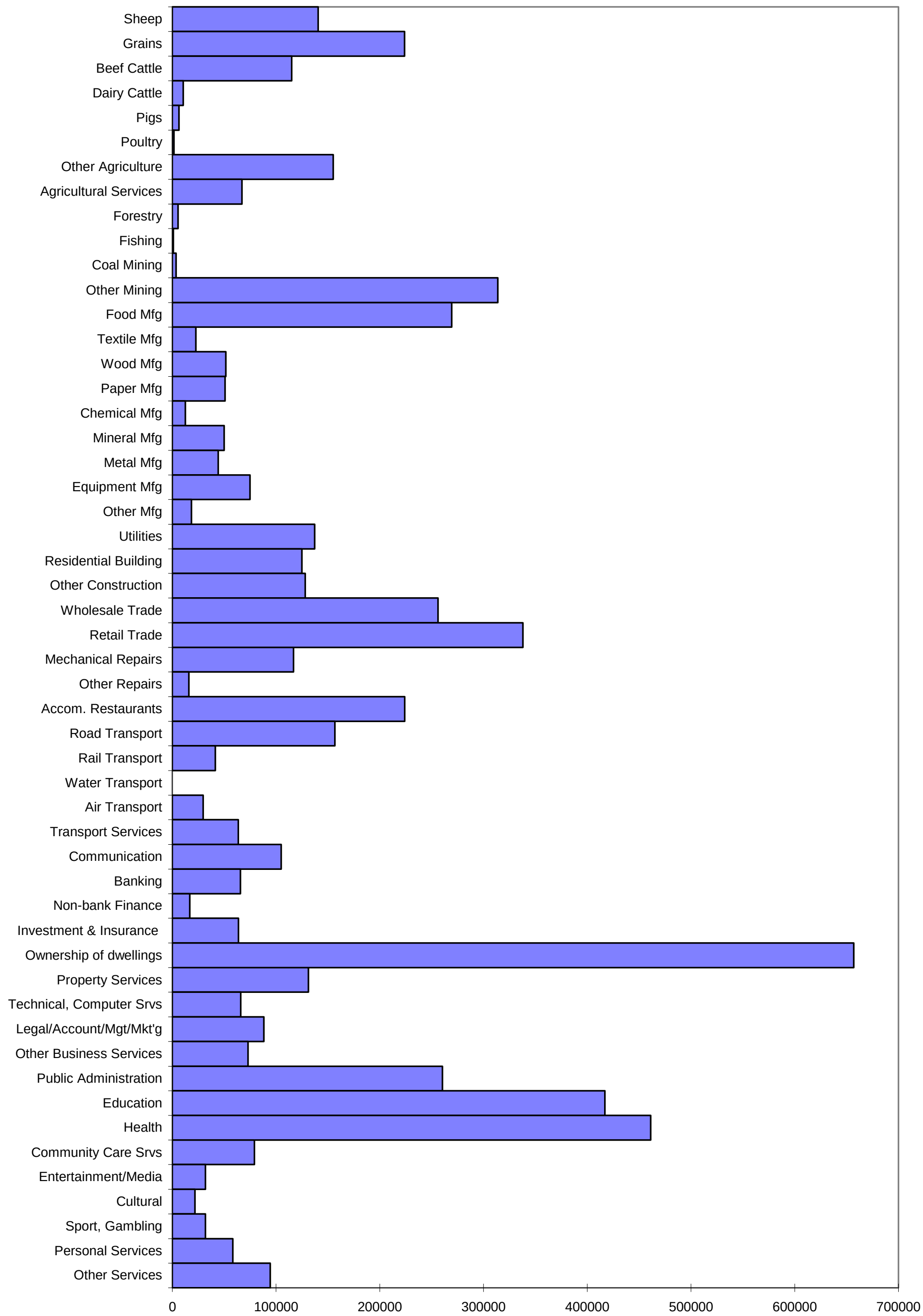
Like many regions, the limited array and level of business services is an important constraint on the development of the region. Those business service activities that do exist are concentrated in a few centres so that the balance of the region has very limited services. The private services are not particularly dominant in the industry structure indicating that the provision of these services to visitors is not of great significance to the region economy.

Figure 5-10: Industry Composition of Gross Output, Central WS Region, 2005-06



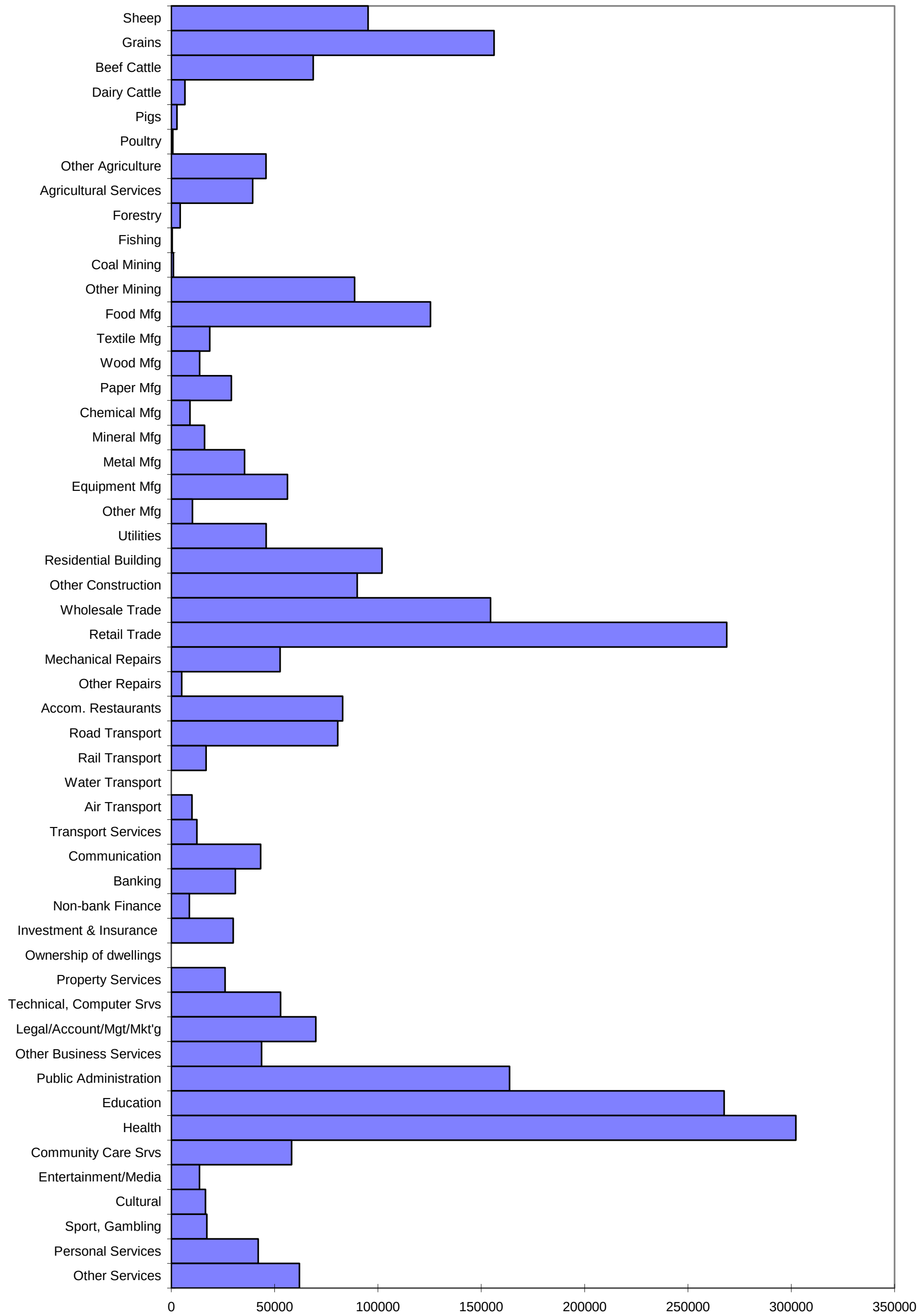
A similar pattern to the above is reflected in Figure 5-11 which shows the industry contributions to GRP. The ownership of dwellings is the most important contributor in the form of the actual or imputed rent for dwellings. There is also high importance to those sectors that are publicly funded. The trade sectors, other mining and food manufacturing are notable contributors along with agriculture.

Figure 5-11: Industry Composition of GRP, Central WS Region, 2005-06



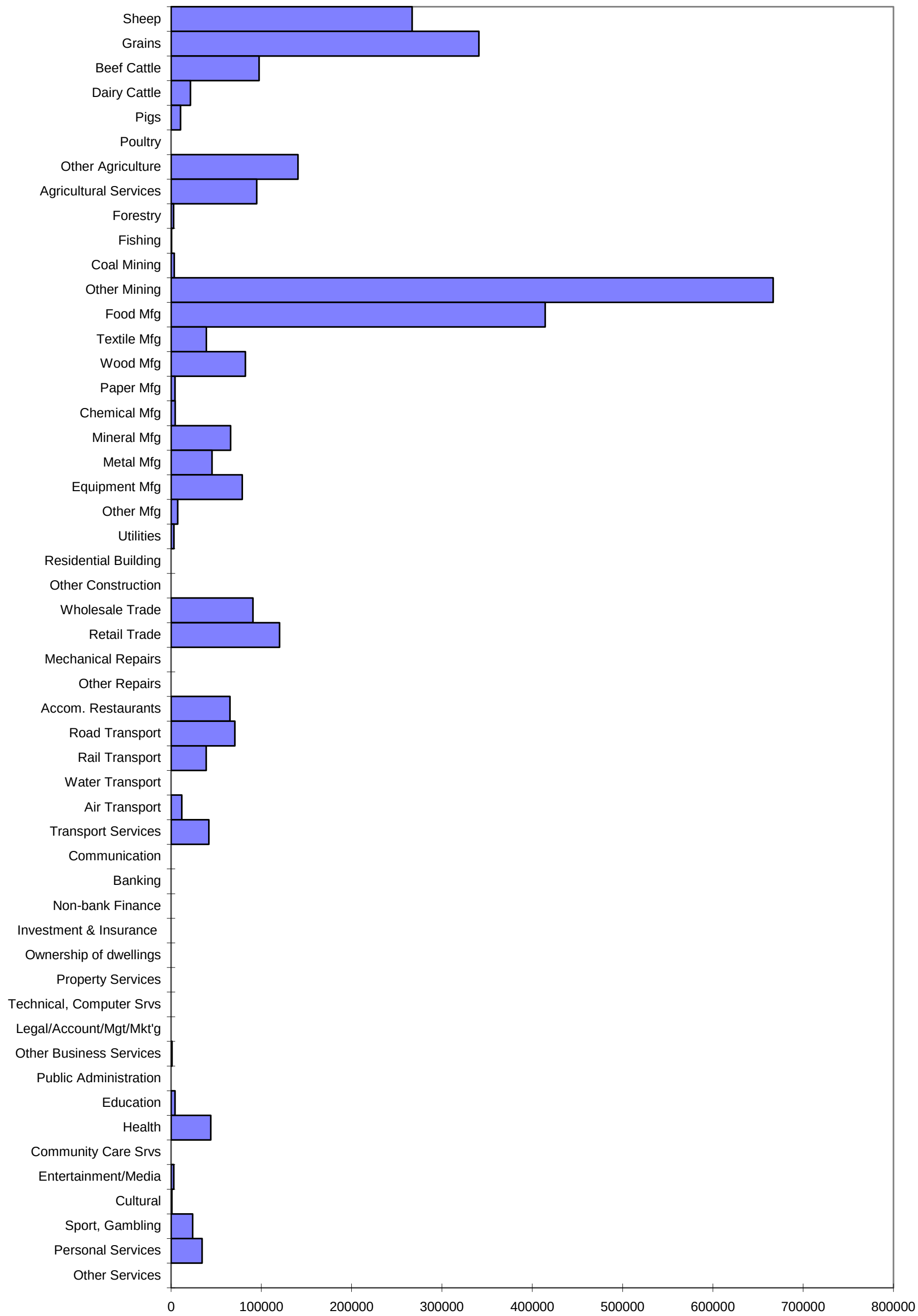
The industry contribution to household income is shown in Figure 5-12. This measure reflects the number employed and the average earnings in the respective industries. The most notable contributors to household income are the trade sectors where many people are employed and those sectors that employ many with professional qualifications, such as health and education. There is a very significant range of health services and education in Orange and Bathurst. The importance of primary industries is also considerable.

Figure 5-12; Industry Composition of Household Income, Central WS Region, 2005-06



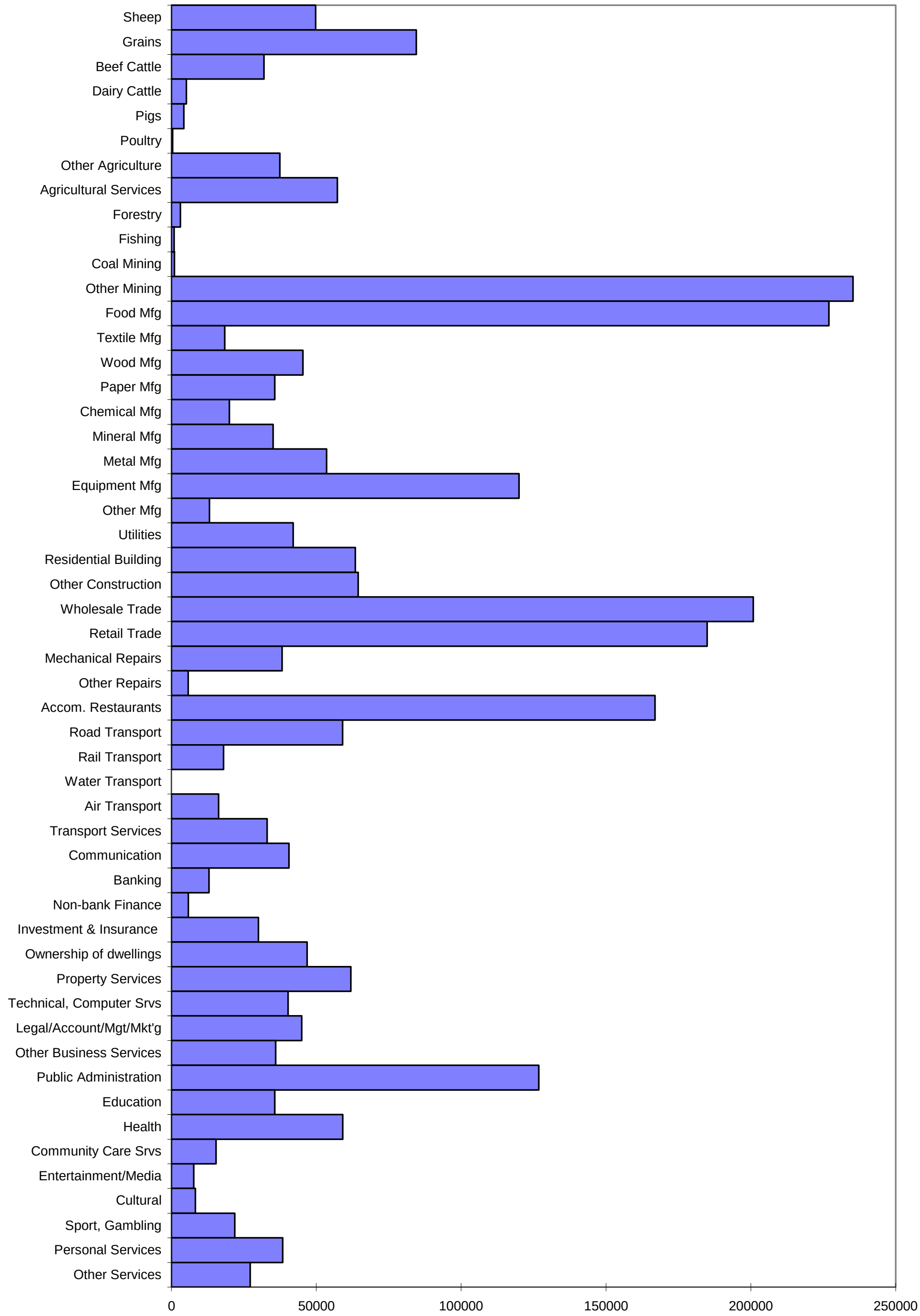
The trade pattern for the Central WS region is shown in Figure 5-13 and Figure 5-14. The pattern of exports is built around the primary industries of agriculture and mining, the processed primary products and the wholesale trade and road transport sectors that handle those products. There are also other service exports that add to the diversity of the economy including health and education services and some exports linked to visitors to the region (accommodation and restaurants, retail trade, transport and personal services).

Figure 5-13: Industry Composition of Exports, Central WS Region, 2005-06



The pattern of imports is much more widely spread among industries. There is an array of material and services that are imported by all sectors and especially the primary industries. Most household goods are also imported as would be evident from any visit to a supermarket or shopping centre. These characteristics result in a balance of trade for the Central WS region that is in significant deficit with the rest of Australia and the world.

Figure 5-14: Industry Composition of Imports, Central WS Region, 2005-06



The Central WS region shows characteristics that indicate a larger and more mature economy than the Northern WS region. There is significant diversity across industries and evidence that the economy is growing. It is a region that was less affected by the various changes that had such a high impact on the Northern WS region in the 1990s.

5.3 SOUTHERN WS REGION

The input-output table for the Southern WS region for 2005-06 is shown in an aggregated form in Table 5-3 and in Figure 5-15. The table was developed first for 2000-01 using the 2001 Population Census data. It is then projected forward to 2005-06 using estimates of employment growth for each industry, and allowing for an increase in labour productivity of 1.5 per cent per year. The trends and characteristics of the economy discussed in earlier sections are also taken into account.

Table 5-3: Aggregated Input-Output Table, Southern WS Region 2005-06

	Ag Forestry Fishing	Mining	Manufacturing	Utilities	Building	Trade Acommodation	Business Services	Public Personal Services	TOTAL	H-hold Exp	O.F.D	Exports	Total
Ag/Forest/Fish	356385	3	408993	63	958	14762	1188	7695	790047	84661	79224	1952716	2906647
Mining	445	201	6435	1368	1668	694	495	900	12206	638	91	32299	45234
Manufacturing	84128	2209	363185	6766	86610	230974	59134	53655	886661	502396	243919	1169129	2802105
Utilities	45634	96	23508	16485	605	14863	11675	11435	124301	82284	19149	75779	301513
Building	5480	198	284	158	311	4207	24046	5351	40034	0	567843	0	607876
Trade/Accommodati	160056	2447	161502	11012	36638	160044	159680	81218	772596	1461518	152932	437464	2824511
Business Srvs	197103	3624	201942	15775	41883	380874	316264	148567	1306033	1439361	230478	246030	3221903
Public/Personal Srv	9076	519	20387	1783	1651	28351	34124	78195	174085	600897	1592675	160325	2527982
TOTAL	858306	9297	1186235	53410	170324	834768	606607	387016	4105962	4171755	2886311	4073742	15237770
H-hold Income	710743	2497	441825	45504	235538	756735	498919	1015835	3707596	0	0		3707596
O.V.A.	775083	21914	419435	139887	52965	454212	1542375	669065	4074935	900097	103510		5078542
Imports	562515	11525	754610	62713	149050	778796	574002	456066	3349276	1449338	728265		5526880
TOTAL	2906647	45234	2802105	301513	607876	2824511	3221903	2527982	15237770	6521190	3718087	4073742	29550789
Employment	17305	121	12089	946	6487	30246	15321	28599	111113				

The key characteristics of the Southern WS region economy in 2006 were:

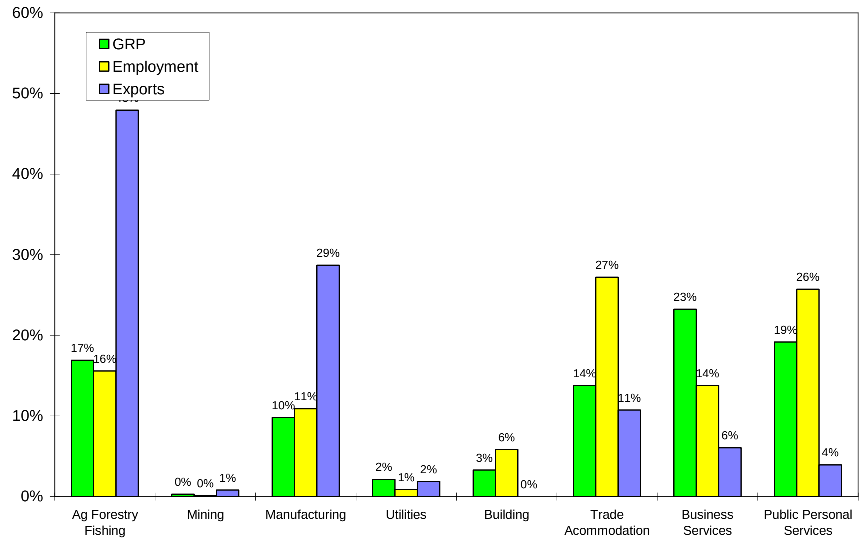
Gross Regional Product (GRP)	$8,786m
Gross Regional Product per person employed	$79,074
Exports from the Southern WS Region	$4,074m
Imports to the Southern WS Region	$5,527m
Number employed	111,113
Average earnings from employment	$33,368
Household income from employment	$3,708m
Household expenditure	$6,521m

The Southern WS region economy is the largest of the three regions being almost three times the Northern WS region and about 20 per cent larger than the Central WS region. It is also the largest of the three regions in geographic terms.

Like the other regions, the Southern WS region is heavily dependent on exports that represent 46 per cent of the GRP. The level of imports is greater than exports, consistent with both the Northern WS region and Central WS regions. There is also a large gap between the earnings of households from employment and the spending of households. The difference is made up by net income from government benefits less taxes, earnings from own operated businesses and other investments, the imputed value of owner household rent, and changes in net borrowings.

A comparison of the industry structure of the Southern WS region economy in 2005-06 and the NSW economy in 2000-01 is shown in Figure 5-15 and in Figure 5-16, respectively.

Figure 5-15: Aggregated Industry Structure, Southern WS Region, 2005-06

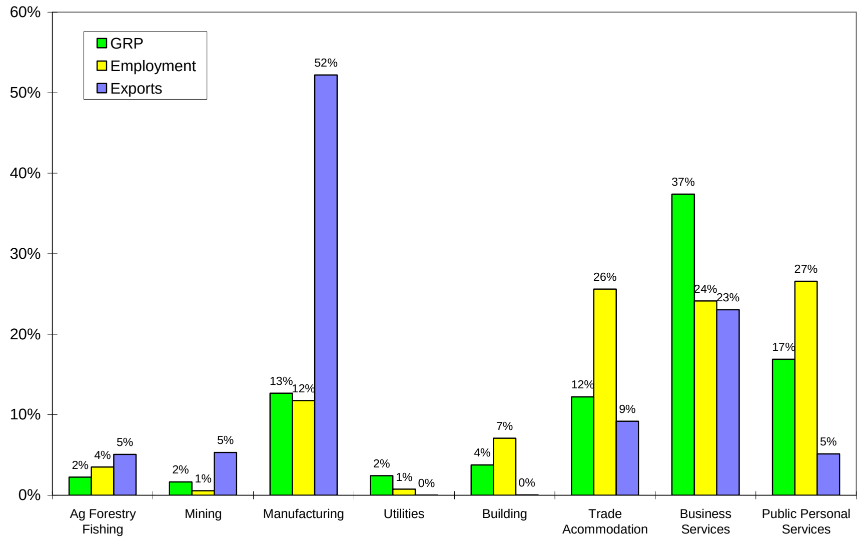


The Southern WS region is the nearest to the NSW economy in terms of economic structure, reflecting the overall size of the economy and the influence of the larger centres of Albury and Wagga Wagga. They bring a range of manufacturing and services, including business services that are not found to the same extent in the other regions.

The main differences in the industry structure relative to NSW are:

- The considerably larger contribution of agricultural industries in the Southern WS region including a considerable amount of production from irrigation.

Figure 5-16; Aggregated Industry Structure, NSW, 2000-01



- Unlike the Central WS region mining is not a dominate industry although some major operations are being developed in the West Wyalong area.

- Manufacturing is significant but is a little less than the share for NSW. Primary industry provides a base for some of the manufacturing but there are other manufacturing industries that are not linked to primary industries.

- Building and utilities operate at a slightly smaller share relative to NSW.

- Trade and accommodation services are comparable to NSW as a whole.

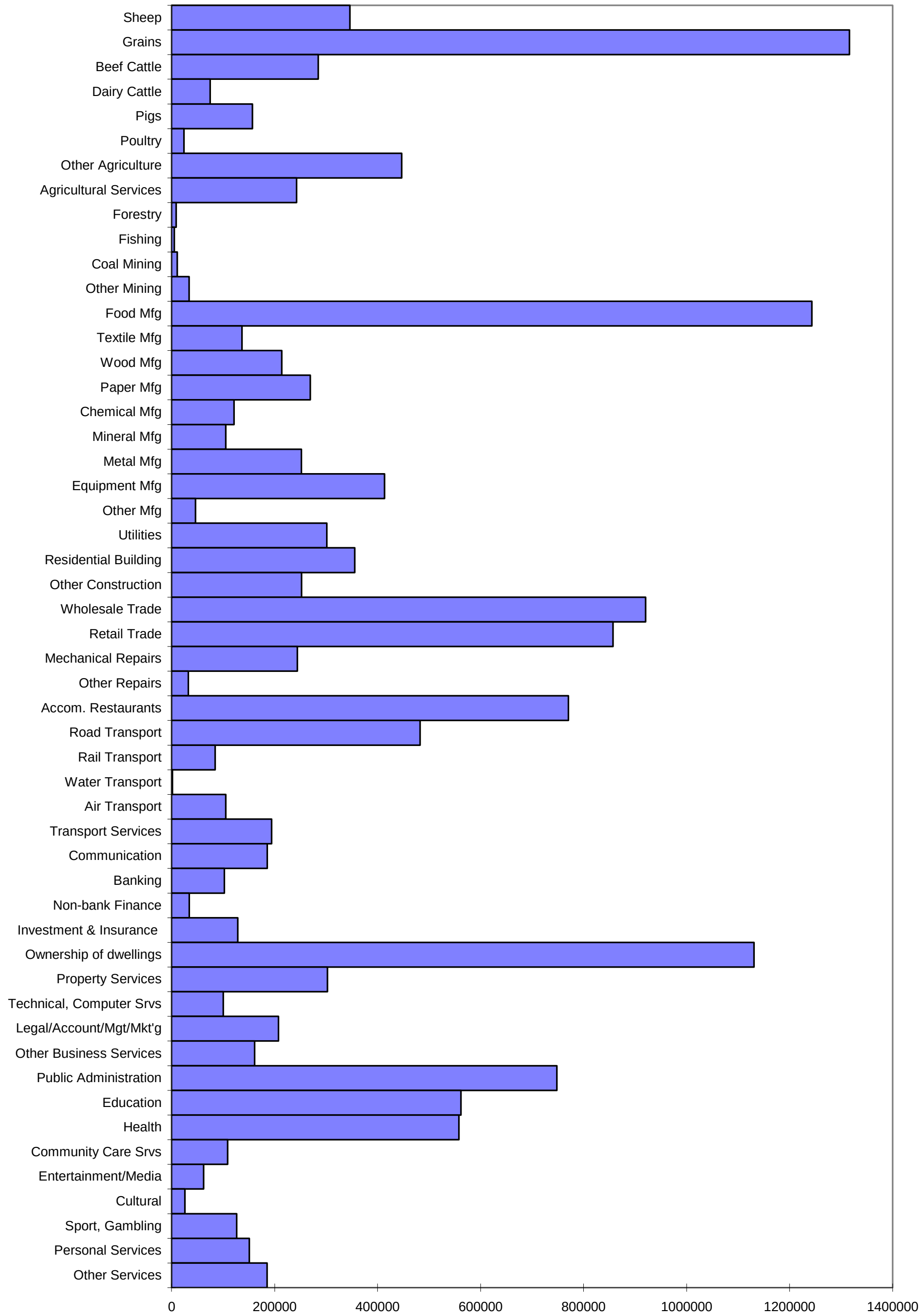
- The business services industries are notable but still represent a smaller share of the Southern WS region compared to NSW.

- The public and personal services share is on par with NSW, helped by the considerable defence presence in the region.

A detailed industry composition of the Southern WS economy in 2005-06 is shown in Figure 5-17 through to Figure 5-21. The charts highlight key characteristics of the economy.

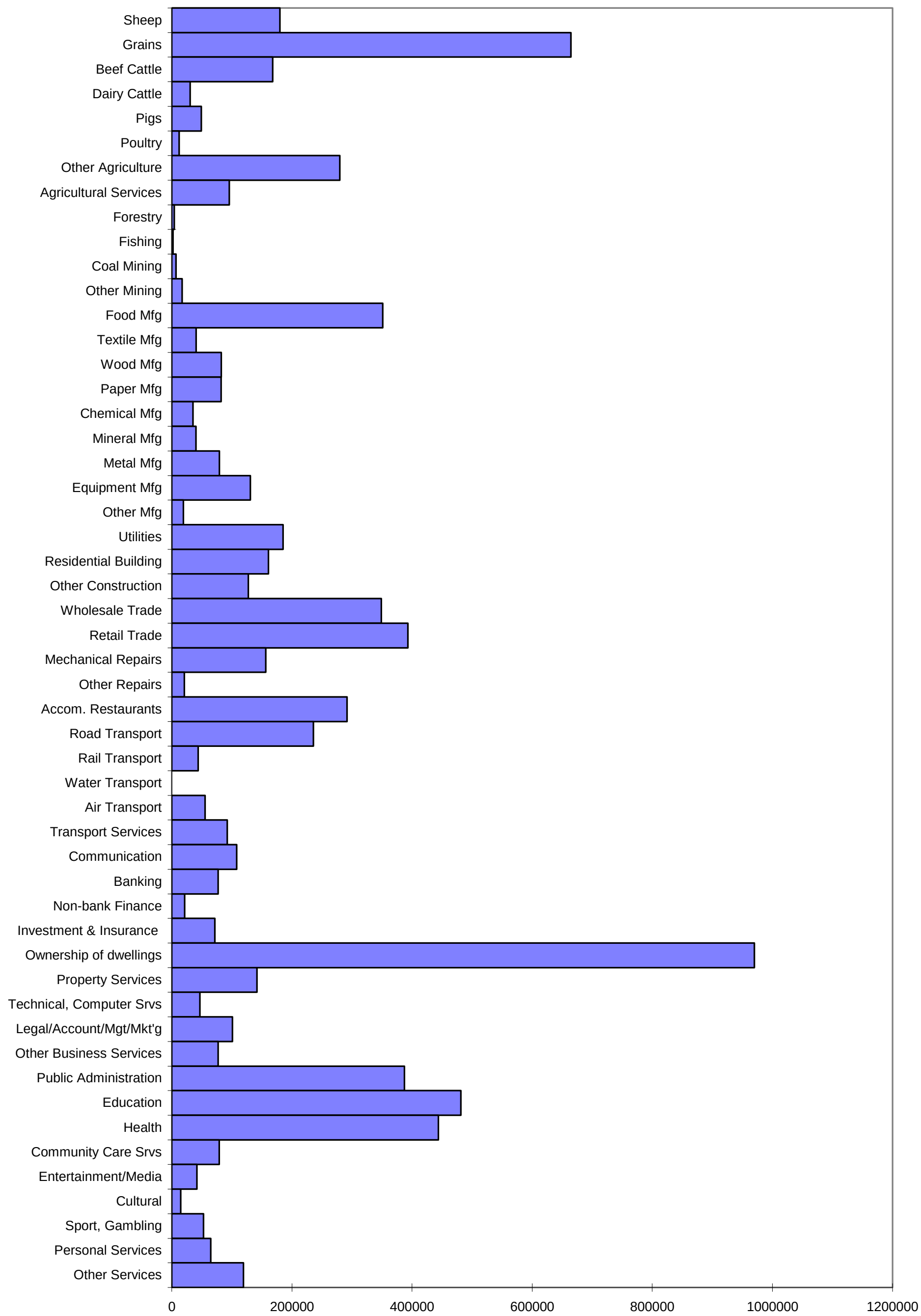
The industry composition of gross output for the Southern WS region is shown in Figure 5-17. The Southern WS region economy is diversified, particularly in respect of the range of manufacturing activities. The dominant food manufacturing industry is notable and includes the processing of many irrigation-produced products such a rice and horticulture, along with large processors of meat. There is also significant processing of wood products. These activities generate wholesale trade, handling and (road) transport industries that are also evident in the region.

Figure 5-17: Industry Composition of Gross Output, Southern WS Region 2005-06



The service industries also extend into some of the more highly valued activities such as health, tertiary education (universities), research and defence. This provides a depth of activities that is not apparent in most of other parts of the WS regions. The ease of access of the region to both Sydney and Melbourne also generates opportunities for attracting businesses and visitors to many parts of the region.

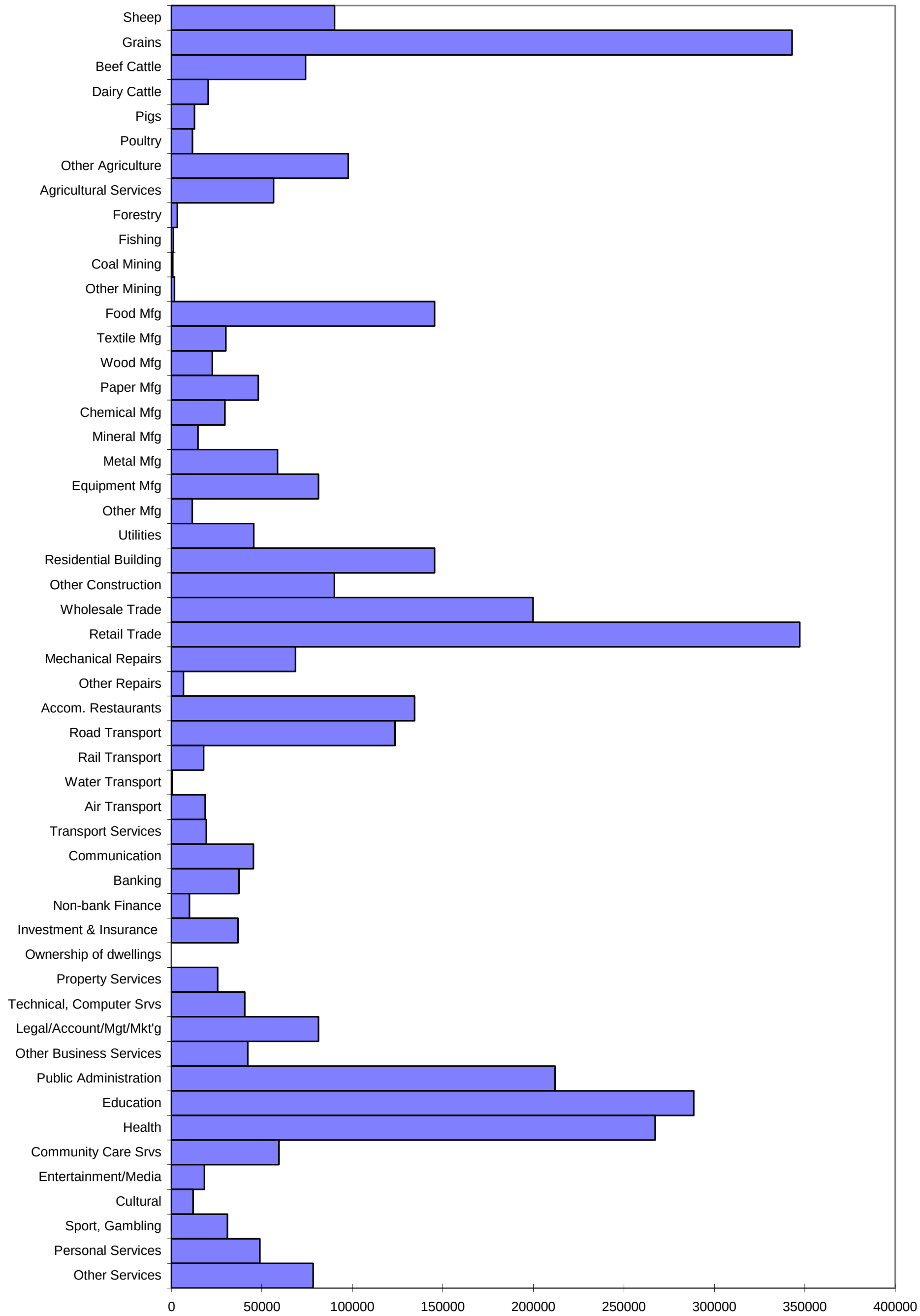
Figure 5-18: Industry Composition of GRP, Southern WS Region, 2005-06



The industry composition to GRP is similar to that for gross output but the contributions of ownership of dwellings and grain production are more prominent. Those industries are followed by high shares from the public-funded activities of education, health and public administration, the trade sectors and food manufacturing.

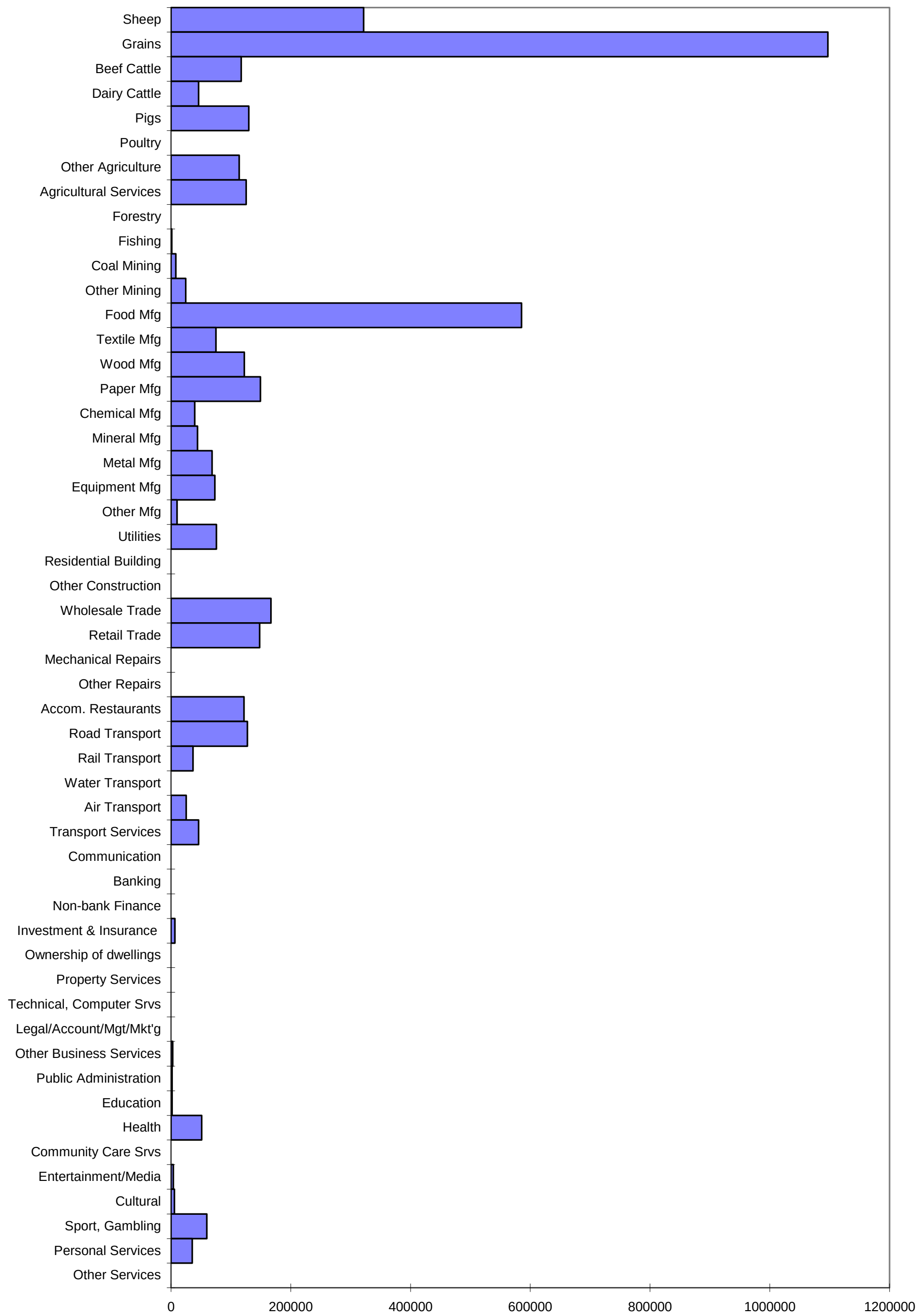
The industry contribution to household income is shown in Figure 5-19. Grains and retail trade are the dominant industries, followed by the public-funded services with a high ratio of people holding professional qualifications. As usual, the large numbers working in the trade sectors makes them a major source of household income.

Figure 5-19; Industry Composition of Household Income, Southern WS Region, 2005-06



The trading pattern for the Southern WS region is shown in Figure 5-20 and Figure 5-21. Exports are much lower in value than imports. While exports are concentrated on primary products and manufactured products, most industries require imports for their operations including the many imported products needed by households.

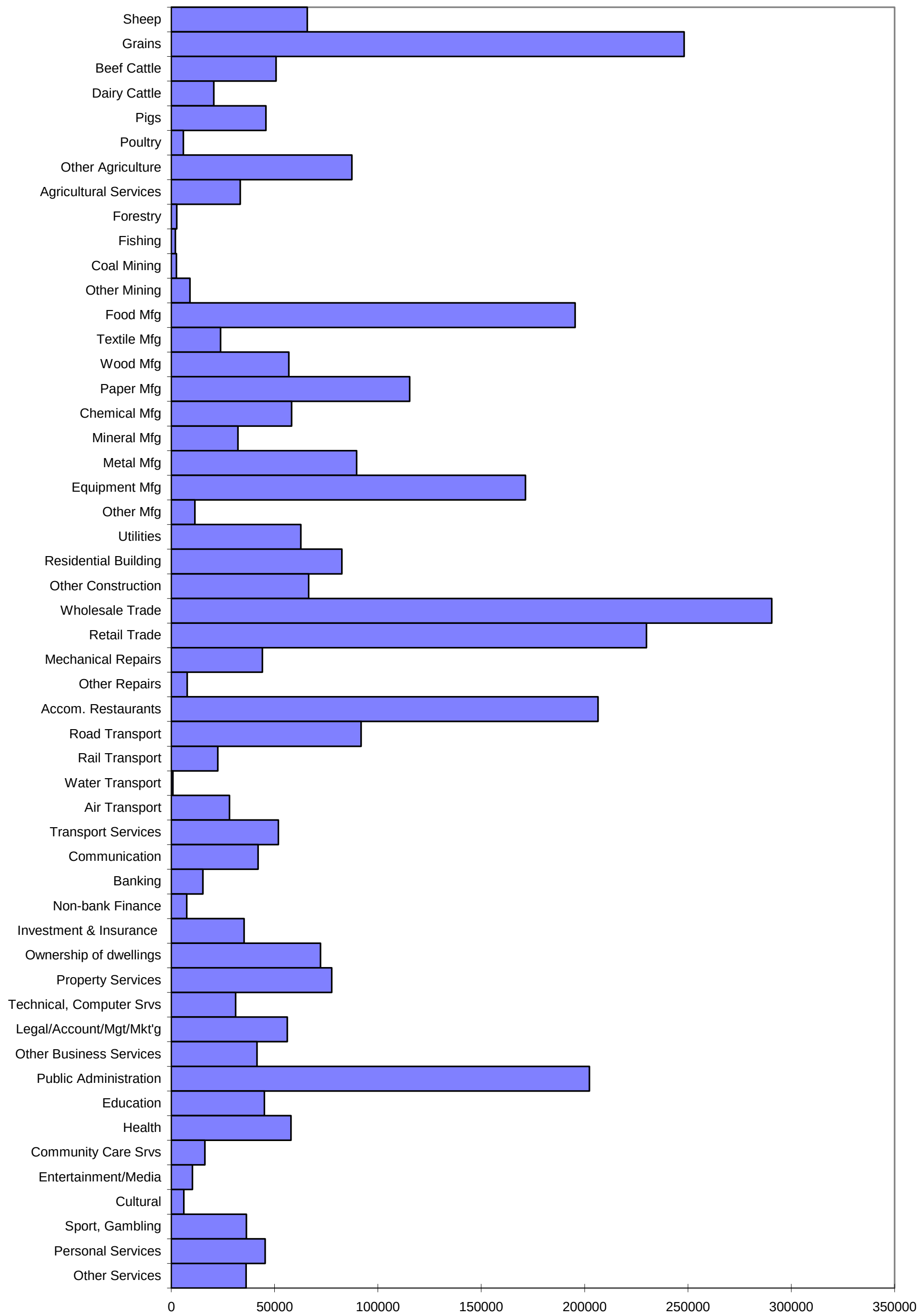
Figure 5-20: Industry Composition of Exports, 2006



The main exporters are grains, manufactured food and sheep supported by a range of other manufactured exports. There are some exports of services linked to product exports and the servicing of visitors to the region.

The pattern of imports is spread across most sectors meeting the need for a range of specialist goods and services. They are also needed to meet the diverse needs of resident householders.

Figure 5-21: Industry Composition of Imports, Southern WS Region 2005-06



The Southern WS region is a large and mature region economy. The existence of major centres and the concentration of intensive agricultural production from irrigation provides the basis of an economy that has been growing steadily. It is likely that some of the remote areas in the region show characteristics very different to the overall pattern.

6 ECONOMIC IMPACT ANALYSIS

The economic impact of PAs is comprised of two parts. First, there are the operating and maintenance costs associated with the PAs themselves. Second, there are the economic activities associated with the PAs. At this stage, that is primarily visitation for recreation, but a range of other activities may be considered. These may include apiary and grazing in some cases, while the collection of biological material for pharmaceutical purposes is likely to increase over time.

There are four steps involved in the economic impact analysis. They are:

1. The gathering of information on the primary activity. This includes two main categories:
   a. Expenditures made by the relevant government and related agencies on the PAs in question. This is normally on-going operating expenditure including the maintenance of capital. Other capital development expenditure of a one-off nature is not usually included.
   b. The estimation of the number of visitors to the PAs and the expenditures they make during the visit. This is usually only for visitors to the region and should not include locals visiting the PAs as part of their normal recreation activities.

2. The manipulation of the data into a form that complies with the conventions used in the input-output model. This includes making adjustments to the valuations used, the handling of indirect taxes and identifying expenditures on imports rather than locally supplied goods and services.

3. Application of the input-output model to estimate the flow-on effects of the expenditures. This involves the appropriate application of multipliers to the level of 'direct expenditure' gathered in the previous steps.

4. Preparation of appropriate tables to report the total impacts. This usually involves identifying the direct and flow-on impacts; indicating the main sectors or industries where the impacts occur; measuring the effects in terms of gross output, value added, household income and employment terms; and relating the total impacts to the overall size of the regional economy.

The following sections are structured around the above steps. The data used in these analyses has been compiled by the DEC from a range of sources.

6.1 IMPACTS OF PARK MANAGEMENT

6.1.1 Compiling the Data

The approach taken to estimating the economic impacts of park management has been to prepare a specific sector in the input-output table representing PA operations and maintenance. The representation of park management expenditure and employment data provided by DEC provides accurate estimates of the multipliers relating to the management of the PAs. These data were extracted from department records and allocated to the Northern WS, Central WS or Southern WS regions according to which PAs the expenditure related to and the LGA in which the PA was situated. Capital expenditure is not included.

The data used initially were for the 2004-05 financial year. Those data were inflated to the 2005-06 values using the CPI index. A further adjustment was made to include the expenditures related to recent accessions to the PAs. The main additions were reserves added as a result of the Brigalow Belt South Bioregion Agreement that added to the Pilliga and other reserves (these affected the Northern and Central WS regions) and the purchase of the property ‘Yanga’ (in the Southern WS region). In this analysis, no adjustment has been made for any reduction of economic activities as a result of the cessation of the land use prior to its accession to the PA system. These effects are included in the supplementary report.

The compilation of the data involved taking into account the GST, allocating expenditures to the relevant ANZSIC industry/sector, adjusting margins and valuations where appropriate and determining import shares. The final step is to adjust the values to the year which corresponds to the year for the input-output tables. The resulting specification of the sector for each region is then added into the input-output table for each of the regions. The data were complied for 2005-06 and projection data were calculated for 2010-11.

6.1.2 Park Management 2005-06

For 2005-06, park management in the WS region amounted to $8.4m and employed 99 people:

- The Northern WS region incurred costs of $2.6m with 38 people employed.
- The Central WS region had an expenditure of $3.3m and had 37 employees.
- The Southern WS region had an expenditure of $2.5m and had 24 employees.

- Wages and salaries accounted for 71 per cent of the total expenditure.

The estimated expenditures used in the analysis are shown in Attachment 2.

The impact results are presented in two parts. The multipliers are shown in Table 6-1 (see Attachment 1 for some background on input-output methods and the definition of the multipliers). These multipliers have been calculated from the input-output tables compiled separately for the Northern WS, Central WS and Southern WS regions.

The multipliers are consistent with those for most service sectors in regional areas. The multipliers are small relative to other sectors reflecting high leakages into imports. The multipliers are higher in the larger regions than in the smaller Northern WS region. Wages and salaries are a high proportion of park management expenditure so that the main flow-on effects arise from consumption-induced impacts.

Table 6-1: PA Management Multipliers, WS Regions 2005-06

		Flow-on Effects				
MULTIPLIERS	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	**TOTAL IMPACT**	Type II
GROSS OUTPUT ($)						
Northern	1.000	0.109	0.526	0.635	1.635	1.635
Central	1.000	0.210	0.691	0.901	1.901	1.901
Southern	1.000	0.200	0.703	0.903	1.903	1.903
Total	**1.000**	**0.176**	**0.643**	**0.819**	**1.819**	**1.819**
VALUE-ADDED ($)						
Northern	0.819	0.053	0.312	0.365	1.184	1.446
Central	0.727	0.101	0.376	0.478	1.205	1.657
Southern	0.709	0.091	0.387	0.478	1.188	1.674
Total	**0.751**	**0.084**	**0.359**	**0.443**	**1.194**	**1.590**
HOUSEHOLD INCOME ($)						
Northern	0.687	0.029	0.109	0.138	0.825	1.201
Central	0.625	0.060	0.154	0.215	0.840	1.344
Southern	0.628	0.055	0.150	0.205	0.833	1.326
Total	**0.645**	**0.049**	**0.139**	**0.188**	**0.834**	**1.292**
EMPLOYMENT (no./$m)						
Northern	14.4	0.9	3.9	4.8	19.1	1.333
Central	13.7	1.8	5.1	6.9	20.6	1.500
Southern	10.7	1.7	5.1	6.8	17.5	1.639
Total	**13.2**	**1.5**	**4.7**	**6.2**	**19.4**	**1.472**

The estimated impacts are indicated in Table 6-2. They are calculated by applying the respective multipliers shown in Table 6-1 to the direct effects shown in Table 6-2. PA management is estimated to contribute $7.5m to GRP in total (value added) and almost 44 per cent of the value added can be attributed to the Central WS region. There is a contribution of $5.2m to household incomes (44 per cent to the Central WS region). Of the 138 employed, 56 were employed within the Central WS region.

The impacts are relatively small in all three regions reflecting the small number of PAs in the WS regions and the relatively low levels of management expenditure. The Central WS region has the largest share of these expenditures because there is a greater number of PAs within that region.

Table 6-2: Total Impact of PA Management 2005-06

		Flow-on Effects			
IMPACTS	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	**TOTAL IMPACT**
GROSS OUTPUT ($'000)					
Northern	2,626	213	1,027	1,240	3,866
Central	3,271	581	1,912	2,493	5,764
Southern	2,463	318	1,117	1,435	3,898
Total	8,360	**1,112**	**4,055**	**5,167**	**13,527**
VALUE-ADDED ($'000)					
Northern	1,597	103	609	713	2,309
Central	2,012	281	1,041	1,322	3,334
Southern	1,127	145	615	760	1,887
Total	**4,736**	**529**	**2,266**	**2,795**	**7,530**
HOUSEHOLD INCOME ($'000)					
Northern	1,340	57	212	269	1,609
Central	1,730	167	427	594	2,325
Southern	998	87	238	325	1,323
Total	**4,068**	**311**	**877**	**1,189**	**5,257**
EMPLOYMENT (no.)					
Northern	38	2	8	9	47
Central	37	5	14	19	56
Southern	24	3	8	11	35
Total	**99**	**9**	**30**	**39**	**138**

The overall impact of park management relative to the WS region economies is shown in Table 6-3. The total impact of park management in each WS region is shown and related to the whole economy to indicate the share of the park management activities and their flow-on effects on the whole economy.

Table 6-3: PA Management Share of Economy, 2005-06

Region and Measure	Whole Economy	Park Management Impact	Percentage
Northern Wheat-Sheep			
Gross Output ($'000)	4,834,822	3866	0.08
Value Added ($'000)	2,963,202	2,309	0.08
Household Income ($'000)	1,097,032	1,609	0.15
Employment (no)	32,242	47	0.15
Central Wheat-Sheep			
Gross Output ($'000)	11,695,433	5764	0.05
Value Added ($'000)	6,869,276	3,334	0.05
Household Income ($'000)	2,994,825	2,325	0.08
Employment (no)	86,375	56	0.06
Southern Wheat-Sheep			
Gross Output ($'000)	15,237,770	3898	0.03
Value Added ($'000)	8,786,139	1,887	0.02
Household Income ($'000)	3,707,596	1,323	0.04
Employment (no)	111,113	35	0.03

Park management expenditure is only a minor part of the WS region economies and is never more than 0.15 per cent. This is because expenditures are small and the economies relatively large. Within all of the regions, park management has the largest overall percentage share in household income reflecting the large share of total expenditure that is in the form of wages and salaries paid to staff.

The distribution of the flow-on impacts among the broad industry groups for the two regions is shown in Figure 6-1 through Figure 6-3 for the Northern WS, Central WS and Southern WS regions, respectively.

The park management flow-on effects are mostly associated with the trade and accommodation sectors and the business services sectors. Public and personal services and manufacturing are the next most important sectors impacted by park management. This pattern is driven primarily by the needs of households for services, as the consumption-induced effects are much larger than the production-induced effects.

Under the gross output and value added measures, the business services group includes the ownership of dwellings values. However, ownership of dwellings does not contribute to employment or household income. As a result, the business services sectors have a noticeably smaller share of the flow-on effects under these measures.

The patterns in the Northern WS, Central WS and Southern WS regions are similar. However, in the Central WS and the Southern WS regions, the diversity of their economies enables them to capture some additional impacts with some of that share being attributed to the agriculture and manufacturing sectors.

Figure 6-1: Industry Distribution of Flow-on Impacts, Northern WS Region, 2005-06

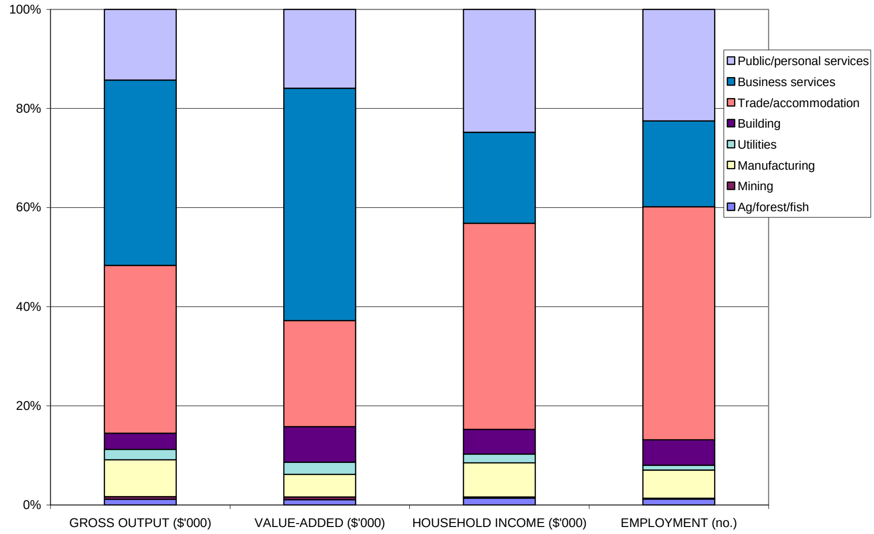


Figure 6-2: Industry Distribution of Flow-on Impacts, Central WS Region 2005-06

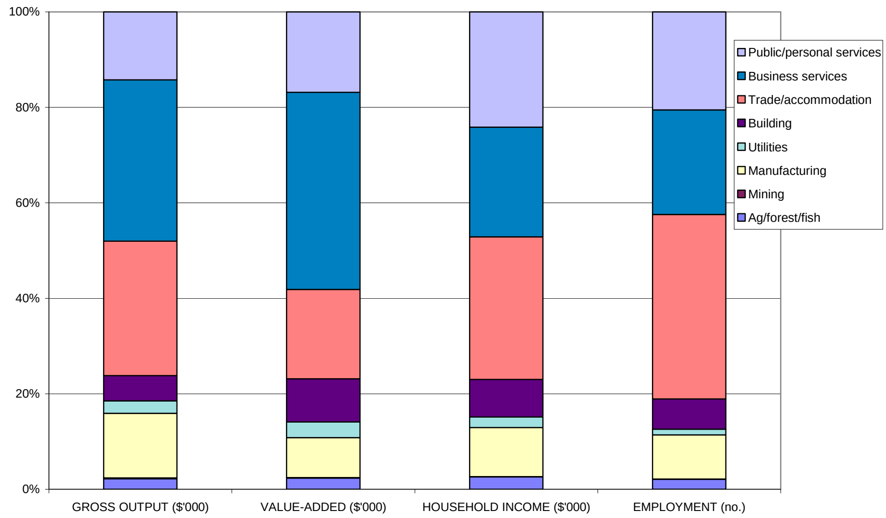
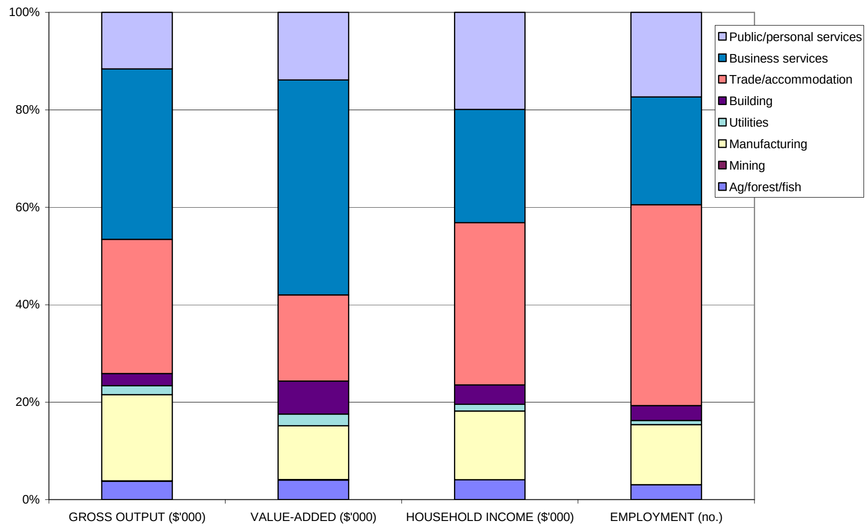


Figure 6-3: Industry Distribution of Flow-on Impacts, Southern WS Region 2005-06



6.2 IMPACTS OF VISITOR EXPENDITURE

6.2.1 Compiling the Data

The data on visitor expenditures have been compiled from information on the number of visitors to the parks. The number of visitors to national parks in 2005-06 are summarised in Table 6-4. These estimates do not include visitors to the region that do not visit national parks or locals who visit national parks as part of their recreation activities. There has been no allowance made to the number of visitors linked to the recent accessions to the PAs as a result of the Brigalow Belt South Bioregion decision or the purchase of 'Yanga'. The visitor numbers to each of the PAs are included in Attachment 3.

Table 6-4: Wheat Sheep Region Park Visitors, 2005-06

Region	Visitor Number	Percentage
Northern	87,999	34
Central	146,709	56
Southern	26,330	10
Total	**261,038**	**100**

The Central WS region was the most popular destination within the WS region with 56 per cent of total visitors. Only 10 per cent of park visits occurred in the Southern WS region.

The compilation of the visitor expenditure data involves taking the eight categories of expenditure provided and allocating it to the relevant sectors in the input-output table. Those values are then adjusted for imports and indirect taxes to reach a set of final demand expenditures. The estimated expenditures used in the analysis are shown in Attachment 2. The analysis only includes the expenditures that occur within the respective regions and does not include travel costs associated with travel to the region and incurred outside of the region.

The estimates of visitor expenditure have differentiated between the three regions based on the spending patterns for each of the regions. Total visitor expenditure for 2005-06 is shown in Table 6-5. Total expenditure in the three regions was $17.4m with 54 per cent ($9.4m) accruing to the Central WS region. The smallest expenditure was $1.9m in the Southern WS region. The main costs incurred were vehicle costs for travel in the region, accommodation, meals and other shopping. Most visits were made by private vehicle with most accommodation and meals taken outside of the parks themselves. There is a notable expenditure on other shopping that provides opportunities for other businesses involved in retail trade.

Table 6-5: Summary of Visitor Expenditure, WS Regions, 2005-06

Expenditure $million	**Northern**	**Central**	**Southern**	**Total**
Accommodation inside park	1.00	0.00	0.15	1.15
Accommodation other	1.01	2.49	0.35	3.85
Prepared meals and drinks	0.88	2.63	0.31	3.81
Other shopping	1.54	1.74	0.44	3.72
Vehicle costs (Private)	1.74	1.94	0.35	4.03
Other transport	0.00	0.14	0.03	0.18
NPWD tours	0.07	0.01	0.00	0.08
Other tours	0.07	0.01	0.00	0.08
Entertainment	0.09	0.28	0.00	0.38
Other	0.01	0.09	0.00	0.10
Total	**6.41**	**9.34**	**1.64**	**17.38**

6.2.2 Visitor Expenditure Impacts 2005-06

A summary of the resulting estimates of park visitor expenditure is shown in Table 6-6. The total expenditure is estimated to be $17.4m of which the local component used to estimate flow-on impacts is $11.7m. Around 35 per cent of the expenditure accrues in the Northern WS region, 55 per cent to the Central WS region and 10 per cent to the Southern WS region.

Table 6-6: Estimation of Local Visitor Expenditure 2005-06 ($'000)

$'000	Total Expenditure	less Taxes	less Imports	Local Expenditure
Northern	6,406	1,015	1,324	4,067
Central	9,336	1,407	1,418	6,510
Southern	1,638	242	270	1,126
TOTAL	**17,379**	**2,664**	**3,012**	**11,703**

The definitions and interpretation relating to economic impacts from the previous section also applies to these results. In this case, the impacts are not derived from the application of a single multiplier as in the case with PA management expenditures. This is a composite of multipliers that are applied to each of the expenditure items estimated from the initial data. The multipliers shown in Table 6-7 represent a weighted average multiplier for that particular set of visitor expenditures in the respective regions.

Table 6-7: Visitor Expenditure Multipliers, WS Regions, 2005-06

		Flow-on Effects				
MULTIPLIERS	Direct Effect	Production Induced	Consumption Induced	Total Flow-on	**TOTAL IMPACT**	Type II
GROSS OUTPUT ($)						
Northern	1.000	0.156	0.130	0.285	1.285	1.285
Central	1.000	0.324	0.207	0.531	1.531	1.531
Southern	1.000	0.342	0.232	0.574	1.574	1.574
TOTAL	**1.000**	**0.225**	**0.163**	**0.388**	**1.388**	**1.388**
VALUE-ADDED ($)						
Northern	0.280	0.075	0.077	0.152	0.432	1.541
Central	0.291	0.146	0.113	0.259	0.550	1.892
Southern	0.276	0.151	0.128	0.279	0.555	2.009
TOTAL	**0.284**	**0.104**	**0.092**	**0.197**	**0.480**	**1.693**
HOUSEHOLD INCOME ($)						
Northern	0.139	0.037	0.027	0.064	0.203	1.461
Central	0.134	0.072	0.046	0.118	0.252	1.882
Southern	0.153	0.073	0.049	0.122	0.275	1.798
TOTAL	**0.138**	**0.051**	**0.035**	**0.086**	**0.224**	**1.626**
EMPLOYMENT (no./$m)						
Northern	5.9	1.2	0.9	2.1	8.0	1.364
Central	5.9	2.1	1.5	3.6	9.5	1.617
Southern	6.7	2.2	1.7	3.9	10.6	1.580
TOTAL	**5.9**	**1.6**	**1.2**	**2.8**	**8.7**	**1.466**

The multipliers are higher than those for park management. They are lowest for the Northern WS region with the values similar in the Southern WS and Central WS regions. The production-induced multipliers are consistently larger than the consumption-induced multipliers. Production-induced multipliers are heavily dependent on the local capacity to produce goods and services. The large share of expenditures on accommodation and meals, and to shopping and vehicle expenditures, mean that a higher proportion of these services are locally provided than in the case of park management. The Northern WS region is much smaller than the Southern and Central WS regions and is expected to have lower multipliers. That outcome is reinforced by the absence of a major regional centre (such as Tamworth) in the region. On the other hand, the Southern and Central WS regions include centres such as Dubbo, Orange, Wagga Wagga and Albury.

The level of the economic impacts is shown in Table 6-8. Over the three regions, the total value in terms of GRP is $8.8m which generated 157 jobs and contributed $4.1m of wage and salary income to households in the regions. The impact on the Central WS region is the largest at around 57 per cent. The total impact on the Southern WS region is about 10 per cent of the total whilst the impact on the Northern WS region accounts for approximately 32 per cent of the total. The production-induced impacts account for around 55 per cent of the flow-on impacts.

Table 6-8: Economic Impacts of Visitor Expenditure, WS Regions, 2005-06

IMPACTS	Direct Effect	Flow-on Effects: Production Induced	Flow-on Effects: Consumption Induced	Flow-on Effects: Total Flow-on	TOTAL IMPACT
GROSS OUTPUT ($'000)					
Northern	6,406	998	830	1,829	8,234
Central	9,336	3,022	1,933	4,955	14,290
Southern	1,638	560	380	940	2,578
TOTAL	17,379	**4,581**	**3,143**	**7,724**	**25,103**
VALUE-ADDED ($'000)					
Northern	1,796	478	493	971	2,768
Central	2,714	1,367	1,053	2,420	5,134
Southern	453	248	209	457	909
TOTAL	**4,963**	**2,093**	**1,755**	**3,848**	**8,811**
HOUSEHOLD INCOME ($'000)					
Northern	891	239	172	411	1,302
Central	1,249	670	432	1,102	2,351
Southern	250	119	81	200	450
TOTAL	**2,390**	**1,027**	**685**	**1,712**	**4,102**
EMPLOYMENT (no.)					
Northern	38	8	6	14	51
Central	55	19	14	34	88
Southern	11	4	3	6	17
TOTAL	**103**	**31**	**23**	**54**	**157**

The final step is to put these findings into the context of the overall economy. This is shown in a summary form in Table 6-9 where the total impacts are related to the total measures for the respective economies. The impact of visitor expenditure on the region is larger than park management impacts. However, the share is small and in all cases and measures is less than 0.2 per cent of the economy.

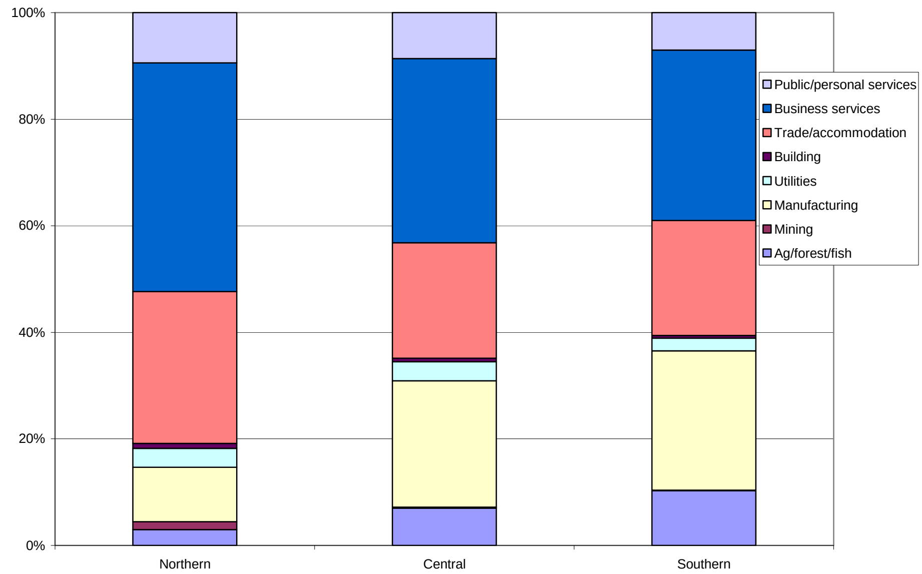
Table 6-9: Visitor Expenditure Share of Economy, WS Regions, 2005-06

Region and Measure	Whole Economy	Visitor Impact	Percentage
Northern Wheat-Sheep			
Gross Output ($'000)	4,834,822	8,234	0.17
Value Added ($'000)	2,963,202	2,768	0.09
Household Income ($'000)	1,097,032	1,302	0.12
Employment (no)	32,242	51	0.16
Central Wheat-Sheep			
Gross Output ($'000)	11,695,433	14,290	0.12
Value Added ($'000)	6,869,276	5,134	0.07
Household Income ($'000)	2,994,825	2,351	0.08
Employment (no)	86,375	88	0.10
Southern Wheat-Sheep			
Gross Output ($'000)	15,237,770	2,578	0.02
Value Added ($'000)	8,786,139	909	0.01
Household Income ($'000)	3,707,596	450	0.01
Employment (no)	111,113	17	0.02

6.2.3 Flow-on Visitor Impacts

The industry composition of the flow-on effects from visitor expenditure is shown in two dimensions. First, there is a comparison of the three regions, Northern WS, Central WS and Southern WS. This is shown in Figure 6-4 using the gross output measure.

Figure 6-4: Industry Distribution of Visitor Flow-on Impacts



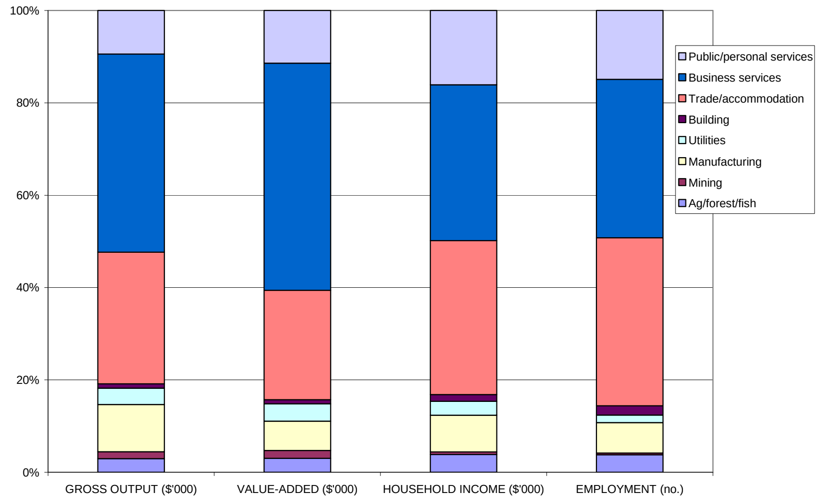
The following features can be identified in these results:

- It is apparent that the shares of the flow-on effects among the broad industries are comparable over the three regions.
- The largest flow-on effects accrue to the business services industries that account for over 30 per cent of the flow-on effect in all of the regions. This includes the specific sectors of ownership of dwellings, property services, other business services, communications, banking, road transport and services to transport.
- Around 20 per cent of the impacts flow to the accommodation and restaurants and retail and wholesale trade sectors in the Central WS and Southern WS regions while in the Northern WS region the flow-on effect is equal to 28 per cent.
- In the Central WS and Southern WS regions the flow-on effect to the manufacturing industry is 21 per cent. However the flow-on effect in the Northern WS region is almost half that at 10 per cent. This may be attributed to the low level of manufacturing production in the Northern WS region.
- The public/personal services sectors each accrue less than 10 per cent of the impacts in each of the regions.

The industry distribution of the flow-on effects for Northern WS region visitors is shown in Figure 6-5. The data on which these charts are based are included in Attachment 4.

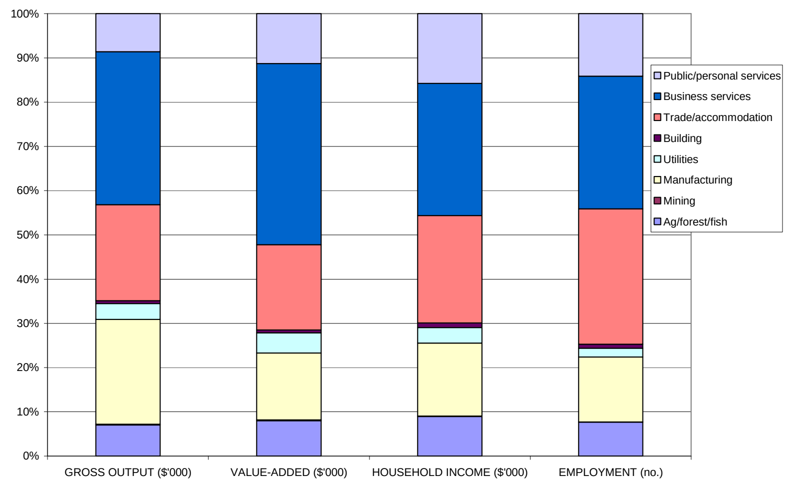
These charts include all four measures. There is a difference in the shares depending on the measures used. The shares attributed to business services are notably smaller for the household income and employment measures. This stems from the absence of employment and income effects for the ownership of dwellings. As a result they are included in the gross output and value-added measures but not household income from employment and employment itself.

Figure 6-5: Visitors Flow-on Impacts, Northern WS region 2005-06



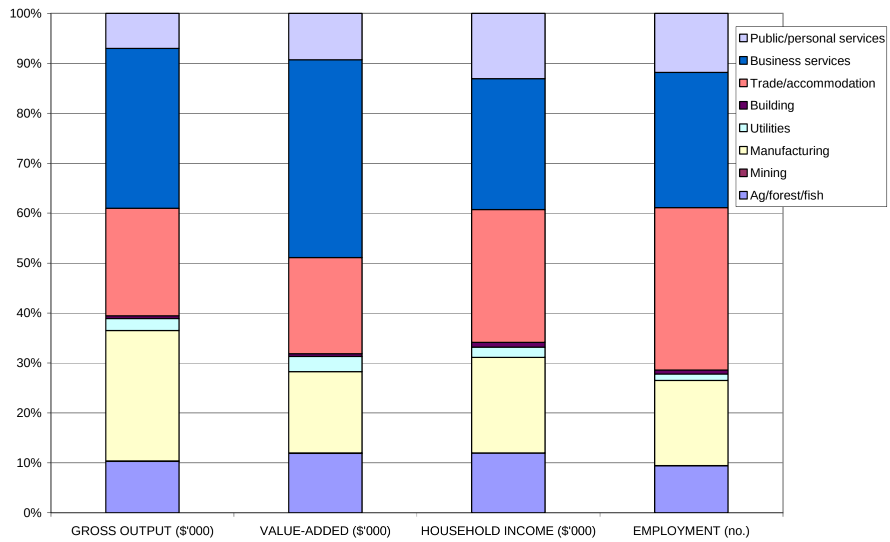
The results show that the flow-on effects are concentrated in the business services, trade and accommodation and public/personal services industries. This reflects the economic structure of the Northern WS region economy.

Figure 6-6: Flow-on Impacts, Central WS Region, 2005-06



The industry distribution of the flow-on impacts for the Central WS region is shown in Figure 6-7 (see the data in Attachment 4). The pattern in the Central WS region is different from the Northern WS region by a smaller flow-on impact to the business service and trade and accommodation sectors and larger flow-on impacts to the manufacturing sector. This reflects the expenditure pattern of visitors and the structure of the economy.

Figure 6-7: Visitor flow-on impacts, Southern WS Region, 2005-06



The visitor expenditure flow-on effects in the Southern WS region is similar to the impacts within the Central WS region (see Figure 6-7).

6.3 SUMMARY

The analysis is focused on the economic impacts of expenditures on PA management and operations and the expenditures of visitors to the PAs. Estimates of the expenditures in both categories were provided by DEC and these constitute the direct impacts. Those data were configured to fit the input-output format to estimate multipliers and flow-on impacts. The total impacts were then related to the overall size of the regional economies derived from the estimated input-output models.

Expenditure on the management and operation of the PAs amounted to $8.4m with $2.6m allocated to the Northern WS region, $3.3m in the Central WS region and $2.5m to the Southern WS region. Employment was 38 in the Northern WS region, 37 in the Central WS region and 24 in the Southern WS region. Wages and salaries comprised the largest part of the total expenditure while many of the materials used were imported to the regions.

The flow-on effects were relatively small as indicated by multipliers with a value between 1.3 and 1.6 depending on the measure used. Most of the flow-on impacts are associated with the spending of household income (consumption-induced impacts) and most accrue to the business services and trade and accommodation groups of industries. Overall, the total impacts amounted to $7.5m of GRP with $2.3m accruing in the Northern WS region, $3.3m in the Central WS region and $1.9m in the Southern WS region. The total employment impact was 138 jobs accrued with 47, 56 and 35 in the Northern WS, Central WS and Southern WS regions, respectively.

The total number of visitors to the WS Belt regions was 261,000. Their total expenditure amounted to $17.4m of which $11.7m accrued to businesses in the region. The Central WS region accounted for around 44 per cent of visitor expenditure, the Northern WS region 35 per cent and the Southern WS region about 10 per cent. The flow-on impacts were larger than those for PA management reflecting the higher multiplier values of the order of 1.6 but depending on the economic measure used. For these expenditures, the production-induced effects were larger than the consumption-induced impacts indicating that there was considerable local capacity to meet the expenditures of the visitors.

The total impacts amounted to $8.8m of GRP with $2.7m accruing in the Northern WS region $5.1m in the Central WS region and $0.9m accruing in the Southern WS region. In employment terms these amounted to 157 jobs in total with 51 in the Northern WS region, 88 in the Central WS region and 17 in the Southern WS region. Most of the flow-on effects accrued to the trade and accommodation and business services groups of industries. In the Central and Southern WS regions there is a notable flow-on to the manufacturing group of activities.

The impacts were small relative to the regional economy and represented a little more than 0.1 per cent in the Northern WS region, around 0.1 per cent in the Central WS region and about 0.02 per cent in the Southern WS region.

7 SUMMARY AND CONCLUSION

7.1 THE STUDY

The Parks and Wildlife Division of the Department of Environment and Conservation (DEC) outlined that the objectives for this project are as follows:

- To evaluate the regional economic impact of DEC Parks and Wildlife Division (PWD) expenditure on park management for all parks and reserves in the wheat-sheep belt through the use of input-output analysis.
- To evaluate the regional economic impact of park visitor expenditure in the study area, through the use of input-output analysis based on data collected by DEC on visitor numbers and visitor expenditure.
- To assess changes to the regional economies of the study areas currently occurring and expected to occur in the near future, with particular attention to the primary sector (agriculture and mining) and tertiary sector (especially recreation and tourism).
- To project the above regional input-output tables for both areas to 2011 and to re-examine the impact of park management and park-related visitor expenditure on the regional economies of the study area.

This report includes the analyses of the economies and economic impacts to 2005-06 with the projected analyses to 2010-11 to be included in a supplementary report.

The study region comprises three regions:

- The Northern wheat-sheep belt region containing three national parks and 14 nature reserves;
- The Central wheat-sheep belt region consists of six national parks, 14 nature reserves, three historical sites and two state conservation areas;
- The southern wheat-sheep belt region which contains six national parks, 28 nature reserves and one historical site.

7.2 THE NORTHERN WS REGION

The Northern WS region economy is dominated by primary industry and related activities. Irrigated cotton, cereals and cattle are of great importance with coal mining making a comeback. These industries are internationally competitive and have been increasing productivity rapidly over many years. That has the implication of generating less employment in the economy generally unless it is offset by new industries that service both local and export markets. There has been little development of a more diverse industry base serving a range of markets. Thus, when primary industry and related activities encountered a difficult decade in the 1990s, the Northern WS region economy performed poorly and declined. Jobs were lost, household income declined and the dependence on welfare payments increased. Those local trends were reinforced by other adjustments made in the service industries such as transport and communications and banking. Some of these characteristics are also related to the absence of a major regional centre within the region (Tamworth is outside this region).

The population of the region has been declining and ageing with a preponderance of jobs that favour males. As a result, the opportunities for females have been limited with many commuting to work in Tamworth or leaving the region. However, the prospects for the 2000s are better. The agricultural situation has improved, notwithstanding the effects of the drought, and there is a rebound in coal mining. Some of the factors that led to less economic activity in the region in the 1990s have abated so that employment is again increasing, along with investment and the population.

The fact remains that there are economic structure issues in the Northern WS region economy that need to be addressed to provide a robust economy and an improved array of employment opportunities (especially for females). A reduced dependence on primary industries is a necessary step based on the development of new industries with a focus on markets beyond the region. Some of those developments are occurring in Tamworth, but more needs to be achieved in the Northern WS region itself.

The Northern WS region represents about one per cent of the NSW economy. The export pattern is highly primary industry dependent and it has a trading deficit with the rest of the world with high levels of imports by the primary industries and households. Households spend much more than they earn from employment with additional income derived from own operated businesses, from government benefits and from borrowings.

7.3 THE CENTRAL WS REGION

The Central WS region has a geographic strategic advantage located west of Sydney with much of the region relatively close to the capital. It is also astride the main transport routes to the west and the north-south connection along the Newell Highway. The land resource includes tablelands, slopes and plains, providing the basis for a range of agricultural activities and the possibility for irrigation to stabilise and diversify the range of products grown in the region. Finally, the inclusion of three substantial regional centres, Orange, Bathurst and Dubbo supports a substantial manufacturing and service industry base.

The diversity within the Central WS region is greater than within the Northern WS region. The primary industries sector in the region is strong and provides the basis for a range of processing and wholesale trade operations. The region includes a national household appliance manufacturer and some significant mining operations that add diversity to the economy. The larger total economy also provides the basis for the provision of many services at near to the NSW level of service. The main deficiency is the limited array of services to support business development and management.

Overall, the Central WS region has generally shared in the growth of the NSW economy. However, there were factors operating in the region that reduced that performance in the second half of the 1990s. Some of those factors such as the run of poor seasons impacting on agriculture have continued into the 2000s.

The Central WS region economy is over twice the size of the Northern WS region. This region economy is less dependent on export markets given that it is a larger economy. Primary products and related processed products dominate the export pattern and there is a trading deficit with the rest of the world. Household expenditure exceeds earnings from employment by a considerable margin, but they are less reliant on net government benefits than the Northern region.

7.4 THE SOUTHERN WS REGION

The Southern WS region is the larger of the three WS regions, both geographically and in terms of the economy, at triple the size of the Northern WS region and one-third larger than then Central WS region. It is a region that is closest to the NSW economy in terms of its structure and performance. The natural resource base, the range of land types and access to water for irrigation provides a strong base for agricultural production. The region is notable for the range of crop and livestock production that occurs within ready reach of the two largest cities in Australia. The transport infrastructure is also well developed to facilitate that access.

The Southern WS region has a substantial manufacturing base. The processing of primary products is a significant part but it does include other manufacturing operations of high value in cities such as Albury-Wodonga and Wagga Wagga. There are also substantial transport and trade capacities to facilitate the primary and manufacturing industries. Combined, the primary and manufacturing industries have provided the region with the basis for steady growth over the past two decades.

The size of the region provides the basis for a well-developed set of service activities in the region. The existence of a substantial defence presence in the region adds to that structure. However, even in this region, there is a relatively weak presence of those activities that support businesses such as banking, finance, communications and accounting. The region is much better serviced in terms of public administration, health, education and community care. That is at least the case for the major centres. It is probable that the level of services available in the remoter parts of the region will be much less adequate.

The region has high export dependence and a trading deficit with the rest of the world but it is a smaller deficit than in the other regions. The substantial and diversified export base probably accounts for that. Households use other sources of income and borrowings to fill the gap between earnings from employment and expenditure. Overall, this is a mature, steady growth region economy. It may be significantly impacted by major changes in water policy.

7.5 THE ECONOMIC IMPACT ANALYSIS

The analysis is focused on the economic impacts of expenditures on PA management and operations and the expenditures of visitors to the PAs. Estimates of the expenditures in both categories were provided by DEC and these constitute the direct impacts. Those data were configured to fit the input-output format to estimate multipliers and flow-on impacts. The total impacts were then related to the overall size of the regional economies derived from the estimated input-output models.

Expenditure on the management and operation of the PAs amounted to \$8.4m with \$2.6m allocated to the Northern WS region, \$3.3m in the Central WS region and \$2.5m to the Southern WS region. Employment was 38 in the Northern WS region, 37 in the Central WS region and 24 in the Southern WS region. Wages and salaries comprised the largest part of the total expenditure and many of the materials used were imported to the regions.

The flow-on effects were relatively small as indicated by multipliers with a value between 1.3 and 1.6 depending on the measure used. Most of the flow-on impacts are associated with the spending of household income (consumption-induced impacts) and most accrue to the business services and trade and accommodation groups of industries. Overall, the total impacts amounted to $7.5m of GRP with $2.3m accruing in the Northern WS region, $3.3m in the Central WS region and $1.9m in the Southern WS region. The total employment impact was 138 jobs accrued with 47, 56 and 35 in the Northern WS, Central WS and Southern WS regions, respectively.

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The total impacts amounted to $8.8m of GRP with $2.7m accruing in the Northern WS region, $5.1m in the Central WS region and $0.9m accruing in the Southern WS region. In employment terms these amounted to 157 jobs in total with 51 in the Northern WS region, 88 in the Central WS region and 17 in the Southern WS region. Most of the flow-on effects accrued to the trade and accommodation and business services groups of industries. In the Central and Southern WS regions there is a notable flow-on to the manufacturing group of activities.

The impacts were small relative to the regional economy and represented a little more than 0.1 per cent in the Northern WS region, around 0.1 per cent in the Central WS region and about 0.02 per cent in the Southern WS region. They are summarised in Table 7-1.

Table 7-1: Summary of Total Impacts

Region and Measure	Whole Economy	Park Management	Visitor Impact	Total Impact	Percentage
Northern Wheat-Sheep					
Gross Output ($'000)	4,834,822	3866	8,234	**12,100**	0.25
Value Added ($'000)	2,963,202	2309	2,768	**5,077**	0.17
Household Income ($'000)	1,097,032	1609	1,302	**2,911**	0.27
Employment (no)	32,242	47	51	**99**	0.31
Central Wheat-Sheep					
Gross Output ($'000)	11,695,433	5764	14,290	**20,054**	0.17
Value Added ($'000)	6,869,276	3334	5,134	**8,467**	0.12
Household Income ($'000)	2,994,825	2325	2,351	**4,676**	0.16
Employment (no)	86,375	56	88	**144**	0.17
Southern Wheat-Sheep					
Gross Output ($'000)	15,237,770	3898	2,578	**6,476**	0.04
Value Added ($'000)	8,786,139	3334	909	**4,243**	0.05
Household Income ($'000)	3,707,596	1323	450	**1,773**	0.05
Employment (no)	111,113	35	17	**52**	0.05

7.6 CONCLUSIONS

The wheat sheep belt of NSW is the mainstream agricultural area of NSW. The intensity of land use for primary production is high and the amount of land in PAs is relatively low. The consequences of these fundamentals are:

- The economic activities associated with the management and operations of the PAs are modest in total and relative terms.

- The number of visitors to the PAs is modest at about 260,000 per year and the contribution of the expenditure of these visitors to the regional economies is small in relative terms.

- For the three economies, the role of visitors to the region is small relative to some regions on the coast and ranges. That is a reflection of both the attraction of the regions for visitation and the substantial other economic activities in the regions.

- It seems likely that further accessions to the PAs in the regions will have modest impacts on the level and nature of visitation to the PAs given trends in the level of visitation to the region. However, the effects could be significant at particular locations.

- Further accessions to the PAs may involve significant opportunity costs given the high level of land development in the regions. This will vary depending on the location.

ATTACHMENT 1: INPUT-OUTPUT METHODS

Input-output methods

Input-output models are an established part of the system of national accounts and are integral to the estimation of Gross National Product (GNP). (The detailed tables are published by the ABS (Cat No 5209.0) which includes details of the model, the classification system (shown later in this Attachment) and the relationship to the national accounts.) The input-output tables detail the interindustry trade that occurs among industries in an economy. The tables are constructed on a 'double entry' system that ensures that the supply of product from any industry has to be equal to the use of the products of that industry including any exports and imports and stock changes.

The input-output table has an important role in describing the economic structure of an economy, in particular the nature and intensity of interindustry trade. A subsistence economy where all business/household entities are self-sufficient will have no interindustry trade. Economic development involves an increase in the level of interindustry trade as businesses and households specialise in the production of goods and services and trade with other entities for the supplies that they need. The consistent development of input-output tables under a set of conventions makes it possible to compare these characteristics of an economy at different points of time and to compare economies in a consistent way. For this study, input-output tables are used to describe the economic structure of the NSW WS regions.

The interindustry linkages are the basis of flow-on effects that occur when one industry has an impact on other industries. Those flow-on impacts will operate through:

- Changes in the demand for inputs by the affected industry, or
- Changes in their production that will impact on the downstream marketers, handlers and users of the product.

The model is structured in a way that it is mathematically possible to estimate those effects through the use of 'multipliers'. Larger multipliers indicate that there is a high level of interindustry trade among the affected industries. This study is an analytical application of input-output models to estimate the flow-on effects to the regional economy from the activities affected by the declaration of the MP and associated zoning plan.

The multipliers are calculated on the basis of a number of assumptions. The most important are:

- A linearity assumption that implies that any change has proportionate effects throughout the economy so that there are no substitutions among inputs and products. That applies to both inputs used in production and goods and services used in consumption. This assumption may not be critical over a range of types of change and price changes where it takes time to adjust production systems. There is a general concern in that production systems involve a set of fixed costs that do not change in response to short-run adjustments in production. In consumption, the same effect occurs in relation to discretionary and non-discretionary expenditures on goods and services. The estimated multipliers reflect the long-run effects after all of the adjustments have occurred. In that case the linearity assumptions need to be viewed in a context of possible structural changes that may occur in the industry or economy.

- A set of homogeneity assumptions that mean all of the entities in the specified sectors are the same in terms of production technology, products produced, goods consumed, etc. This is probably the most critical assumption given that the modern economy is comprised of such a multitude of differentiated products and production systems. These are aggregated into 106 sectors or groups that are intended to be similar within those groups. As a result, there is an important initial task in any impact analysis to make an assessment of whether the 'average' structure that appears in the sector to which an industry belongs is appropriate for the analysis. If it is not, then a separate sector needs to be compiled.

- There is no consideration of market effects in the input-output model and all results are based on real changes in production of goods and services. There can be a range of price effects that may influence outcomes including changes in input prices, product prices, wages and interest rates. Exchange rate changes may also be an important factor in price changes. For most studies of regional industries, these price effects will not be critical issues because of the small size of those industries relative to national and sometimes international markets..

The use of input-output models is justified in a number of ways.

1. The input-output models can be readily compiled relative to other types of models that include market effects.

2. In assessing regional impacts, many of the industries that will be affected are likely to be a small proportion of the total market for that industry so that any price effects are likely to be small.

3. The analyses can be easily carried out and the tools can be used in ways that allow analysis of variations of the scope of the MP and the way the zoning is implemented.

Constructing the Tables

The region tables are compiled using the GRIT method developed at the University of Queensland and widely applied in Australia for the construction of state and region tables. GRIT is a hybrid method that involves the use of available data combined with computer-based computations to develop the detail of the table. For a description of the method, see West (1990). CARE has used variations of this method over two decades to estimate tables for NSW and for the compilation of tables for regions within NSW.

The major source of data is the ABS and particularly the Population Census that is the only source of detailed data on employment by industry. As a result, most tables are constructed for population census years, the most recent being for 2000-01. Projected tables for future years are generally built on projecting the most recent population census employment data into the future.

The Multipliers

The multipliers calculated from the input-output tables and used in these analyses are shown as comprising the following:

- The **direct effect,** which is the gross output (total sales or the actual expenditures) of the product or service;
- The **production-induced effect**, which shows the flow-on effects generated through the purchase of goods and services to produce the good or service;
- The **consumption-induced effect**, which shows the flow-on effects that are generated through the payments of wages and salaries to households and the subsequent expenditure of those incomes of purchasing household goods and services;
- **Total Flow-on**, which is the sum of the production-induced and consumption-induced effects;
- **Total impact**, which is the sum of the direct and total flow-on effects; and
- **Type II** which is a ratio between the total impact and the direct effect.

All of these multipliers are what are described as “Final Demand Multipliers”. This means that they are calculated as if the direct effects are sales to final demand (to consumption, exports, capital formation or government consumption). The multipliers are used by applying the appropriate value to the gross output value to estimate the total impact. The multipliers should be interpreted as ‘indicating the flow-on effects generated by a $1 change in gross output (in the case of employment it is $1m).

The multipliers are calculated for the following measures:
Gross output, which is equivalent to business turnover;
Value added, which is the payment to labour and capital,
Household income is the wage and salary component of value added, but including an imputed wage for self-employed labour. (This approximates Gross Regional Product.)
Employment, which is the number employed unadjusted for hours worked or other factors.

The ANZSIC Industry Classification

Sector Aggregation	107 IO Sectors
Sheep	Sheep for meat and wool
Grains	Grains inc. cereals, oilseeds, legumes
Beef Cattle	Beef cattle
Dairy Cattle	Dairy cattle
Pigs	Pigs
Poultry	Poultry for meat and eggs
Other Agriculture	Other agriculture, inc. nurseries, vegetables, fruit, cotton, tobacco, sugar cane, herbs, hay, goats, horses, deer, beekeeping, pet breeding.
Services to agriculture	Cotton ginning, shearing and wool classing, aerial ag services, contract harvesting, seed grading, land clearing; hunting
Forestry	Forestry and logging
Fishing	Commercial fishing and aquaculture
Mining	Coal; oil and gas
	Iron ores
	Non-ferrous metal ores
	Other mining inc. construction materials
	Services to mining inc. exploration
Food Mfg	Meat and meat products
	Dairy products
	Fruit and vegetable products
	Oils and fats
	Flour and cereal foods
	Bakery products
	Confectionery
	Other food products inc sugar, seafood, animal/bird feed, spices, herbs, savoury snacks, tea, honey - blended etc.
	Soft drinks, cordials, syrups
	Beer and malt
	Wine and spirits
	Tobacco products
Textile Mfg	Textile fibres, yarns and woven fabrics
	Textile products inc. blinds, awnings, curtains, sails, tents, carpets, rugs, ropes, nets, string, cord, bags, sacks etc.
	Knitting mill products
	Clothing
	Footwear
	Leather and leather products
Wood Mfg	Sawmill products inc sawn timber, woodchips, dressed timber, plywood, veneer, fabricated boards Other wood products inc. structural components - windows, doors, trusses, frames, containers, pallets, cases, log preservation.
Printing/Publishing	Pulp, paper and paper-board
	Paper bags and products
	Printing; services to printing
	Publishing; recorded media etc
Chemical Mfg	Petroleum and coal products
	Basic chemicals inc. fertilisers, industrial gas/chemicals, synthetic resins, dyes, acid, salt, urea, fluoride, chlorine etc.
	Paints
	Pharmaceuticals etc inc. drugs, medicines, medicinal preparations
	Soap and detergents
	Cosmetics and toiletries
	Other chemical products inc. explosives, ink, glue, polish, cleaners
	Rubber products
	Plastic products
Mineral Mfg	Glass and glass products

Sector Aggregation	107 IO Sectors
	Ceramic products
	Cement, lime and concrete slurry
	Plaster; other concrete products
	Non-metallic mineral. products nec inc. abrasives, chalk, stone products, insulation materials, ag/hydrated/quick lime,
Metal Mfg	Iron and steel rolling, galvanising, casting, forging, pipes and tubes
	Basic non-ferrous metals inc alumina, aluminium, copper, silver, lead, zinc, gold, bronze, nickel, tin – smelting, refining, rolling, drawing, extruding, casting, forging
	Structural metal products inc girders, reo-mesh, architectural products, doors, gates, windows etc
	Sheet metal products inc. containers, guttering, downpipes, tanks
	Fabricated metal products inc. tools, general hardware, springs, wire, nails, nuts, bolts, screws, rivets, metal coating, non-ferrous pipe fittings, miscellaneous metal products
Mach/Equip Mfg	Motor vehicles and parts etc
	Ships and boats
	Railway equipment
	Aircraft
	Scientific etc equipment inc photographic, optical, medical, surgical
	Electronic equipment inc. computer, telecommunication, radio, TV
	Household appliances
	Other electrical equipment inc. cable, wire, batteries, lights, signs, fuses, electric motors, generators, welding equip. etc
	Agricultural, mining, construction machinery inc lifting/handling
	Other machinery and equipment inc. food processing, machine tool/part, pumps/compressors, commercial heating/cooling equip.
Other Mfg	Prefabricated buildings
	Sheet metal, wooden and upholstered furniture, mattresses, pillows, cushions (not rubber)
	Other manufacturing inc jewellery, toy, sporting goods, brushes, miscellaneous goods
Utilities	Electricity generation, distribution and supply
	Gas distribution and town gas mfg/dist. Via mains
	Water supply, sewerage and drainage services
Residential Building	Residential building
Other Construction	Non-residential building, Non-building construction inc. road/bridge, earthmoving, irrigation, mitigation
Wholesale Trade	Resale of new or used goods to business or institutional users.
Retail Trade	Resale of new or used goods to final consumers for personal or household consumption eg main-street establishments
Mechanical Repairs	Mechanical repairs
Other Repairs	Other repairs in. household equipment repairs etc
Accommodation Restaurants	Accommodation inc. hotels, motels, guest houses, youth hostels, student residences, camping grounds, caravan parks; cafes & restaurants; hospitality clubs, pubs, taverns and bars
Road Transport	Road freight and passenger transport
Rail Transport	Rail; pipeline; other inc. cable car, chair lift etc
Water Transport	International, coastal, inland water transport inc sea freight, cruise operation, boat charter, ferry.
Air Transport	Scheduled domestic and international air transport and non-scheduled air & space transport.
Transport Services	Services to road, water and air transport; travel agency, freight forwarding, customs agency; storage
Communication	Postal, courier, telecommunications
Banking	Reserve Bank; development, savings and trading banks
Non-bank Finance	Building societies, credit unions, money market dealers, deposit taking financiers, financial asset investors etc

Sector Aggregation	107 IO Sectors
Insurance	Insurance and services
	Services to finance and investment inc. brokers
Ownership of dwellings	Residential Property Operators
Property Services	Commercial property operators and developers, real estate agents, non-financial asset investors, machinery and equipment hiring and leasing
Technical, Computer Services	Scientific research, architectural, surveying, consultant engineering, other technical services, data processing, information storage and retrieval, computer maintenance and consultancy services.
Legal/Account/Mgt/ Mkt'g	Legal, accounting, advertising, commercial art and display, market research, business administration and management services
Other business services	Employment placement, contract staff, secretarial, pest control, cleaning, packing, etc.
Public Administration	Federal, state, local government administration; justice
	Defence
Education	Education
Health	Hospitals, nursing homes, medical and health services; veterinary services
Community Care Services	Child care, accommodation for the aged, residential care services
Entertainment/ Media	Motion picture, film and video, radio and television
Cultural	Libraries, museums, parks and gardens, arts
Sport, Gambling	Sport, gambling and other recreation services
Personal Services	Personal and household goods hiring; laundries, drycleaners; photographic studios and processing, funeral directors etc, gardening, hairdressing etc; private households employing staff
Other Services	Religious organisations; Interest groups - business and professional associations; Public order and safety

ATTACHMENT 2: INDUSTRY DISTRIBUTION OF DIRECT EFFECTS

Park Management

	Wheat-Sheep Region					Wheat-Sheep Region			
	Northern	Central	Southern	TOTAL		Northern	Central	Southern	TOTAL
Sheep	0	0	0	**0**	Fabricated metal products	1	2	11	**14**
Grains	0	0	0	**0**	Motor vehicles and parts etc	0	1	1	**2**
Beef cattle	0	0	0	**0**	Ships and boats	0	0	1	**1**
Dairy cattle	0	0	0	**0**	Railway equipment	0	0	0	**0**
Pigs	0	0	0	**0**	Aircraft	0	0	1	**1**
Poultry	0	0	0	**0**	Scientific etc equipment	3	1	4	**8**
Other agriculture	0	0	0	**0**	Electronic equipment	0	0	0	**1**
Services to agric.; hunting	0	0	0	**0**	Household appliances	0	0	0	**1**
Public Forestry………………..	0	0	0	**0**	Other electrical equipment	1	1	6	**8**
Commercial fishing	0	0	0	**0**	Agricultural, mining etc machinery	7	5	7	**19**
Coal; oil and gas	0	0	0	**0**	Other machinery and equipment	3	2	6	**12**
Iron ores	0	0	0	**0**	Prefabricated buildings	0	0	0	**0**
Non-ferrous metal ores	0	0	0	**0**	Furniture	1	5	0	**6**
Other mining	0	0	0	**0**	Other manufacturing	9	3	13	**25**
Services to mining	0	0	0	**0**	Electricity	0	0	0	**0**
Meat and meat products	0	0	0	**0**	Gas	0	0	0	**1**
Dairy products	0	0	0	**0**	Water, sewerage and drainage	3	6	1	**11**
Fruit and vegetable products	0	0	0	**0**	Residential building	0	0	0	**0**
Oils and fats	0	0	0	**0**	Other construction	46	150	48	**244**
Flour and cereal foods	0	0	0	**0**	Wholesale trade	14	11	20	**44**
Bakery products	0	0	0	**0**	Retail trade	1	1	1	**2**
Confectionery	0	0	0	**0**	Mechanical repairs	12	9	4	**25**
Other food products	0	0	0	**0**	Other repairs	2	7	4	**12**
Soft drinks, cordials, syrups	0	0	0	**0**	Accommodation, cafes & restaurants	35	36	19	**90**
Beer and malt	0	0	0	**0**	Road transport	6	5	5	**16**
Wine and spirits	0	0	0	**0**	Rail, pipeline, other transport	0	0	1	**1**
Tobacco products	0	0	0	**0**	Water transport	0	0	0	**0**
Textile fibres, yarns etc	0	0	0	**0**	Air and space transport	1	13	5	**19**
Textile products	0	0	0	**0**	Services to transport; storage	0	0	0	**0**
Knitting mill products	0	0	0	**0**	Communication services	0	3	5	**8**
Clothing	0	0	0	**1**	Banking	0	0	0	**0**
Footwear	0	0	0	**0**	Non-bank finance	0	0	0	**0**
Leather and leather products	0	0	0	**0**	Insurance	0	0	0	**0**
Sawmill products	0	0	0	**0**	Services to finance etc	0	0	0	**0**
Other wood products	1	10	33	**45**	Ownership of dwellings	0	0	0	**0**
Pulp, paper and paperboard	0	0	0	**0**	Other property services	0	0	0	**0**
Paper bags and products	0	0	0	**0**	Scientific research etc	25	69	85	**179**
Printing; services to printing	1	7	3	**12**	Legal, accounting etc services	0	0	0	**0**
Publishing; recorded media etc	1	1	2	**4**	Other business services	17	78	35	**130**
Petroleum and coal products	0	0	0	**0**	Government administration	34	85	34	**154**
Basic chemicals	0	0	0	**0**	Defence	0	0	0	**0**
Paints	0	4	11	**15**	Education	5	6	2	**12**
Pharmaceuticals etc	0	0	0	**0**	Health services	0	0	0	**0**
Soap and detergents	0	0	0	**0**	Community services	0	0	0	**0**
Cosmetics and toiletries	0	0	0	**0**	Motion picture, radio etc	0	0	1	**1**
Other chemical products	0	0	0	**0**	National Parls	0	0	0	
Rubber products	0	0	0	**0**	Libraries, museums, arts	0	0	0	**0**
Plastic products	0	0	0	**0**	Sport, gambling etc	0	0	0	**0**
Glass and glass products	0	0	0	**0**	Personal services	0	0	0	**0**
Ceramic products	0	0	0	**0**	Other services	7	2	8	**17**
Cement, lime and concrete slurry	0	0	0	**0**	TOTAL	237	526	379	**1,142**
Plaster; other concrete products	0	0	0	**0**					
Non-metallic min. products nec	0	0	0	**0**	H-Holds	1,837	2,110	1,595	**5,542**
Iron and steel	0	0	0	**0**	Taxes	353	344	206	**903**
Basic non-ferrous metals etc	0	0	0	**0**	Imports	199	292	283	**774**
Structural metal products	0	0	0	**0**					
Sheet metal products	0	0	0	**0**	**TOTAL**	2,626	3,271	2,463	**8,360**

Visitor Expenditure

Visitor Expenditure	Wheat-Sheep Region			
	Northern	Central	Southern	TOTAL
Sheep	0	0	0	**0**
Grains	0	0	0	**0**
Beef cattle	0	0	0	**0**
Dairy cattle	0	0	0	**0**
Pigs	0	0	0	**0**
Poultry	0	0	0	**0**
Other agriculture	0	0	0	**0**
Services to agric.; hunting	0	0	0	**0**
Public Forestry………………	0	0	0	**0**
Commercial fishing	0	0	0	**0**
Coal; oil and gas	0	0	0	**0**
Iron ores	0	0	0	**0**
Non-ferrous metal ores	0	0	0	**0**
Other mining	0	0	0	**0**
Services to mining	0	0	0	**0**
Meat and meat products	19	68	18	**105**
Dairy products	3	3	1	**7**
Fruit and vegetable products	4	4	1	**9**
Oils and fats	3	2	1	**7**
Flour and cereal foods	17	20	5	**42**
Bakery products	5	31	5	**42**
Confectionery	0	2	0	**2**
Other food products	3	3	1	**7**
Soft drinks, cordials, syrups	4	5	1	**10**
Beer and malt	0	14	3	**17**
Wine and spirits	10	31	4	**45**
Tobacco products	0	0	0	**0**
Textile fibres, yarns etc	2	2	1	**4**
Textile products	12	18	4	**34**
Knitting mill products	0	0	1	**1**
Clothing	5	9	3	**17**
Footwear	0	3	1	**4**
Leather and leather products	0	0	0	**0**
Sawmill products	0	0	0	**0**
Other wood products	1	7	2	**10**
Pulp, paper and paperboard	0	0	0	**0**
Paper bags and products	0	2	2	**4**
Printing; services to printing	0	0	0	**0**
Publishing; recorded media etc	5	5	1	**12**
Petroleum and coal products	0	0	0	**0**
Basic chemicals	0	0	0	**0**
Paints	0	0	0	**0**
Pharmaceuticals etc	3	3	1	**6**
Soap and detergents	4	4	0	**8**
Cosmetics and toiletries	0	0	2	**2**
Other chemical products	0	0	0	**0**
Rubber products	0	0	0	**0**
Plastic products	1	1	0	**2**
Glass and glass products	0	0	0	**0**
Ceramic products	0	0	0	**1**
Cement, lime and concrete slurry	0	0	0	**0**
Plaster; other concrete products	0	0	0	**0**
Non-metallic min. products nec	0	0	0	**0**
Iron and steel	0	0	0	**0**
Basic non-ferrous metals etc	0	0	0	**0**
Structural metal products	0	0	0	**0**
Sheet metal products	0	0	0	**0**

	Wheat-Sheep Region			
	Northern	Central	Southern	TOTAL
Fabricated metal products	4	4	1	**9**
Motor vehicles and parts etc	20	67	39	**126**
Ships and boats	0	0	0	**0**
Railway equipment	0	0	0	**0**
Aircraft	0	0	0	**0**
Scientific etc equipment	0	0	0	**0**
Electronic equipment	0	0	0	**0**
Household appliances	0	0	0	**0**
Other electrical equipment	0	0	0	**0**
Agricultural, mining etc machinery	0	0	0	**0**
Other machinery and equipment	0	0	0	**0**
Prefabricated buildings	0	0	0	**0**
Furniture	0	0	0	**0**
Other manufacturing	12	13	3	**28**
Electricity	0	0	0	**0**
Gas	0	0	0	**0**
Water, sewerage and drainage	0	0	0	**0**
Residential building	0	0	0	**0**
Other construction	0	0	0	**0**
Wholesale trade	156	190	45	**391**
Retail trade	707	820	186	**1,712**
Mechanical repairs	316	353	64	**733**
Other repairs	0	0	0	**0**
Accommodation, cafes & restaurants	2,509	4,297	692	**7,497**
Road transport	47	123	29	**199**
Rail, pipeline, other transport	4	25	5	**34**
Water transport	0	0	0	**0**
Air and space transport	0	11	3	**14**
Services to transport; storage	0	5	1	**7**
Communication services	0	0	0	**0**
Banking	0	0	0	**0**
Non-bank finance	0	0	0	**0**
Insurance	0	0	0	**0**
Services to finance etc	0	0	0	**0**
Ownership of dwellings	0	0	0	**0**
Other property services	0	0	0	**0**
Scientific research etc	0	0	0	**0**
Legal, accounting etc services	0	0	0	**0**
Other business services	0	0	0	**0**
Government administration	0	0	0	**0**
Defence	0	0	0	**0**
Education	0	0	0	**0**
Health services	3	25	0	**29**
Community services	0	0	0	**0**
Motion picture, radio etc	84	258	2	**344**
Libraries, museums, arts	33	11	0	**43**
Sport, gambling etc	68	53	0	**121**
Personal services	2	17	0	**19**
Other services	0	0	0	**0**
TOTAL	**4,067**	**6,510**	**1,126**	**11,703**
H-Holds	0	0	0	**0**
Taxes	1,015	1,407	242	**2,664**
Imports	1,324	1,418	270	**3,012**
TOTAL	**6,406**	**9,336**	**1,638**	**17,379**

ATTACHMENT 3: WHEAT SHEEP BELT NATIONAL PARKS

Northern WS Region

Northern WS Region	LGA	Non-Local Visitor	Reserve size (ha)
Binnaway Nature Reserve	Warrumbungle	19	3,699
Boomi Nature Reserve	Moree Plains	95	156
Boomi West Nature Reserve	Moree Plains	95	149
Boronga Nature Reserve	Moree Plains	95	195
Brigalow Park Nature Reserve	Narrabri	0	202
Careunga Nature Reserve	Moree Plains	95	469
Coolah Tops National Park	Warrumbungle	7,600	13,265
Gamilaroi Nature Reserve	Moree Plains	0	114
Ironbark Nature Reserve	Barraba/Gwydir	10	1,652
Kirramingly Nature Reserve	Moree Plains	0	1,306
Linton Nature Reserve	Barraba/Gwydir	10	666
Macquarie Marshes Nature Reserve	Coonamble, Warren	95	19,136
Midkin Nature Reserve	Moree Plains	95	359
Mount Kaputar National Park	Barraba,Gwydir, Moree Plains, Narrabri	41,173	36,817
Narran Lake Nature Reserve	Walgett	143	8,535
Pilliga Nature Reserve	Warrumbungle, Gunnedah, Narrabri	475	80,239
Warrumbungle National Park	Warrumbungle, Coonamble, Gilgandra	38,000	23,198
Total		**87,999**	**190,158**

Central WS Region

Central WS Region	LGA	Non-Local Visitors	Reserve size (ha)
Abercrombie River National Park	Oberon	5,400	19,000
Barton Nature Reserve	Cabonne	18	529
Conimbla National Park	Cowra, Weddin	1,800	7,590
Coolbaggie Nature Reserve	Dubbo	90	1,793
Copperhannia Nature Reserve	Bathurst Regional	90	3,497
Dapper Nature Reserve	Warrumbungle	45	999
Dapper Nature Reserve	Wellington	0	999
Eugowra Nature Reserve	Forbes	0	120
Freemantle Nature Reserve	Cabonne	0	361
Girralang Nature Reserve	Cabonne	90	640
Goobang National Park	Cabonne,Narromine, Parkes	6,750	42,080
Hill End Historic Site	Bathurst Regional	40,500	134
Koorawatha Nature Reserve	Cowra	450	1,105
Maynggu Ganai Historic Site	Wellington	90	16
Mount Canobolas State Conservation Area	Cabonne	58,500	1,673
Mullion Range State Conservation Area	Cabonne	5,400	1,025
Nangar National Park	Cabonne	2,700	9,196
Tollingo Nature Reserve	Lachlan	45	3,232
Wambool Nature Reserve	Bathurst Regional	90	194
Weddin Mountains National Park	Weddin	22,500	8,361
Weetalibah Nature Reserve	Warrumbungle	18	613
Winburndale Nature Reserve	Bathurst Regional	270	10,718
Woggoon Nature Reserve	Lachlan	45	6,565
Wongarbon Nature Reserve	Dubbo	18	99
Yuranighs Aboriginal Grave Historic Site	Cabonne	1,800	2
Total		**146,709**	**120,541**

Southern WS Region

Southern WS Region	LGA	Non-Local Visitors	Reserve size (ha)
Benambra National Park	Greater Hume	90	1,399
Big Bush Nature Reserve	Temora	5	640
Black Andrew Nature Reserve	Gundagai	45	1,559
Bogindera Hills Nature Reserve	Temora	9	796
Buddigower Nature Reserve	Bland	18	327
Cocoparra National Park	Carrathool	6,660	8,358
Cocoparra Nature Reserve	Carrathool	27	4,647
Downfall Nature Reserve	Greater Hume	18	496
Ellerslie Nature Reserve	Gundagai	45	1,877
Flagstaff Memorial Nature Reserve	Cootamundra	45	18
Goonawarra Nature Reserve	Hay	0	437
Gubbata Nature Reserve	Bland	9	162
Ingalba Nature Reserve	Temora	180	4,012
Jerilderie Nature Reserve	Jerilderie	18	37
Koonadan Historic Site	Leeton	45	22
Lake Urana Nature Reserve	Urana	27	302
Langtree Nature Reserve	Carrathool	23	235
Livingstone National Park	Wagga Wagga	2,953	1,919
Loughnan Nature Reserve	Carrathool	14	385
Mullengandra Reserve	Greater Hume	90	150
Narrandera Nature Reserve	Narrandera	720	71
Nest Hill Nature Reserve	Greater Hume, Wagga Wagga	45	759
Nombinnie Nature Reserve	Carrathool	9	70,000
Oolamebyan National Park	Hay, Murrumbidgee	135	21,851
Pucuwan Nature Reserve	Temora	27	274
Pulletop Nature Reserve	Carrathool	45	145
Round Hill Nature Reserve	Bland	36	13,630
Tabletop Nature Reserve	Greater Hume	90	104
The Charcoal Tank Nature Reserve	Bland	90	86
The Rock Nature Reserve	Lockhart	9,270	347
Ulandra Nature Reserve	Junee	45	3,931
Wiesners Swamp Nature Reserve	Greater Hume	90	103
Willandra National Park	Carrathool	4,500	19,386
Woomargama National Park	Greater Hume	900	23,577
Yanga Nature Reserve	Wakool	9	1,944
Total		**26,330**	**183,985**

ATTACHMENT 4: INDUSTRY DISTRIBUTION OF FLOW-ON EFFECTS

Park Management

Northern WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	1.14	1.05	1.38	1.19
Mining	0.54	0.57	0.22	0.14
Manufacturing	7.40	4.54	6.89	5.70
Utilities	2.13	2.46	1.76	0.94
Building	3.24	7.17	4.98	5.17
Trade/accommodation	33.86	21.40	41.61	47.00
Business services	37.39	46.90	18.35	17.35
Public/personal services	14.28	15.92	24.80	22.50
TOTAL	100.00	100.00	100.00	100.00

Central WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	2.23	2.33	2.60	2.12
Mining	0.13	0.13	0.06	0.04
Manufacturing	13.57	8.36	10.30	9.23
Utilities	2.61	3.28	2.18	1.21
Building	5.27	9.04	7.86	6.31
Trade/accommodation	28.15	18.74	29.87	38.67
Business services	33.80	41.26	23.00	21.89
Public/personal services	14.24	16.86	24.12	20.54
TOTAL	100.00	100.00	100.00	100.00

Southern WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	3.78	4.04	4.07	3.05
Mining	0.08	0.08	0.02	0.02
Manufacturing	17.68	11.03	14.09	12.34
Utilities	1.85	2.42	1.39	0.83
Building	2.48	6.78	3.97	3.07
Trade/accommodation	27.57	17.66	33.28	41.23
Business services	34.95	44.12	23.24	22.09
Public/personal services	11.60	13.87	19.93	17.37
TOTAL	100.00	100.00	100.00	100.00

Visitor Expenditure

Northern WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	2.98	3.02	3.84	3.78
Mining	1.47	1.71	0.57	0.36
Manufacturing	10.23	6.32	7.95	6.62
Utilities	3.54	3.78	3.00	1.63
Building	0.94	0.87	1.47	2.01
Trade/accommodation	28.50	23.70	33.33	36.37
Business services	42.93	49.21	33.73	34.32
Public/personal services	9.42	11.39	16.11	14.91
TOTAL	100.00	100.00	100.00	100.00

Central WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	7.03	8.00	8.95	7.67
Mining	0.18	0.20	0.10	0.06
Manufacturing	23.70	15.10	16.50	14.68
Utilities	3.57	4.55	3.50	1.97
Building	0.66	0.66	1.06	0.91
Trade/accommodation	21.69	19.25	24.24	30.57
Business services	34.57	40.97	29.89	30.01
Public/personal services	8.61	11.27	15.77	14.14
TOTAL	100.00	100.00	100.00	100.00

Southern WS Region

Aggregated Sector	GROSS OUTPUT %	VALUE-ADDED %	HOUSEHOLD INCOME %	EMPLOYMENT %
Ag/forest/fish	10.28	11.89	11.97	9.44
Mining	0.11	0.13	0.03	0.04
Manufacturing	26.12	16.27	19.12	17.05
Utilities	2.37	3.01	2.06	1.26
Building	0.55	0.55	0.97	0.81
Trade/accommodation	21.55	19.25	26.57	32.54
Business services	31.99	39.62	26.21	27.06
Public/personal services	7.03	9.28	13.07	11.81
TOTAL	100.00	100.00	100.00	100.00

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