

Socio-economic characteristics of Victoria's forestry industries

Executive Summary

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Dr Jacki Schirmer

Fenner School of Environment and Society
Australian National University

jacki.schirmer@anu.edu.au

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Executive Summary

Introduction

The forest industry in Victoria has changed rapidly over recent decades, and will continue to do so in the future. Shifts in markets for timber products, development of new technology for growing and processing timber, increasing use of plantation grown wood and fibre products, and changes to the labour force all contribute to ongoing changes in the employment and business activity generated by the industry.

Information on socio-economic characteristics of the forest industry is often limited. Existing statistics on the industry often underestimate total employment in key industry sectors, and do not identify how many workers depend on native forests versus hardwood and softwood plantations. Currently available data also provide little information on how forest industry workers differ to the broader labour force, and whether these differences are likely to affect their ability to adapt to ongoing changes affecting the industry. In addition, little work has examined the dependence of different communities on the forest industry.

The Victorian Department of Primary Industries engaged the Fenner School of Environment and Society of the Australian National University to study socio-economic characteristics of the industry. The employment, spending and production generated by Victoria's forest industry, socio-economic characteristics of workers in the industry, and the communities that depend on the industry were examined via a survey of forest industry businesses and analysis of available statistical data on the industry. This report, and an associated report by Coakes Consulting, provide a considerably more detailed understanding of the Victorian forest industry than has been available to date.

Definition of the Victorian forest industry

For the purposes of this study, the forest industry was defined as including all businesses and organisations whose primary activities depend on the growing, managing or processing of trees for wood and paper production. The industry was divided into four sectors:

- the growing sector, concerned with growing and managing native forest and plantations
- the services to forestry sector, which provides specialist services such as harvest, haulage, silvicultural management, roading, growing seedlings, consulting, research, representation and regulatory services to the industry
- the primary processing sector, in which harvested roundwood is processed into initial wood and paper products, and
- the secondary processing sector, in which initial wood and paper products are further transformed into a wide range of end products, such as wooden kit homes, wooden structural components such as kitchen cabinets, and converted paper products such as containers, bags and stationery.

Methods

A survey of forest industry businesses was used to gather data on the growing, services and primary processing sectors of the Victorian forest industry. Analysis of the secondary processing sector was undertaken using data from the Australian Bureau of Statistics (ABS) *Census of Population and Housing*, as it was not feasible to directly survey all secondary processors within Victoria. ABS data were also

utilised to examine socio-economic characteristics of forest industry workers and of communities identified as highly dependent on the forest industry.

The forest industry survey (FIS) asked businesses to detail the nature of their business activities, their employment and spending, key characteristics of their workforce, and the towns in which their employment and spending were located. In addition, they were asked whether and how Victoria's February 2009 bushfires had affected their business turnover and employment in 2009.

The survey was distributed by mail during April to June 2009, with multiple reminders sent to businesses to encourage response. A high response rate was achieved, with 100% of industrial growers, 59.0% of businesses providing services to forestry, and 47.9% of primary processors responding to the survey. The primary processors responding to the survey included 100% of large businesses (employing 100 or more people) and 95.8% of medium sized businesses. In addition, basic information on the size and nature of non-responding primary processors was gathered, enabling estimation of the employment generated by these processors.

In addition to the survey and ABS data analysis, some qualitative data were collected via face to face meetings and phone discussions with forestry businesses. This allowed identification of how recent events such as the global financial crisis affected employment and spending by these businesses in 2009. Longer term trends and influences affecting the industry were identified through a review of existing studies, and discussions with forest industry businesses.

Employment in Victoria's forest industries

A total of 23,745 people¹ are employed in Victoria's forest industries, representing 1.03% of Victoria's total employed labour force. A further 1,100-1,150 jobs are generated outside Victoria that depend on Victorian grown timber, principally in south-east South Australia (SA) and south-east New South Wales (NSW).

This is higher than the ABS 2006 estimate of 22,318 people employed in the Victorian forest industry. The estimates differ because the ABS excludes some workers who depend on the industry from their estimates, and their data were collected three years before the FIS was conducted. For example, the ABS only identified 1,201 people working in the services to forestry sector in 2006, as they do not include many haulage and silvicultural workers in their estimates, while the FIS found that 3,032 people are employed in this sector. In addition, ABS figures do not include some processing employment.

The FIS estimate is lower than the 40,645 people estimated by FAFPESC² to be employed in Victoria's forest industries in 2002-03. This is because FAFPESC had a much broader definition of the forest industry than was used in this study, which included almost 10,000 jobs in retail timber and hardware merchandising in the forest industry. They also used a less robust method to estimate total employment than that used in this study, which led to over-estimation of total industry employment.

Employment in the Victorian forest industry grew by 6% over 1996 to 2006 according to ABS estimates. While ABS estimates of total employment are lower than those

¹ This figure is based on industry survey estimates of employment in the growing, services to forestry and primary processing sectors in 2009, where figures reflect the average employment numbers for participating businesses over the 12 months prior to completing the survey, and ABS estimates of employment in secondary processing in 2006.

² The Forest and Forest Products Employment and Skills Company, now called ForestWorks.

based on the FIS, their data provides a good understanding of the rate of change in forest industry jobs over time.

Forest industry production, labour efficiency and expenditure

Many of the 23,475 jobs generated by Victoria's forest industries depend on Victorian-grown trees, with the FIS identifying a total of 229,390ha of hardwood plantations, 222,125ha of softwood plantation and 600,000ha of public native forest managed for commercial timber harvest in Victoria in 2009. Over 2008-09, a total of 1,130ha of hardwood plantation, 12,400ha of softwood plantation and 6,427ha of publicly owned native forest were harvested within Victoria (FIS). A majority of jobs up to the point of primary processing depend on the roundwood harvested from these Victorian-grown plantation and native forest areas; 83.0% of roundwood inputs utilised by primary processors were sourced from Victorian-grown timber over 2008-09 (FIS). In the secondary processing sector, however, a large proportion of wood and paper inputs are sourced outside Victoria. The exact proportion could not be identified as part of this study.

In 2008-09, an average of 0.43 workers were employed per 100ha of hardwood plantations, 2.16 workers per 100ha of softwood plantation, and 0.40 workers per 100ha of native forest, up to and including the primary processing sector (FIS). The hardwood plantation sector employs fewer people per 100 hectares than the softwood plantation sector as there is currently relatively little harvest and processing of the still maturing hardwood plantation estate. Native forests are managed differently to plantations, with smaller volumes of timber harvested over a larger area than occurs in plantations, and so generate lower employment per 100 hectares.

In total, the forest industry businesses located within Victoria were estimated to generate net expenditure of between \$1.34 and \$1.64 billion dollars in 2008-09, up to and including the primary processing sectors. This represents between 0.52-0.65% of Victoria's 2007-08 Gross State Product³. The secondary processing sector generates considerable further spending, the extent of which could not be estimated as part of this study.

Sectoral analysis

The employment generated by different sectors was analysed. Two sectoral dimensions were examined: different business activities in the chain of production, focusing on the growing, services to forestry, primary processing and secondary processing sectors; and different forest/plantation types, focusing on the hardwood plantation, softwood plantation and native forest sectors.

Of the 23,745 jobs generated by Victoria's forest industries, the large majority are generated by primary and secondary processing of wood and paper products. Only 2.6% of employment is generated in the growing sector, 12.8% in services to forestry, 21.8% in primary processing, and 62.8% in secondary processing.

Of the 8,795 jobs generated in the growing, services to forestry and primary processing sectors, 13.5% is dependent on hardwood plantations, 55.0% on softwood plantations and 31.5% on native forests. It was not possible to identify the forest/plantation type on which those employed in secondary processing depended, as this sector was not included in the FIS.

Cross-sectoral analysis shows that employment is not distributed evenly across the sectors, as can be seen in Table 1.

³ A more recent Gross State Product figure was not available at the time of writing.

Table 1: Total estimated employment by industry sector (FIS and ABS)

Tree type → Business activity ↓	Hardwood plantations	Softwood plantations	Mixed hardwood and softwood plantation	Native forests	Mixed plantation and native forest	Total
Growing	112	286	15	197	0	610
Services to forestry	238	948	920	576	350	3032
Primary processing	6	2412	0	849	1887	5153
Secondary processing	Unknown					14,950
Total within Victoria	356 (exc. secondary processing)	3646 (exc. secondary processing)	935 (exc. secondary processing)	1621 (exc. secondary processing)	2237 (exc. secondary processing)	23,745
Further employment generated outside Victoria¹	155±5%	810±5%	10±5%	99±5%	50±5%	1,100 to 1,150
The data in this table reflect estimates for the total industry based on FIS responses and analysis of business activities of non-responding businesses. They include all employment within Victoria irrespective of whether that employment is dependent on Victorian grown timber. ¹ This figures refers to additional employment that is generated outside Victoria based on Victorian grown timber. Figures are less certain and for this reason a range of employment is given.						

The distribution of employment in different business activities reflects the current state of maturity of the hardwood plantation, softwood plantation and native forest sectors. The hardwood plantation industry in Victoria is not yet mature. Almost all of Victoria's 229,230ha of hardwood plantations have been established since the mid 1990s, and very few are yet of harvestable age. Over coming years harvest volumes will increase rapidly from these plantations, and the employment generated by hardwood plantations will grow as a result. There has been some short-term decline in employment as a result of the entry of two hardwood plantation managers into administration and receivership in early 2009. However, this is likely to be a small decline compared to the growth in employment that will occur in coming years as more hardwood plantations are harvested and processed into woodchips for export or domestic pulp and paper production⁴.

The softwood industry, meanwhile, is well established, with the majority of the current softwood plantation estate of 222,125ha established between the 1960s and early 1990s. These plantations generate large volumes of harvested timber annually. Currently relatively little new softwood plantation is being established, with most activity in this sector focused on harvest, replanting of existing plantations, and processing. The majority of employment generated by softwood plantations is in the large and diverse processing sector that utilises softwood plantation timber. This includes processing facilities producing sawn timber, woodchips, pulp and paper, and composite wood products such as medium density fibreboard. Over 1996 to 2006 there has been expansion of softwood processing in some regions, and consolidation in others, with closure of some older plants and establishment or refitting of others.

In the native forest industry, employment has declined in recent years as volumes harvested have fallen, largely a result of reductions in the area of native forest

⁴ Trends in the hardwood plantation, softwood plantation and native forest sectors were identified based on analysis of industry survey data, discussions with forest industry businesses in Victoria, and existing reports discussing key trends in these sectors.

available for harvest. Most of the employment dependent on native forests is generated in the primary processing and services to forestry sectors. The proportion of employment generated by the harvesting of native forest timber is greater than for the softwood plantation sector, as harvesting activities are more labour intensive in native forests than plantations. For this reason, any decline in harvest volumes is associated with noticeable decline in employment in the harvesting sector. Native forest roundwood is primarily used to produce sawn timber, woodchips, and pulp and paper. There is an increasing focus on producing high value appearance products such as flooring and veneers.

Recent events and long-term trends influencing the industry

Recent events affecting employment and industry turnover in 2009 include the February 2009 bushfires, global financial crisis and entry of two plantation companies into administration and receivership. Over the longer term, changing public opinion, introduction of new production technologies, and changes in the labour force and wood and paper markets have been associated with a range of changes in the industry.

The February 2009 bushfires led to some decline in industry employment during 2009. The FIS, which was sent to businesses in April 2009, asked forestry businesses how the February 2009 fires affected their business turnover and employment. In total, 28.8% of businesses had experienced reduced business turnover, and 27.4% a reduction in employment or hours worked, in the short period between the fires occurring and the survey being sent to them. However, for some businesses the fires led to increased turnover and employment, as a result of work generated by fire recovery activities such as salvage logging and road repair. In total, 14.0% reported an increase in turnover and 20.8% an increase in jobs or hours worked as a result of the fires. Over the next 12 months and five years most businesses expect the negative impacts of the fires to decrease somewhat, although over 20% believed their turnover would still be lower in 2014, five years after the fires.

Employment in the industry was also affected by the global financial crisis (GFC) in 2009. The GFC reduced turnover for some forest industry businesses, particularly primary processors and harvest and haulage contractors. Businesses have mostly responded to this reduction in demand by reducing staff numbers through natural attrition, rather than redundancies. Most aimed to maintain as many staff as possible, in the expectation of future improvement in turnover.

In early 2009, two large managed investment scheme (MIS) funded plantation companies operating in Victoria entered administration and receivership. The silvicultural contracting and nursery sector was impacted negatively by this change during the period when the FIS was conducted. In particular, there was some loss of employment in the Western District of Victoria, where the majority of the hardwood plantations managed by these two companies are located.

Over the longer term, changing public opinion about the acceptability of harvesting timber in native forests, has been associated with decline in native forest harvesting, and an increase in reliance on softwood and hardwood plantations. Concern has also been expressed about the environmental, social and economic impacts of plantation expansion by some members of rural communities.

Ongoing evolution in processing and harvesting technologies has been associated with increasing scale of production and labour efficiency in the forest industry in recent decades. This has led to ongoing decline in small processing facilities, and consolidation of production at a smaller number of large processing sites. As a result,

much employment in the industry is concentrated in the towns in which large processors are based.

Regional comparison

Forest industry employment varies considerably by region. Figure 1 shows forest industry employment in different Statistical Divisions (SD) in Victoria, as well as the proportion of employment dependent on hardwood plantations, softwood plantations and native forests. Figure 2 shows the proportion of the labour force dependent on the forest industry in different SDs, and the proportion of forest industry workers employed in the growing, services to forestry, primary processing and secondary processing sectors.

The SDs with the highest proportion of their employed labour force working in the forest industry are Gippsland, where 2.7% of the labour force is employed in the forest industry, East Gippsland (2.3%), Ovens-Murray (2.1%), Western District (1.1%) and Goulburn (1.0%). In all other SDs, less than 1% of the workforce is employed in the forest industry. While Melbourne SD has the largest number of workers (14,381), this represents only 0.7% of the large workforce in this SD.

The types of activities on which forest industry employment is based differ considerably across these regions.

In Gippsland, most employment is generated in the processing sector⁵, although there are also a large number of harvest and haulage contractors located in this region. Employment grew 12% from 1996 to 2006, compared to the Victorian average of 6%, primarily due to expansion of processing in the region. Forest industry employment in this region depends mostly on softwood plantations and native forest, although almost 19% of forest industry workers depend on hardwood plantations.

In East Gippsland, over 80% of forest industry employment in the growing, services to forestry and primary processing sectors is dependent on native forests, although 15.1% of the State's hardwood plantations are located in this region, suggesting they will provide more employment in the near future. While most employment is generated in the processing sector, harvest and haulage workers make up just over 25% of the workforce. Employment in the forest industry declined rapidly – by 23% – from 1996 to 2006, with this region particularly impacted by decreasing native forest harvest.

The Ovens-Murray region is highly dependent on the softwood plantation sector, with over 80% of workers in the growing, services to forestry and primary processing sectors employed in this sector. Similar to most other regions with high dependence on the forest industry, the majority of employment is generated in the processing sector. Employment in the industry grew 11% from 1996 to 2006, largely as a result of growth in processing jobs dependent on softwood plantations.

In the Western District, almost all forest industry employment depends on hardwood and softwood plantations, with this region containing 53.5% of Victoria's hardwood plantations and 27.5% of the state's softwood plantations. A high proportion of employment in the industry – 48.9% – is generated in the services to forestry sector, reflecting the large workforce established in this region to manage its hardwood and softwood plantations. Currently, much of the processing of timber harvested from these plantations takes place in south-east South Australia and in the Barwon region. Nonetheless, employment in the industry grew 32% from 1996 to 2006, as hardwood

⁵ The generic term 'processing sector' is used to refer to total employment in the primary and secondary processing sectors.

plantations expanded in the region and new processing facilities were established. Further expansion of employment is expected in coming years as an increasing area of hardwood plantations in the region are harvested and processed.

In Goulburn, employment in the forest industry primarily depends on softwood plantations and native forest. The large majority of employment is generated by the processing sector. Employment fell 10% during the period 1996 to 2006, largely due to a decline in native forest-based employment.

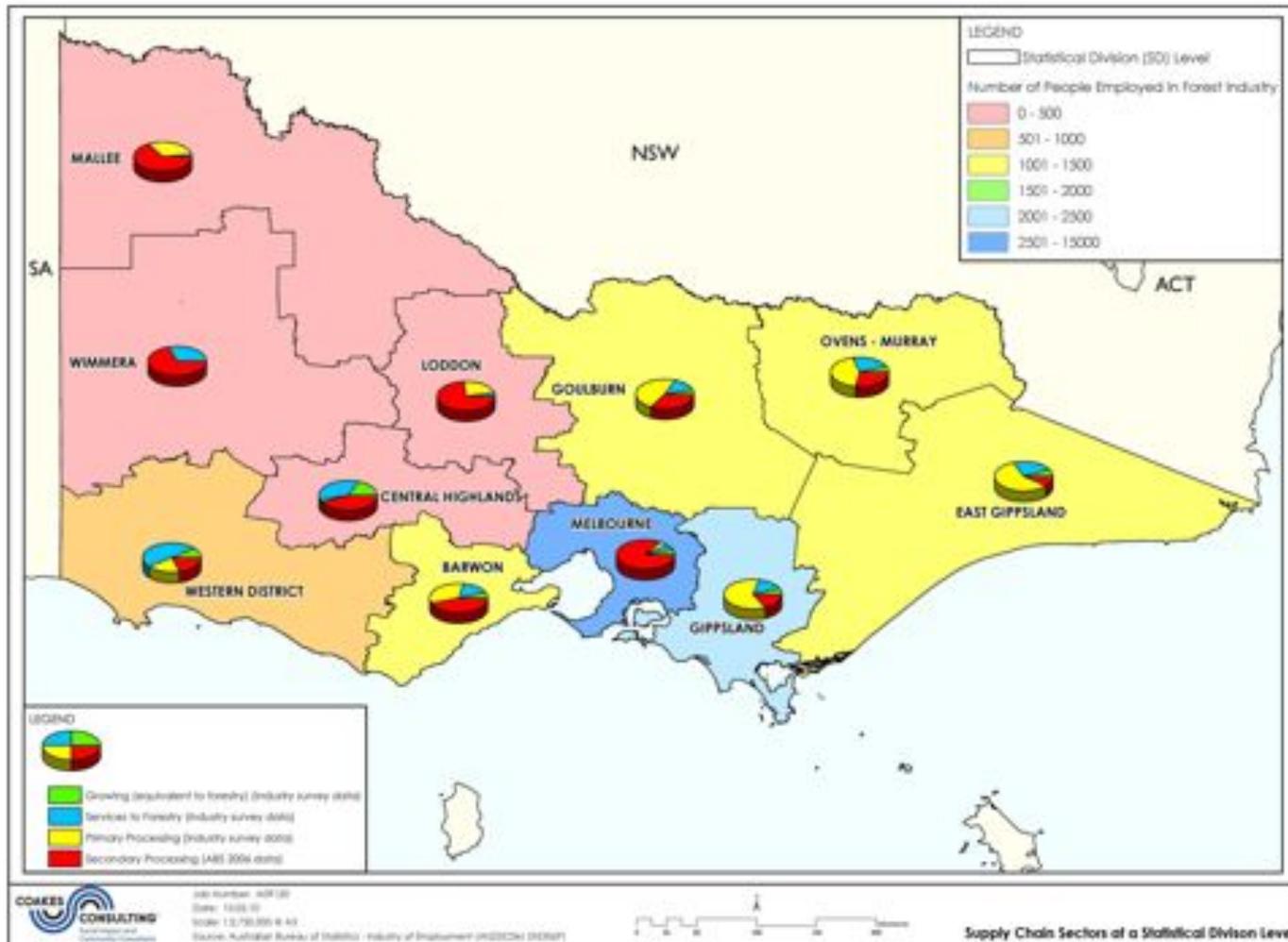


Figure 1: Total employment, and employment by business activity sector, by Statistical Division (FIS, ABS 2006)

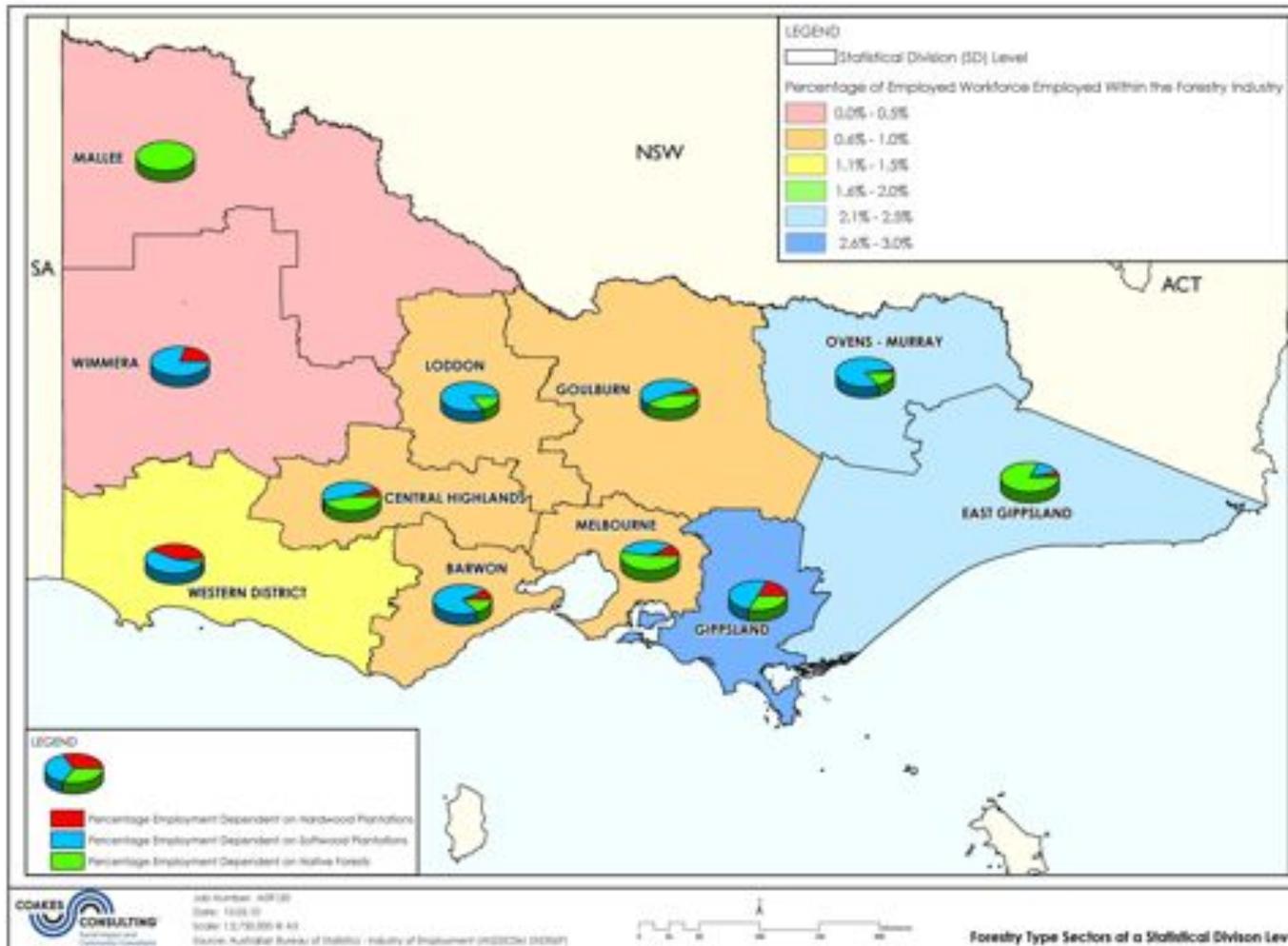


Figure 2: Dependence on forest industry employment, and employment by forest/plantation type, by Statistical Division (FIS, ABS 2006)
 Note that the pie charts in this figure do not include secondary processing, and therefore show incomplete data for Melbourne in particular.

Some important trends were identified in other SDs, even though less than 1% of their workforce was dependent on the industry. In Melbourne SD, where the large majority of employment in the forest industry is located, employment is primarily generated by secondary processing activities, and grew 11% from 1996 to 2006, reflecting strong growth in the secondary processing sector. Discussions with forest industry businesses identified that many secondary processors are less dependent on Victorian grown timber than primary processors. This suggests that forest industry employment in this sector is less affected by changes in Victoria's native forest and plantation estate than other sectors.

Figure 3 shows how dependence on forest industry employment has changed over time in different Statistical Local Areas within Victoria. Dependence on forest industry employment has generally fallen in regions with high dependence on native forests. It has grown in areas which have either high dependence on softwood and hardwood plantations, or where new or expanded processing facilities have been established.

Socio-economic characteristics of forest industry workers

The socio-economic characteristics of workers in Victoria's forest industry were examined, to better understand their likely ability to adapt to change. Four dimensions of adaptive capacity were examined, focusing on identifying forest industry workers':

- Human capital, focusing on analysing the age, educational attainment and occupations of forest industry workers
- Financial capital, examining the income earned and housing repayments made by forest industry workers
- Working conditions, with working hours and the extent of full-time, part-time and casual employment examined, as well as staff turnover rates, and
- Workforce participation, exploring the extent to which women and Indigenous people participate in the industry.

Overall, the industry appears to have some vulnerabilities in human capital when compared to the Victorian labour force as a whole, having a slightly older than average workforce, low educational attainment, and many workers employed in low-skilled occupations. All these characteristics suggest lower than average capacity to adapt to change. The slightly older age of the workforce indicates potential for loss of skills over time, and lack of recruitment of new workers. Low education attainment is a key issue, forest industry workers much less likely to have completed high school than the average Victorian aged over 15, or to have completed a university qualification. However, forest industry workers are more likely to obtain trade qualifications such as certificates and diplomas than the general labour force in Victoria. This suggests ongoing skills attainment is widely used in the industry to adapt to ongoing change in the skills needed by workers.

However, forest industry workers have high levels of financial capital, earning higher income than the Victorian labour force average, while having lower than average housing loan repayments. Income grew faster for forest industry workers than the general labour force over 2001 to 2006, suggesting that the relatively high financial capital of forest industry workers will be retained over time.

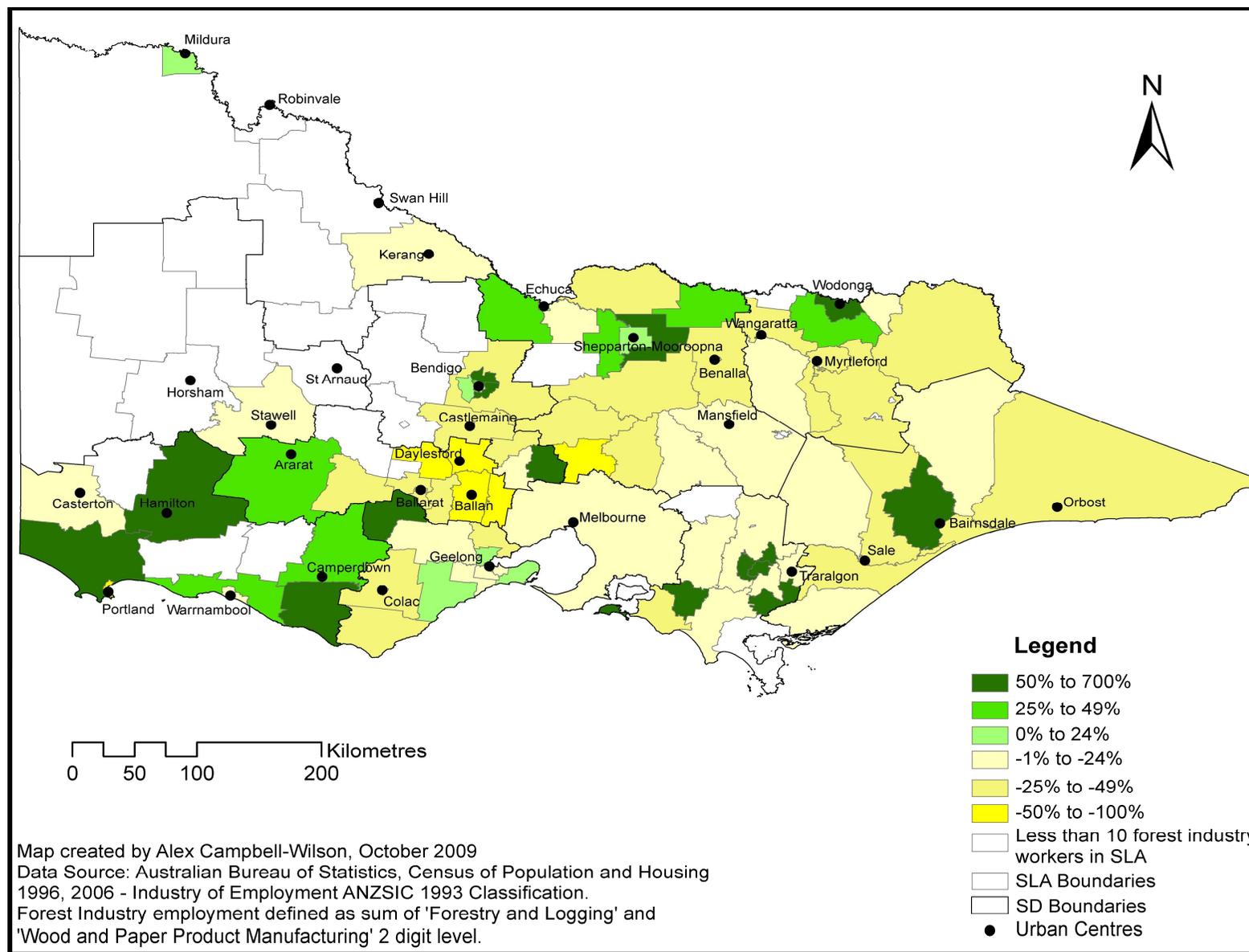


Figure 3: Change in dependence on forest industry employment, 1996-2006, in different Statistical Local Areas of Victoria (ABS 1996, 2006)

Most forest industry workers have relatively secure working conditions, being more likely to work full-time and less likely to work part-time than is average for the Victorian labour force, indicating that casualisation of the workforce is not a key issue for the forest industry.

Forest industry workers work slightly longer hours than average for the Victorian labour force, a potential indicator of personal stress and low social capital. The forest industry appears to have slightly higher than average staff turnover, indicating potential vulnerability to change and high investment in training costs for new workers.

The adaptive capacity of forest industry workers varies by sector. In particular, workers employed in log sawmilling and timber dressing (part of the primary processing sector) tend to be older than the industry average, consistent with a decline in jobs in this sector in recent years. They also have lower than average educational attainment, income and housing loan repayment. In the services to forestry sector, particularly the silvicultural and nursery sectors where much employment is seasonal, there is higher than average reliance on casual and part-time employment, and many workers earn lower than average income, suggesting potentially lower adaptive capacity. This particularly affects workers in the hardwood plantation sector, who are often employed in silvicultural and nursery work. Workers employed in harvesting trees, while earning higher incomes than others in the forest industry, are much more likely to work over 49 hours a week, indicating potentially high levels of personal stress in this sector. Those working in pulp and paper product manufacturing, meanwhile, earn higher incomes compared to the industry average, and have higher housing loan repayments.

Some regional variance in adaptive capacity of workers was also identified. Workers in rural areas are typically older than those living in towns or cities, as is the case for the broader labour force. Workers located in the East Gippsland, Mallee and Goulburn SDs have lower educational attainment than those in other regions. Workers based in the Gippsland, Melbourne and Ovens-Murray SDs have higher than average financial capital, earning higher incomes than the industry average. Forest industry workers located in rural areas, and in the Gippsland, Central Highlands, East Gippsland and Ovens-Murray SDs were more likely to work long hours than those in other regions, indicating potentially higher stress for workers in these regions.

Female participation in the forestry workforce is low. This indicates a key vulnerability, as the industry is not successfully recruiting a key group into its workforce, which reduces flexibility in terms of adapting to change. This is particularly the case in regions with very low female participation in the workforce: the Gippsland, Ovens-Murray and East Gippsland SDs. While female participation in the forest industry is growing slightly faster than in the labour force as a whole, the considerable gap in participation means that it is unlikely female participation will 'catch up' to the average in the near future.

Indigenous participation in the forest industry workforce is higher, and grew faster over 2001 to 2006, than the Victorian labour force average. This indicates some success in ensuring opportunities for Indigenous employment in the industry. Much of this employment is currently concentrated in the logging and log sawmilling and timber dressing sectors, both of which have experienced falling employment in recent years, and the latter of which typically involves lower wages than other forest industry jobs. Indigenous workers are also more likely to participate in the services to forestry sector, where jobs are typically more casualised, and lower paid, than other forest industry jobs. The concentration of Indigenous employment in relatively vulnerable

sectors of the industry suggests these workers are potentially more exposed to negative changes in the industry than other groups.

In summary, the key vulnerabilities of forest industry workers to change are primarily in the low educational attainment, older age of the workforce, and potential workplace stress indicated by working hours and higher than average staff turnover. Strengths include high levels of relatively secure employment and high financial capacity. Depending on the type of change workers are asked to adapt to, these characteristics may result in a range of outcomes. For example, technology change within the industry is likely to be relatively successfully addressed use of through trade qualifications, although an ongoing shortage of skilled workers remains a challenge for the industry. A shift to reduced resource access, however, may be more difficult to adapt to if workers are forced to look for alternative work – while they may have high financial resilience in the short term, many workers have few broader skills to assist them in transitioning to new industries. The industry is likely most vulnerable to change that requires expansion of the workforce combined with workers needing new sets of skills – for example, the establishment of significant new processing activities in a region with few forestry workers. This requires both successful recruitment of an expanded workforce and rapid ‘skilling up’. The higher than average incomes paid to workers will assist recruitment of new workers in this scenario, but considerable investment in training, and development of strategies for attracting more women into the workforce, are needed.

Socio-economic characteristics of forest industry dependent towns

Dependence on the forest industry varies considerably in different towns and localities across Victoria. The amount and type of employment generated in individual towns was examined, and the proportion of the labour force dependent on the forest industry for employment. Key socio-economic characteristics of the towns most dependent on the forest industry were examined, to identify key vulnerabilities and adaptive capacities of these communities and the forest industry workers located within them.

The 54 Victorian towns with the highest dependence on forest industry employment vary considerably in the extent of their dependence on forest industry employment, with anywhere from 1% to 73% of the labour force working in the industry. The towns with greater than 10% of their workforce employed in the industry are Dartmoor, Heyfield, Cann River, Rosedale, Myrtleford, Bruthen, Heywood, Orbost, Marlo, Casterton, Yarram, Powelltown and Marysville. They vary considerably in their socio-economic characteristics, with widely differing population size, population trends, median age and proportion of young and old people relative to working age population, median household income, unemployment, high school completion, and school enrolments.

The adaptive capacity of these 54 towns was compared to identify whether those more dependent on the forest industry typically had higher or lower adaptive capacity. Towns with higher dependence on the forest industry were more likely to have low adaptive capacity than those with low industry dependence. However, this pattern was not entirely consistent, suggesting other factors may be just as or more important than the extent of forest industry dependence in influencing adaptive capacity. Rate of population change was found to be more strongly correlated with adaptive capacity than the extent of forest industry dependence, for example. Further work is needed to identify the reasons why towns with higher dependence on the forest industry are more likely than others to have low adaptive capacity, and the various factors playing a role in this.

More detailed analysis of the sensitivity of different communities to change was undertaken by Coakes Consulting as part of this study. The Coakes Consulting analysis should be referred to for a more in-depth analysis of the extent to which different forest industry dependent communities are vulnerable to change.

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Part 4

Part 4 of the report provides references and appendices which detail the methods of the study in more detail, and provide several sets of more detailed statistical data on employment in Victoria’s forest industries and characteristics of forest industry workers.