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Industry value added

$8.8 billion

The value added by the forestry and forest product manufacturing industries increased for the fourth consecutive year, driven by a record increase in the forestry and logging industry.

Dwelling commencements

228,200

Dwelling commencements increased from the previous year, driven by growth in new houses and other residential buildings, and remain at a high level.

Value of exports

$3.6 billion

The value of exports grew for the fifth consecutive year on the back of strong demand for woodchips, paper and paperboard products, and roundwood.

Value of imports

$5.6 billion

The value of imports increased strongly from the previous year, driven by growth across all major wood product import categories, mainly miscellaneous forest products and wood-based panels.

Overview

This issue of the *Australian forest and wood products statistics* (AFWPS) presents 2016–17 data for key indicators of domestic forestry sector activity, including sales and service income and industry value added. It includes estimates of the volume and value of logs harvested in 2017–18; as well as housing and other residential commencements, and wood products trade statistics for 2017–18.

This AFWPS issue also presents updated socio-economic indicators and trends for the forestry sector drawn from the Australian Bureau of Statistics (ABS) 2011 and 2016 *Census of Population and Housing*. These indicators build on the indicators presented in the *AFWPS September and December quarters 2012*, which reported data from the 2006 and 2011 Censuses.

Conditions were favourable in Australia’s forestry sector in 2017–18. ABARES estimates that the volume and value of logs stabilised. Both domestic and international demand were strong over the financial year—dwelling commencements (mainly houses) increased by 3.1 per cent and the value of wood product exports increased for the fifth consecutive year to a record $3.6 billion.

China is a key trading partner for wood products and in 2017–18 it accounted for nearly half of total export value, most of the growth in total wood products exports over the year and more than a quarter of Australia’s total import value. Australia imports highly processed wood products from a range of countries. In 2017–18 the value of imports increased from all major trading countries except Indonesia.

Industry performance

The growth of Australia’s forestry sector depends on key domestic and international markets and generally follows the economic cycle. In Australia, as in many developed countries, domestic dwelling construction markets provide a strong demand driver for most wood products. Broader consumption of wood products in Australia is influenced by international trade and competition between domestic and imported wood products.

Exports contribute significantly to the forestry sector’s performance. Various factors influence demand for Australia’s forest and wood products overseas, including country-specific economic drivers, exchange rates and comparative prices of products from competing countries.

Income and value added, 2016–17

The latest ABS industry data indicate that sales and service income generated by the forest product manufacturing industry decreased to $23.0 billion in 2016–17, down 2.9 per cent from $23.7 billion in 2015–16. This decline follows two years of strong growth in forest product industries’ sales and service income, which remains at high levels relative to recent years (Figure 1).

ABS data on industry value added shows that the forestry and forest product manufacturing industries together have grown for the fourth consecutive year. Industry value added is a measure of economic activity and industry’s contribution to Australia’s gross domestic product. The value added by the forestry sector increased in 2016–17, up 4.4 per cent to $8.8 billion (Figure 1). A record 35.2 per cent increase in value added by the forestry and logging industry
(to $2.1 billion) strongly outweighed the modest decrease in value added by the wood and paper products manufacturing industry (down 2.4 per cent to $6.7 billion).

**Figure 1 Sales and service income and industry value added, 2006–07 to 2016–17**

![Graph showing sales and service income and industry value added](image)

**Log harvest volume and gross value of production, 2017–18**

ABARES has developed estimates for log harvest volumes and values for 2017–18 to expedite the public availability of these data. The next issue of the AFWPS will include 2017–18 log harvest volumes and values based on responses to ABARES gross value of production (GVP) survey.

The volume and value of logs harvested in Australia is estimated to have stabilised in 2017–18. The estimated volume of total (hardwood and softwood) logs harvested decreased slightly to 32.9 million cubic metres in 2017–18, down 0.7 per cent from 33.1 million cubic metres in 2016–17. The estimated value (at the mill door) of total logs harvested was $2.6 billion in 2017–18, down 0.7 per cent (Figure 2).

**Figure 2 Volume and value of logs harvested in Australia, 2007–08 to 2017–18**

![Graph showing volume and value of logs harvested](image)

Note: 2017–18 data are estimates.
The estimated hardwood log harvest volume was 15.4 million cubic metres in 2017–18 (down 0.6 per cent from 2016–17). Based on an estimated 0.9 per cent decrease in average hardwood log prices over the year, the total value of hardwood logs harvested was $1.2 billion (down 1.5 per cent from 2016–17).

The estimated softwood log harvest volume decreased to 17.6 million cubic metres in 2017–18 (down 0.8 per cent from 2016–17). The total value of softwood logs harvested was $1.4 billion (no change from 2016–17) based on an estimated 0.8 per cent increase in average softwood log prices over the year.

**Housing and other residential building commencements**

Construction of dwellings—houses and other residential buildings, including units, apartments, townhouses and house conversions—is a major market for wood products and an important driver of economic growth in the forestry sector.

Wood products commonly used in construction include softwood sawn timber for wall framing and roof trusses (structural products), and hardwood sawn timber and panels for flooring and joinery (finished products). Construction of houses generally requires a higher volume of wood products than construction of other residential buildings.

Following a decrease in total dwellings commenced in Australia in 2016–17, the total number of dwelling commencements increased by 3.1 per cent in 2017–18, from 221,400 to 228,200 in 2017–18 (Figure 3). This growth was driven by a 4.4 per cent increase in the number of house commencements, from 115,500 to 120,600. The number of new other residential buildings also increased, by 1.7 per cent from 105,900 to 107,700.

**Figure 3 Dwelling commencements, 2007–08 to 2017–18**

![Graph showing dwelling commencements from 2007-08 to 2017-18]

**Trade in wood products, 2017–18**

Australia’s trade in wood products has grown strongly since 2012–13. The value of both exports and imports reached record levels in 2017–18 and total merchandise trade (exports plus imports) reached a record $9.2 billion.
Australia is a net importer of wood products in value terms and this is reflected in the types of products imported and exported. Australia tends to import lower volumes of more processed and higher value wood products to supplement domestic production and meet domestic demand, particularly for construction applications.

By contrast, Australia tends to export higher volumes of less processed and lower value wood products. Factors that influence Australia’s wood products markets overseas include international and country-specific economic drivers, such as housing construction (in response to factors such as population growth), income and preferences. Other drivers include production and transport costs, exchange rates, comparative prices of products from competing countries and volumes of supply.

**Exports of wood products**

The value of wood product exports increased for the fifth consecutive year in 2017–18 by 4.2 per cent to $3.6 billion (from $3.5 billion in 2016–17). Increases in the export value of woodchips, paper and paperboard (in particular, packaging and industrial paper, and newsprint), and roundwood contributed most to the overall growth in export value over the year (Figure 4).

Woodchip exports represent the largest component (over one-third) of Australia’s total exports, by value. The value of woodchip exports reached a record $1.3 billion in 2017–18, a 6.1 per cent increase from the previous year.

The value of paper and paperboard, and roundwood exports also reached record highs in 2017–18. Paper and paperboard exports increased by 5.8 per cent to $962 million, driven by 33.9 per cent growth in the value of newsprint paper exports (to $130 million). Roundwood exports increased by 7.6 per cent to $643 million, driven by 40.5 per cent higher hardwood roundwood export values (to $118 million) (Figure 4).

**Figure 4 Value of wood product exports, by product, 2013–14 to 2017–18**

By contrast, the value of recovered paper and miscellaneous forest products exports decreased in 2017–18. Recovered paper exports decreased by 4.6 per cent to $248 million and miscellaneous forest products exports decreased by 8.2 per cent to $137 million.
Key export destinations
In value terms, Australia’s top export destinations in 2017–18 were China, Japan and New Zealand (Figure 5). Together these countries accounted for 70 per cent of Australia’s total wood product exports.

Figure 5 Value of wood product exports to key trading partners, 2017–18

The value of wood product exports to China reached a record high in 2017–18, increasing by 4.2 per cent to $1.7 billion (from $1.6 billion in 2016–17), and represented most of the growth in total wood product exports over the year. In 2017–18 the total value of exports to China ($1.7 billion) exceeded the total value of imports from China ($1.6 billion). By value, exports to China accounted for 47 per cent of Australia’s total wood product exports, 59 per cent of total woodchip exports and 96 per cent of total roundwood exports in 2017–18.

Japan was Australia’s second-largest wood products export destination in value terms in 2017–18, with $510 million of total exports (up 11.1 per cent from $459 million in 2016–17). By value, exports to Japan consisted almost entirely of woodchips (97 per cent) and accounted for 14 per cent of Australia’s total wood product export value and 37 per cent of total woodchip export value in 2017–18.

Exports to New Zealand increased by 3.2 per cent in 2017–18 to $337 million and accounted for 9 per cent of Australia’s total wood products exports by value. Paper and paperboard ($221 million) and paper manufactures ($70 million) were the main commodities exported to New Zealand. Exports of these commodities to New Zealand accounted for 23 per cent of Australia’s total paper and paperboard export value and 59 per cent of Australia’s total paper manufactures export value in 2017–18.

In value terms, Australian wood products exports to Malaysia also increased in 2017–18, by 30.8 per cent to $116 million.

Imports of wood products
The value of wood product imports increased by 8.1 per cent in 2017–18 to $5.6 billion (from $5.2 billion in 2016–17). The value of all major wood product import categories increased.
Increases in the import value of miscellaneous forest products and wood-based panels contributed most to the overall growth in import value over the year (Figure 6).

**Figure 6 Value of wood product imports, by product, 2013–14 to 2017–18**

The value of miscellaneous forest product imports reached a record of around $1.5 billion in 2017−18 (Figure 6), increasing by 11.2 per cent, driven by increases in the value of builders’ carpentry, mouldings and essential oils. The value of wood-based panels imports reached a record high, increasing by 25.3 per cent to $684 million. Growth of 28.6 per cent in the value of plywood imports (to $449 million) drove this increase, while the import values of particleboard, medium density fibreboard and other panels also increased.

Increases in the value of sawnwood and pulp imports also contributed to the overall increase in total import value in 2017−18. Sawnwood imports increased by 21.1 per cent to $451 million, driven largely by higher softwood sawnwood values (up 27.5 per cent to $372 million). Pulp imports increased by 20.9 per cent to $260 million.

The value of paper and paperboard imports increased by 0.4 per cent to $2.1 billion, driven by 4.0 per cent growth in packaging and industrial paper imports (to $917 million). The value of paper manufactures increased by 0.8 per cent to $653 million.

**Key import sources**
Australia imports wood products from a broader range of countries than it exports wood products. In value terms, almost half of Australia’s total wood product imports in 2017−18 were from China, New Zealand and Indonesia (Figure 7).
The value of imports from China increased by 8.2 per cent to $1.6 billion in 2017–18 (from $1.5 billion in 2016–17). Increases in the value of wood-based panels (up 28.6 per cent to $234 million), miscellaneous forest products (up 7.4 per cent to $423 million), and paper and paperboard (up 5.0 per cent to $593 million) contributed primarily to this growth. In 2017–18 China accounted for 28 per cent of Australia’s total wood product imports, 28 per cent of total paper and paperboard imports, half of total paper manufactures imports and 29 per cent of total miscellaneous forest products imports.

New Zealand was Australia’s next largest wood products import source in value terms in 2017–18, with $628 million of total imports (up 0.9 per cent from $622 million). Miscellaneous forest products ($162 million), paper and paperboard ($152 million) and sawnwood ($116 million) were the main commodities imported from New Zealand.

Total wood product imports from Indonesia fell to $443 million in 2017–18 (down 1.0 per cent from $448 million). As with imports from China, the main commodities imported from Indonesia were miscellaneous forest products ($248 million), paper and paperboard ($91 million) and wood-based panels ($63 million).

Australian wood products imports from other countries increased in 2017–18, including from Malaysia (to $321 million), Germany (to $179 million), Finland (to $171 million), Canada (to $117 million) and the United States (to $391 million).
Socio-economic indicators—trends to 2016

This section presents socio-economic indicators for the forestry sector drawn from the ABS 2011 and 2016 Census of Population and Housing. These build on the indicators presented in the AFWPS September and December quarters 2012 (ABARES 2012), which reported data from the 2006 and 2011 Censuses. For background to the indicator framework and calculations, see previous ABARES reports (Binks, Schirmer & Kancans 2014; Schirmer et al. 2013).

The five-yearly ABS Census is a key source of information on the socio-economic characteristics of employees in the forestry sector and the communities in which they live. National and regional-scale data provide a basis for the community, government and industry to understand, monitor and manage the implications of changes in the forestry sector.

Employment trends

Forestry sector employment is a key contribution to the community, providing economic activity and skills development and contributing to broader community wellbeing. Total national direct employment in the forestry sector was estimated at 51,983 persons in 2016, down by 24 per cent from 68,596 persons in 2011. This decrease continues the previous trend of declining total direct employment in the five years prior to 2011. In 2016 total direct forestry sector employment fell in all states and territories except the Northern Territory, where it increased by 15 per cent. Indirect (or flow-on) employment in other industries generated from activities in the forestry sector is an important contribution but robust estimates of indirect employment are not currently available.

Total direct employment in the forestry sector falls into four subsectors: forestry and logging; forestry support services; wood product manufacturing; and pulp and paper product manufacturing. Employment is highest in the wood product manufacturing subsector (29,035 persons in 2016), and the pulp and paper product manufacturing subsector (13,962 persons in 2016). Between 2011 and 2016 employment decreased in both these subsectors (by 30 per cent in wood product manufacturing and 28 per cent in pulp and paper product manufacturing). Over the same period, employment increased in the forestry and logging subsector (by 12 per cent to 6,027 persons), and the forestry support services subsector (by 36 per cent to 2,957 persons) (Figure 8). Changes in employment levels in recent years have been influenced by multiple factors that are observed nationally but can vary at the regional scale. These factors include increased harvesting of plantation hardwood logs (ABARES 2018)—although this does not necessarily flow to more employment activity in the manufacturing sectors if products are exported as woodchips—and a trend in manufacturing sectors to consolidate to larger processing facilities with higher labour efficiencies (Schirmer et al. 2018).
Increased employment in the forestry and logging subsector between 2011 and 2016 was due mostly to higher employment in the subsector in South Australia and Victoria—particularly in the Green Triangle region, where initial harvesting and re-establishment of hardwood plantations has driven jobs growth (Schirmer et al. 2017).

The number of persons employed in the forestry support services subsector in 2016 increased in most reporting regions—by more than 60 per cent in the regions of Central Victoria–Murray, South West and Central West NSW, South West Western Australia and Northern Australia.

The majority of employment in the pulp and paper product manufacturing subsector and to a lesser extent the wood product manufacturing subsector is in capital city regions. Between 2011 and 2016 total employment in these subsectors decreased more in capital city regions (compared with regional areas) and in all states and territories. In the wood product manufacturing subsector, employment decreased significantly in Tasmania (around 700 less persons employed) and in Western Australia (around 1,000 less persons employed in Perth). In the pulp and paper product manufacturing subsector, employment decreased by over 2,500 persons in Victoria, mostly in Melbourne.

**Community dependence on the forestry sector**

The percentage of the total workforce directly employed in the forestry sector in a given area indicates that community’s employment dependence on the forestry sector at a point in time. Changes in dependence may be caused by broader change in economic diversity or total employment, or a change in employment in a specific sector.
Between 2011 and 2016 forestry sector employment dependence decreased from 0.7 per cent to 0.5 per cent. This decrease was due to higher total employment across Australia and lower total employment in the forestry sector over the same period. Tasmania had the highest forestry sector employment dependence in 2016 (at 1.2 per cent), followed by South Australia (0.7 per cent) and Victoria (0.6 per cent).

At a regional scale, the Green Triangle region had the highest forestry sector employment dependence of 3.4 per cent in 2016, down from 3.6 per cent in 2011. Regional Tasmania had the largest fall in employment dependence (from 2.1 per cent to 1.6 per cent), followed by the South Coast of NSW (from 0.8 per cent to 0.6 per cent) (Figure 9). Three local government areas with large forestry sector workforces had forestry sector dependence levels above 10 per cent in 2016—Mt Gambier (Green Triangle), Snowy Valleys and Oberon (South West and Central West NSW). In capital cities, where forestry sector dependence levels are lower due to greater industry diversity, dependence levels decreased in Hobart (down to 0.6 per cent) and Melbourne (down to 0.5 per cent).

**Figure 9 Forestry sector employment dependence, by forestry region, 2011 and 2016**

Communities undergoing structural change and employment changes are likely to be better positioned to respond if they have a range of industries that can provide alternative opportunities. The economic diversity index provides a comparison of the overall industry diversity in each local government area in forestry reporting regions, relative to the Australian economy (Tables 70 to 91 in this issue).
**Contribution of industry to community**

Community participation in volunteering, community events and other community-based activities can influence the wellbeing of the community, through strengthening the social networks that can help hold communities together. The extent that people work long hours, and the stability of the workforce, are other factors that may potentially influence their ability to take part in community activities and thereby contribute to its social and economic viability (Schirmer et al. 2013). Comparing community participation indicators for workers in the forestry sector and the total workforce can assist in understanding the relative contribution of the sector to communities over time and across different regions.

Nationally, rates for workers in the forestry sector increased between 2011 and 2016, although remained lower than for members of the total Australian workforce (Figure 10). In 2016, 16.9 per cent of forestry sector workers volunteered in the 12 months before the 2016 Census, compared with 21.5 per cent of persons in the total national workforce. Hobart and the Green Triangle were the reporting regions with the highest forestry workforce volunteering rates (at around 24 per cent). Hobart was the only region where forestry sector workers made a greater contribution to the community through volunteering involvement than persons in the total national workforce.

**Figure 10 Australian community participation indicators, 2011 and 2016**

![Graph showing the community participation indicators for the forestry sector and total workforce, 2011 and 2016.]

Note: Workforce stability is the proportion of people living in the same local government area five years earlier.

Forestry sector workers appear more likely to work long hours (49 hours or more per week) than persons in the total national workforce. Between 2011 and 2016 the percentage of forestry sector workers working long hours increased (from 19.0 per cent to 20.3 per cent) and the percentage of the total national workforce working long hours decreased (from 17.1 per cent to 15.4 per cent) (Figure 10). This suggests that forestry workers may have become relatively less able over this period to contribute time to their community. While working long hours may be a factor that can limit a person's ability to take part in community activities, many other factors are involved including personal motivation and family commitments. Some people working long hours actively participate in their community.
Workforce stability in the forestry sector increased slightly between 2011 and 2016 and continued to be higher than in the total national workforce (Figure 10). In 2016, 79 per cent of forestry sector workers lived in the same local government area as five years before, compared with 71 per cent of persons in the total national workforce. At the regional scale, in 2016 the highest forestry workforce stability was 88 per cent in the Gippsland and Central Highlands region of Victoria. Levels of forestry workforce stability were relatively low in Darwin, Perth and the Mount Lofty Ranges region—indicating that a larger proportion of forestry sector workers had moved into those areas in the past five years, compared with forestry sector workers in other regions.

**Workers’ wellbeing**

Wellbeing can be measured by a person’s life satisfaction. Perceived quality of life, income, education and working hours have been found to be useful wellbeing predictors associated with self-reported life satisfaction and health measures (Binks, Schirmer & Kancans 2014). To represent the concept of wellbeing, this AFWPS issue includes data on individual and household income levels, long working hours (full time) and educational attainment. Monitoring wellbeing indicators and comparing the forestry sector to the broader workforce can be useful in identifying potential issues associated with high staff turnover and the loss of skilled workers.

Forestry sector workers are less likely to earn a higher individual income ($1,250 or more per week) than those in the total national workforce. However, between 2011 and 2016 the proportion of forestry sector workers earning high incomes increased by 12.0 per cent, compared with a 10.4 per cent increase for the total national workforce (Figure 11).

Equivalised total household income is a useful indicator of the economic resources available to a household, allowing for comparison of standards of living between households. In 2016 a smaller proportion of forestry worker households earned below $800 a week compared with the households in the total national workforce. This suggests that forestry worker households were able to cover their living costs more easily than those in the total national workforce. This contrasts with 2011 when forestry worker households earned on average less income than households in the total national workforce. These trends were similar at the regional scale in 2016—except in Northern NSW, Perth and Sydney, where a greater proportion of forestry sector households than total national workforce households earned below $800 per week.
Education attainment is another factor that can influence wellbeing and achievement, and can provide workers with different employment opportunities. In 2016 workers in the forestry workforce were more likely to have completed year 12 and hold non-school qualifications than in 2011. However, the rates of these indicators remained lower than for persons in the total national workforce (Figure 11). In 2016, 56 per cent of forestry sector workers held a non-school qualification (from certificate level up to postgraduate degree), compared with 67 per cent of persons in the total national workforce. Levels of educational attainment, most particularly year 12 completion, are generally higher in capital cities than in regional areas. This pattern is observed across all industry workforce sectors. Forest sector workers in Darwin and Hobart had the highest rates of non-school qualifications in 2016.
**Workforce diversity**

A high level of diversity in an industry or organisation’s workplace acknowledges difference between individuals, can assist to adapt work practices to take account of the individuality of employees and can provide a supportive work environment that fosters innovative ideas and promotes values of respect and inclusion. The concept of workplace diversity can cover, for example, gender, age, language, ethnicity, cultural background, disability and religious belief. Workplace diversity can also refer to differences in socio-economic background, educational level, family responsibilities, working style and life experience.

Tracking workforce diversity gives insights into whether businesses are successfully recruiting workers from all parts of the available labour force, as well as whether the industry provides opportunities for some groups who typically have greater difficulty accessing the workforce. Indicators used in this framework for the forestry sector include age profile of workers and the extent that women, Indigenous people and people with a disability are represented.

The trend of an ageing workforce continues in the forestry sector compared with the total national workforce (Figure 12). In 2016 the South East Queensland and Northern Australia regions had relatively younger workers, and the Gippsland and Central Highlands and South West Western Australia had relatively older workers. Workforce age profile may help indicate industry attractiveness or highlight potential issues with succession of retiring workers or development needs for younger workers.

Between 2011 and 2016 the proportion of persons who identified as Indigenous (Aboriginal, Torres Strait Islander or both) increased in the forestry sector workforce and in the total national workforce (Figure 12). Nationally, 2.1 per cent of the forestry sector workforce identified as Indigenous in 2016, compared with 1.7 per cent of the total national workforce. This may reflect growing opportunities for Indigenous workers in the forestry sector, including where their cultural knowledge can support forestry operations and management (such as cultural burning and heritage assessments). In 2016, 26 per cent of Indigenous forestry sector workers were employed in the forestry support services subsector, compared with 6 per cent of workers in the total forestry sector (ABS 2016). Large regional differences exist in Indigenous employment in the forestry sector. In 2016 rates of Indigenous employment in Northern Australia (12.5 per cent) and regional Tasmania (5.2 per cent) were well above the national average (2.1 per cent).

Representation of persons with a disability (who stated they need assistance with everyday activities) remains higher in the forestry sector than the total national workforce (Figure 12). In 2016, 0.9 per cent of forestry sector workers had a disability (up from 0.8 per cent in 2011), compared with 0.8 per cent of persons in the total national workforce (up from 0.6 per cent in 2011).

Participation of women in the forestry sector remains lower than in the total Australian workforce and declined slightly between 2011 and 2016, to 18.2 per cent nationally. During the same period, female employees as a percentage of the total national workforce increased to 48 per cent. In 2016 female participation in the forestry sector was relatively higher in larger capital cities and in Northern Australia.
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