Evaluating the socio-economic benefit of the red meat processing industry in regional Australia

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EXECUTIVE SUMMARY

AMPC Project 2020-1067 was designed to measure the economic impact of the red meat processing industry in Australia and the individual States in which it operates in 2018-19. It provides an update to the previous analysis undertaken for AMPC in 2016 (AMPC 2016-1031. *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*. S.G. Heilbron Pty. Ltd. July 2016). The economic impact is measured in terms of employment assessed as full-time equivalent (FTE) positions, industry value added and household income with direct and flow-on impacts provided for each metric. The results are provided in absolute values and as a percentage of the relevant economy.

The Project was conducted using input output (IO) analysis utilising IO tables constructed for 2018-19 for Australia and subsequently for each relevant State. Data from the Australian Bureau of Statistics was analysed to determine the number of livestock slaughtered and red meat produced by State and nationally in 2018-19 in order to scale up data provided for individual processing facilities. Public data was also analysed to provide context around employment and industry value added at the national level.

The key results from this Project are summarised below. They are derived from private data covering approximately 52 percent of red meat production in Australia in 2018-19, augmented with public data primarily sourced from the Australian Bureau of Statistics.

Australia **-** The total impact of the red meat processing industry, including flow-on effects, nationally in 2018-19 was as follows:

- Employment (FTE) – 121,600 (1.1% of the national total);
- Industry value added – approximately $19.7 billion (1.1% of the national total); and
- Household income – approximately $7.1 billion (0.8% of the national total).

New South Wales **-** The total impact of the red meat processing industry, including flow-on effects, in New South Wales in 2018-19 was as follows:

- Employment (FTE) – 23,000 (0.7% of the State total);
- Industry value added – approximately $3.5 billion (0.6% of the State total); and
- Household income – approximately $1.3 billion (0.4% of the State total).

Queensland **-** The total impact of the red meat processing industry, including flow-on effects, in Queensland in 2018-19 was as follows:

- Employment (FTE) – 40,300 (1.9% of the State total);
- Industry value added – approximately $6.5 billion (1.9% of the State total); and
- Household income – approximately $2.2 billion (1.3% of the State total).

South Australia **-** The total impact of the red meat processing industry, including flow-on effects, in South Australia in 2018-19 was as follows:

- Employment (FTE) – 7,700 (1.1% of the State total);
- Industry value added – approximately $1.2 billion (1.2% of the State total); and
- Household income – approximately $0.4 billion (0.8% of the State total).

Tasmania **-** The total impact of the red meat processing industry, including flow-on effects, in Tasmania in 2018-19 was as follows:

- Employment (FTE) – 2,700 (1.4% of the State total);
- Industry value added – approximately $0.5 billion (1.5% of the State total); and
- Household income – approximately $0.2 billion (1.2% of the State total).

Victoria **-** The total impact of the red meat processing industry, including flow-on effects, in Victoria in 2018-19 was as follows:

- Employment (FTE) – 23,700 (0.8% of the State total);
- Industry value added – approximately $3.6 billion (0.9% of the State total); and
- Household income – approximately $1.4 billion (0.6% of the State total).

Western Australia **-** The total impact of the red meat processing industry, including flow-on effects, in Western Australia in 2018-19 was as follows:

- Employment (FTE) – 7,200 (0.6% of the State total);
- Industry value added – approximately $1.3 billion (0.5% of the State total); and
- Household income – approximately $0.4 billion (0.4% of the State total).

The construction of the analysis used for this project provides the industry with the potential for analysing the initial impact of any economic development affecting the industry. AMPC should consider the use of the research in this manner, especially given the fact that it incorporates data provided by processors. The impacts of any quantifiable developments in the broader economy can be analysed using the model to estimate their economic impacts on the industry, and the direct and flow-on effects on the broader economy. Such developments could include policy changes or potential changes in relation to trade, taxation or regulation. As an illustration, the previous analysis undertaken for AMPC was used to analyse the impacts of reductions in the cost to operate flowing from regulatory reforms.

1.0 MILESTONE DESCRIPTION

This report reflects the achievement of Milestone 3 of AMPC Project. This Milestone incorporates the submission of the Final report which includes:

- Analysis of public and private data on the operations of the red meat processing industry by State and nationally;
- Estimates of the economic impact of the red meat processing industry at the relevant geographical levels, measured as employment (full-time equivalent (FTE) jobs), household income and industry value added; and
- Assessment of the components of FTE jobs.

2.0 ABSTRACT

The Milestone 3 Report examines data for 2018-19 relating to the operations of the red meat processing industry at the State and national level. It draws on information provided by processors combined with publicly available data. It provides estimates of the economic impact of the red meat processing sector at the relevant geographical level in terms of direct and flow-on or multiplier impacts

in absolute values and total impacts as a percentage of the relevant economy. It also provides an estimate of the distribution of employment in the industry by category of employment.

In 2018-19, it is estimated that the red meat processing industry supported approximately 121,600 FTE jobs (1.1 percent of the national total), $7.1 billion in household income (0.8 percent of the national total) and $19.7 billion in industry value added (1.1 percent of the national total) when flow-on effects are taken into account. This is a significant proportion of the economy.

3.0 PROJECT OBJECTIVES

The objectives of AMPC Project 2020-1037, as set out in the Executed Agreement, are as follows:

1. Update the analysis previously provided in the 2016 Report (AMPC 2016-1031. *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*. S.G. Heilbron Pty. Ltd. July 2016.).
2. Produce data nationally and for States and assess Full Time Equivalent (FTE) employment and its individual components.
3. Enable the red meat industry to provide updated information that is not at least 5 years old to stakeholders on its contribution to the national and State economies (information that has already been requested).
4. Improve the understanding of stakeholders of the industry's contribution and facilitate a consumer and policy environment that is supportive of the industry.

4.0 METHODOLOGY

4.1 Construction of base input output tables

The base table for Australia was derived from the latest national input output table, updated to 2018-19 using a range of more recent statistics including National Accounts[1] and data from the labour force survey[2]. The latest national input output table is for 2017-18[3].

State tables were constructed using Generation of Regional Input Output Tables (GRIT) files incorporated in the IO9 software used for this analysis. The GRIT technique, developed by Professors West and Jensen of the University of Queensland, uses allocation methods and location quotients as well as superior data. It is the most widely used method of constructing input output tables in Australia. It is also commonly employed in Europe and America. The construction of the State tables incorporated a range of data derived from the State Accounts[4], labour force survey and population estimates[5] for 2018-19. The resultant tables were compared with data from the State Accounts for the relevant State, including Gross State Product and industry value added at ANZSIC Level 1, as a validity check.

[1] ABS Cat. No. 5204.0. Australian System of National Accounts, 2018-19
[2] ABS Cat. No. 6291.0.55.003. Labour Force, Australia, Detailed, Quarterly, February 2020
[3] ABS Cat. No. 5209.0.55.001. Australian National Accounts: Input-Output Tables, 2017-18
[4] ABS Cat. No. 5220.0. Australian National Accounts: State Accounts, 2018-19
[5] ABS Cat. No. 3218.0. Regional Population Growth, Australia 2018-19

4.2 Estimating the economic impact

A questionnaire was developed in Microsoft Excel, designed to gather information from processing facilities relating to on-going operational expenditure; employment by category and hours worked, wages and salaries, throughput by species and volume of production (measured as kg HSCW), all assessed for 2018-19 (or the closest equivalent financial year for processors not utilising a year end June financial year). A copy of the pro-forma questionnaire is provided at Appendix 1.

Key factors to note about the data collection include:

- The categories incorporated in the section designed to capture information were based on accounting classifications generally understood by the industry. These do not necessarily conform to the classifications utilised in the input output tables but were used to simplify data collection at the plant level. The data was then converted by the Consultants to reflect the relevant input output categories. It should be noted that the overall categories were reduced when compared with the questionnaire utilised in the earlier AMPC Project estimating the economic impact of the industry[6]. This was done to minimise the workload for processors dealing with various issues currently affecting the industry including drought, the aftermath of bushfires, restrictions imposed by importing countries and the current COVID-19 pandemic. In addition, processors were not asked to provide income-related data as this, when combined with expenditure data, enables the calculation of the metric which red meat processors (and other industry sectors) are most sensitive about at the individual level.
- The expenditure data was collected in total for each category. However, the individual responsible for supplying the data was asked to estimate the proportion spent within the relevant State and the proportion spent elsewhere. Measuring the State impact of an individual processing plant only incorporates that expenditure made within that State, with all other expenditure being treated as an import.

After assessing the expenditure made within the region and converting it to the classifications used in the input output tables, the data was then converted to Basic prices. Expenditure data provided by processing plants is measured in Purchasers prices i.e. what the processor actually pays. Conversion to Basic prices involves the reallocation of various margins to reflect what the supplier actually receives and by convention, is the measure used in input output tables.

The resultant aggregate data was then applied to the relevant State table. This involved inserting a new row and column into the input output table to reflect the red meat processing sector. This was then subtracted from the relevant parent sector, in this case food & beverage manufacturing, to maintain the integrity of the table, and ensure that there is no double-counting. The tables were then rebalanced and the various measures of economic activity calculated, namely employment (measured as full-time equivalent positions), household income and gross regional product.

[6] AMPC 2016-1031. *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*. S.G. Heilbron Pty. Ltd. July 2016.

4.3 Estimating the State and national impact

In assessing the impact on the economies of the relevant State and Australia as a whole, data on the number of livestock slaughtered in 2018-19[7] was analysed. The weighted average of data supplied by individual red meat processing plants was utilised to estimate overall expenditure by category, total employment and associated wages and salaries. It should be noted that private and public data used in this analysis reflected approximately 52 percent of Australia's total red meat production in 2018-19. In collecting private data in this Project, a number of plants provided complete data for 2018-19 whilst others provided only partial data. For those that only provided partial data (primarily impacted by time and other constraints), the State and national data were updated using data previously held by the Consultants and applying changes experienced over the time period by those that provided a full set of data in 2014-15.

4.4 Interpretation of results

The measurements provided in this report indicate the economic contribution made by the red meat processing sector to the national and state economies. They measure this economic contribution in various ways – namely, in terms of value added, employment and household income. They also measure them in terms of their direct impact and the flow-on effects of those direct impacts. The flow-on impacts are measured upstream in the supply chain – that is, they measure the upstream inputs into the direct inputs measured.

The measurements provided in this report thus incorporate flow-on or multiplier effects which include not only the direct impact of the red meat processing sector but also the economic indicators across the remainder of the economy that are underpinned or supported by the sector. These will vary depending upon the structure of the relevant economy as well as the degree of expenditure in the individual sectors that is made locally. For example, red meat processing facilities which purchase livestock primarily outside the State will have minimal flow-on impacts on the *Agriculture, forestry & fishing* sector in that region. At the same time, if a State has a significant proportion of the working population employed in, for example, *Health care & social assistance*, the flow-on impacts will impact on that sector as a result of both indirect and induced impacts.

By convention, the impact of employment, wages & salaries and gross operating surplus is applied to the State in which the individual facility operates. Consequently, that analysis does not differ at the State or national level. However, as all other expenditure was disaggregated into that spent in the State where the facility is located, the national impact is greater than the aggregation of the individual State impacts.

5.0 ANALYSIS IN CONTEXT

As noted above, the primary objective of this Project is to identify the economic contribution of the red meat processing industry in Australia and the individual States in which it operates for the tear 2018-19. It should be noted that, in 2018-19, no red meat slaughtering occurred in either the Northern Territory or the Australian Capital Territory.

[7] ABS Cat. No. 7218.0.55.001. Livestock and Meat, Australia, January 2020.

Data published by the Australian Bureau of Statistics (ABS) provides details of the number of head slaughtered by animal type (cattle, calves, sheep and lambs) and the volume of meat produced (defined as carcass weight and excluding offal). The following Table 5.1 illustrates the number of animals slaughtered and volume of meat produced by animal type and State in 2018-19.

Table 5.1: Livestock slaughtered and red meat produced by State, 2018-19

	Australia	NSW	VIC	QLD	SA	WA	TAS
Number slaughtered ('000)							
Cattle (excl. calves)	8,170.5	1,824.0	1,753.5	3,717.1	220.1	423.5	232.0
Calves	532.8	85.9	344.2	52.9	0.2	2.0	47.7
Sheep	9,729.8	2,739.9	4,276.8	146.4	1,056.2	1,395.5	114.6
Lambs	22,085.5	4,889.9	11,614.3	74.6	2,479.3	2,690.8	336.7
Meat produced (tonnes)							
Cattle	2,327,853	524,846	457,840	1,105,251	63,066	110,347	66,502
Calves	23,940	10,694	6,693	5,565	7	76	905
Sheep	230,488	68,189	96,077	2,947	25,899	35,122	2,257
Lambs	501,349	119,346	256,703	1,518	60,829	56,159	6,787
Average production per head (kg)							
Cattle (excl. calves)	284.9	287.7	261.1	297.3	286.5	260.6	286.6
Calves	44.9	124.5	19.4	105.2	35.0	38.0	19.0
Sheep	23.7	24.9	22.5	20.1	24.5	25.2	19.7
Lambs	22.7	24.4	22.1	20.3	24.5	20.9	20.2

Source: ABS Cat. No. 7218.0.55.001

Clearly there are significant differences between the States which will affect the economic impact of the red meat industry on the relevant economy. Queensland accounts for just over 45 percent of all cattle slaughtered nationally with New South Wales (22 percent of the national total) and Victoria (21 percent of the total) being the next most significant States for cattle. With regard to ovine slaughtering, Victoria accounts for almost 50 percent of sheep and lambs slaughtered in Australia. New South Wales is the second most significant State (24 percent of the national total) whilst Western Australia and South Australia contribute approximately 13 percent and 11 percent respectively. The above data has been used to scale up data provided by processors for this Project.

Contribution to industry value added

Industry value added is a key component in measuring the contribution of each industry sector to Gross Domestic (or State) Product. The components of value added consist of compensation of employees, taxes on production and imports less subsidies, and gross operating surplus. The results of the analysis of data provided by processors contributing to this Project has enabled an assessment of the red meat processing sector's industry value added, which is not readily available from published data, particularly at the State level. However, to provide context for the following analysis for the red meat processing industry, a brief summary of other sectors of the economy is provided below.

Assessing industry value added as a stand-alone figure is not particularly informative when comparing industry sectors as it is influenced by the level of employment and the capital intensity, amongst other factors, of the relevant sector. Examining industry value added by sector as a value per employee provides one method of comparing sectors.

The following analysis is derived from ABS data collected provided in the National Accounts at the ANZSIC Level 1 classification, combined with data from the Labour Force Survey to permit estimates of industry value added per FTE employee.

Table 5.2: Industry value added per FTE employee, ANZSIC Level 1, Australia, 2018-19

	FTE employment	IVA ($m)	IVA per FTE
Agriculture, Forestry and Fishing	288,418	40,605	$140,785
Mining	239,855	185,754	$774,444
Manufacturing	811,637	109,979	$135,503
Electricity, Gas, Water and Waste Services	148,939	48,797	$327,630
Construction	1,078,352	146,130	$135,512
Wholesale Trade	365,769	71,353	$195,077
Retail Trade	955,696	79,257	$82,931
Accommodation and Food Services	633,058	44,648	$70,527
Transport, Postal and Warehousing	593,778	90,105	$151,749
Information Media and Telecommunications	188,191	42,883	$227,870
Financial and Insurance Services	404,920	169,440	$418,453
Rental, Hiring and Real Estate Services	186,339	58,007	$311,299
Professional, Scientific and Technical Services	1,001,010	129,360	$129,230
Administrative and Support Services	352,873	67,100	$190,154
Public Administration and Safety	756,529	100,905	$133,379
Education and Training	853,921	91,237	$106,845
Health Care and Social Assistance	1,324,284	136,792	$103,295
Arts and Recreation Services	189,003	15,762	$83,396
Other Services	427,112	34,673	$81,180
Total all Industries	10,799,683	1,662,787	$153,966

Source: Analysis of data from ABS Cat. No's. 5204.0 & 6291.0.55.003.

The *Mining* sector has the highest average industry valued added per FTE employee. It also contributes the single largest proportion of total industry value added (11.2 percent) despite accounting for only 2.2 percent of the national FTE employment. *Financial & insurance services* has the second largest average industry valued added per FTE, followed by *Electricity, gas, water & waste services* and *Rental, hiring and real estate services*. Data from the ABS survey of Australian industry[8] indicates that net capital expenditure, measured as a percentage of sales and service income, approximates 5.9 percent across all industries. However, for *Mining, Electricity, gas, water & waste services* and *Rental, hiring and real estate services* the percentages are 13.6, 15.8 and 23.4 respectively.

The *Manufacturing* sector has an average Industry value added of $135,503 per FTE employee, lower than the overall average, and an average net capital expenditure of 2.6 percent of sales and service income, also significantly lower than the national average. The following Table 5.3 provides a breakdown of the industry value added per FTE employee derived from the Australian industry data[9]. It should be noted that there are marginal differences in the totals for the *Manufacturing* sector as a whole when compared with the preceding analysis as a result of data being drawn from different sources.

[8] ABS Cat. No. 8155.0.001. Australian Industry, 2018-19
[9] ABS Cat. No. 8155.0.002. Australian Industry, 2018-19

Table 5.3: Industry value added per FTE employee, Manufacturing industry subdivisions, Australia, 2018-19

	FTE employment	IVA ($m)	IVA per FTE
Food product manufacturing	179,559	22,322	$124,315
Beverage and tobacco product manufacturing	30,628	5,686	$185,648
Textile, leather, clothing and footwear manufacturing	27,356	2,479	$90,619
Wood product manufacturing	43,314	5,064	$116,913
Pulp, paper and converted paper product manufacturing	13,643	2,877	$210,881
Printing (including the reproduction of recorded media)	31,514	3,206	$101,734
Petroleum and coal product manufacturing	6,800	1,704	$250,578
Basic chemical and chemical product manufacturing	46,460	8,866	$190,831
Polymer product and rubber product manufacturing	34,906	4,722	$135,278
Non-metallic mineral product manufacturing	36,225	6,845	$188,956
Primary metal and metal product manufacturing	65,306	11,820	$180,995
Fabricated metal product manufacturing	64,307	10,568	$164,336
Transport equipment manufacturing	65,213	9,009	$138,147
Machinery and equipment manufacturing	106,371	14,097	$132,527
Furniture and other manufacturing	60,043	3,007	$50,081
Total Manufacturing sector	811,646	112,272	$138,326

Source: Analysis of data from ABS Cat. No's. 8155.0.002 & 6291.0.55.003.

The *Petroleum & coal product manufacturing* subdivision has the largest average industry valued added per FTE employee in the *Manufacturing* sector. The *Food product manufacturing* subdivision is the biggest employer in the *Manufacturing* sector, accounting for approximately 22 percent of total FTE employment. However, as it accounts for just under 20 percent of industry value added, the industry valued added per FTE employee is lower than the overall average for the *Manufacturing* sector.

Analysis of the industry value added by subsectors in the *Food product manufacturing* subdivision is provided in Table 5.4. It is derived from the ABS survey of Manufacturing industry[10].

Table 5.4: Industry value added per FTE employee, Food product manufacturing subsectors, Australia, 2018-19

	FTE employment	IVA ($m)	IVA per FTE
Meat and meat product manufacturing	54,976	6,864	$124,854
Seafood processing	1,757	207	$117,819
Dairy product manufacturing	16,986	2,860	$168,374
Fruit and vegetable processing	9,200	1,647	$179,024
Oil and fat manufacturing	997	429	$430,108
Grain mill and cereal product manufacturing	7,699	1,430	$185,735
Bakery product manufacturing	57,750	3,521	$60,970
Sugar and confectionery manufacturing	11,794	2,019	$171,187
Other food product manufacturing	18,400	3,344	$181,742
Total Food product manufacturing	179,559	22,321	$124,310

Source: Analysis of data from ABS Cat. No's. 8155.0.003 & 6291.0.55.003.

[10] ABS Cat. No. 8155.0.003. Australian Industry, 2018-19

Within the *Food product manufacturing* subdivision, the *Oil & fat manufacturing* subsector has the largest industry value added per FTE employee. However, it only accounts for approximately 0.6 percent of total FTE employment in *Food product manufacturing*. The largest employer in the subdivision is *Bakery product manufacturing*, accounting for 32.2 percent of the total. However, generating just under 16 percent of the total industry value added, it has the lowest average industry value added per FTE employee.

The *Meat & meat product manufacturing* subsector, which includes red meat processing, is the second largest employer with approximately 31 percent of total FTE employment in the subdivision. Accounting for a similar proportion of the industry value added, *Meat & meat product manufacturing* has a marginally above average industry value added per FTE employee.

The *Meat & meat product manufacturing* subsector comprises three ANZSIC classes with the following average industry value added per employee. These averages reflect industry value added as a value per total employment rather than FTE employment as has been utilised in the preceding analysis.

Table 5.5: Industry value added per employee, Meat and meat product manufacturing, Australia, 2018-19

	Employment	IVA ($m)	IVA per employee
Meat processing	35,838	4,014	$112,004
Poultry processing	18,407	1,938	$105,286
Cured meat and smallgoods manufacturing	7,670	912	$118,905
Total Meat and meat product manufacturing	61,915	6,864	$110,862

Source: Analysis of data from ABS Cat. No. 8155.0.003

The *meat processing* sector, which includes red meat processing, also includes the slaughter, boning, freezing, preserving and packing of other animals and meat products (excluding poultry). The other key component of the *meat processing* sector relates to the slaughter of pigs, although significantly smaller than red meat processing. *Meat processing* is the largest employer in the *Meat & meat product manufacturing* subsector, accounting for just under 58 percent of total employment in the subsector. Generating approximately 58.5 percent of industry value added, the *meat processing* sector has an industry value added per employee that is marginally above the average for *Meat & meat product manufacturing* as a whole.

Overall, between 2016-17 and 2018-19, industry value added per employee in the *Manufacturing* sector increased by approximately 4.6 percent. The increase for the *Food product manufacturing* subdivision was 5.4 percent whilst for *meat processing* the increase was substantially higher at 13.5 percent.

The above analysis reflects the direct industry value added. The following section addresses the national and State economic impacts of the red meat processing sector in terms of direct and flow-on impacts. The direct impacts are comparable with the preceding analysis. However, the flow-on impacts are also important as they serve to demonstrate the value underpinned by the red meat processing sector.

6.0 ECONOMIC IMPACT ANALYSIS

The following examines the economic impact of the red meat processing industry by State and nationally under the various metrics of employment, measured as full-time equivalent (FTE) jobs, household income and industry value added. Each metric is described in absolute values for the direct impact and flow-on impact, with the total impact (i.e. direct plus flow-on) also being expressed as a percentage of the relevant economy.

The analysis measures the impact of the red meat processing sector including flow-on or multiplier effects. The effects across other sectors of the economy result from a number of impacts including:

- Direct impacts result from expenditures associated with operating a facility – labour, materials, supplies;
- Indirect impacts result from the suppliers of the facility purchasing goods and services and hiring workers to meet demand – these "2nd round" impacts would not occur but for facilities operations; and
- Induced impacts results from the employees of the facility purchasing goods and services at a household level.

6.1 New South Wales

The impact of the red meat processing industry on the economy of New South Wales has been estimated by applying the weighted average operational expenditure and employment per head slaughtered, obtained from private and public data, to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within New South Wales, as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in New South Wales purchases livestock from Queensland, that expenditure makes a contribution to the Queensland economy. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of New South Wales is summarised in Table 6.1.

Table 6.1: Economic impact, including flow-on effects, red meat processing operations, New South Wales, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	7,868	496.1	1,256.0
Flow-on impact	15,099	804.1	2,225.6
Total impact	22,968	1,300.2	3,481.6
% of New South Wales	0.7%	0.4%	0.6%

The red meat processing industry is estimated to contribute 0.6 percent of the State's Gross industry value added, 0.4 percent of household income and 0.7 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in New South Wales underpins almost 23,000 FTE jobs and $3.5 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Financial & insurance services; and
- Construction.

6.2 Queensland

The impact of the red meat processing industry on the economy of Queensland has been estimated by applying the weighted average operational expenditure, income and employment per head slaughtered to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within Queensland as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in Queensland purchases livestock from the Northern Territory, that expenditure makes a contribution to the economy of the Northern Territory. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of Queensland is summarised in Table 6.2.

Table 6.2: Economic impact, including flow-on effects, red meat processing operations, Queensland, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	10,567	738.8	2,038.1
Flow-on impact	29,725	1,480.6	4,459.3
Total impact	40,292	2,219.4	6,497.3
% of Queensland	1.9%	1.3%	1.9%

The red meat processing industry is estimated to contribute 1.9 percent of the State's Gross industry value added, 1.3 percent of household income and 1.9 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in Queensland underpins more than 40,000 FTE jobs and almost $6.5 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Construction; and
- Administrative services.

6.3 South Australia

The impact of the red meat processing industry on the economy of South Australia has been estimated by applying the weighted average operational expenditure, income and employment per head slaughtered to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within South Australia as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in South Australia purchases livestock from Victoria, that expenditure makes a contribution to the economy of Victoria. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of South Australia is summarised in Table 6.3.

Table 6.3: Economic impact, including flow-on effects, red meat processing operations, South Australia, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	1,763	113.1	226.0
Flow-on impact	5,906	322.4	965.9
Total impact	7,669	435.5	1,191.9
% of South Australia	1.1%	0.8%	1.2%

The red meat processing industry is estimated to contribute 1.2 percent of the State's Gross industry value added, 0.8 percent of household income and 1.1 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in South Australia underpins almost 7,700 FTE jobs and almost $1.2 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Construction; and
- Administrative services.

6.4 Tasmania

The impact of the red meat processing industry on the economy of Tasmania has been estimated by applying the weighted average operational expenditure, income and employment per head slaughtered to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within Tasmania as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in Tasmania purchases goods or services from Victoria, that expenditure makes a contribution to the economy of Victoria. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of Tasmania is summarised in Table 6.4.

Table 6.4: Economic impact, including flow-on effects, red meat processing operations, Tasmania, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	1,039	69.4	99.8
Flow-on impact	1,689	106.1	361.5
Total impact	2,728	175.5	461.3
% of Tasmania	1.4%	1.2%	1.5%

The red meat processing industry is estimated to contribute 1.5 percent of the State's Gross industry value added, 1.2 percent of household income and 1.4 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in Tasmania underpins more than 2,700 FTE jobs and almost $0.5 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector, in descending order, in terms FTE employment are:

- Agriculture, forestry & fishing;
- Repair & maintenance services;
- Transport, postal & warehousing;
- Professional, scientific & technical services; and
- Construction.

6.5 Victoria

The impact of the red meat processing industry on the economy of Victoria has been estimated by applying the weighted average operational expenditure, income and employment per head slaughtered to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within Victoria as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in Victoria purchases livestock from Tasmania, that expenditure makes a contribution to the economy of Tasmania. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of Victoria is summarised in Table 6.5.

Table 6.5: Economic impact, including flow-on effects, red meat processing operations, Victoria, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	7,603	510.0	1,299.4
Flow-on impact	16,058	935.3	2,325.9
Total impact	23,661	1,445.2	3,625.2
% of Victoria	0.8%	0.6%	0.9%

The red meat processing industry is estimated to contribute 0.9 percent of the State's Gross industry value added, 0.6 percent of household income and 0.8 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in Victoria underpins almost 23,700 FTE jobs and more than $3.6 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Financial & insurance services; and
- Construction.

6.6 Western Australia

The impact of the red meat processing industry on the economy of Western Australia has been estimated by applying the weighted average operational expenditure, income and employment per head slaughtered to the total number of head slaughtered in the State in 2018-19. It should be noted that this assumes that the same ratios apply to all red meat processing facilities across the State.

The assessment of the State impact only includes the proportion of expenditure made within Western Australia as expenditure made outside the State is classed as an import and actually makes an economic contribution to the State in which the expenditure was made. For example, if a processing facility in Western Australia purchases livestock from the Northern Territory, that expenditure makes a contribution to the economy of the Northern Territory. Processing facilities were asked to estimate the proportion of expenditure by category made in the State in which the facility is located. They were not asked to estimate the distribution of imports by the remaining States or Territories in order to minimise the time impost on the processors. However, it should be noted that all expenditure is captured in the analysis for Australia.

The contribution of the red meat processing industry to the economy of Western Australia is summarised in Table 6.6.

Table 6.6: Economic impact, including flow-on effects, red meat processing operations, Western Australia, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	3,293	201.5	547.5
Flow-on impact	3,941	219.0	781.9
Total impact	7,234	420.5	1,329.4
% of Western Australia	0.6%	0.4%	0.5%

The red meat processing industry is estimated to contribute 0.5 percent of the State's Gross industry value added, 0.4 percent of household income and 0.6 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing in Western Australia underpins more than 7,200 FTE jobs and more than $1.3 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Repair & maintenance services; and
- Construction.

6.7 Australia

The impact of the red meat processing industry on the Australian economy has been estimated by applying the weighted average expenditure, income and employment per head slaughtered to the total number of head slaughtered in each State in 2018-19. It should be noted, however, that the total impact on the national economy, when flow-on effects are taken into account, is greater than the aggregate for the relevant States. This is a result of generally higher flow-on multipliers at the national level and the impact of inter-state expenditure.

The contribution of the red meat processing industry to the Australian economy is summarised in Table 6.7.

Table 6.7: Economic impact, including flow-on effects, red meat processing operations, Australia, 2018-19

	Employment	Household income	Industry value added
	FTE	$m	$m
Direct impact	32,133	2,128.9	5,466.8
Flow-on impact	89,460	4,975.1	14,202.7
Total impact	121,593	7,104.0	19,669.4
% of Australia	1.1%	0.8%	1.1%

The red meat processing industry is estimated to contribute 1.1 percent of national Gross industry value added, 0.8 percent of household income and 1.1 percent of full-time equivalent (FTE) employment when flow-on effects are taken into account. In total, red meat processing nationally underpins almost 121,600 FTE jobs and almost $19.7 billion in industry value added.

The top five industry sectors impacted by the red meat processing sector in terms FTE employment are:

- Agriculture, forestry & fishing;
- Professional, scientific & technical services;
- Transport, postal & warehousing;
- Construction; and
- Financial & insurance services.

6.8 Multiplier effects

Nationally, the red meat processing industry is estimated to underpin approximately 2.8 FTE jobs across the broader economy for each direct FTE job within the industry. The main beneficiary of this is the *Agriculture, forestry & fishing sector*. Similarly, for every $1 in industry value added generated in the red meat processing sector, it is estimated that an additional $2.60 is supported across the total economy.

It should be noted that these multipliers were estimated after assessing the economic impact of the red meat processing sector and reflect the distribution of expenditure by the industry as a whole, both geographically and by industry sector. These multipliers should not be used to estimate the economic impact of any individual red meat processing facility due to likely variations in expenditure patterns. Furthermore, these multipliers are only applicable for Australia as a whole and should not be used at a sub-national level.

6.9 Comparison with other assessments

The estimates of the various metrics in this Project have been derived primarily from operational expenditure data supplied by red meat processors for 2018-19. They differ from other estimates of industry value added for a number of reasons.

The estimates of industry value added published by the Australian Bureau of Statistics (ABS) are, as with many ABS data estimates, subject to periodic revision. The primary source of data to generate the ABS published figures for industry value added is primarily drawn from information provided in Business Activity Statements (BAS) supplied to the Australian Taxation Office and again are referred to as estimates[11]. Clearly, it would be unlikely that that data would concord with estimates of industry value added derived from private data supplied for this Project.

[11] https://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/8155.0Explanatory%20Notes12018-19?opendocument&tabname=Notes&prodno=8155.0&issue=2018-19&num=&view=

The 2019 State of the Industry Report[12] published by Meat & Livestock Australia (MLA) incorporates contributions from EY which in turn draws on data supplied by IBISWorld. It is acknowledged that the direct industry value added estimated in that report for the red meat processing sector in 2017-18 is substantially lower than the estimates prepared for this Project for 2018-19. They also reflect a decrease since 2014-15 of approximately 32 percent since 2014-15 based on IBISWorld data. It is unclear how IBISWorld sources the data it uses in preparing estimates of industry value added. In addition, it should be noted that in 2018-19, processors recorded very much higher than average margins[13] which would impact on industry value added in that year.

The estimates provided in this Project reflect data covering more than 50 percent of livestock slaughtered for the red meat industry in 2018-19 and would appear to be the only estimates derived from private data supplied by processors.

6.10 Summary

The red meat processing industry is a relatively high value adding and employment generating industry when compared to the economy as a whole. The contribution of the red meat processing sector to employment in other sectors of the economy is significant, supporting approximately 1.1 percent of full-time equivalent employment across the national economy.

The sector underpinned almost 17 percent of total full-time equivalent employment in the *Agriculture, forestry & fishing* sector in 2018-19. It also supported almost 3 percent of total full-time equivalent employment in the *Pulp, paper & converted paper product manufacturing* sector and 1.1 percent of employment in the *Chemical & chemical product manufacturing* sector.

The contribution of the red meat processing sector to industry value added, and therefore to gross domestic product, is also significant. Analysis of the industry value added per full-time equivalent employee, after allowing for flow-on impacts, is provided in Table 6.8.

It should be noted that the analysis for other sectors of the food and beverage manufacturing industry is derived from secondary data in the 2017-18 national input output table at 114 sectors, updated to reflect 2018-19 employment and values.

As the values for red meat processing include analysis of primary data supplied for this Project, a direct comparison in absolute terms may under (or over) estimate the other industry sectors. However, the table does illustrate that the industry value added per full-time equivalent employee (including flow-on effects) generated by red meat processing is generally higher than for other sub-sectors of the food and beverage manufacturing industry.

The average value for all industries of $167,566 is derived from the National Accounts for 2018-19 and does not include flow-on effects as these are implicit in the inter-industry linkages for the national economy.

[12] https://www.mla.com.au/globalassets/mla-corporate/prices--markets/documents/trends--analysis/soti-report/mla-state-of-industry-report-2019.pdf

[13] https://www.beefcentral.com/markets/processor-losses-loom-as-disconnect-emerges-between-cattle-and-meat-prices/

Table 6.8: Gross industry value added per FTE employee, incl. flow-on impacts, selected industry sectors, Australia, 2018-19

Sector	Industry value added per total FTE employee
Red Meat Processing	$161,765
Meat and Meat Product Manufacturing	$153,924
Processed Seafood Manufacturing	$177,858
Dairy Product Manufacturing	$161,954
Fruit and Vegetable Product Manufacturing	$156,450
Oils and Fats Manufacturing	$190,820
Grain Mill and Cereal Product Manufacturing	$158,452
Bakery Product Manufacturing	$102,952
Sugar and Confectionery Manufacturing	$183,349
Other Food Product Manufacturing	$177,294
Total Food & Beverage Product Manufacturing	$160,569
Average all industries	$167,566

On average, the red meat processing sector generates approximately $162,000 per FTE employee compared with $161,000 for the food and beverage product manufacturing sector as a whole and $167,600 for all industries in Australia in 2018-19. The red meat processing sector, whilst accounting for just under 0.3 percent of the direct full-time equivalent workforce in Australia in 2018-19, contributed 1.1 percent of the nation's Gross industry value added when flow-on effects are taken into account.

7.0 EMPLOYMENT ANALYSIS

Employment in the red meat processing industry is primarily governed by the Award (Meat Industry Award 2010[14]) or by a facility-specific (in a small number of cases, an organisation-specific) Enterprise Agreement (EA), generally negotiated between the employer, employees and the AMIEU and approved by Fair Work Australia.

Employment under the Award or the relevant EA is generally divided into the following categories:

- ***Full-time employment "permanent"*** - defined as an employee who is engaged to work an average of 38 hours per week. The employee accrues paid annual and personal leave and is paid for public holidays. In practice, in the red meat processing sector, a permanent full-time employee is generally a salaried employee working in various administration positions, employed as a line manager or supervisor or as a tradesperson in maintenance roles. After allowing for payment of annual leave, a permanent employee can be expected to be paid for 52 weeks in a year in normal situations.

- ***Part-time employment*** - part-time positions may apply to each of permanent employees, casual employment and daily hire.

[14] Recently updated to the Meat Industry Award 2020

- ***Daily hire employment*** - these employees are quasi-permanent in that they accrue annual leave, personal leave and long service leave for the hours worked and receive pay for public holidays, provided that they attend work on the day immediately preceding or following the public holiday. However, in theory their employment terminates at the end of each day or shift. As a consequence of the likelihood of short-term cessation of work at the discretion of the employer, daily hire workers receive a 10 percent loading above the ordinary time hourly or daily rate. Daily hire employment was the single most common category of employment in red meat processing facilities, accounting for up to 80 percent of the processing workforce (i.e. excluding administrative and other salaried staff) in 2013-14[15]. The key difference between a daily hire employee and permanent, or salaried employee, is that the former may not be guaranteed to be paid for a full 52 weeks depending upon prevailing conditions in terms of throughput.

- ***Casual employment*** – casual employment accounted for approximately 20 percent of the processing workforce in red meat processing facilities in 2013-14. The minimum period for employment is four hours in any one shift, meaning that the worker can be terminated on any given day part way through a shift. At that time, based on the survey undertaken for AMPC Project 2014-1001, there was no evidence that casual employment in the red meat processing industry was increasing.

As part of this current Project, processors were asked to indicate employment levels in 2018-19 and to distinguish between categories of employment. It should be noted that not all processing facilities providing information for this Project made the differentiation. However, based on the data received, the following distribution of full-time equivalent employment by workforce classification has been estimated. Estimates should be treated with caution due the aforementioned variations in private data coverage by State.

Table 7.1: Distribution of FTE employment in red meat processing, Australia, 2018-19

	Proportion of FTE employment						
Employment category	**NSW**	**QLD**	**SA**	**TAS***	**VIC**	**WA***	**Australia**
Full-time	56.8%	14.8%	36.1%	N.A.	55.9%	N.A.	34.1%
Part-time	0.5%	0.1%	0.0%	N.A.	2.1%	N.A.	0.6%
Casual	21.5%	0.3%	9.1%	N.A.	14.7%	N.A.	8.7%
Daily hire	21.2%	84.9%	54.8%	N.A.	27.3%	N.A.	56.6%

* Insufficient data on distribution of employment provided for Tasmania and Western Australia.

It should be noted that when individual Enterprise Agreements were examined via the Fair Work Australia website, many of them make specific reference to daily hire employees. It may therefore be reasonable to assume that a significant proportion of employees defined as "full-time" may actually be daily hire.

Data from the Labour Force Survey[16]indicates that across Australia in 2018-19, approximately 24.7 percent of the total workforce were employed "without paid leave entitlements", the most common

[15] AMPC Project 2014-1001 *Examining and quantifying the range of issues associated with increased casual labour use in the red meat processing industry*. SG Heilbron Economic & Policy Consulting, January 2015
[16] ABS Cat. No. 6291.0.55.003. Labour Force, Australia, Detailed, Quarterly, May 2020

proxy for measuring casual employment. When converted to full-time equivalent employment, this equates to approximately 19.4 percent being employed on a casual basis. It would appear that, based on this analysis, the red meat processing industry has a lower than average level of casual employment than the economy as a whole and that the proportion has actually decreased since 2013-14.

8.0 OVERALL PROGRESS OF THE PROJECT

The Project has been delayed when compared with the due date nominated in the Executed Agreement as has been discussed with representatives from AMPC. This was primarily due to delays in obtaining data from processors. However, this report has been submitted by the revised due date. There are no issues associated with budget or scope.

9.0 DISCUSSION

The preceding analysis demonstrates that the red meat processing industry makes a significant contribution to the Australian economy and to the individual States in which it operates. It is estimated to support approximately 1.1 percent of total FTE employment and industry value added when flow-on effects are taken into account.

As outlined in Appendix 2 of this report, the overall contribution of the red meat processing industry at the State level and nationally has generally decreased when compared with 2014-15. This is partly due to decreased slaughter numbers and meat production, but also a function of significant growth in livestock prices. That factor has resulted in an increased proportion of total expenditure being diverted to the *Agriculture, forestry & fishing* sector. As that sector has lower than average wages per employee, it has resulted in a decrease in total household income underpinned by the red meat processing sector which, in turn, impacts on the level of industry value added supported.

The analysis illustrates the close economic linkages that exist between the agriculture and processing sectors, and the need to consider the two sectors as part of a single supply chain, ultimately needing to satisfy the needs of customers, both in Australia and internationally. Although caution must be exercised in comparing the economic contribution in two single years, the decline in overall contribution, and the factors that appear to be reflected in that decline, are worthy of further consideration.

10.0 CONCLUSIONS/ RECOMMENDATIONS

This project has provided updated estimates of the economic contribution of the red meat processing industry, including flow-on impacts, and an analysis of employment in the industry.

The economic contribution of the red meat processing industry is highly significant. The contribution of the red meat processing sector to employment is particularly noteworthy. It supports approximately 1.1 percent of full-time equivalent employment across the entire national economy. It contributes especially significantly to the employment in the agriculture sector, underpinning almost 17 percent of total full-time equivalent employment in the *Agriculture, forestry & fishing* sector in 2018-19.

It is also noteworthy that red meat processing industry is a relatively high value adding and employment generating industry when compared to the economy as a whole. The contribution of the red meat processing sector to industry value added, and therefore to Australia's gross domestic

product, is also significant.

Previous analysis undertaken by the Consultants has been widely used by the industry (both AMPC and individual processors) in communicating its economic contribution to governments (Federal, State and Local) as well as other industry stakeholders.

The construction of the analysis used for this project provides the industry with the potential for analysing the initial impact of any economic development affecting the industry. AMPC should consider the use of the research in this manner, especially given the fact that it incorporates data provided by processors. The impacts of any quantifiable developments in the broader economy can be analysed using the model to estimate their economic impacts on the industry, and the direct and flow-on effects on the broader economy. Such developments could include policy changes or potential changes in relation to trade, taxation or regulation. As an illustration, the previous analysis undertaken for AMPC was used to analyse the impacts of reductions in the cost to operate flowing from regulatory reforms. The analysis can also be used to assess the economic impact of an event like the COVID-19 epidemic, or indeed any development that economically impacts the industry, and through that impact affects the broader economy.

Finally, the previous project undertaken on economic impact included an option for processors to have the impact of individual facilities analysed to augment the national and State-based analysis. AMPC should again consider offering this service to individual processors. This would provide processors with information that would be of considerable value when disseminating information to explain the significance of their economic contribution to policy makers or the broader community. In previous analysis undertaken for AMPC, this was undertaken for individual processors and supported by the Corporation, while maintaining confidentiality of the data provided by individual processors for the purpose of the analysis.

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AMPC 2016-1031. *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*. S.G. Heilbron Pty. Ltd. July 2016.

12.0 APPENDICES

12.1 Appendix 1 – Pro-forma questionnaire for processors

Processor Template for AMPC Project 2020-1067

Processor Name	
Facility Name	
Location of Facility (please select from dropdown box adjacent)	
Number of days operating in 2018-19	
Number of shifts per day	

Operations in 2018-19

Slaughter data	**Cattle**	**Calves**	**Sheep**	**Lambs**
Number of head slaughtered in year				
KG HSCW produced				
% of slaughter as service kill				
Total expenditure on livestock ($'000)				
Proportion of expenditure spent in				
Proportion of production exported by $ value				

Employment data by category	Average no. of employees per week	Average hours worked per week	Number of FTE employees in year	Total wages & salaries incl. on-costs (annual, personal & long service leave) ($'000)
Daily hire				
Permanent full-time				
Permanent part-time				
Casual				

Operational costs

Total expenditure in 2018-19 on:	Total expenditure ($'000)	Proportion spent in:	NSW
Utilities			
Other labour costs (excl. wages & salaries)			
Total superannuation payments			
Total workers compensation premium costs			
Total payroll tax			
Transport			
Other government charges			

Certification, levies, license costs (Federal)		
State & Local Govt. charges		
Other operational costs		
Packaging		
Other costs		
Total operating expenditure in 2018-19		

12.2 Appendix 2 – Comparison of results with those from AMPC 2016-1031

The analysis undertaken for AMPC Project 2016-1031[17] reflected the operations of the red meat processing sector in 2014-15. In comparing the results derived from this current Project with the earlier analysis, it should be noted that the impact of capital expenditure has not been taken into account in this Project. Consequently, only data relating to the economic impact of operational expenditure have been compared.

The following Table A2.1 provides a comparison of livestock slaughter numbers and red meat production between 2014-15 and 2018-19.

Table A2.1: Livestock slaughtered and red meat produced by State, comparison between 2014-15 and 2018-19

	2018-19 as percentage of 2014-15						
	Australia	NSW	VIC	QLD	SA	WA	TAS
Number slaughtered ('000)							
Cattle (excl. calves)	86.7%	89.0%	90.4%	86.5%	46.6%	99.8%	98.6%
Calves	78.0%	46.1%	98.7%	58.4%	6.1%	181.8%	89.3%
Sheep & Lambs	99.8%	103.8%	113.7%	28.2%	69.4%	111.0%	44.8%
Livestock combined	96.5%	99.5%	110.6%	77.2%	67.4%	109.9%	56.4%
Meat produced (tonnes)							
Cattle	88.8%	91.4%	90.3%	89.5%	47.8%	101.9%	101.0%
Calves	60.9%	50.6%	83.3%	62.5%	9.5%	128.8%	85.6%
Sheep & Lambs	101.5%	106.7%	115.5%	25.3%	70.9%	114.6%	45.0%
Red meat combined	91.2%	93.7%	99.6%	88.4%	58.9%	107.3%	87.9%

Source: Analysis of data from ABS Cat. No. 7218.0.55.001. Livestock and Meat, Australia, January 2020.

It is worth noting that when compared with 2014-15, the number of cattle slaughtered nationally decreased by more than 13 percent in 2018-19, with the decrease in South Australia being the most significant drop. Similarly, the quantity of beef produced also fell by approximately 11 percent nationally, again particularly impacted by South Australia, although marginal increases were experienced in Western Australia and Tasmania.

Overall, the number of sheep and lambs slaughtered was almost identical nationally in 2018-19 when compared with 2014-15, with increases experienced in Victoria and Western Australia and, to a lesser extent, in New South Wales. Numbers fell dramatically in Queensland, with its proportion of national sheep and lamb slaughtering falling from approximately 2.5 percent in 2014-15 to 0.7 percent in 2018-19. Meat produced from sheep and lambs increased marginally for Australia as a whole in 2018-19 when compared with 2014-15, primarily influenced by an increase in the number of sheep slaughtered compared with the marginally lighter lamb slaughter.

When examined in aggregate, total red meat livestock slaughtered decreased by approximately 3.5 percent across Australia in 2018-19 when compared with 2014-15, with only Victoria and Western Australia experiencing increases. Red meat production in aggregate fell by approximately 8 percent nationally, impacted by the shift in the relative proportion of cattle and sheep / lambs slaughtered. In

[17] AMPC Project 2016-1031. *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia*. S.G. Heilbron Pty. Ltd. July 2016.

2014-15, cattle comprised approximately 22.4 percent of red meat livestock slaughtered whilst in 2018-19, this had decreased to approximately 20.2 percent.

The data utilised in this Project reflected approximately 52 percent of red meat produced in 2018-19. By comparison, the analysis undertaken in AMPC Project 2016-1031 represented data for approximately 47 percent of red meat produced in 2014-15. Given the circumstances facing processors when the data for this current Project was collected, including the aftermath of bush fires, drought (ongoing in some areas), overseas trade issues and the current COVID-19 pandemic, this represents an extremely satisfactory result.

The following provides a comparison of the results for 2018-19 with those for 2014-15 by State and nationally along with a brief commentary on factors influencing the differences. It should be noted that the $ value results for 2014-15 have been inflated to 2018-19 $ values using the implicit GDP deflator[18]. This is a more realistic value than using the Consumer Price Index (CPI) for several reasons including:

- CPI only measures the prices of goods and services purchased by consumers;
- CPI is based on a fixed basket of goods and services (although this is adjusted periodically) and does not reflect the introduction of new goods and services or changes in consumption patterns; and
- the GDP deflator measures the prices of all goods and services produced.

A2.1 New South Wales

The following Table A2.2 illustrates the impact of the red meat industry's operations in New South Wales in 2018-19 compared with the results for 2014-15.

Table A2.2: Economic impact of the red meat processing industry, New South Wales, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	22,968	1,300.2	3,481.6
% of New South Wales	0.7%	0.4%	0.6%
2014-15 (total impact) (2018-19 $ values)	28,842	2,071.8	5,161.5
% of New South Wales	0.9%	0.7%	1.0%
Change in value	-5,874	-772	-1,680
Percentage change in value	-20.4%	-37.2%	-32.5%

In 2018-19, it is estimated that the red meat processing industry supported approximately 23,000 FTE jobs (0.7 percent of the State total), $1.3 billion in household income (0.4 percent of the State total) and $3.5 billion in industry value added (0.6 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 28,800 FTE jobs (0.9 percent of the State total), $2.1 billion in household income (expressed in 2018-

[18] ABS Cat. No. 5204.0. Australian System of National Accounts, 2018-19

19 $ values and reflecting 0.7 percent of the State total) and $5.2 billion in industry value added (expressed in 2018-19 $ values and reflecting 1.0 percent of the State total).

The decrease in total employment underpinned by the sector is a result of a drop in red meat production numbers, particularly related to beef. The larger decline in household income and industry value added is, at least in part, a function of a greater proportion of expenditure being directed to the *Agriculture, forestry & fishing* sector through livestock price increases that were above the underlying inflation rate between the comparison years combined with lower than average wages in that sector.

A2.2 Queensland

The following Table A2.3 illustrates the impact of the red meat industry's operations in Queensland in 2018-19 compared with the results for 2014-15.

Table A2.3: Economic impact of the red meat processing industry, Queensland, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	40,292	2,219.4	6,497.3
% of Queensland	1.9%	1.3%	1.9%
2014-15 (total impact) (2018-19 $ values)	48,659	3,368.9	8,914.8
% of Queensland	2.5%	2.1%	2.9%
Change in value	-8,367	-1,150	-2,417
Percentage change in value	-17.2%	-34.1%	-27.1%

In 2018-19, it is estimated that the red meat processing industry supported approximately 40,300 FTE jobs (1.9 percent of the State total), $2.2 billion in household income (1.3 percent of the State total) and $6.5 billion in industry value added (1.9 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 48,700 FTE jobs (2.5 percent of the State total), $3.1 billion in household income (expressed in 2018-19 $ values and reflecting 2.1 percent of the State total) and $8.9 billion in industry value added (expressed in 2018-19 $ values and reflecting 2.9 percent of the State total).

The decrease in total employment underpinned by the sector is a result of a drop in slaughter numbers, particularly related to cattle. Whilst slaughter numbers for sheep and lambs fell more dramatically, they make up a relatively small proportion of the red meat processing sector in Queensland. The larger decline in household income and industry value added is, at least in part, a function of a greater proportion of expenditure being directed to the *Agriculture, forestry & fishing* sector through livestock price increases that were above the underlying inflation rate between the comparison years combined with lower than average wages in that sector.

A2.3 South Australia

The following Table A2.4 illustrates the impact of the red meat industry's operations in South Australia in 2018-19 compared with the results for 2014-15.

Table A2.4: Economic impact of the red meat processing industry, South Australia, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	7,669	435.5	1,191.9
% of South Australia	1.1%	0.8%	1.2%
2014-15 (total impact) (2018-19 $ values)	14,466	919.6	2,388.7
% of South Australia	2.2%	1.8%	2.4%
Change in value	-6,797	-484	-1,197
Percentage change in value	-47.0%	-52.6%	-50.1%

In 2018-19, it is estimated that the red meat processing industry supported approximately 7,700 FTE jobs (1.1 percent of the State total), $0.4 billion in household income (0.8 percent of the State total) and $1.2 billion in industry value added (1.2 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 14,500 FTE jobs (2.2 percent of the State total), $0.9 billion in household income (expressed in 2018-19 $ values and reflecting 1.8 percent of the State total) and $2.4 billion in industry value added (expressed in 2018-19 $ values and reflecting 2.4 percent of the State total).

The substantial reductions in 2018-19 when compared with the previous analysis period reflect a significant decrease in slaughter numbers and meat production for both cattle and sheep / lambs.

A2.4 Tasmania

The following Table A2.5 illustrates the impact of the red meat industry's operations in Tasmania in 2018-19 compared with the results for 2014-15.

Table A2.5: Economic impact of the red meat processing industry, Tasmania, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	2,728	175.5	461.3
% of Tasmania	1.4%	1.2%	1.5%
2014-15 (total impact) (2018-19 $ values)	3,931	224.4	607.7
% of Tasmania	2.0%	1.7%	2.3%
Change in value	-1,202	-49	-146
Percentage change in value	-30.6%	-21.8%	-24.1%

In 2018-19, it is estimated that the red meat processing industry supported approximately 2,700 FTE jobs (1.4 percent of the State total), $0.2 billion in household income (1.2 percent of the State total) and $0.4 billion in industry value added (1.5 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 3,900 FTE jobs (2.0 percent of the State total), $0.2 billion in household income (expressed in 2018-19 $ values and reflecting 1.7 percent of the State total) and $0.6 billion in industry value added (expressed in 2018-19 $ values and reflecting 2.3 percent of the State total).

The total employment impact has decreased in absolute terms in 2018-19 when compared with the estimates for 2014-15. The contribution to the economy of Tasmania has decreased for all metrics when measured in real terms. The decrease in livestock slaughtering, particularly ovine, could reasonably be expected to contribute to this fall in values, although it has been off-set to a certain extent by increased livestock prices and average wages and salaries in the red meat processing industry.

A2.5 Victoria

The following Table A2.6 illustrates the impact of the red meat industry's operations in Victoria in 2018-19 compared with the results for 2014-15.

Table A2.6: Economic impact of the red meat processing industry, Victoria, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	23,661	1,445.2	3,625.2
% of Victoria	0.8%	0.6%	0.9%
2014-15 (total impact) (2018-19 $ values)	25,149	1,776.9	4,034.0
% of Victoria	1.0%	0.9%	1.1%
Change in value	-1,488	-332	-409
Percentage change in value	-5.9%	-18.7%	-10.1%

In 2018-19, it is estimated that the red meat processing industry supported approximately 23,700 FTE jobs (0.8 percent of the State total), $1.4 billion in household income (0.6 percent of the State total) and $3.6 billion in industry value added (0.9 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 25,100 FTE jobs (1.0 percent of the State total), $1.8 billion in household income (expressed in 2018-19 $ values and reflecting 0.9 percent of the State total) and $4.0 billion in industry value added (expressed in 2018-19 $ values and reflecting 1.1 percent of the State total).

Whilst there was a real decrease in all metrics examined, this was not as pronounced as exhibited by some other States. The number of cattle slaughtered decreased between 2014-15 and 2018-19 but this was off-set by an increase in the number of sheep and lambs slaughtered and the associated increase in lamb and mutton production.

A2.6 Western Australia

The following Table A2.7 illustrates the impact of the red meat industry's operations in Western Australia in 2018-19 compared with the results for 2014-15.

Table A2.7: Economic impact of the red meat processing industry, Western Australia, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	7,234	420.5	1,329.4
% of Western Australia	0.6%	0.4%	0.5%
2014-15 (total impact) (2018-19 $ values)	7,296	499.3	1,508.9
% of Western Australia	0.6%	0.5%	0.6%
Change in value	-62	-79	-180
Percentage change in value	-0.9%	-15.8%	-11.9%

In 2018-19, it is estimated that the red meat processing industry supported approximately 7,200 FTE jobs (0.6 percent of the State total), $0.4 billion in household income (0.4 percent of the State total) and $1.3 billion in industry value added (0.5 percent of the State total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 7,300 FTE jobs (0.6 percent of the State total), $0.5 billion in household income (expressed in 2018-19 $ values and reflecting 0.5 percent of the State total) and $1.5 billion in industry value added (expressed in 2018-19 $ values and reflecting 0.6 percent of the State total).

Total employment remained relatively stable between the two comparison periods, although household income fell by almost 16 percent. This decline in household income is, at least in part, a function of a greater proportion of expenditure being directed to the *Agriculture, forestry & fishing* sector through livestock price increases that were above the underlying inflation rate between the comparison years, combined with lower than average wages in that sector. This in turn impacts on the absolute value of industry value added, notwithstanding the increase in red meat production.

A2.7 Australia

The following Table A2.8 illustrates the impact of the red meat industry's operations in Australia in 2018-19 compared with the results for 2014-15. It should be recognised that these numbers are higher than the aggregate of the State values as a result of intra-state purchases and the greater flow-on effects found at the wider geographic level.

Table A2.8: Economic impact of the red meat processing industry, Australia, comparison between 2014-15 and 2018-19

	Employment	Household Income	Industry value added
	FTE	$m	$m
2018-19 total impact	121,593	7,104.0	19,669.4
% of Australia	1.1%	0.8%	1.1%
2014-15 (total impact) (2018-19 $ values)	134,702	9,417.6	24,734.9
% of Australia	1.4%	1.1%	1.5%
Change in value	-13,110	-2,314	-5,065
Percentage change in value	-9.7%	-24.6%	-20.5%

In 2018-19, it is estimated that the red meat processing industry supported approximately 121,600 FTE jobs (1.1 percent of the national total), $7.1 billion in household income (0.8 percent of the national total) and $19.7 billion in industry value added (1.1 percent of the national total).

By comparison, in 2014-15, the red meat processing industry was estimated to support approximately 134,700 FTE jobs (1.4 percent of the national total), $9.4 billion in household income (expressed in 2018-19 $ values and reflecting 1.1 percent of the national total) and $24.7 billion in industry value added (expressed in 2018-19 $ values and reflecting 1.5 percent of the national total).

Overall, the total number of FTE jobs underpinned by red meat processing fell by almost 10 percent compared with a decrease in total slaughter numbers of 3.5 percent and meat production of 8.8 percent. The fall in total household income, including flow-on effects, was more substantial, again due, at least in part, to a greater proportion of expenditure being directed to the *Agriculture, forestry & fishing* sector through livestock price increases that were above the underlying inflation rate between the comparison years, combined with lower than average wages in that sector. This in turn impacts on the absolute value of industry value added.