



# Literature Review on the Live Sheep Export Industry





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Front cover photograph shows a sheep near Lakes Entrance in Victoria.

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## 1. Introduction

Pegasus Economics (Pegasus) has been commissioned by the Department of Agriculture, Fisheries and Forestry to provide an assessment and summation of existing studies in relation to live sheep exports, including but not limited to:

- *The economic impacts of regulating live sheep exports - research report 21.01* – February 2021 – ABARES
- *The economic contribution and benefits of the Northern live export cattle industry* – August 2022 – ACIL Allen
- *Contribution of live exports to the Australian Wool Industry* – March 2014 – The Centre for International Economics
- *Contribution of live exports to Woolgrower’s income - An Update* – July 2018 - The Centre for International Economics
- *The Economic Importance to Western Australia of Live Animal Exports* – July 2011 – Kingwell, R., Cunningham, P., Nath, T., Anderton, L., Xayavong, V., Curis, K., . . . Feldman, D., Department of Agriculture and Food Western Australia.
- *Live Sheep Export – Brief Report* – April 2018 - Mecardo
- *Value analysis of the Australian Live Sheep Export Trade* – September 2019 – Mecardo
- *Impact of the live sheep export trade’s self-imposed moratorium and regulatory changes* – January 2020 – Mecardo
- *Economic Issues Associated with the Live Sheep Export Trade* – March 2018 – Pegasus Economics.
- *Economic Implications of Phasing Out the Live Sheep Export Trade* - April 2022 – Pegasus Economics
- *Implications of management decisions on the WA sheep flock in response to changing markets.* – April 2019 – Pritchett, K, Department of Primary Industries and Regional Development, Western Australia.

The views and opinions expressed in this report are entirely those of the authors and not the Department of Agriculture, Fisheries and Forestry.

## 2. Mecardo Reports

Mecardo has produced three reports since 2018 funded by industry interests examining the impact of the live sheep export industry on sheep farmers, with a particular focus on Western Australia (WA).

Mecardo is currently owned by Nutrien, a Canadian multi-national company that provides services to the agricultural industry.

### 2.1 Title: Live Sheep Export – Brief Report

Author/Publisher and Date: Mecardo, 20 April 2018

Context

The report was commissioned by the WA Farmers Federation (WAFarmers), with the support of Sheep Producers Australia (Mecardo, 2018). The report examines the significance of the live sheep export industry to the broader WA sheep industry and assesses the likely economic impact of a ban on the trade (WAFarmers, 2018).

The Mecardo report was released following the *Awassi* incident, but before there was any response by the Federal Government. Hence, the report was prepared during a period when restrictions on the trade were being widely canvassed in the media but had not yet been implemented. Mecardo's analysis in this report is therefore forward-looking and does not benefit from actual experience through the period of the prohibition on live sheep exports during the Northern Hemisphere summer.

### Areas of Focus

The report is focused on the economic contribution of the live sheep export trade to the WA sheep industry and the possible impacts of a ban on sheep farmers' incomes.

The report includes some observations about constraints on the capacity in WA to divert live sheep export volumes into the wool producing sector in WA, including the diversion of land in recent years to cropping and the supply of shearers.

There is no discussion of animal welfare issues or the broader social or economic consequences of a ban on live sheep exports.

### Major Findings & Conclusions

The report observes the live sheep export trade represents around one third of the WA sheep offtake each year.

The report finds a strong correlation between WA slaughter rates and export prices for mutton and trade lamb. In turn, it uses this relationship to estimate that the prices of lamb and mutton would both decrease by 18-35% if the sheep sent for live export were instead processed domestically. On this basis, Mecardo finds that:

- Lamb prices would fall by between \$23 and \$43 per head
- Mutton prices would fall by between \$18 and \$35 per head.

According to Mecardo, this would equate to the loss in the range of between \$80-150 million per annum to WA sheep farmers.

The report finds the suggestion that sheep could be diverted from the live sheep export trade and kept until cast for age to be cut for wool as impractical due to two key capacity constraints:

- The decline in land available for wool production in WA that has been reallocated to cropping
- The decline in available shearers in WA to undertake the additional shearing of more sheep held for wool, instead of being sold for live export.

### Key Assumptions and Methodology

According to Mecardo, its results are driven by analysis of the historic relationship between WA slaughter levels and the average weighted WA sale yard price achieved for trade lamb and mutton sales. The Department of Agriculture (2019, p. 36) has observed that Mecardo appeared to have assumed in this report that sheep slaughter in Western Australia determine the state's export prices of mutton and lamb, rather than prices being determined in world markets.

The data on which the report is based is drawn from the Department of Agriculture and Water Resources, Meat & Livestock Australia, Australian Wool Innovation, the Australian Bureau of Statistics, and Mecardo itself. However, while organisations are listed where data is presented, Mecardo has not made the data that underpins its analysis available. There is no bibliography nor list of specific source documents cited in the report. Mecardo has indicated that some of the key data used in the report was proprietary (Breusch, 2018, p. 2). It has been suggested that the price variable used in the report is a composite price index of Mecardo's own devising that covers "WA mutton and trade lamb (in US\$ terms)" (Breusch, 2018, p. 5).

Mecardo's findings that there is a strong correlation between WA slaughter rates and export prices for mutton and trade lamb was used to undertake a regression analysis to determine the potential price impact on WA lamb and sheep markets from a change to WA slaughter levels. However, the assumptions and modelling used to generate these results are not transparent.

A report that sought to replicate Mecardo's data and results found the statistical model was a simple regression of one variable on another over 17 annual observations from 2001 to 2017 (Breusch, 2018, p. 5). The dependent variable (or response) was a composite price of sheep meat, while the single explanatory (or control) variable was the quantity of animals sent to slaughter in WA, with both variables expressed as the percentage change from the previous year.

Mecardo's assessment of the viability of a transition to wool production is predicated on estimates of the volume of sheep that can be shorn per shearer, but the report does not indicate the source of these estimates. Other untested and unsourced assumptions include the point at which the sale of sheep to the eastern states becomes a viable option for WA sheep farmers, the number of additional sheep that can be slaughtered domestically as a result of a ban on the live sheep export trade, and the average weight of lamb and mutton carcasses.

### Impact/Reception

Mecardo's analysis has been reported on extensively by peak bodies, the dedicated agricultural press, as well as in the mainstream press.

Dr Trevor Breusch (2018, p. 2), formerly a Professor of Econometrics at the Australian National University, was commissioned by Animals Australia to critique the Mecardo report. Dr Breusch (2018, p. 2) reverse engineered the Mecardo data from the results and the various charts contained in the report. According to Dr Breusch (2018, p. 7):

*I come to the view that the Mecardo report is more a document of persuasion than an expert analysis of the cost to the industry of banning live sheep export.*

Dr Breusch (2018, p. 7) summarised his criticism of the Mecardo modelling in the following terms:

*A proper forecast of the effects would allow for adjustments both in the quantity supplied to the market each period and the expansion of markets interstate or internationally. New markets take time to develop and would not be reflected simply in the historical year-by-year shifts in slaughter quantity and price that form the basis of this report. Even within the narrow approach adopted, the forecast is based on a statistical relationship that is inconsistent with the choice of variables. The failure to account for other variables, including lags, further removes the approach from proper policy analysis.*

In his overall assessment of the modelling contained in the report, Dr Breusch (2018, p. 6) commented:

*This naïve statistical model in the Mecardo report is unsuitable for the policy evaluation in which it is employed.*

Dr Breusch (2018, p. 2) described the Mecardo analysis as "very superficial and unworthy as a guide to policy." and has described the assumption that export prices are determined solely by local supply in WA as implausible.

ABARES (Nelson, et al., 2021, p. 17) has noted studies funded by industry tend not to recognise that prices are set in world markets, as appears to be the case in this instance. In relation to this Mecardo report, ABARES (Nelson, et al., 2021, p. 17) observed there was little or no recognition of the option for WA sheep farmers to transport sheep to high-value markets in eastern Australia.



The report was treated as an important reference point by the Department of Agriculture (2019) in its draft regulatory impact statement (*Live sheep exports to or through the Middle East—Northern Hemisphere summer: Draft regulation impact statement*, 2019).

### Key Takeaways

The abolition of the live sheep export industry could have a significant detrimental impact on the income of WA sheep farmers, but there has been criticism of Mecardo's methodology.

## 2.2 Title: Value analysis of the Australian live sheep export trade

Author/Publisher and Date: Matt Dalglish, Olivia Agar, Mecardo, September 2019

### Context

This report was commissioned by LiveCorp and Meat & Livestock Australia (Dalglish, M; Agar, O, 2019).

The aim was to identify the economic benefit that flows from the live sheep export trade to businesses and individuals along the supply chain in Australia (Meat & Livestock Australia, 2020).

The report was commissioned following the imposition of a suspension and later moratorium on the live sheep export trade during the Northern Hemisphere summer that commenced in early June 2018.

### Areas of Focus

The focus of the report is on the direct and indirect employment opportunities created by the live sheep export industry.

### Major Findings & Conclusions

On-farm direct employment on a full-time equivalent basis related to the live sheep export trade is estimated to be 1,037 employees nationally, with 798 of those jobs found in WA.

Across the entire live sheep export supply chain, full time equivalent employment was estimated to be 3,443 workers, of which 77% (or around 2,650) were in WA.

### Key Assumptions and Methodology

Mecardo's estimates of on-farm employment related to live sheep exports is based on 2017-18 Australian Agricultural and Grazing Industries Survey (AAGIS) data published by ABARES. However, in forming these calculations, Mecardo makes assumptions regarding the labour intensity of sheep farming and the allocation of that labour between different sheep outputs. The basis of these assumptions is not provided in the report.

Mecardo uses an employment multiplier to gross up the number of on-farm jobs it attributes to the live sheep export industry to the wider economy.<sup>1</sup> The employment multiplier figure is derived from the *State of the Industry Report 2018: The Australian red meat and livestock industry* publication (Meat & Livestock Australia and Ernst & Young, 2018, p. 12). The report takes the total direct and indirect estimated employment of the red meat and livestock industry in 2016-17 of 438,100 and divides that by the direct employment of the meat production sector (composed of meat livestock producers and feedlots) of 132,100 in 2016-17 to derive an employment multiplier of 3.32.

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<sup>1</sup> Economic multipliers (e.g. for income, output, employment, value added, or imports) are typically derived from input-output tables (The Treasury (NSW Government), 2017, p. 63) that are produced as a by-product from the compilation of the national accounts.

## Impact/Reception

The Mecardo report received limited coverage in the dedicated agricultural press on its release and was reported on by *The West Australian* newspaper in September 2019.<sup>2</sup> The then LiveCorp Chairman Terry Enright commented at the time of the release of the report in September 2019 that while WA sheep farmers were well aware of the importance of the industry, it was important to collate objective numbers about the benefits to the farmers, the supply chain and broader community through the report (Brammer, 2019).

In March 2023, press reports indicated that the heads of 25 peak farming groups had informed the Minister for Agriculture, Fisheries and Forestry, Senator the Hon. Murray Watt, that the Albanese government's policy to phase out live sheep exports would cost 3,000 jobs in Western Australia (Peel, 2023). Signatories to the letter include the Australian Livestock Exporters Council, Sheep Producers Australia, National Farmers Federation and the Australian Lot Feeders Association. The claimed loss of 3,000 jobs in Western Australia attributed to producer groups are possibly sourced from this report.

According to Pegasus Economics (Davey & Fisher, 2020, p. 35), only around 136 of the 798 full-time on-farm jobs related to the live sheep export industry in WA estimated by Mecardo actually related to hired labour, with over 80 per cent of farm labour being performed by the farmer and associated family members. Pegasus Economics (Davey & Fisher, 2020, pp. 35-36) also warned about the potential abuse of employment multipliers as used by Mecardo, quoting Paul Gretton (2013, p. 1) from the Productivity Commission:

*Abuse primarily relates to overstating the economic importance of specific sectoral or regional activities. It is likely that if all such analyses were to be aggregated, they would sum to much more than the total for the Australian economy. Claims that jobs 'gained' directly from the cause being promoted will lead to cascading gains in the wider economy often fail to give any consideration to the restrictive nature of the assumptions required for input-output multiplier exercises to be valid. In particular, these applications fail to consider the opportunity cost of both spending measures and alternate uses of resources, and may misinform policy-makers.*

Following the effective curtailment of the live sheep export trade to the Middle East during the Northern Hemisphere summer in 2018 and 2019, Pegasus Economics (Davey & Fisher, 2020, pp. 23-24) observed there had been a sharp increase in the slaughter of mutton sheep in trend terms, and that full time employment in the WA meat processing sector had at that time reached record levels. Pegasus contended that extending the prohibition even further would result in a greater overall net increase in employment due to higher levels of employment in the meat processing sector (Davey & Fisher, 2020, p. 38).

## Key Takeaways

Up to 3,000 jobs could be lost in WA if the live sheep export industry is phased out, although the extent of the jobs losses has been contested and it takes no account of other job opportunities that could be created in the absence of the live sheep export industry.

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<sup>2</sup> See Brammer (2019).

## 2.3 Title: Impact of the Live Sheep Export Trade's Self-Imposed Moratorium and Regulatory Changes

Author/Publisher and Date: Matt Dalglish, Olivia Agar, Robert Herrmann, Mecardo, January 2020

### Context

Mecardo was commissioned to prepare this report by LiveCorp and Meat & Livestock Australia, following the effective suspension of the live sheep export trade during the 2018 Northern Hemisphere summer when the Federal Government suspended the export license of the largest live sheep exporter and the decision by the live sheep exporters to self-impose a moratorium on the trade during 2019 Northern Hemisphere summer (Dalglish, Agar, & Herrmann, 2020). The Federal Government also issued an order to prohibit live sheep exports to the Middle East from 1 June 2019 to 22 September 2019 (Department of Agriculture, 2019, p. 17).

The objective of the report was to:

1. Identify and outline the economic benefit that flows from the live sheep export trade to participants in the Australian supply chain.
2. Analyse the impact from the industry's self-imposed three-month moratorium and the regulatory changes introduced in 2018.
3. Assess a range of farm level decision-making options (domestic fundamentals) influencing national sheep flock numbers, with a primary focus on Western Australia.

### Areas of Focus

This report provides an overview of the individuals, communities and suppliers involved in the live sheep export trade and the impacts of changes in the trade on their income and economic well-being.

The report identifies the effects of the impact of the suspension and moratorium on industry sectors, operators and individuals that form part of the supply chain for the live sheep export trade, including sheep farmers, road transport operators, shearing services, fodder manufacturers, contract balers and stackers, livestock agents, exporters, veterinarians, and more. Each element of the supply chain is discussed separately, and each discussion covers social as well as economic costs, alternatives available in the absence of the live sheep export trade, and, in many cases, direct quotes and reports from individuals working in that industry.

There is a brief overview of the events surrounding the suspension and moratorium. The report summarises the animal welfare-oriented regulations introduced by the Department of Agriculture and refers to the updated Australian Livestock Exporters' Council (ALEC) Code of Conduct.

The overall economic impact of the suspension and moratorium are discussed, but not closely analysed. In general, state-wide or national economic outcomes are not the focus of the report.

### Major Findings & Conclusions

The report's key findings are that the suspension and moratorium on the live sheep export trade imposed significant costs on individuals and communities involved in the live sheep trade.

### Costs

The report estimates the cost of disrupting the live sheep trade in 2018 nationally to have been \$83.6 million in terms of lost revenue, with an estimated \$37.6 million of lost sales revenue to the farm gate. The report estimates that this would equate to a final loss of revenue at the farm gate in WA of between \$9.3 and \$15.4 million during 2018.

The moratorium during the 2019 season is estimated to have cost the industry \$65.8 million in foregone revenue nationally, with a shortfall of \$29.6 million in farm revenue earned via the live sheep export trade. The report estimates that this would have resulted in a loss to WA farmers of between \$7.3 and \$12.1 million during 2019.

### *Mortality*

The report finds that the reforms introduced by the Department of Agriculture and ALEC, combined with the moratorium on the trade during the months of peak mortality, resulted in much lower mortality rates for sheep exported in 2019 compared to the 2013-2017 average.

Mecardo undertook an analysis of the consequences of a one-month (August), two-month (July-August and August-September), and three-month (June-August) moratorium for year-round average mortality. The report finds:

- No moratorium: 0.8%
- One-month moratorium: 0.75%
- Two-month moratorium: 0.73% (very slightly lower for the August-September scenario)
- Three-month moratorium: 0.73%

This analysis was conducted on the basis of the 2005-2017 figures, and therefore does not incorporate any effect from regulatory changes introduced from 2018. The report does note, however, that the moratorium would have a less noticeable impact if the overall survival rate were improved.

While the report acknowledges a moratorium would limit the chance of heat stress periods from occurring, it also notes that a moratorium would have a significant impact upon participants within the live sheep export industry across the supply chain.

### *Effects on related industry sectors*

The report examines a wide range of industries and their level of exposure to the live sheep export trade, noting that each industry itself helps sustain other elements of the local economy, such as grocers and service stations.

#### *Sheep farmers*

According to the report, WA sheep farmers rely on the live export trade as a purchaser of lambs and sheep that cannot be sold on the domestic market, and as an additional source of competition that helps underwrite prices. While sheep farmers would make adjustments in the case of a moratorium or cessation of the live sheep export trade, there would be a loss in profitability and business security, and unexpected or unpredictable changes in conditions would impose much greater costs.

#### *Road transport operators*

The live sheep export trade provides a stable source of demand for road transport operators. While alternatives exist, they would not be as profitable or as reliable as the live sheep export trade. However, exposure is uneven: some road transport operators were barely affected by the moratorium and would be unaffected by a ban, while others experienced severe financial stress during the moratorium, and would be forced out of business by a cessation of the trade.

#### *Shearing services*

While the live sheep export does not significantly increase demand for shearing services overall, it has helped to smooth out the workload through the year. During the moratorium, there was greatly reduced demand for shearing services from May to July as a result of reduced demand from the live sheep export industry, and a corresponding increase in demand over September and October, resulting in difficulty in maintaining workers.

### *Fodder manufacturers*

Fodder for the live export market is different from fodder provided for general agricultural use, resulting in specialisation among providers, and an uneven exposure of fodder manufacturers and suppliers to the trade. Since fodder production has a long lead-time, some providers of fodder for the export market were unable to adapt, incurring significant losses. Fodder manufacturers have multiple alternative markets and would likely be able to adapt given predictable conditions, though those in areas producing lower-quality hay would likely suffer greater losses.

### *Contract balers and stackers*

Like the fodder manufacturers with whom their work is associated, contract balers experience differing levels of exposure to the live export trade. As their work is conducted on the basis of expectations for the following season, predictability is the most important aspect of the market environment for them.

### *Livestock agents*

The live sheep export trade has traditionally provided a source of competitive pressure for the purchase of sheep by livestock agents against meat processors. In 2019, agents were able to sell livestock to the eastern states, and were therefore little affected by the moratorium, although effects varied depending on the region and the traditional consumer of livestock from that region. The report contends that the option of selling sheep to the eastern states may not always be available and that this will only be the case during periods of drought-recovery, or when there are pronounced seasonal differences between WA and the eastern states for other reasons.

### *Exporters*

The exporters consulted experienced a 10-25% reduction in revenue from the 2018 suspension, and a 5-10% reduction from the 2019 moratorium. This reduced impact reflected adaptations conducted within the industry over the intervening period in the expectation of future bans. This includes the exporters diversifying their operations into sheep meat processing. Overall, traditional participants in the live export trade have experienced significant disruption to their business model, but have been and will be able to adapt, although the unexpected ban did impact upon perceptions of Australia as a reliable customer.

### *Veterinarians*

Veterinarians are a broad group, with widely varying levels of exposure. Australian Government Accredited Veterinarians are, however, necessary for several roles in the live sheep export trade that would not be replaced directly in the trade's absence, so veterinarians specialising in those roles were significantly impacted by the moratorium – the report clarifies that these impacts were psychological as well as financial – and would be adversely affected by any further ban. Veterinarians, however, have multiple alternative forms of employment, and adjustments were already observed between 2018 and 2019.

### *Associated down-chain participants*

The report lists various occupations employed by exporters and importers to fulfil shipments, including stock handlers, stevedores, ship handlers, and others. Many of the people traditionally employed by the live export industry were unable to find alternative employment during the moratorium; some of these occupations involve transferable skills and would be able to adjust, while others do not.

### *Sheep buyers*

The sheep buyer industry is complicated by regulations preventing a buyer purchasing sheep of the same type for multiple clients. The moratorium prevented buyers who were contracted by exporters from buying export-type sheep for other clients, resulting in a significant loss of income. Sheep

buyers active in lamb may profit, and in the case of a total cessation of the trade, sheep buyers currently under contract with exporters may find other clients, but their business model has been and will be disrupted, and the regional nature and low labour requirements of the industry means that there is no guarantee of finding alternative employment.

#### *Shipping services*

Live sheep exports were reported as making up 15-25% of revenue for shipping services providers in a normal year. Since these services are in demand from a wide variety of industries and the skills are largely transferable, there was little to no loss in income associated with the moratorium. However, since livestock shipping is highly labour-intensive compared to most alternatives, a sustained shift away from live sheep exports may result in lower staffing requirements and the shedding of some staff.

#### *Cattle farmers*

According to the report, the live sheep export industry also assists in facilitating the sale of live cattle from WA to the Middle East. From 2014 to 2018, 78% of the 68,643 live cattle exported from Australia to Middle Eastern markets were transported on vessels that also carried sheep. The moratorium imposed some costs on cattle farmers in carrying livestock for longer than would otherwise have otherwise been necessary and finding alternate routes for export. In the longer term, a continuation or resumption of the moratorium would force further adjustments in destination and type of cattle sold.

#### *Key Assumptions and Methodology*

The key assumption in the report draws on modelling of the price effects arising from the cessation of the live sheep export trade conducted by The Centre for International Economics (CIE) (2018). On this basis, Mecardo assumes that in the absence of the live sheep trade results in a 30-50% approximate reduction in prices at the saleyard in WA.

The analysis of costs rests on historical data from Meat & Livestock Australia, the Australian Bureau of Statistics, LiveCorp, and Mecardo itself.

The report clearly spells out its methodology in terms of estimating the impact arising from the suspension of the moratorium on the live sheep export trade during 2018 and 2019. However, there is a lack of transparency around the actual process it undertook.

The report conducts what it describes as multifactorial regression modelling of annual live sheep export volumes and the relationship between the live export trade, flock size and slaughter, both nationally and within Western Australia. This was used to estimate monthly live export sheep volumes in the event the industry was not subject to the 2018 suspension and the 2019 moratorium. No details are provided on the raw data used in the regression modelling. Further, it is unclear exactly what type of regression modelling has been undertaken and no information is provided in relation to results and diagnostic testing that would enable the reliability of the results to be assessed.

The analysis of sheep mortality draws on data from the Department of Agriculture and Water Resources. The results are presented clearly and transparently. The precise reference documents are not provided, but the source is clear.

The main body of the report is based on stakeholder consultation. Mecardo conducted 64 interviews across all industries and provides a breakdown by occupation. The report includes four case studies of individuals (identified by occupation and full name), describing the impact of the moratorium on their work and life, usually including direct quotes, and two unidentified quotes. The discussions of the different industries also incorporate information from or references to unidentified respondents.

## Impact/Reception

The report was well-received and widely-publicised among industry peak bodies and in the dedicated agricultural press. However, the report does not appear to have been reported on nor discussed in the mainstream media.

ABARES (Nelson, et al., 2021, pp. 17-18) has observed in relation to several reports on the live sheep export industry funded by industry groups, including this Mecardo report, that they tend not to recognise that lamb and sheep prices are set in world markets, or that short-term price falls in Western Australia are limited to \$20 per head by the cost of trucking sheep to eastern state markets.

Specifically, in relation to this Mecardo report, ABARES (Nelson, et al., 2021, p. 17) contends the report is likely to overstate the impact of restricting live exports for 2 reasons. First, a 30% to 50% reduction in saleyard prices was assumed based on a report by CIE (2018), despite a footnote in the Mecardo report recognising that saleyard prices were observed to fall by only 15% to 30% (Dalglish, Agar, & Herrmann, 2020, p. 5n). Second, there is no recognition of the likely short-term nature of these price impacts or the likelihood that prices will rise as an expansion of domestic meat processing reduces processing costs.

## Key Takeaways

The report's key findings are that the suspension and moratorium imposed significant costs upon most elements of the live sheep export value chain, although regulations introduced to improve animal welfare outcomes did achieve lower sheep mortality rates during sea voyages. However, the size of the estimated impact arising from the suspension and moratorium of the live sheep export trade during 2018 and 2019 in this report has been challenged.

### 3. Reports by The Centre for International Economics

The Centre for International Economics (CIE) has produced two reports on the live sheep export trade since 2014, both of which have been funded by Australian Wool Innovation (AWI). CIE is a boutique economic consultancy firm that has offices located in Canberra and Sydney. These two reports are reviewed below.

#### 3.1 Title: Contribution of live exports to the Australian Wool Industry

Author/Publisher and Date: CIE, March 2014

##### Context

Australian Wool Innovation commissioned CIE (2014) to estimate the contribution of the live sheep trade to woolgrowers nationally.

##### Areas of Focus

The report focuses on sheep farmer incomes related to the live sheep export trade. It examines returns for sheep farmers on the sale of their lamb and sheep, changes in the size of the sheep flock and changes in the price of wool from the cessation of the live sheep export trade. The report examines the impact of the changes on an average national basis, as well as distinguishes between the impact for sheep farmers in the eastern states and in Western Australia (WA).

The report also provides case studies on eight regions in South Australia, Victoria and New South Wales that have a greater exposure to the live sheep export industry.

There is consideration of the impact on sheep meat processors from the cessation of the live sheep export industry in terms of increased throughput. However, there is no consideration of broader economic, social and community impacts.

Animal welfare issues are not considered.

##### Major Findings & Conclusions

CIE found that if the live sheep export industry were to close, average saleyard prices would fall by:

- \$4.07 per head or 4.5% for lambs
- \$13.20 per head or 24.4% for older sheep.

On this basis, CIE found that prices would have been between \$4 and \$13 per head lower than those observed in 2011-12 across all Australian regions.

The closure of the live sheep export industry was also expected to impact on the wool industry in the following ways additional ways:

- the national sheep flock would fall by 2 million, a reduction of around 3.5% relative to 2011-12 levels
- the national wool clip would fall in line with the decline in the national flock by 2.3% or 7.9 million kilograms greasy basis
- the eastern (and western market indicator) would increase by 1.49% or 17.9 cents per kilogram clean basis as a result of lower wool production Australia-wide.

The combined impacts upon sheep farmers would reduce the gross value of production of woolgrowers by 1.55% or \$39 million.

CIE observed that expected impact on wool production and gross value of production was relatively small compared to other economic drivers such as variations in the exchange rate and seasonal conditions and that the impacts would be significantly different between different production regions.



In relation to Western Australian producers, CIE found the termination of the live sheep export trade would be devastating and was estimated to involve falls in the saleyard price of:

- \$32 per head , or 35.1%, for lambs
- \$36 per head, or 66.2%, for sheep.

The implications for WA woolgrowers were estimated to be:

- the state sheep flock would likely to fall between 10.2 and 15.1% for specialist and mixed enterprises, equivalent to a decline of 1.8 million sheep
- production of meat from lamb and older sheep would increase (as a result of diversion from the export trade)
- wool production could fall by 12% statewide flowing on from lower enterprise profitability.

As a result of lower prices and production decisions, enterprise revenues in Western Australia would fall, with the gross value of production \$302 million or 6.5% lower each year compared with what would have otherwise been the case with the continuation of the live sheep export trade. On an aggregate basis, CIE found that:

- WA sheep farming breeding enterprises would be hit hardest with the gross margin falling by \$41 per ewe or 44.8% as a result of its dependence on livestock sales.
- Wethers for wool production suffer a fall in gross margin of \$4 per wether or 21.6% because of the lower reliance of this enterprise on livestock sales and an offsetting fall in variable costs as a result of lower hogget prices.

In relation to the eastern states, the cessation of the live sheep export industry would result in average saleyard price reductions of:

- \$1.24 per head or 1.4% for lambs
- \$5.96 per head or 24.4% for older sheep.

According to CIE, the impact arising from the cessation of the live sheep export industry is much lower in the eastern states as compared to WA because of:

- the lower contribution of live exports to total sales of sheep
- the larger number of marketing options woolgrowers have in the eastern states.

CIE observed that its results for the eastern states include regions that have different exposures to the live sheep export trade operating out of Adelaide and Portland, Victoria. Based on eight case studies, CIE found that the live sheep export industry also contributed significantly to the incomes of eastern woolgrowers, particularly in the pastoral zones of South Australia and New South Wales. However, it also found that the benefit of participation in live sheep export had been eroded by the introduction of the Exporter Supply Chain Assurance System (ESCAS) by the Australian Government in October 2011 that had reduced demand for sheep and significantly increased costs for stock agents and live sheep exporters.

#### Key Assumptions and Methodology

The report assumes that the export of live sheep underwrites the saleyard price of lambs and sheep in Western Australia and nationally.

A key assumption is that WA woolgrowers, and particularly specialist woolgrowers, have limited capacity to transform their enterprise mix away from sheep.

Without live exports, CIE assumes that the Western Australian price paid by processors would default to the eastern states (South Australian) price less the transport cost. This transport cost would be most likely in the range of \$25 to \$30 per head.

CIE uses 2011-12 as the base year for its analysis. The impact on woolgrowers is calculated by comparing the market outcomes observed in 2011-12, with what they would have otherwise been the case with the closure of the live sheep export industry. A 3-5 year transition period is assumed.

The Global Meat Industry (GMI) model on which the report is a proprietary model maintained by the CIE on behalf of Meat & Livestock Australia (2017). The report provides no description of the GMI model.<sup>3</sup> The underlying assumptions and the way in which the model treats the data is therefore difficult to determine.

In the preparation of its regional case studies on the impact of the live sheep export industry in the eastern states, CIE acknowledges that estimating the impact of closure of live sheep export industry at a regional level was a challenge because of the lack of data.

The CIE has drawn on data from the Australian Bureau of Statistics, ABARES, Meat & Livestock Australia and LiveCorp. Source organisations are clearly indicated in tables where figures are provided, however, details on the underlying source data series have not been provided. References are listed at the end of the report.

### Impact/Reception

The report received widespread coverage in the dedicated agricultural press as well as coverage in *The West Australian* newspaper (Thompson, 2014).

Patrick Francis (2014), a Victorian sheep farmer who runs the Moffitts Farm website has criticised the CIE report in the following terms:

*The Centre for International Economics' (CIE) analysis of what cessation of the live sheep trade would do to incomes of Australia wool sheep producers must be one of the worst researched industry analyses produced in the last decade.*

According to Francis (2014), eastern states sheep farmers rely very little on the live trade and if it no longer existed would have virtually no impact on business profitability. Francis is also critical of CIE's conclusion that WA wool grower businesses would suffer financially in that it doesn't stack up in face of evidence for increasing sheep meat demand on world markets, with sheep slaughter numbers in Australia having levelled off, putting a cap on domestic production. Furthermore, Francis is also critical of some of CIE's underlying assumptions.

This debate is, however, largely moot as since May 2018 the only live sheep exports from New South Wales, Victoria and South Australia have been small shipments carried via airfreight.

Pegasus Economics (Davey & Fisher, 2018, p. 14) challenged the CIE's contention that the live sheep export trade underwrites farm gate prices for sheep. According to Pegasus Economics (Davey & Fisher, 2018, p. 18), domestic sheep prices are more likely to be determined by international commodity prices for mutton than by the live sheep export trade.

Pegasus Economics (Davey & Fisher, 2018, p. 45) also criticised CIE for effectively assuming that a significant amount of sheep diverted away from the live export trade in WA would in turn be transported to the eastern states for processing even though CIE recognised there was spare processing capacity available in WA.

ABARES (Nelson, et al., 2021, pp. 17-18) has observed in relation to several reports on the live sheep export industry funded by industry groups, including the 2014 CIE report, that they tend not to

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<sup>3</sup> According to the CIE (2020) website, the GMI model is a multi-country, multicommodity, Armington style model of world meat industries that identifies 26 regions and ten meat types. Multi-country computable general equilibrium (CGE) models used to analyse tariff and trade policy changes typically incorporate the Armington structure which differentiates commodities by their country of origin (national product differentiation), and assumes them to be imperfect substitutes for each other (Lloyd & Zhang, 2006, p. VIII).

recognise that lamb and sheep prices are set in world markets, or that short-term price falls in Western Australia are limited to \$20 per head by the cost of trucking sheep to eastern state markets.

### Key Takeaways

The impact from the closure of the live sheep export industry would have significant impacts on WA sheep farmers, less so for sheep farmers in the eastern states, although some of the findings and conclusions have been contested.

## 3.2 Title: Contribution of live exports to Woolgrower's incomes: An update

Author/Publisher and Date: CIE, 27 July 2018

### Context

CIE (2018) was commissioned to produce the report by Australian Wool Innovation (AWI), with the intention of estimating the contribution of live sheep exports to woolgrowers and livestock producers and the hypothetical impact of closing the live trade.

### Areas of Focus

The report focuses on sheep farmer incomes related to the live sheep export trade. It examines returns for sheep farmers on the sale of their lamb and sheep, changes in the size of the sheep flock and changes in the price of wool from the cessation of the live sheep export trade. The report examines the impact of the changes on an average national basis and distinguishes between the impacts of the trade for sheep farmers in the eastern states and in Western Australia (WA).

In addition to considering the impact of a total closure of the live sheep export industry, the report includes an appendix considering the impact of a reduction in the trade by volume of 10, 25, and 50%.

There is some consideration of the impact on sheep meat processors arising from the cessation of the live sheep export. However, there is no consideration of what those adjustments might imply at a broader social level, or on overall employment levels.

Animal welfare issues are not considered.

### Major Findings & Conclusions

The primary finding of the report is that closure of the live sheep export trade would result in markedly reduced saleyard prices for sheep and lamb, which in turn would lead to a reduction in flock sizes. The consequent reduction in national flock size would result in slightly higher prices for wool, but overall much lower enterprise receipts for woolgrowers.

Under the headline analysis, average saleyard prices across Australia would fall by:

- \$6 per head or 4.7% for lambs
- \$13.60 per head or 15% for older sheep.

The impact of lower sheep prices upon wool growers arising from the closure of the live sheep export industry would result in:

- A reduction in the national sheep flock of between 1.8% relative to 2017-18 levels representing a reduction of 1.4 million head
- A fall in the national wool clip in line with the flock by 1.1% or 3.8 kt greasy basis
- An increase in the eastern (and western market indicator) by 0.4% or 5.3 cents per kilogram clean basis as a result of lower wool production Australia-wide.

These impacts combine to reduce the gross value of production of wool by 0.8% or \$23.3million with. total enterprise receipts for woolgrowers nationally falling by 2.2% or \$363 million.

For WA sheep farmers, the closure of the live sheep export trade would be devastating, and involve price reductions of:

- \$32 per head for lambs or a fall in the saleyard price of 28.6%
- \$39 per head for sheep or a fall in the saleyard price of 51.1%.

The implications for WA woolgrowers would be:

- a reduction in the WA sheep flock of between 4.6 and 7.5% for specialist and mixed enterprises, equivalent to a decline of 0.9 million sheep
- an increase in the production of lamb and mutton as a result of the diversion of lamb and sheep from the live sheep export trade
- a fall in wool production of 4% or the equivalent of reduction by 13.5 greasy – flowing from lower farm profitability.

Overall, CIE estimate that the total enterprise receipts for WA woolgrowers would be \$290 million or 7.1% lower each year compared to 2017-18 terms without the live trade.

Aside from its headline analysis, CIE also provides an alternative scenario in which the price differential between WA and SA markets varies across the seasons and the year and average \$10 per head. Under this scenario, average saleyard prices across Australia would only fall by:

- \$2.90 per head for lambs
- \$9.75 per head for older sheep.

The reduction in the wool clip (0.4 %) and the gross value of wool production (0.3% or \$8.5 million) representing 37% of the loss in the headline analysis. Total enterprise receipts for woolgrowers nationally fall by 1.2% or by only \$205 million.

Under the alternative scenario for WA sheep farmers, the impact of closing the trade would result in average WA saleyard prices falling by:

- \$10.83 per head for lambs
- \$19.08 per head for older sheep.

For WA woolgrowers, the wool clip would fall by 1.4% and the gross value of wool production would decline by 0.3% or \$8.5 million. Total WA sheep farming enterprise receipts would fall by \$114 million each year or 2.8%.

The report finds that a 10% or 25% reduction in operational capacity for the live sheep export trade would have minimal impact on WA woolgrowers, while a 50% reduction would have an impact around one third of that created by a total closure of the trade.

#### Kay Assumptions and Methodology

The GMI model on which the report is based is opaque and the underlying assumptions are difficult to determine.

The headline analysis in the report assumes that, in the absence of the live sheep export trade, local processors in WA would price down livestock by \$30 per head, equivalent to the cost of transporting stock to the nearest alternative processors in South Australia.

The report assumes a 3-5 year transition period.

CIE used 2017-18 as the base year for its analysis. The impact on woolgrowers was calculated by comparing the market outcomes observed in 2017-18, with what they would have otherwise been the case with the closure of the live sheep export industry.

The report appears to have been conducted as a desktop review, drawing on the GMI model to produce its results. The GMI model is a proprietary model maintained by the CIE on behalf of Meat &

Livestock Australia (2017). However, CIE provides no background nor description of the GMI model in the report. According to the CIE (2020) website, the GMI model is a multi-country, multicommodity, Armington-style model of world meat industries that identifies 26 regions and ten meat types.<sup>4</sup>

The report draws on data from the Australian Bureau of Statistics, ABARES, the Federal Department of Agriculture, and Meat & Livestock Australia. Source organisations are clearly indicated in tables where figures are provided. Where up-to-date data was unavailable or assumptions had to be made for a table or chart, this was clearly specified. However, more detailed documentation or bibliographical information, however, is absent.

### Impact/Reception

The CIE 2018 report on woolgrower's incomes appears to have had very little public impact. It wasn't reported in the dedicated agricultural press or in the mainstream media.

The CIE 2018 report was drawn on in a Mecardo report (Dalglish, Agar, & Herrmann, 2020, p. 5) to justify a 30% to 50% reduction in saleyard prices following the imposition of the prohibition on the live sheep export trade during the Northern Hemisphere summer.

ABARES (Nelson, et al., 2021, pp. 17-18) has observed in relation to several reports on the live sheep export industry funded by industry groups, including the 2018 CIE report, that they tend not to recognise that lamb and sheep prices are set in world markets, or that short-term price falls in Western Australia are limited to \$20 per head by the cost of trucking sheep to eastern state markets.

### Key Takeaways

The impact from the closure of the live sheep export industry would have significant impacts on WA sheep farmers, although some of the findings and conclusions have been contested.

## 4. Reports by Pegasus Economics

Pegasus Economics has produced several reports on the live sheep export trade funded by Animals Australia, an animal welfare NGO. Pegasus Economics is a boutique economic consultancy based in Canberra.

### 4.1 Title: Economic Issues Associated with the West Australian Live Sheep Export Industry

Author/Publisher and Date: Alistair Davey and Roger Fisher, Pegasus Economics, April 2018  
Context

This report was commissioned by Animals Australia to examine the economic impact of the phasing out of the live sheep export trade (Davey & Fisher, 2018). The report was publicly released by Animals Australia to coincide with a campaign surrounding the *Awassi* incident.

#### Areas of focus

The report examines the potential economic impact on WA sheep farmers and the WA meat processing industry arising from the termination of the live sheep export industry.

It provides a brief overview of the economics of sheep production, a history of the Australian and WA sheep industries and a review of the main customers for Australian live sheep exports.

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<sup>4</sup> Multi-country computable general equilibrium (CGE) models used to analyse tariff and trade policy changes typically incorporate the Armington structure which differentiates commodities by their country of origin (national product differentiation), and assumes them to be imperfect substitutes for each other (Lloyd & Zhang, 2006, p. VIII).

The report also touches on opportunities arising from the cessation of the live sheep export trade to expand the WA meat processing industry.

### Major Findings & Conclusions

The report challenged the contention the live sheep export trade underwrites farm gate prices for sheep. Instead, it pointed to the *Law of One Price* (LOP), which suggests that prices received by sheep farmers in different regions of Australia should be similar.<sup>5</sup> The report found that WA mutton prices with a high exposure to the live sheep export trade were highly correlated with New South Wales (NSW) mutton prices with virtually no exposure to the live sheep export trade. The report concluded that international commodity prices for mutton, rather than prices paid by live sheep exporters, underwrote prices paid for Australian sheep.

However, the report found evidence that live sheep exporters did pay a price premium at WA saleyard auctions to purchase sheep. It found that the price premium paid by live sheep exporters diminished as the quality of the sheep improved in terms of weight and conditioning. The price premium paid by live sheep exporters was found to be highest for wethers that were lighter and in worse condition, thus requiring further input in finishing them off to a level that would make them attractive to local WA meat processors.

While the report acknowledged that the cessation of the live sheep export trade would reduce overall demand to some extent as those seeking to procure sheep for live export would no longer participate in the market, the analysis conducted on price premiums suggested the price impact would be greatest in relation to wethers that were lighter and in worse condition; in other words, those least attractive to WA local processors. It also sought to downplay the potential reduction in demand following the cessation of the live sheep export industry through arguing that live sheep exporters rarely purchased young ewes, ewes and hoggets, and were not always procuring sheep if they were not seeking to fulfil an export shipment.

The report took a crude weighted average of the price premium paid by live sheep exporters for wethers that roughly worked out at \$8 per head and estimated that the cessation of the live sheep export trade would translate into a loss of around \$9 million per annum for WA sheep farmers overall, averaging just under \$2,000 per WA sheep farmer.

The report contended the capacity of live sheep exporters to pay a price premium was directly related to food subsidies provided in Middle East recipient countries that in turn artificially increased demand for Australian live sheep exports and enabled live sheep exporters to pay above market rates to procure sheep.

The report observed the largest customers for Australian live sheep exports historically have been the six Arab oil and gas producing states bordering the Persian Gulf and the Gulf of Oman. The report argued the future of food subsidies, and in turn, the ongoing ability of live sheep exporters to continue to pay price premiums, was heavily dependent on the price received by these six countries for their petroleum product exports.

In the event the live sheep export trade was phased out, the report argued that sheep diverted away from the live export could be redirected towards several alternative options, including the following:

- keep the wethers until cast (at the end of productive life) primarily to cut wool;
- finish sheep earlier to meet lamb market specifications;
- sell the wethers as store sheep to be fattened before sale for slaughter; or
- keep the wethers until they reach the heavier weights required for the slaughter market.

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<sup>5</sup> According to Pegasus Economics (Davey & Fisher, 2018, p. 15), the LOP does not imply that prices in two separate geographical locations should be identical, just that any price differential should reflect transport and transaction costs.

The report found that while WA sheep farmers may collectively lose in the order \$9 million per annum from the loss of the price premium paid the live sheep exporter, this detriment could be more than compensated for by increased value adding by WA sheep meat processors. Based on discussions with sheep meat processors, the report estimated the cessation of the live sheep export trade could facilitate the engagement of around 350 full-time equivalent employees and be worth an additional \$18 million from increased value adding. It would also improve economies of scale in meat processing, making processed sheep meat products more price competitive.

### Key Assumptions and Methodology

In examining the relationship between the saleyard mutton indicator price in WA as compared to New South Wales (NSW), Victoria and South Australia, the report sources data from Meat & Livestock Australia from December 2014 until December 2017. While the raw data is not provided, the data source is clearly indicated.

The saleyard mutton indicator price in WA from December 2014 until December 2017 is modelled as a function of a constant and the NSW saleyard mutton indicator price over the same period using dynamic ordinary least squares. Diagnostic testing of the raw data is reported, although the results of the diagnostic tests themselves have not been provided.

In estimating the price premium paid by live sheep exporters, the report draws on WA auction price data from Meat & Livestock Australia saleyard reports from December 2014 to December 2017, comparing the prices paid by live exporters and by those paid by other purchasers when both live exporters and other purchasers procured sheep on the same day at WA saleyard auctions. While the raw data is provided, the data source is clearly indicated. The report assumes that the payment of a price premium by live exporters would constitute the major impact on WA sheep prices arising from the live sheep export trade .

The report assumes that 70% of live sheep exports from WA were wethers. The estimated number of sheep farmers is based on the Australian Bureau of Statistics' agricultural commodities survey.

The estimated additional value added from increased sheep meat processing in WA assumes an immediate cessation of the live sheep export trade with most sheep displaced being redirected towards local processing. However, the basis for this estimate is not transparent and the report justifies this only on the basis of discussions with WA meat processors.

### Impact/Reception

The Pegasus Economics report received fairly widespread coverage in the mainstream press. The report was also covered in the dedicated agricultural press, although generally accompanied by criticism of the report by the WA Farmers Federation (WAFarmers).

WAFarmers (2018) challenged the Pegasus conclusions:

*It is our opinion that the Pegasus report appeared to confuse national and state-based data; according to them, a ban of the live export trade would translate into a loss of approximately \$9 million per annum for Western Australian sheep farmers.*

WAFarmers accused the Pegasus Economic analysis of being “wildly inaccurate” based on an analysis it commissioned in a report prepared by Mecardo but did not provide further specific details.

The findings in this report were also challenged by ABARES (Nelson, et al., 2021, p. 16). According to ABARES, the economic impact estimated by Pegasus Economics on the phasing out of the live sheep export industry was likely to underestimate the impact for two reasons. First, there is normally no domestic market for the volume of low-quality young wethers displaced by the phasing out of the live sheep export industry because consumers prefer higher quality meat. Second, Western

Australia's short and unreliable growing season means that bringing these sheep to prime lamb standard for domestic processing was likely to require some purchased feed, adding both feed costs as well as additional labour costs to sheep farms in WA.

#### Key takeaways

The report argues that phasing out of the live sheep export industry may not impose a significant economic burden upon WA sheep farmers, although there have been counter-claims that the impact may be greater than estimated in this report.

#### 4.2 Title: Economic Implications of Phasing Out the Live Sheep Export Trade

Author/Publisher and Date: Alistair Davey, Roger Fisher, Melissa Morley, Pegasus Economics, April 2022

#### Context

The report was commissioned by Animals Australia to provide an analysis of the economic impacts arising from the prohibition on live sheep exports to the Middle East during the Northern Hemisphere summer and the economic implications arising from a gradual phasing out of the live sheep export trade (Davey, Fisher, & Morley, 2022).

The report was produced in the aftermath of the prohibition on the live sheep export trade during the Northern Hemisphere summer in response to animal welfare concerns.

#### Areas of Focus

The report is primarily focused on economic outcomes, especially changes to the sale price of lambs and sheep, and the impact on the incomes of WA sheep farmers.

The main body of the report provides a history of the live sheep export trade and the changing dynamics of the sheep farming industry (covering trends in land-use by farmers, patterns of consumption, destinations for the export of live sheep, and the relationship between sheep price in WA as compared to the east coast).

The report is concerned with large-scale trends and outcomes; there is no discussion of the possible impacts of phasing out the trade on individual farm enterprises, adjacent industries or the broader social or regional consequences. The report mentions, but does not examine in detail, any employment impacts.

There is also a brief discussion of animal welfare incidents leading up to the prohibition of the live sheep export trade during the Northern Hemisphere summer.

#### Major Findings & Conclusions

The report rejected the contention the live sheep export trade underwrites WA farm gate prices for sheep that has long been offered as a justification for the continuation of the trade. Instead, it is argued that international commodity prices for lamb and mutton underwrite farm gate prices paid for Australian sheep. The report finds since the Northern Hemisphere summer prohibition, farm gate prices for WA sheep farmers have not crashed and the sheep displaced from the live sheep export trade have found other uses and markets.

The report also tested whether the margin in prices in trade lamb and mutton between saleyards in the eastern states and WA rose following the imposition of the Northern Hemisphere summer prohibition that commenced from June 2018. The report found a statistically significant negative price impact on lamb and mutton prices received by sheep farmers in WA saleyards relative to the eastern states:

- Trade lamb sold in WA saleyards fell by around 60.4 cents per kg cwt or by around \$12.08 per head (based on a 20 kg lamb) (in real 2020 prices)



- Mutton sold in WA saleyards fell by around 42.2 cents per kg cwt or by around \$8.86 per head (based on a 21 kg sheep) (in real 2020 prices).

Extrapolating on these results for WA saleyard sheep throughput suggests an aggregate price impact on WA sheep farmers in the order of:

- \$14.5 million in 2018-19 (in real 2020 prices)
- \$13.2 million in 2019-20 (in real 2020 prices)
- \$11.8 million in 2020-21 (in real 2020 prices).

This represented an average cost through the reduction in sheep sale receipts per WA sheep farmer in the order of less than \$2,800 (in real 2020 prices) in 2020-21. According to the report, these costs appeared to be modest on average.

However, the report found no evidence for any statistically significant negative price impact arising from the Northern Hemisphere summer prohibition in relation to prices received by WA sheep farmers for heavy trade lamb and heavy mutton sold over the hooks to abattoirs as compared to NSW sheep farmers.

While the report found there had been some costs imposed on WA sheep farmers through reduced sheep sale receipts at WA saleyards, it also acknowledged there were likely to be other costs incurred by WA sheep farmers that were not as transparent, such as the loss of any price premium associated with the live sheep export trade from direct paddock sales, and increased on-farm costs incurred from redirecting sheep from the live sheep export trade to meet prime lamb specifications.

The report argued that in the absence of the live sheep export trade, WA sheep farmers would transition towards what they perceive as their next most profitable option or options, whether that be through increasing prime lamb production, redirecting sheep to east coast markets, or transitioning to more wool or crop production. The feasibility of increasing wool production and prime lamb production were judged to be the most viable based on the then prevailing commodity price forecasts at the time.

The report argued that given the live sheep export trade in 2021 was then only one third the size it was back in 2017 in volume terms, most of the adjustment costs for WA sheep farmers in transitioning away from the live sheep export trade had already been incurred.

#### Key Assumptions and Methodology

The key assumption in the report is that with the decline in the live sheep export trade, most of the costs of transition away from the trade have already been incurred.

The report draws on a wide range of earlier studies but relies primarily on the WA Department of Agriculture and Food, and the Federal Department of Agriculture (especially the *Australian Bureau of Agricultural and Resource Economics and Sciences*) for its primary data regarding trends in agricultural production.

The core of the report is the statistical and econometric analysis of changes in the price of trade lamb and mutton at saleyard auctions. For this purpose, raw data was collected from Meat & Livestock Australia, and converted into constant price series that compared prices in WA against the eastern states. These price series is then subjected to a series of quantitative statistical tests and time series econometric modelling.

Although number-heavy, the modelling is clearly and methodically presented. The original data is not provided within the report however, the data sources are documented, and all operations conducted on the data is documented in a transparent manner.

## Impact/Reception

This report was not widely circulated and did not receive much press coverage. However, it was reported on in *The Guardian Australia* website (Wahlquist, 2022).

## Key Takeaways

While the phasing out of the live sheep export industry will have a detrimental impact on the incomes of WA sheep farmers, this impact is relatively small and farmers will transition towards what they perceive as their next best most profitable alternative. Given the live sheep industry has contracted to one third its size in 2017 to 2021, most of the transition costs from phasing out the live sheep export industry have already been incurred.

## 5. Reports by the Government of Western Australian

Reports were published by the Government of Western Australia on the live sheep export trade in 2011 and in 2019.

### 5.1 Title: The Economic Importance to Western Australia of Live Animal Exports

Author/Publisher and Date: Ross Kingwell (Ed), Peter Cunningham, Tanmoy Nath, Lucy Anderton, Vilaphonh Xayavong, Kimbal Curtis, Richard Norris, Graham Annan, David Warburton and David Feldman, Department of Agriculture and Food (Government of Western Australia), July 2011

#### Context

This report was commissioned by the Department of Agriculture and Food Western Australia (DAFWA) following the decision by the then Minister for Agriculture, Fisheries and Forestry in the Gillard Government, Senator the Hon. Joe Ludwig, to suspend the live cattle industry between Australia and Indonesia in early June 2011 (Kingwell, et al., 2011). The report formed the main part of the DAFWA submission to a Senate inquiry established in June 2011 into animal welfare standards in Australia's live export markets.

#### Areas of Focus

This report provides a detailed overview of the history of the live sheep and live cattle export industries operating in Western Australia (WA), its position at the time of publication and the supply chains associated with those industries. The report also provided a brief overview of the WA live goat export industry.

The report provides a summary of previous adverse animal welfare incidents affecting the live sheep and the live cattle export industries. It also provides a literature review and summary of findings from previous reports examining the live sheep and live cattle export industries.

The report presents a case study on the various impacts arising from the suspension of the live cattle industry to Indonesia that occurred in 2011 for a cattle farmer operating in the Kimberley region.

The report also examines the economic implications arising from the possible cessation of the live sheep and the live cattle industries.

#### Major Findings & Conclusions

Overall, the report found that pastoral beef production in Northern WA would be the most vulnerable to a cessation of the live export trade. While it found that sheep farmers locked into sheep production would also face revenue reductions from the cessation of the live sheep export trade, the report concluded that many other farmers who engaged in mixed-enterprise farming including sheep or cattle production may be able to transition to alternative enterprises and lessen any losses incurred.

According to the report, the primary impact of a cessation of live cattle export would be on cattle producers in regions highly dependent on the live export trade. This impact would probably be greatest on producers in the Kimberley region who were almost entirely dependent on the live cattle trade. The report observed that pastoralists in the north of the state would generally have less opportunity to diversify out of the live export cattle trade and subsequently would experience greater adverse impact from its cessation than beef farmers in the south of the WA whose properties could more easily switch to alternate enterprises.

Pastoralists, particularly those in remote regions, could expect lower returns on their cattle sold to a domestic market in the event of a cessation of the live cattle export trade. The reduction in returns would be due to a lower price per kilogram that the pastoral cattle receive in the local market and the increase in transport costs that would be incurred as cattle would have to be transported longer distances for processing.

The report identified adverse flow-on effects from the suspension of the live cattle trade with Indonesia, pointing to anecdotal evidence that, in the weeks immediately following the announced suspension of the live trade with Indonesia, pastoral businesses were revising budgets and deleting all nonessential capital expenditure until the trade resumed. The report found that businesses operating in the Kimberley, which were more reliant on the live export cattle trade, would be more adversely affected than those in the Pilbara, which derived a higher proportion of their income from other sources.

The report found that the further south from the Pilbara the enterprise was located, the less adversely affected WA cattle farmers would be.

The report also provides a case study to illustrate the impact of the suspension of the live cattle trade to Indonesia. While the exact details provided on the Kimberley based cattle farming enterprise are fictitious, the numbers provided are based on survey data collected by DAFWA. Following the suspension of the live cattle trade with Indonesia, the Kimberley based farming enterprise suffered an average fall in cattle prices of 30% on the sale of their steers. Holding on to stock was not an option as the property did not have excess grazing capacity and retaining stock would have had a devastating impact on the condition of their rangeland that would have taken many years to recover. In turn the farming enterprise carried a substantial loss.

The report notes there had already been a significant structural change within the WA sheep sector with significant declines in sheep numbers between 2005-06 and 2011-12 largely due to the relative profitability of other enterprises and declining wool prices, all compounded by drought. It was observed the reduction in the sheep population had been associated with the conversion of farmland to cropping, with the report expressing the view that further conversion was technically possible. However, the report noted that land suitability constraints, when combined with the likelihood that additional cropping could increase the risk profile of a farm business due to highly variable yields and prices, and capital requirements, and suggested that a rapid switch of farm resources into extreme crop dominance was unlikely to occur.

The report observed that a disruption or termination of the live sheep trade would either shift the supply of sheep normally destined for live export on to domestic markets, via abattoirs, or that sheep would be retained on farm for more years of wool production. In turn, additional domestic supply would place downward pressure on sheep prices, therefore reducing margins for producers whilst improving margins for processors, at least in the short and medium term.

In the event of a permanent or gradual cessation in the live sheep trade, the report argued that businesses already focused on lamb production would face lower profits due to a likely reduction in lamb prices, due to a switch of sheep industry resources into lamb production and reduced demand for ram lambs and other older sheep from live sheep exporters. It also observed that farms with flock structures centred on the production of wethers for live sheep export could adjust towards

more lamb production or focus on wool and mutton production or shift resources further into cropping enterprises.

The report found gross margins for medium/high rainfall enterprises with the live sheep trade gross margin for a wool enterprise was \$317 per hectare (ha) and \$302/ha for a prime lamb enterprise at the then prevailing prices for sheep sold to the live sheep export trade and wool, but without the live sheep export trade this would fall to \$237/ha and \$214/ha respectively. The report found gross margins in the low rainfall areas for a wool enterprise was \$118/ha and \$114/ha for a prime lamb enterprise at the then prevailing prices for sheep sold to the live sheep export trade and wool, but without the live sheep export trade this would fall to \$89/ha and \$80/ha respectively.

The report found that the WA sheep farms most vulnerable to termination or gradual erosion of the live sheep export trade were sheep dominant farms with little capacity or appetite to switch away from sheep production into more cropping enterprises. According to the report, the regions in WA most vulnerable to the cessation of the live sheep export trade were in the Upper and Lower Great Southern regions and the Midland region. This was because those regions were medium to high rainfall areas, where the reliance on sheep income was higher because only 40% to 60% of farm area, on average, was cropped compared to the Central and South-Eastern regions, where 70% or more of farm area was cropped.

The report found that if the live sheep export trade were to cease then WA sheep meat processors would become more profitable with more sheep to slaughter, on the assumption there was a market for the product. On the other hand, the report suggested that in the medium to long term the reduced profitability of sheep production in the farm sector would reduce sheep numbers further and processors could eventually end up in a worse position.

Based on computable general equilibrium (CGE) modelling of the impact on the WA Australian economy from a reduction in the live sheep export trade undertaken by DAFWA, the report concluded:

*As might be expected, the economy-wide impacts are relatively minor, causing small percentage changes in the state's gross state product (GSP), employment, export values and the [consumer price index]. (Kingwell, et al., 2011, p. 43)*

The report observed that the main impacts arising from any reduction or cessation in the export of live sheep was likely to be felt most strongly within the sheep supply chain rather than across a wider group of sectors or more generally throughout the economy.

#### Key Assumptions and Methodology

Most of the report was compiled through a desktop review of previous animal welfare incidents involving the livestock export industries and previous reports on the live cattle and sheep export industries, supplemented with information obtained through a surveys and stakeholder interviews of cattle farmers in Northern WA.

The report makes various assumptions, including the applicability of generalised data to the case study, the availability of demand for additional domestic consumption of sheep meat, the behavioural responses of producers to a termination of the trade and the impacts of changes in the supply of sheep on the profitability of domestic meat processors.

The report assumes that prices for all categories of sheep will decline in the event the live sheep export trade were to cease. However, the report does not specify by how much sheep prices could be expected to fall as part of its analysis. Otherwise the report is transparent in relation about its other underlying assumptions. The report also documents its references.

## Impact/Reception

The report did not receive any media attention when it was released. However, the report was cited several times in the report by the Senate Standing Committee on Rural Affairs & Transport (2011) on *Animal welfare standards in Australia's live export markets*.

## Key Takeaways

The cessation of the live cattle trade would have a much greater impact on cattle farmers in Northern WA, especially the Pilbara, than the cessation of the live sheep export trade on WA sheep farmers. While there would be an adverse impact on the incomes of WA sheep farmers arising from the cessation of the live sheep export trade, they generally have other options available. The possible exception to this was WA sheep farmers located in medium to high rainfall areas with a greater reliance on sheep than cropping.

## 5.2 Title: Implications of management decisions on the WA sheep flock in response to changing markets

Author/Publisher, and Date: Kate Pritchett, Department of Primary Industries and Regional Development Western Australia, April 2019

### Context

The report models the effect of management decisions by individual producers on the size, structure and productivity of the entire WA sheep flock in the event the live sheep export industry was no longer available as an option for Western Australian sheep farmers (Pritchett, 2019).

### Areas of Focus

The report considers the size and composition of the WA sheep flock under four alternative scenarios.

The report focuses on the WA sheep flock as a whole rather than individual sheep enterprises, regions or communities.

The report outlines the significant structural change that has already occurred in the WA sheep flock over a quarter of a century between the early 1990s until 2016-17 as the flock contracted and shifted from being a wool dominated flock to a dual-purpose flock producing both wool and sheep meat.

### Major Findings & Conclusions

Under scenario 1, wethers increase a proportion of the WA sheep flock from 7% to 15% at the expense of the breeding ewes over a 10-year period.<sup>6</sup> This situation may arise due to:

- high wool prices causing an increase in the retention of wethers to increase the wool-producing capacity of the flock
- Cereal-Sheep Zone producers opting for a flock with lower risk
- sell down of the ewe flock due to restocking activity in eastern Australia.

An increase in the number of wethers while maintaining the same number of ewes resulting in an increased total flock size was not considered likely as this would require a greater amount of land to be dedicated to the sheep enterprise in order to carry more sheep, which was considered unlikely to occur under current market conditions.

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<sup>6</sup> The report points out that wethers are a useful low-risk enterprise in farm businesses focussed on grain production or as a low-input wool production system (Pritchett, 2019, p. 13).

Under scenario 2, there is an increase by sheep farmer compliance with processor specifications for prime lamb by producing crossbred or meat breed lambs because their growth rates are generally faster. More producers in the Medium Rainfall Zone sell meat lambs compared to the Cereal-Sheep Zone. This is because the Medium Rainfall Zone has access to longer growing seasons for pastures and are less likely to have poor or variable seasons. More producers in the Cereal-Sheep Zone are focussed on cropping and have less available labour and time to manage sheep enterprises such as prime lamb production which requires significant input to manage efficiently. Scenario 2 showed that changing the ratio of ewes joined to Merino and non-Merino rams had little impact on flock size or production.

Under scenario 3, producers respond to unfavourable market signals by reducing their sheep area and reducing sheep flocks or getting out of sheep altogether. This might occur if sheep and wool profitability reduced relative to the profitability of cropping or cattle. Scenario 3 found that small changes in the percentage of farm-land for sheep in mixed farms can have dramatic impacts on the size of the WA flock.

Scenario 4 examines more WA sheep being transported to the Eastern States. Sheep sales to the eastern seaboard represent a viable and profitable market for lambs and breeding ewes. This market is strongly influenced by the feed conditions in eastern Australia and whether producers there are rebuilding their flocks after drought, the availability of lambs for slaughter and the price differential between eastern and western markets. Sheep (including lambs) transported east may go direct to a processor or go to rebuilding sheep flocks. Scenario 4 found that the class of sheep transferred interstate had a larger impact on the flock than the number transferred interstate. When less breeding ewes and more lambs were transferred interstate, it enabled more lambs to be born as replacement stock.

The largest decline in flock size over a 10-year period occurred when the proportion of wethers in the flock was increased to 15% at the expense of ewes. There was a similar response when there was a large number of ewes transferred east. It was also found that a small change in the percentage of land dedicated to the sheep enterprise in mixed farming systems could have dramatic impacts on the size of the flock.

The largest decline in lamb slaughter occurred following the increase in the proportion of wethers to 15% of the flock at the expense of ewes, reducing the flock's productivity and growth.

Increasing the proportion of wethers in the flock was more detrimental to lamb slaughter than increasing the number of sheep transferred interstate. Changing the ratio of ewes joined to Merino and non-Merino rams had little impact on lamb slaughter.

Carrying more wethers also resulted in a reduction in lamb slaughter and an increase in mutton production.

The largest effect on wool production was seen in the scenario where the proportion of wethers in the flock increased from 7% to 15% at the expense of the breeding ewe flock. This resulted in a large decline in wool production over the 10 years modelled due to the reduced number of ewes and replacement lambs.

When investigating the impacts of interstate transfers on the WA sheep flock some variation in wool production was noted, however, this was largely due to changes in flock size.

When the ratio of ewes joined to Merino and non-Merino rams was altered the volume of wool produced converged over the 10-year period. Based on this observation it was noted that changing the ratio of ewes joined to Merino and non-Merino rams had little impact on wool production in this instance, although it would have an impact on the quality of wool produced.

## Key Assumptions and Methodology

This report examines four possible scenarios over a 10-year period in the event the live sheep export industry is closed down:

- the proportion of wethers in the WA flock could increase with a corresponding reduction in the proportion of ewes
- the ratio of ewes joined to Merino rams and ewes joined to non-Merino rams could change
- the amount of land dedicated to sheep enterprises could change or
- the type of sheep or the number of sheep transferred interstate could change.

Each scenario is modelled in isolation to examine the possible effects on the WA sheep flock, lamb turn-off and wool production over a 10-year period in the absence of live sheep exports compared to a baseline model.

Key assumptions used in the preparation of the report include:

- Demand for sheep meat and wool and prices remain strong at the prevailing levels when the report was prepared.
- Live export is not included as a market option within the modelling.
- The modelling does not address economic considerations or individual decisions that enterprises, processors or exporters would make in response to the changes modelled.

Under the baseline model developed over a 10-year period developed to compare the results of the scenarios:

- The WA sheep flock declined by 3%
- Total turn-off declined by 3%
- Lambs marked declined by 9%
- Wool production declined by 6%.

## Impact/Reception

The report did not receive much media attention at the time of its release. It has only received attention subsequently in the WA dedicated agricultural press when certain scenarios have actually been played out, such as a dramatic increase in interstate sheep transfers from Western Australia in 2020.

## Main Takeaways

A range of options are available for WA sheep farmers in the event that the live sheep export trade is terminated or phased out.

## 6. Report by the Australian Bureau of Agricultural and Resource Economics and Sciences

This report was published in February 2021. ABARES is the science and economics research division of the Department of Agriculture, Fisheries and Forestry based in Canberra.

### 6.1 Title: The economic impacts of regulating live sheep exports

Author/Publisher and Date: Rohan Nelson, Chris Mornement, Mikayla Bruce, Aruni Weragoda, Fred Litchfield and Peter Collins, ABARES, February 2021

#### Context

This report provides an economic analysis on the likely impacts on WA sheep farmers arising from the prohibition during the Northern Hemisphere summer (Nelson, et al., 2021). The report also critiques other relevant reports prepared on behalf of advocacy organisations.

## Areas of Focus

The report focuses on the economic impacts likely to have been incurred by WA sheep farmers arising from the prohibition during the Northern Hemisphere summer. This includes price impacts on lambs at WA sheep auctions, the additional on-farm costs incurred from redirecting sheep away from the live sheep export industry, and an estimate of the total aggregate amount by which WA sheep farmers are worse-off.

The report also compares ABARES analysis with studies commissioned by industry and animal welfare groups.

## Major Findings & Conclusions

ABARES observed that while WA saleyard lamb prices are usually lower than prices in Australia's eastern states, they were much lower again during September and October following the Northern Hemisphere summer prohibition from 2018 to 2020.

The report estimated that the combined incomes of around 4,000 sheep farms in Western Australia could have been up to \$68 million lower in the short term than they would have been in the year that export restrictions were first introduced. It was estimated this would fall to \$36 million in the second year. In the long term, it was estimated the reduction in collective incomes was reduced to \$12 million per year as markets adjusted.

However, overall ABARES found the loss of income incurred by WA sheep farmers from the restriction on the live sheep export trade was more than made up by more buoyant market conditions for Australian sheep meat.

## Key Assumptions and Methodology

The ABARES report estimated the impact on farm incomes from switching sheep from live export to increased lamb production if the trade in live exports was restricted. In order to develop what the authors considered to be a plausible scenario, it was assumed the number of sheep for live export would halve if the trade was restricted to the cooler months in the Northern Hemisphere, arising from a sudden disruption to the trade. This was considered to be a worst-case scenario that increased the short-term costs of transitioning to expanded lamb production.

It was further assumed that restrictions on live exports were known just before the growing season, and that farmers could divert one-quarter of the sheep intended for live export that year to prime lamb production and 50 per cent in the second and subsequent years of adjustment. Sheep that couldn't be diverted to lamb production in the first year – assumed to be one-quarter of the sheep intended for live export – were assumed to be diverted to domestic processing as mutton, which attracted lower saleyard prices.

Data from the Australian Agricultural and Grazing Industries Survey (AAGIS) was used to estimate average receipts and production costs per head of live sheep, prime lambs and adult sheep. Receipts and costs for an average farm were adjusted relative to a base year, according to the number of live sheep, prime lambs and adult sheep sold in each year. The base year reflected average operating conditions for the 5 years ending in 2017 – the last year of unrestricted trade.

It was assumed that WA sheep farmers diverting sheep from the live sheep export trade to produce prime lambs for slaughter would require more labour and other inputs than producing live sheep for export. These costs would be associated with procuring and administering additional feed during summer and autumn when green pasture is not available in WA.

The change in farm cash income (total cash receipts minus total cash costs) was estimated for each year relative to the base year. An estimate of the aggregate cost of the scenario was obtained by multiplying the average change in income by the number of WA sheep farms with more than 100 sheep.



## Impact/Reception

The report received only limited coverage in the dedicated rural press.

The ABARES report has been criticised by Pegasus Economics (Davey, Fisher, & Morley, 2022, p. 21) as something of a 'black box' as there is not a lot of transparency surrounding its assumptions and underpinnings.

## Key Takeaways

Based on assumptions in the report, the prohibition on the live sheep in the northern summer cost WA sheep framers around \$68 million in the first year, falling to around \$12 million as markets adjusted.

More generally, economic losses for WA sheep farmers from restrictions on the live sheep export industry could be expected to dissipate over time as farmers adjust their operations to the next most profitable options available to them.

## 7. Report by ACIL Allens

ACIL Allens was commissioned by industry interests to examine the economic impact of the Northern Australian live cattle export industry. ACIL Allens is an economics, policy and strategy advisory firm with offices in Brisbane, Melbourne, Perth and Sydney.

### 7.1 **Title:** The economic contribution and benefits of the Northern live export cattle industry

Author/Publisher and Date: ACIL Allen, August 2022

#### Context

The Australian Livestock Export Corporation (LiveCorp) and Meat & Livestock Australia (MLA) commissioned ACIL Allens (2022) to:

- identify the value and importance of the Northern live cattle industry to the Australian economy and Northern Australian regions and communities
- estimate the impact of a material reduction or cessation of the industry's activities
- assess the industry's comparative advantage relative to South East Asia and other global competitors.

#### **Areas of focus**

The report focused on the economic impacts of the live export cattle industry in Northern Australia, estimating the economic contribution of the industry (value added), the number of jobs created both directly and indirectly, and the adverse impact on cattle prices and land values in the event of the full or partial cessation of the live cattle export industry.

The report also includes three regional case studies looking at the economic contribution, and employment levels both direct and indirect associated with the live cattle export industry in Northern Australia.

#### Major Findings & Conclusions

The input-output analysis showed Northern Australian live cattle exports contributed \$1.4 billion and 6,573 full-time equivalent jobs (FTEs) to the Australian economy in 2020-21. This consisted of \$508 million and 1,527 FTEs contributed directly by the live cattle export industry in Northern Australia and an indirect flow-on into the wider economy of \$862 million and 5,046 FTEs across 20

major industries. Broken down by state/territory, the economic contribution of the Northern live cattle exports were:

- In the Northern Territory, a direct contribution of \$213 million of value added and employment of 522 FTEs, with a further indirect contribution of \$753 million of value added and employment of 753 FTEs.
- In Queensland, a direct contribution of \$111 million of value added and employment of 403 FTEs, with a further indirect contribution of \$191 million value added and employment of 1,202 FTEs.
- In Western Australia, a direct contribution of \$97 million of value added and employment of 328 FTEs, with a further indirect contribution of \$121 million of value added and employment of 639 FTEs.

Live cattle export contributes an average of \$37 million value added annually to each region in Northern Australia. Ranging from \$143 million in Katherine to \$0 million in East Arnhem. The differences relate to each region's overall size, area of grazing land used (for live export) and whether live cattle aggregation and port operations occur.

A reduction and cessation in the live cattle trade will result in more cattle being sent to domestic slaughter for consumption in Australian or overseas export markets. A lack of meat processing capacity in Northern Western Australia and the Northern Territory means that cattle previously sent into the live cattle export market would need to be transported south for processing. Without an operating abattoir in NT, the main alternative available to cattle producers is shipping to a South Australian or Queensland abattoir. The Colourstone Abattoir, that is around 100 km east of Broome, is the only major abattoir operating in Northern Western Australia (Sinclair, 2022).

The report estimates that cattle prices received collectively by Australian cattle farmers would fall by between 1.0% and 3.7% in the event of a cessation of the live cattle trade and by 0.5% and 1.9% in the event of a 50% reduction in the live cattle trade. Prices would fall across-the-board because any interruption in the live cattle export industry would result in increased supply for the domestic processing industry. The modelling process by which these results are derived is not transparent and the description accompanying this analysis is fairly minimal. However, the report does note that a high degree of uncertainty is associated with the estimated price impact arising from the increased supply of cattle.

The estimated impact on the entire Australian beef industry from a complete ban on the live cattle industry arising from lower cattle prices is for a reduction in gross value added by 2030 of between \$131 to \$505 million. In relation to a partial 50% reduction in the live cattle industry commencing in 2023, the reduction in gross value added for the Australian beef industry reaches between \$66 to \$253 million by 2030.

In addition, the live cattle export industry will also experience a loss of value through the following channels:

- By diverting cattle from live export to the domestic market, there will be a significant reduction in the effective price per kg of meat achieved.
- The meat of the formerly exported cattle will be discounted to reflect market preferences.
- The diverted cattle will be subject to additional costs such as the cost of transport to the nearest abattoir for slaughter.

On this basis, the report estimates that the live cattle export industry will experience a loss of value added in the order of \$737 million per annum by 2030 for a 100% cessation of live exports by 2023, \$700 million per annum in 2030 for a 100% cessation of live exports by 2030, and \$345 million per annum in 2030 for a 50% reduction by 2030.

The Net Present Value over 20 years of the total impact on the Australian beef industry and cattle industry is between \$2.8 billion and \$11.8 billion, depending on the scenario. The impact of an immediate cessation is greatest because the losses commence immediately and there is limited opportunity to adjust.

A reduction or cessation of live cattle trading is also likely to have an adverse impact on land values across Northern Australia. Assuming no further improvements or income from other uses, the value of NT grazing land is expected to decline by between 11.0% and 34.4% under the three scenarios.

The report found the key drivers for Australia's comparative advantage in live export cattle were:

- proximity to key South East Asian markets
- consistency in quantity and quality of live animals
- alignment with market requirements
- high biosecurity standards.

In particular, it found there were synergies between the Northern Australia systems and Indonesia (Australia's largest market), with mutual benefits flowing due to Australia's large grazing land base versus Indonesia's lack of suitable land and Indonesia's lack of access to suitable cold chain infrastructure.

### Key Assumptions and Methodology

The report utilises a range of different methods to undertake its analysis, including:

- Input-Output analysis to establish the direct and indirect economic contribution to Australia and 18 regions in 2020-21 from the Northern live cattle industry.<sup>7</sup>
- An econometric model
  - to estimate the price impact of the increased supply of cattle to the slaughter market due the potential cessation of the live export cattle industry; and
  - estimate the price impact on the value of grazing land in the Northern Territory arising from the cessation of the live cattle industry.
- Desktop review and qualitative analysis of available information to understand the notion of comparative advantage and the dynamics of the global live export cattle market.
- Desktop review for three regional case studies of the economic contribution of the live cattle export industry in Northern Australia:
  - Kimberley region in Western Australia
  - Charters Towers – Ayr – Ingham region in Queensland
  - Northern Territory.

The input-output analysis was conducted for the 2020-21 financial year using the Australian Bureau of Statistics (ABS) Statistical Area 3 (SA 3) level data.<sup>8</sup> Other ABS data used for this analysis includes the National Accounts Input-Output data and additional industry level data from ABS and ABARES.

To estimate the impact of the cessation of the live export industry on grazing land in the Northern Territory, ACIL Allen adopted a financial approach that estimated the net present value of the impact on revenues generated per hectare of land both before and after the cessation of the live cattle export industry. While the key parameter assumptions were provided, no data sources other than ACIL Allen were cited.

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<sup>7</sup> Input-Output Tables (IOTs) describe the sale and purchase relationships between producers and consumers within an economy (Organisation for Economic Co-operation and Development, n.d.).

<sup>8</sup> SA3s are designed to provide a regional breakdown of Australia (Australian Bureau of Statistics, 2017).

### Impact/Reception

The ACIL Allen report received favourable coverage in the dedicated agricultural press but wasn't reported upon in the mainstream media.

### Main Takeaways

Significant economic losses would be incurred by the reduction or cessation of the Northern Australia live export cattle trade as there is often little alternative for cattle farmers, particularly in the Northern Territory and Northern Western Australia, other than to transport cattle to abattoirs that are primarily located in southern Australia.

## References

- ACIL Allen. (2022). *The economic contribution and benefits of the Northern live export cattle industry*. Prepared for LiveCorp and Meat & Livestock Australia.
- Australian Bureau of Statistics. (2017, July 7). *Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016*. Retrieved from Australian Bureau of Statistics: <https://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/1270.0.55.001Main+Features10018July%202016?OpenDocument>
- Brammer, J. (2019, September 18). Live exports vital to WA economy and farms: report. *The West Australian*, p. 74.
- Breusch, T. (2018). *Live Sheep Export - A Review of the Mecardo Report*.
- Dalgleish, M., Agar, O., & Herrmann, R. (2020). *Impact of the Live Sheep Export Trade's Self-Imposed Moratorium and Regulatory Changes*. Ballarat: Mecardo.
- Dalgleish, M; Agar, O. (2019). *Value analysis of the Australian live sheep export trade*. Ballarat: Mecardo.
- Davey, A., & Fisher, R. (2018). *Economic Issues Associated with the West Australian Live Sheep Export Trade*. Canberra.
- Davey, A., & Fisher, R. (2020). *Live Sheep Export Trade: Review of the Draft Regulation Impact Statement*. Canberra: Pegasus Economics.
- Davey, A., Fisher, R., & Morley, M. (2022). *Economic Implications of Phasing Out the Live Sheep Export Trade*. Canberra: Pegasus Economics.
- Department of Agriculture. (2019). *Live sheep exports to or through the Middle East—Northern Hemisphere summer: Draft regulation impact statement*. Canberra.
- Francis, P. (2014, April 7). *Live sheep export report unbalanced*. Retrieved from Moffitts Farm: <https://www.moffittsfarm.com.au/2014/04/07/live-sheep-export-report-unbalanced/>
- Gretton, P. (2013). *On input-output tables: uses and abuses*. Canberra: Productivity Commission.
- Kingwell, R., Cunningham, P., Nath, T., Anderton, L., Xayavong, V., Curis, K., . . . Feldman, D. (2011). *The Economic Importance to Western Australia of Live Animal Exports*. Perth: Department of Agriculture and Food Western Australia.
- Meat & Livestock Australia. (2017, June 29). *G.MAR.1412 Global Meat Industry Model*. Retrieved from Meat & Livestock Australia: <https://www.mla.com.au/research-and-development/reports/2017/global-meat-industry-model/>
- Meat & Livestock Australia. (2020). *Value analysis of the Australian live sheep trade (2019)*. Retrieved from Meat & Livestock Australia: <https://www.mla.com.au/research-and-development/reports/2020/value-analysis-of-the-australian-live-sheep--trade-2019/>
- Meat & Livestock Australia and Ernst & Young. (2018). *State of the Industry Report 2018: The Australian red meat and livestock industry*. Sydney: Meat & Livestock Australia.
- Mecardo. (2018). *Live Sheep Export – Brief Report*. Ballarat.
- Nelson, R., Mornement, C., Bruce, M., Weragoda, A., Litchfield, F., & Collins, P. (2021). *The economic impacts of regulating live sheep exports*. Canberra: Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES).
- Peel, C. (2023, March 2). Live export ban a red line: farmers - policy 'would cost 3000 jobs and empower activists'. *The Australian*, p. 6.

- Pritchett, K. (2019). *Implications of management decisions on the WA sheep flock in response to changing markets*. Perth: Department of Primary Industries and Regional Development.
- Senate Standing Committee on Rural Affairs & Transport. (2011). *Animal welfare standards in Australia's live export markets*. Canberra: Department of the Senate.
- Sinclair, S. (2022, October 24). *Kimberley Meat Company plans \$35 million expansion at northern WA's only major abattoir*. Retrieved from ABC News: <https://www.abc.net.au/news/2022-10-24/kmc-yeeda-kimberley-abattoir-35-million-dollar-expansion/101564708>
- The Centre for International Economics. (2014). *Contribution of live exports to the Australian Wool Industry: Prepared for Australian Wool Innovation*. Canberra.
- The Centre for International Economics. (2018). *Contribution of live exports to Woolgrower's incomes: An update*. Canberra.
- The Centre for International Economics. (2020). *Industry specific models*. Retrieved from The Centre for International Economics: <https://www.thecie.com.au/industry-specific-models>
- The Treasury (NSW Government). (2017). *NSW Government Guide to Cost-Benefit Analysis (TPP17-03)*. Sydney.
- Thompson, B. (2014, March 28). Woolgrowers ride on the back of live exports. *The West Australian*, p. 75.
- WAFarmers. (2018). New live export data shows potential impact of a trade ban. *Media Release*, 20 April.
- Wahlquist, C. (2022, June 3). *Anthony Albanese says live sheep exports won't be phased out before 2025*. Retrieved from The Guardian Australia: <https://www.theguardian.com/australia-news/2022/jun/03/anthony-albanese-says-live-sheep-exports-wont-be-phased-out-before-2025>