Final Report

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

Impact of COVID-19 on the red meat processing industry

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1.0 EXECUTIVE SUMMARY

The COVID-19 pandemic has created the greatest global crisis since the Second World War. Governments, countries, and their populations have struggled to cope with the impact of the closure of vast swathes of economic activity, with major disruptions to supply chains and everyday life. At the same time, they have focussed vast efforts on fighting a pandemic and attempting to develop a response as a path back to a normalised economy and society.

Australia's red meat processing industry was not spared the impact of these major global and domestic disruptions. Accordingly, this project is aimed at providing quantitative and qualitative estimates of the economic and policy implications of the COVID-19 pandemic on the Australian red meat processing sector, including impacts on supply chains and global trade.

More specifically the project has a number of objectives including:

1. Providing quantitative estimates of the disruption to the red meat processing supply chain.
2. Providing insights into the evolving global trade in red meat, including Australia-China trade and its impacts on the red meat processing sector.
3 Obtaining stakeholder and industry viewpoints.
4. Mapping out policy implications based on the above.

In addition, this project also considers the impact of COVID-19 on Australia's competitors (including New Zealand). This will help in considering the change in the competitive landscape facing the Australian industry.

We find that the Australian red meat processing industry has generally coped well with the pandemic. Separating the impacts of the pandemic from the concurrent impacts of drought recovery and restocking, we find that the pandemic caused a $326 million loss in industry revenue over the period 1 April to 30 September 2020 (the period of the pandemic as defined in this study). By our estimates this equates to a loss of 3.1% of industry revenue compared to what could have been expected during that time had previous trend growth been maintained. This is equivalent to a loss of $59 million in Gross Value Added (GVA) terms and some 600 jobs (in headcount terms).[1]

Taking into account disruptions to the supply chain and reduced consumer spending due to job losses, however, impacts were more substantive, with the total effects across the Australian economy estimated to equate to $390 million in GVA terms and 2,800 jobs during that period.

While the broader economic impacts are notable, as indicated, Australia's red meat processors themselves coped relatively well with the actual pandemic. This finding is evident both from quantitative data on meat processing revenues and from speaking to processors and peak bodies themselves. Australia has emerged with its reputation as a reliable supplier, relative to its competitors, enhanced.

However, the question of how to manage Australia's trade and pollical relationship with China will loom large over the red meat processing industry for the foreseeable future. The pandemic has served to draw attention to tensions which were already building up in the years preceding it. China is likely to remain Australia's primary red meat export market for the foreseeable future. However, the pandemic, and recent tensions (whether interconnected with it or not) have given added impetus to the issue of growing alternative export markets. What may emerge could be a "China plus" policy whereby China continues to be an important market, but risk mitigation results in a trend towards market diversification.

1 GVA is equivalent to Gross Domestic Product (GDP) excluding taxes less subsidies on products. In practical terms the difference between the two is small. GVA is often used to measure impacts on a given industry.

As most of the growth in the industry is likely to come from exports, such diversification is also critical to establishing a long-term future basis for the industry. The pandemic has re-emphasised this. Actively promoting product in key growth areas such as India and South-East Asia as well as taking advantage of changes in more traditional markets such as the UK (post-Brexit) and the EU are likely to be key issues. The pandemic has actually presented Australia with an opportunity to do so by indicating the country's strengths in terms of reliability and quality product compared to its rivals. Australia's export performance during the pandemic was clouded by the impacts of restocking. However, Australia's key international rivals such the United States and Argentina suffered considerably more disruption to their exports (due to the pandemic itself) than Australia. In contrast, New Zealand also performed well, while Brazil appears to have made a remarkable recovery to expand exports – perhaps capitalising on tensions in the China–Australia relationship. Overall, however, Australia's strong performance serves to accentuate the country's strengths. This is something that should be capitalised on in the post-pandemic years.

On the domestic front, the issue of future labour supply remains an important issue. While the eventual reopening of borders may see some of these pressures ease, it seems unlikely that the industry labour force structure will simply or rapidly return to its pre-pandemic "normal". It is likely that both Federal and State governments (and peak bodies) will face increased calls from industry for improved rural policy to deal with labour market issues. On a positive note, the post-pandemic period may see an increased interest in city-dwellers moving to rural areas. The industry might work with all levels of government to encourage this, to help boost long term domestic labour pools and add to the future viability of rural communities.

The strong performance of the red meat processing industry during the pandemic is remarkable. The industry was able to maintain reliable supplies to both domestic and international customers under challenging exceptionally circumstances. These included not only dealing with the pandemic within processing plants themselves but dealing with logistical and labour supply shocks. There is little doubt that the skill and flexibility with which the industry dealt with this was a contributing factor to the fact that the pandemic appears to have had only modest impacts on industry revenues.

Nonetheless, another implication of the pandemic is that it is likely that health and safety requirements will only strengthen in the post-pandemic years, adding further fixed costs and squeezing processor margins further.

All of these themes relate to a broader one – longer term industry sustainability post-pandemic and the need to prepare for such future emergencies. Australia's red meat supply chain worked well, thanks to industry flexibility, supply chain durability and corporation both between processors and (to varying extents) between processors and Federal and State governments. Nonetheless, more could always be done to prepare for future pandemics or other emergencies which might disrupt the red meat supply chain. Some processors felt that government (whether State or Federal) could be slow in developing an approach to the industry and that such responses only emerged after they had already undertaken co-operative initiatives with other processors.

Greater teamwork between all levels of government and industry and increased coordination on key issues including not only pandemic preparedness other major disasters (such as drought, climate change, export orientation and diversification) will be important into the future.

Over the longer term, we see the following as key issues emerging from the pandemic:

1. **Pandemic (and gernal disaster) preparedness –** The Australian red meat industry coped well when confronted by the pandemic. This was due to the skill, dedication, and flexibility of many in the industry and allied industries such as transport and logistics and retailers. The pandemic acted as an unforeseen industry "stress test". However, it may be unwise to rely on this combination holding for future disasters, as every such event is bound to throw up a new set of challenges. For this reason, it may be prudent for Federal and State governments and industry to pay more attention to industry disaster preparedness and resilience and to develop more formalised strategies to deal with this. This may also address issues raised such as the speed of official responses and the ad hoc nature of the response in some cases when it did occur.

2. **Relationship with China** – As indicated, Australia's relationship with China proses a long term challenge for the country as a whole. In the context of the red meat processing industry there are concerns that recent tensions (whether directly related to the pandemic or otherwise) have had repercussions on trade and are at odds with the implicit "live and let live" attitude of the past. The change in the nature of the relationship has had implications for Australia's trade with China as a whole. While there are no easy answers to the issue of maintaining an important trading relationship in the context of such tensions, there may be a need for greater clarity and communication with industry on the part of the Federal government. More broadly there may be a case for greater Federal government-industry coordination and for charting a path forward, both in the case of the red meat processing industry and across the economy as a whole.

3. **Export diversification** – Related to the above, there is a clear need to develop a future export diversification strategy but one which recognises the challenges of doing so given the size of the Chinese market and its willingness to pay high prices for the industry's product. All parties interviewed in this project recognised this and there were calls from processors, Federal government, and peak bodies for better coordination in this regard. Realistic policies which recognise the challenges, understand that there is no overnight solution and seek to promote the industry's products in key emerging markets would seem to be the best approach here. At the same time, China is likely to remain an important trading partner for the reasons above, so what is likely to emerge is "China plus" policy with diversification as a form of risk mitigation.

4. **The workforce** - Workforce issues were among those frequently cited by processors as of concern during the course of this project. The pandemic has exposed the industry's reliance on imported labour and its vulnerability to a disruption of the flow of such labour. However, beyond this, there are broader concerns about the future of the workforce and the ability of the industry to retain experienced staff and its attractiveness to domestic labour. Greater efforts on the part of Federal and State governments (perhaps through changed immigration incentives), industry (via efforts to promote the industry and/or moves toward greater automation) and peak bodies (with additional industry support) may be required to address this issue.

5. **Broader Industry and regional policy** – Beyond the workforce itself, there is a need for better industry, peak body and Federal and State government coordination and cooperation on regional policy. Issues such as efforts to boost regional economies (again through immigration but also via domestic movement) and the role of the industry within a broader regional economy are ones which are of growing concern.

2.0 INTRODUCTION

The COVID-19 pandemic has created the greatest global crisis since the Second World War. Governments, countries, and their populations have struggled to cope with the impact of the closure of vast swathes of economic activity, with major disruptions to supply chains and everyday life, while fighting a pandemic and attempting to develop a response as a path back to a normalised economy and society.

Australia's red meat industry was not spared the impact of these major global and domestic disruptions. Accordingly, the purpose of this project is to provide quantitative and qualitative estimates of the economic and policy implications of the COVID-19 pandemic on Australia's red meat processing industry.

Key issues include:

- examining the impact of the pandemic on Australia's global red meat trade;
- examining impacts of the pandemic on Australia's key export rivals;
- examining the prominence of China as a key customer for Australian red meat and, more specifically, the interaction between the pandemic, our foreign relations with China and the future of that trade;
- effects of the pandemic on Australia's domestic meat trade;
- interconnected with the above, effects of the pandemic on processors activity and the red meat supply chain during the pandemic; and
- industry and policy insights and issues arising from the experience of the pandemic.

The research undertaken for this project included both "top down" and "bottom up" modelling to ensure comprehensive analysis of the pandemic in both quantitative and qualitative terms. Top down modelling refers to the use of major statistical data sources to analyse the impacts of the pandemic on processor revenues. This aspect of the work largely draws on key national data provided by the Australian Bureau of Statistics (ABS) and Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) with supplementary data from Meat & Livestock Australia (MLA) and the Australian Meat Processor Corporation (AMPC).

Bottom up modelling refers to the use of a series of interviews with processors, Federal government and industry peak bodies conducted over the period October 2020 to January 2021.[2] These interviews yielded insights into processors' direct experience of the pandemic and the issues arising from it, as well as the views of Federal government and industry peak bodies. The top down and bottom up approaches complemented each other, allowing for a holistic analysis of the impacts of the pandemic.

As with any research, this work is not without its limitations. In particular, an obvious one is that while the most immediate shock and worst effects of the pandemic appear to be past, the pandemic is ongoing, and its full implications may take some time to play out. We have by necessity focused on the period 1 April to 30 September 2020 when the main impact of the pandemic was felt in Australia and on the red meat processing industry and sufficient data were available to undertake meaningful analysis at time of writing. Nonetheless, while the worst has hopefully past, the ongoing nature of the pandemic this means that any conclusions will be preliminary and subject to change.

2 We have tried to refer to relevant and specific levels of government (i.e. Federal or State) throughout this report wherever possible. In some cases, this is relatively straightforward – e.g. where interviews are with a particular level of government, or where it is clear that responsibilities lie within a given area of government jurisdiction, such as foreign policy for the Federal government). In other cases, where issues might be seen as relating to more than one level of government and/or in areas of joint responsibility, we have referred to "all levels of government" or "Federal and State governments." However, in other cases, no distinction is made between levels of government. This is particularly true of industry interviews, where participants typically did not specify a level of government but referred to "government" in broad terms. To such stakeholders which level of government was responsible for a given area was less relevant than the practical issue of "government" performance in general. The terminology used in such cases reflects this.

A further issue is that the pandemic occurred during a period of drought recovery and rebuilding of herds (restocking) meaning that the impacts of COVID-19 may be intermingled with that of restocking. This complicates efforts to determine the impact of the pandemic itself. We discuss how we have untangled these impacts in the text below.

It should also be noted that according to the terms of this project brief our definition of the "red meat processing industry" is limited to beef, sheep meat and goat meat. In particular, it excludes products derived from piggeries (pork and related products) and cured meats. This means that estimates of the industry presented in this study may differ from other industry estimates which include a broader range of meat products.

Finally, in terms of bottom up interviews, time and resources limited the number of interviews conducted to 12 entities. Nonetheless, on the whole, the views expressed by different interviewees were quite consistent with each other (though naturally there were differences of emphasis across institutional lines between processors, Federal government, and industry peak bodies). This lends a high degree of confidence that the experiences presented provided a good summary of the industry's experiences as a whole.

3.0 PROJECT OBJECTIVES

The project is aimed at providing quantitative and qualitative estimates of the economic and policy implications of the COVID-19 pandemic on the Australian red meat processing sector including impacts on supply chains and global trade.

The project has a number of objectives including:

1. Providing quantitative estimates of the disruption to the red meat processing supply chain
2. Providing insights into the evolving global trade, Australia-China trade and Chinese economy and its impacts on the red meat processing sector.
3. Obtaining stakeholder and industry viewpoints.
4. Mapping out policy implications based on the above.

In addition, this project also considers the impact of COVID-19 on Australia's competitors (including New Zealand). This is aimed at considering the change in the competitive landscape facing the Australian industry.

4.0 METHODOLOGY

Given its scale and complexity, the need to incorporate both qualitative and quantitative insights as well as its attempt to analyse a pandemic while it was still in progress, no single approach would have been practical to address the impacts of the COVID-19 pandemic on the red meat processing industry. Rather, "top down" and "bottom up" approaches were undertaken to capture the full scope of the work and research task. More specifically the approach involved the following:

- Top down – The top-down approach involved the collection of key industry quantitative data from a variety of sources, but with a particular focus on ABS and ABARES data given their consistency over time. The use of this time series data enabled us to get an idea on how the pandemic may have impacted on the industry relative to past trends. Other sources included Trade Data Monitor (TDM) information (for global meat trade data), MLA and AMPC data.

  These top-down data were used to obtain information on how the value (and volume) of the red meat processing industry's product changed during the period of the pandemic (and in previous years). Information on industry turnover and export sales, in particular, were used to determine how the industry's revenues were affected by the pandemic. In addition, national statistics, input-output table (I-O) and employment data (drawn from the ABS) were used to determine the ripple effects of the pandemic across the broader national economy.

  This analysis helped meet Objective 1 and some elements of Objective 2, referred to in Section 3 (Project Objectives) above.

  A fuller description of how the top-down data were used to estimate the impacts of the pandemic is provided in Section 5.5 below and in Appendix 1.

- Bottom up – Complementing the top down approach was the bottom up approach. This essentially involved undertaking a series of industry interviews with key stakeholders (processors and those in industry peak bodies and Federal government) identified by the AMPC and who agreed to participate in the project. The approach here essentially involved obtaining qualitative data on how the pandemic affected the industry's international and domestic performance, future domestic and international projects including relations with China as well as broader long-term industry issues.

  A total of 12 interviews were conducted in the period October 2020 to January 2021 (eight with processors themselves with the remaining four split between industry peak bodies and Federal government). Interviews were largely conducted by phone (although an online version of the survey was developed in Survey Monkey and made available for participants who wished to use it). We have not identified the participants in these interviews for reasons of confidentiality but have provided the essence of their commentary and the key findings of the interviews in the report below. This element of the work helps meet parts of Objective 2 as well as Objectives 3 and 4 of the study.[3]

  A copy of the qualitative survey form used is provided in Appendix 3.

These approaches were complementary to each other. The combination of these approaches allowed for the effective analysis of the impacts of the COVID-19 pandemic on the red meat processing industry. The top-down analysis was obviously key to establishing the quantitative impacts of the pandemic on the industry and the ripple effects of this across the economy. However, raw figures by themselves lack context and interpretive meaning. Accordingly, the bottom up analysis was a way of determining the thoughts and perceptions of the industry about the impact of the pandemic and identifying key issues, along with suggestions about which policy directions might be worth pursuing.

3 A quantitative questionnaire was also developed for the bottom-up respondents but, as expected, this was not completed by most due to reasons of confidentiality. We anticipated this issue, which was why the top down/bottom-up approach was chosen as a way of dealing with such information gaps.

This approach proved highly effective. As indicated below, the consistency of both the quantitative and qualitative data in presenting a story about the pandemic is notable.

As indicated in the introduction, the definition of the "red meat processing industry" for this report, as agreed with the AMPC, includes the following categories of red meat:

- Beef
- Sheep meat
- Goat meat

Accordingly, cured meats, pork and buffalo meat are excluded from this analysis.

In addition, for analytical purposes, unless otherwise specified in this report, the period referred to as "the COVID-19 pandemic" or "the pandemic" was categorized as covering the June and September quarters of 2020 (i.e. from 1 April 2020 to 30 September 2020). While the pandemic technically started before this (Australia activated the Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19) on 27 February 2020, and the first restrictive measures began to be implemented by the States and Territories from mid-March 2020) and obviously continues on after it, this period effectively encapsulated the initial social and economic shock of dealing with (and adjusting to) a major pandemic for the first time in a century[4]. It also covers key internal events such as the second major lockdown in Victoria (roughly over the period 30 June to 19 October 2020) which saw the highest relative impacts (in both Victoria and Australia as a whole) in terms of infections and deaths as well as the restriction of Victorian abattoir workforces to two-thirds capacity (from 10 August to 28th September 2020).[5]. With Australia generally able to control the pandemic better than many other countries across the world, the marginal effects of COVID-19 in the period since September 2020 have also generally been much more modest.

Moreover, while they spanned two different financial years, the use of two financial quarters worth of data allows for consistency with data releases from standard economic reporting agencies such as the ABS and ABARES.

Finally, given the need for publication dates in early 2021 and the time lag in gathering comprehensive statistics, defining this period allowed for the maximum possible amount of data common to one time period to be assessed at the time of writing.

4 "Timeline of COVID-19 in Australia: the first year" https://deborahalupton.medium.com/timeline-of-covid-19-in-australia-1f7df6ca5f23

5 Lockdowns were reinstated at ten Melbourne postcodes on 30 June 2020 and were gradually extended across the State before their easing on 19th October- see "Timeline of COVID-19 in Australia: the first year" https://deborahalupton.medium.com/timeline-of-covid-19-in-australia-1f7df6ca5f23 . Victorian abattoir restrictions were eased to 90% of capacity in regional areas and 80% in Melbourne on 28th September 2020 although restrictions were not fully removed until 9th November 2020 – see ABC News, "What one-third reduction in Victorian meat plants during Coronavirus lockdown means for supermarkets", 6, August 2020, https://www.abc.net.au/news/2020-08-06/what-does-cut-in-victoria-abattoirs-output-mean-for-supermarkets/12530570 and Beef Central, "Restrictions eased for Vic meat processors" 28 September 2020 https://www.beefcentral.com/processing/restrictions-eased-for-vic-meat-processors/ and "Victoria removes workforce level restrictions for meat processors" 9th November 2020 https://www.beefcentral.com/processing/victoria-removes-workforce-level-restrictions-on-meat-processors/ . For pandemic infections and deaths see COVID Live, https://covidlive.com.au/

5.0 PROJECT OUTCOMES

As indicated, this project had a number of objectives. We have provided an indication of project outcomes under several key categories, below, namely:

- International impacts
- Effects on competitors
- Domestic impacts
- Quantitative effects

5.1 Impacts on Australia's international trade

COVID-19 has had a devastating impact on the global economy. The pandemic has proven the biggest single global challenge since the end of the Second World War. Various pandemic waves have seen large parts of the global economy shut down. Demand for many commodities has either plunged or exhibited a see-saw pattern, meaning that global markets have faced a rolling set of supply and demand shocks. Supply chains have been disrupted. Global travel faces a crisis. Whole populations have been faced with drastic changes to their ways of living and working, with attendant impacts on physical and mental health.

BIS Oxford Economics estimates indicate that global GDP fell by 3.7% in calendar year (CY) 2020, measured in US dollars and at constant prices - though we expect that CY 2021 will see a recovery with growth of 5.6%.

Despite the grim global picture Australia has fared relatively well during the crisis. While not without its problems, a shutdown of Australia's borders coupled with its quarantine regulations limited the pandemic's spread, while lockdowns at the State and local levels have also proven effective in minimizing impacts relative to the rest of the world.

BIS Oxford Economics estimates indicate that while Australian GDP contracted by 2.4% in CY 2020 (measured in US dollars and constant prices) CY 2021 will see growth of 3.5%.

However, just as populations are made up of individual people with their own experiences, so too are economies made up of both people and industries. The broader picture though does not tell the story of the challenges faced by a given industry.

With international markets accounting for some 78% of Australia's red meat processing revenues in financial year (FY) 2018-19, the impact of the COVID-19 pandemic on this trade is obviously critical to an understanding of the pandemic's impacts as a whole.[6]

The following section includes a discussion on the nature of Australia's red meat export trade.

5.1.1 Australia's red meat exports

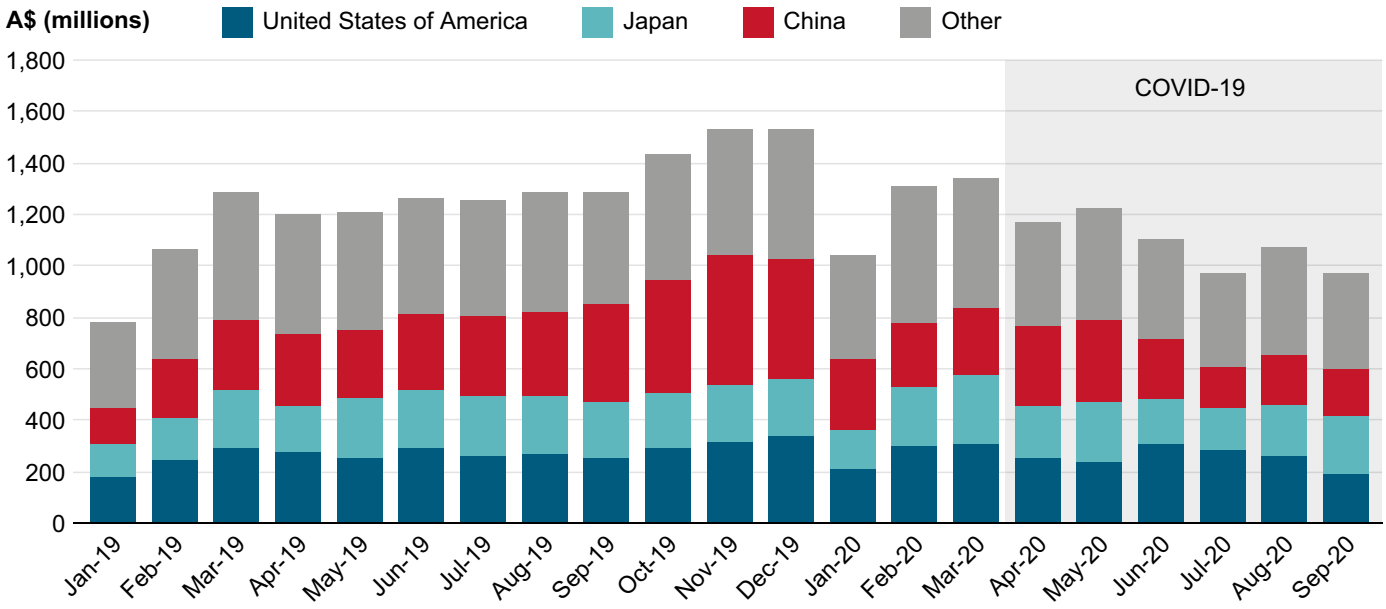
Australia exported $15.1 billion worth of red meat in calendar year (CY) 2019 (or an estimated $14.4 billion in financial year (FY) 2018-19), with the top four export destinations – China ($3.9b), United States ($3.3b), Japan ($2.5b) and South Korea ($1.6b) – accounting for just under three-quarters of the total. China alone therefore accounted for nearly 26% of Australian red meat exports in 2019.[7]

The next largest destination was Indonesia ($410m), however this market is characterised by relatively lower value products. The remaining 92 destinations each averaged $37.5 million of Australian red meat exports.

6 Based on BIS Oxford Economics estimates, ABS, 2020 Customised export data ; ABS, 2020 *Livestock Products Australia* September 2020, ABS, 2020, *Australian Industry 2018-19*. We estimate red meat (beef, sheep meat, goat meat) processor gross revenues at $18.4 billion during, 2018-19 with exports accounting for $14.4 billion.

7 All prices are in Australian dollars. Note proportions may vary somewhat from year to year and period to period as on a 2018-19 financial year basis, China accounted for some 18.7% of Australian red meat exports.

Chart 1: Australia red meat exports by month by destination, value



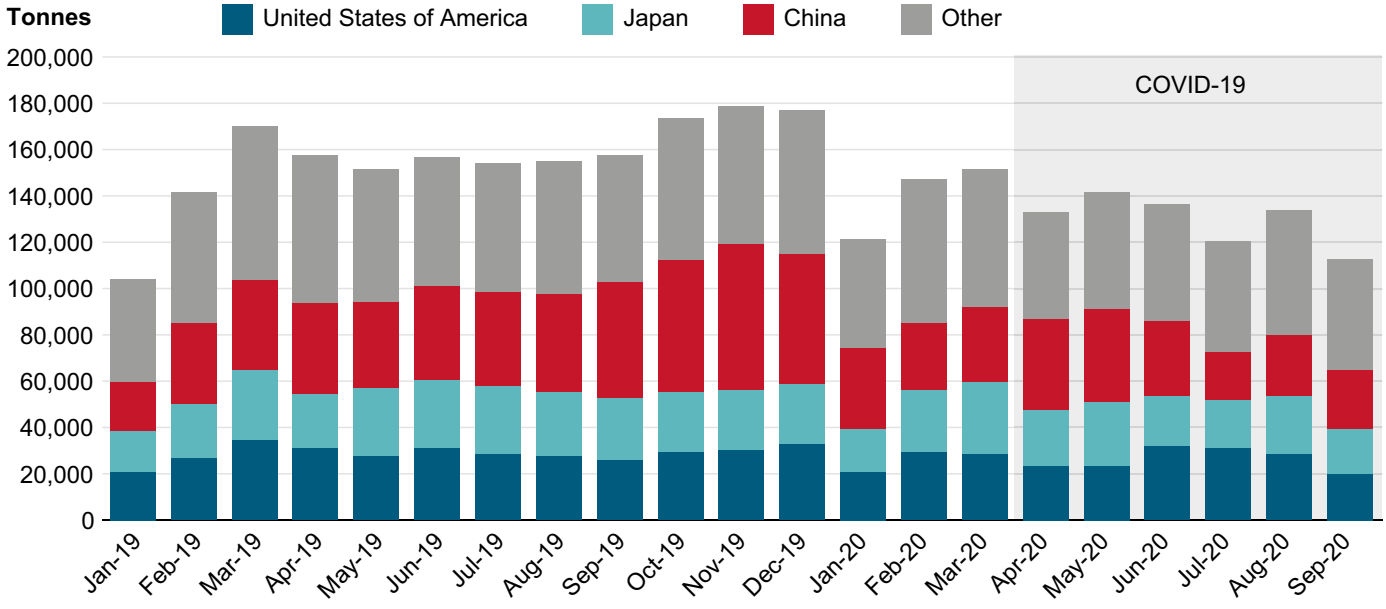
Source: ABS 2021

In terms of volume, 2019 saw 1,874,400 tonnes of red meat exported from Australia, with top three export destinations – China (524,300 tonnes), the US (349,700 tonnes) and Japan (310,800 tonnes) – accounting for 63% of the total.

Australian red meat exports from June 2020 onwards were lower each month compared to the previous corresponding period, with most major export destinations contributing to the declines. This coincides with Chinese bans on certain Australian abattoirs since May, with Chinese exports accounting for a significant portion of the fall. However, the impact of the pandemic obviously also had broader effects, with other key export markets including the United States and Japan also receiving fewer Australian red meat exports, as did the balance of export markets overall.

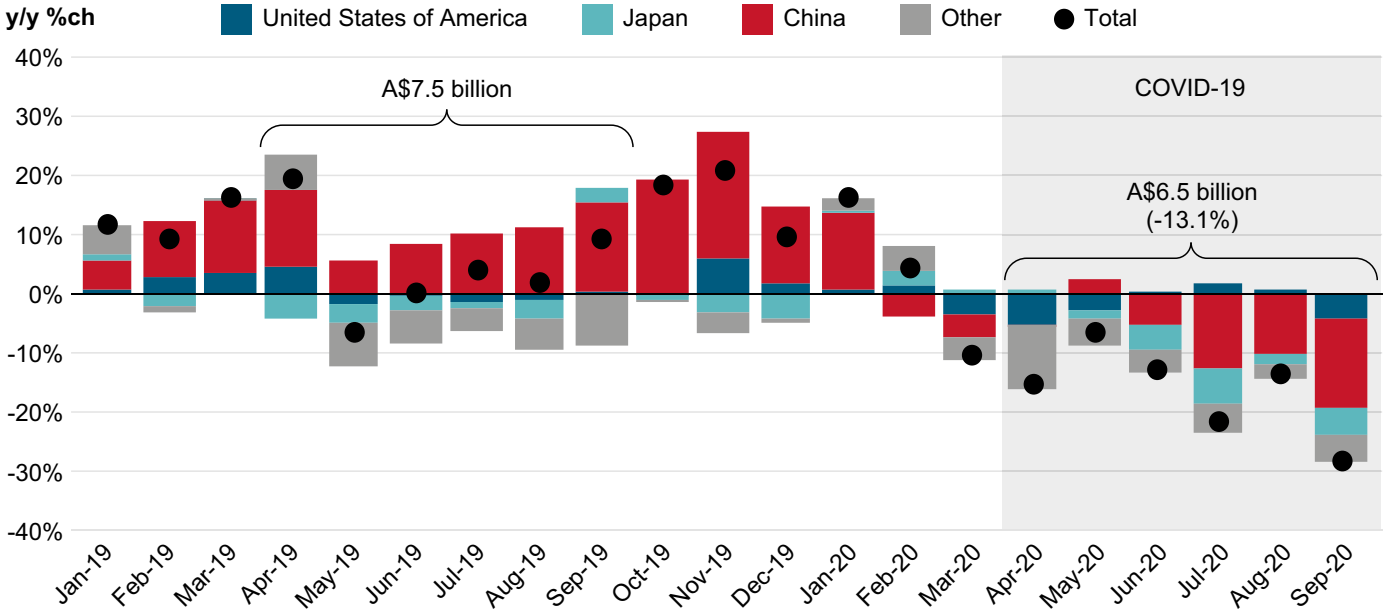
Overall Australian exports dropped some 13.1% in the period April-September 2020 compared to the preceding year, although as indicated below, much of this is likely to have been due to the impact of drought recovery and restocking rather than the COVID-19 pandemic itself.

Chart 2: Australia red meat exports by month by destination, volume



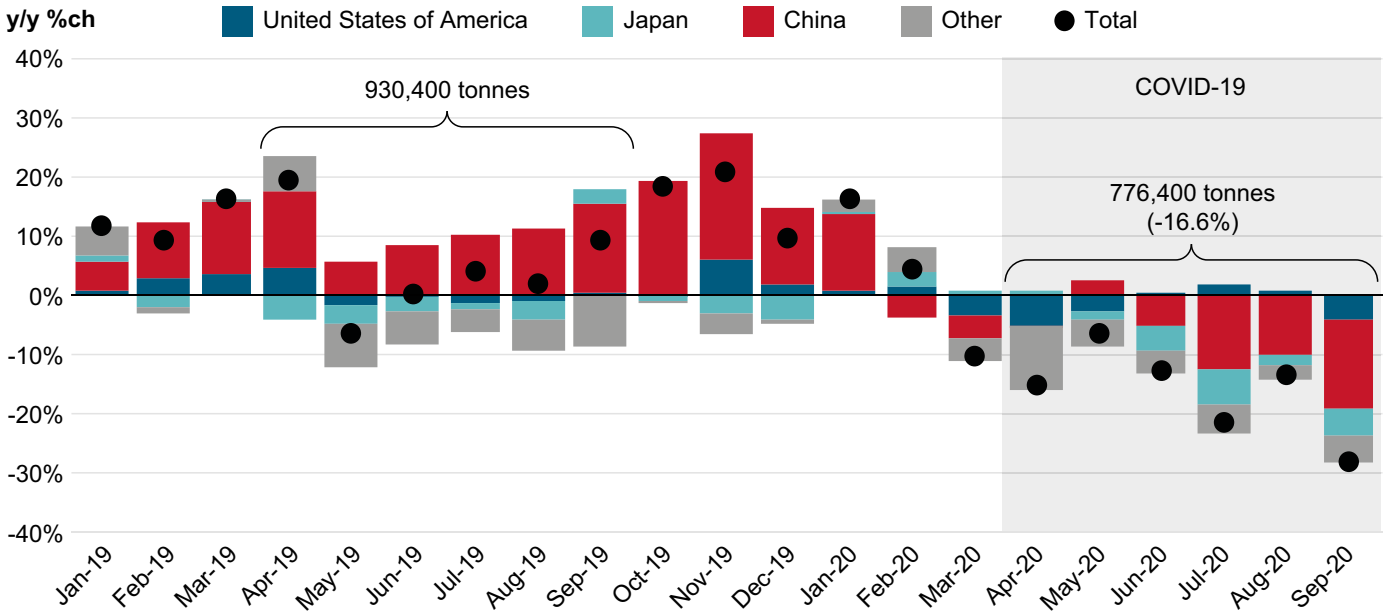
Source: ABS 2021

Chart 3: Australia red meat exports by month by destination, value, year on year change[8]



Source: ABS 2021

Chart 4: Australia red meat exports by month by destination, volume, year on year change



Source: ABS 2021

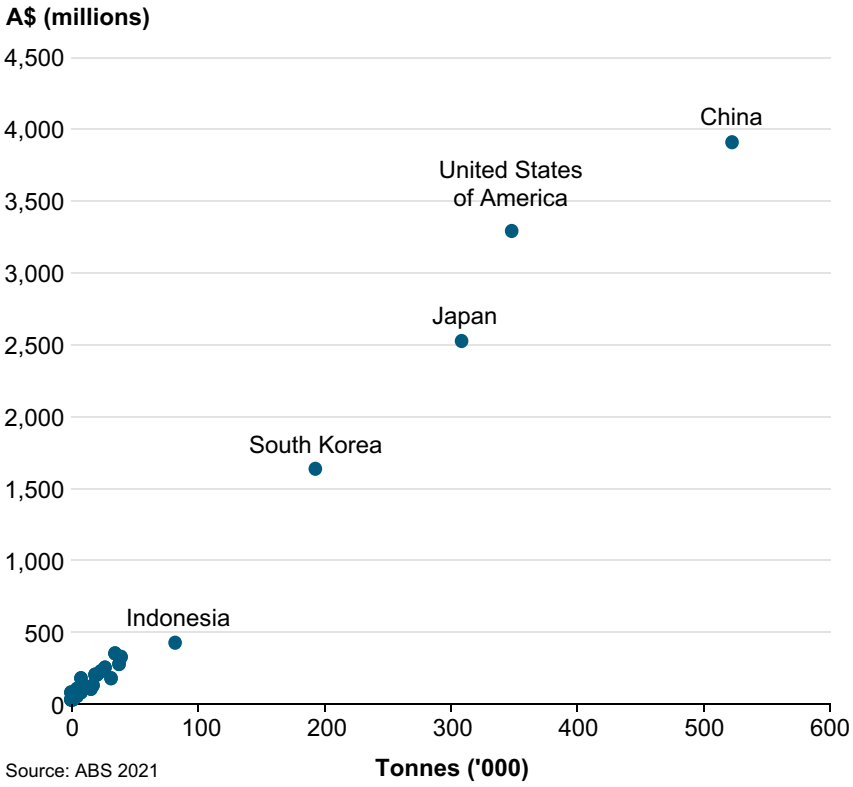
The relationship between Australian export volumes and value in CY19 is also of interest and can be plotted below. This can be used to determine the value per tonne of exports. China's willingness to pay relatively high amounts per tonne (for an emerging market) may be difficult to replicate in other emerging markets such as Indonesia, which may pose challenges for export diversification (as discussed below).

8 Here, each bar represents the change in export value from the major recipient markets relative to the same month in the preceding year. The "total" marker indicates the summation of the changes in major market value.

As there may be differences between financial and calendar year results, it is also worth considering longer term trends on a financial year basis. In addition, the broader pattern and product split of Australia's broader international red meat trade is also of interest.

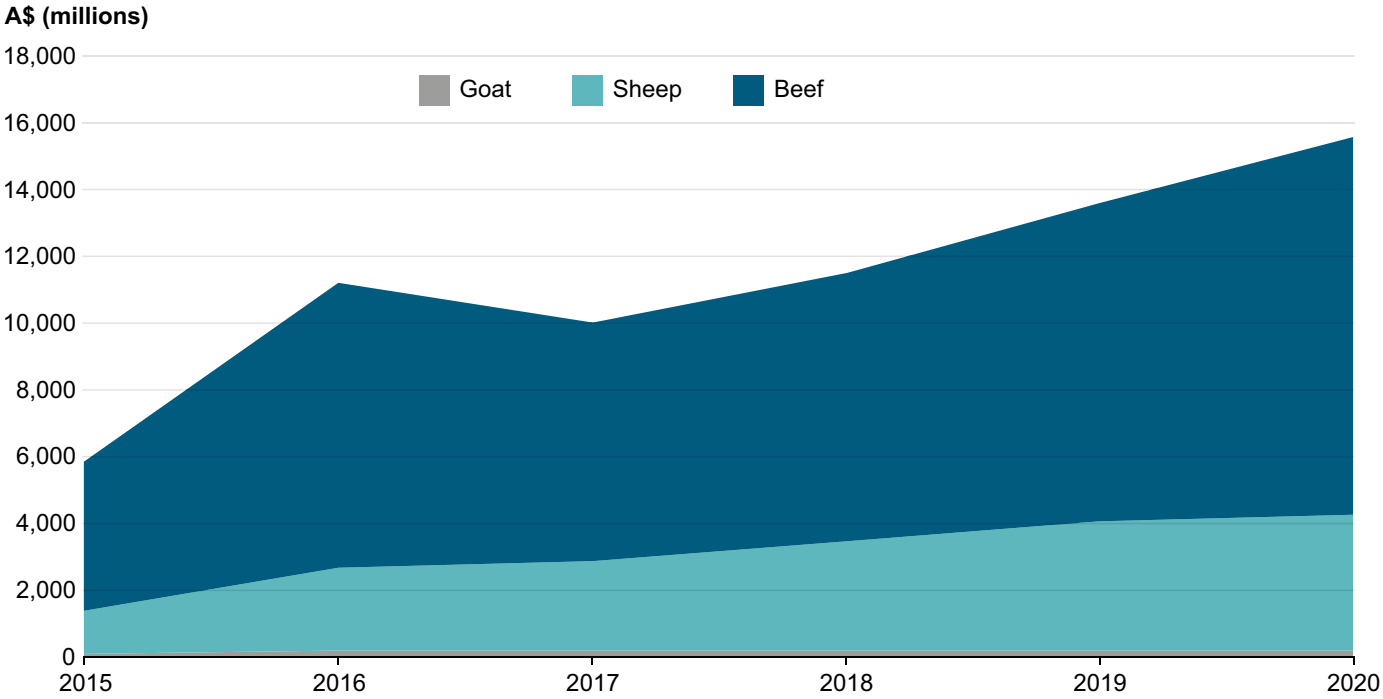
While beef was Australia's dominant red meat export (at 77% of total export value), sheep meat makes up a substantial chunk (21%) and goat meat has a minor presence (~1%). While beef exports have seen strong growth in recent years, growth in other forms of meat products has been more subdued.

Chart 5: Australia red meat exports destination by value and volume, CY 2019



Source: ABS 2021

Chart 6: Australia red meat exports value by year by meat type



Source: ABS 2021

A selection of key export markets and values in each of the three red meat products covered by this study is also indicated below.

Table 1: Top 5 Australian beef export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	451	867	747	1,005	1,752	2,839
Japan	897	1,813	1,910	2,116	2,304	2,422
United States of America	1,605	2,488	1,494	1,708	1,934	2,319
South Korea	550	1,324	1,228	1,176	1,500	1,463
Indonesia	110	315	292	325	322	415

Source: ABS 2021

Table 2: Top 5 Australian sheep meat export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	139	230	298	562	863	1,234
United States of America	318	711	722	750	931	886
United Arab Emirates	97	198	215	219	236	233
Malaysia	65	116	129	160	172	187
Qatar	50	112	121	115	184	178

Source: ABS 2021

Table 3: Top 5 Australian goat meat export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
United States of America	75	155	182	146	124	147
Taiwan	10	15	23	21	11	17
South Korea	7	11	15	17	10	15
Canada	5	10	10	14	8	13
Trinidad and Tobago	5	9	12	12	8	11

Source: ABS 2021

5.1.2 Australia and China

Australia's trade and political relationship with China obviously looms large over red meat exports. As indicated China accounted for some 25.8% of Australia's red meat exports in CY 2019, accounting for $3.9 billion in export revenues that year.

The complexities of this relationship have been made more acute by recent tensions in the relationship and by the pandemic itself. China is a global economic giant and Australia's largest single trading partner, both in terms of overall exports and with respect to the red meat processing industry's export revenues.

Indeed, since China's ascension to the WTO in 2001, trade linkages between Australia and China have increased significantly. BIS Oxford Economics analysis indicates that in 2019, exports of goods and services made up 22% of Australia's GDP. Of these, around a third went to China, representing 7% of GDP.

The difficulties of managing a relationship in which a rising power with a starkly different political system is a major trading partner have been noted by Australian policymakers and commentators for several years prior to the pandemic. Changes in Chinese domestic and foreign policy under Xi Jinping coupled with the tensions unleashed by the pandemic have seen some of these concerns gain added prominence.

BIS Oxford Economics estimates that China's economy grew by 2.3% in CY 2020 – a remarkable feat in a world undergoing the COVID-19 pandemic. Growth for CY 2021 is projected to be 8.9% against global growth of 5.6%. China is set to be a major global force and economic powerhouse throughout the 21st century and this will have profound effects on Australia's trade and geopolitical relationships.

Trade tensions between China and Australia have been escalating since May. Through to the end of 2020, China has:

- Banned Australian beef imports from four of the country's largest abattoirs, and a further four smaller abattoirs.
- Imposed an 80.5% tariff on Australian barley and suspended imports from two of the largest Australian producers.
- Required stricter inspections of grains and seafood.
- Halted timber imports from Queensland.
- Discouraged firms from purchasing Australian wine, coal and cotton, before ultimately banning Australian coal in mid-December.

A variety of official explanations for these actions have been put forward, such as suspected dumping by Australian exporters, inadequate labelling of goods, and pests/biohazards found in rural goods. In some of these cases, trade tensions have been simmering for quite some time.[9] China's actions are in the context of Australia having raised dozens of anti-dumping cases against China with the WTO since 2001. However, the imposition of trade sanctions by China has coincided with an increase in diplomatic tensions around a range of issues including the Australian government's calls for an inquiry into the origins of COVID-19. The exclusion of Chinese state enterprise Huawei from Australia's 5G network rollout is another source of tension.

It is worth noting that the current tensions do not represent a wholesale dismantling of the trade relationship. Indeed, both countries are signatories to the Regional Comprehensive Economic Partnership signed in mid-November 2020 by 16 countries in the Asia-Pacific region. But given the dominance of China as a source destination for many goods, the import restrictions are a significant source of uncertainty for exports.

9 Beijing announced an investigation into subsidies received by Australian farmers in November 2018 and import duties placed on Chinese steel have been a sore point in the relationship for some time.

Thus far, China's import restrictions have been placed on goods and services that are not crucial to heavy industry, where an alternative source can be substituted relatively easily. As such, primary industries excluding mining in Australia face the largest downside risks. China accounts for 15-20% of Australian food and livestock exports overall, with this share much higher for selected commodities. Some producers in these markets are facing a very uncertain outlook and will be looking to pivot to different export markets in the near term; implementing this shift is likely to reduce revenues, at least temporarily. But these products make up a small share of Australian exports, and a further deterioration in conditions would have only a small impact on the overall export outlook. In any event, the situation in the red meat industry itself is somewhat more positive than is the case for other industries reliant on primary goods, as discussed below.

Mining exports make up a much larger share of Australia's export basket, with the outlook here remaining positive. Chinese imports have recovered robustly, with the government's stimulus of the economy (via infrastructure spending and looser lending conditions, which benefit real estate construction) following the pandemic driving increases in demand and price. Reinforcing the positive outlook for mining exports is the fact that China relies on Australia for the key inputs to steel manufacturing far more than it does for rural goods. Restrictions placed on Australian coal imports are quite opaque, and export volumes continued to increase through 2020. It is also notable that restrictions have not yet occurred in the case of some commodities such as iron ore.

The outlook for the immediate term remains unclear. Given that trade tensions are far from resolved, trade barriers could be in place for quite some time and may broaden to include other goods.

Trade disruptions are not confined to goods exports; the Chinese government has been discouraging tourists and students from travelling to Australia. The impact of these warnings is difficult to gauge as international border closures have closed down these trade channels already. But the lasting impact of these warnings, or ongoing discouragement will shape the recovery for services exports. Again, China has emerged as a crucial export market for Australia, although the reliance on China is not as great as some goods exports. And in recent years, other markets have seen stronger growth, suggesting that these sectors could pivot relatively easily to other sources of demand.

More broadly, whether or not these measures were simply a manifestation of economic power or intermingled with genuine concerns, the importance of these actions to Australia's agricultural and mineral commodities trades is undeniable. China has shown it is willing to endure some measure of pain through the loss of Australian imports, presumably based on the assumption that rival sources are available elsewhere and that any limitation of imports will hurt Australia (as the far smaller economy) more than China itself.

Turning to the red meat trade specifically, while it was an early victim of these actions three additional facts are important to note:

- The significance of actions to date in terms of the overall trade relationship was relatively small, with only eight meat processing facilities affected, albeit some major ones.
- While it is tempting to argue that these actions were undertaken for political reasons, it may be that at least the perception of health and safety issues during the pandemic could have played some role.
- BIS Oxford Economics has developed a "vulnerability index" to measure the susceptibility of Australian exports to Chinese import restrictions. Meat products (broadly defined) score -1.9 on this index with 0 being a baseline and a positive result indicating greater vulnerability.[10] This indicates that China's ability to temper Australian meat exports is somewhat limited and that exporters could potentially find new markets.[11] (This is in contrast to other industries reliant on primary goods such as seafood and cereals, which record positive vulnerability scores of +1.7-and +2.5 respectively.) As discussed elsewhere in this report, export diversification is likely to be an important issue, though it will face a number of challenges in practice.

10 BIS Oxford Economics, 25 January 2021: *Research Briefing: How vulnerable are exporters to Chinese trade sanctions*?

11 Though, as noted below, there may have been some recent substitution of Australian red meat product by increased Chinese importation from Brazil.

In short, while China has flexed its economic and political muscles in respect to Australia over the past year, the material effects on the red meat trade to date have been modest and an objective assessment of the reasonableness of the actions is difficult given the complexities associated with health concerns and the pandemic itself. Nonetheless, the exercise of this power has underlined concerns among Australian meat processers (and policymakers) about the reliance on trade with China going forward.

The interaction between Australia's relationship with China and the broader international implications of the pandemic on the red meat trade are further discussed below.

5.1.3 Quantification and broader issues

More broadly, and regardless of the reasons, the pandemic, its accompanying trade and geopolitical strains raised a number of concerns about Australia's red meat trade, which relate back to the objectives of this report. Key issues include:

- How Australia's red meat export trade was affected by the pandemic.
- The extent to which Australia's relationship with China has and will affect the red meat trade in the short and long term.
- What the broader and longer-term implications of the pandemic are for Australia's international red meat export trade.

In terms of the first of these issues, estimates undertaken by BIS Oxford Economics (and detailed in Section 5.5 below and Appendix 1) indicate that actual total red meat processing revenues (exports and domestic combined) during the six-month period 1 April - 30 September 2020, were some $929 million below what might have been expected (based on four year trend data).

However, these are raw figures and could be seen as an upper-level estimate of the impacts of COVID-19 on industry revenues, had no other factors been in play. Adjusting for the likely effects of other factors (most notably restocking and drought recovery) suggests that total industry revenue losses due to the pandemic itself were some $326 million. Allocating 78% of this total to exports (the proportion of exports to total industry revenue in 2018-19) indicates a total export loss of $256 million over the six months April to September 2020 inclusive.

When compared to expected exports of approximately $8.2 billion over the period 1 April to 30 September 2020 (based on trend data, assuming the pandemic and restocking never occurred), this equates to a loss of some 3.1% of expected revenues.

A more detailed discussion of the approach to delineating the impacts of COVID-19 from those of restocking is described in Section 5.5 below and in Appendix 1.

These noticeable, but relatively modest, impacts are consistent with some of the evidence from interviews, discussed below. Indeed, the consistency with which interviewees expressed this view was striking. This is particularly notable given that all interviews were conducted individually, with interviewees having no knowledge of the answers of others. Faced with enormous logistical, health and economic challenges, Australia's international red meat supply chain appears to have held up remarkably well during the pandemic. Likewise, impacts on international demand for Australia's products appear to be modest.

In short, both supply and demand impacts appear to have had only a modest effect on Australia's red meat export trade during the pandemic. While the pandemic has obviously continued beyond 30 September 2020, at the time of writing there appears to be no reason to alter this conclusion.

The second and third of these questions are discussed in more detail in the section dealing with qualitative interview results below. However, there are some hints in the quantitative data that China's actions have had some effects on its red meat trade with Australia in the short term.

As indicated, it is difficult to untangle the effects of restocking from that of the pandemic and, in the case of Chinese trade, restrictive measures taken against Australian processors. However, as indicated in Appendix 2, while Chinese imports of red meat products overall rose during the period April – September 2020 by 15% (compared to the same period in 2019), they fell by 23% for Australia and 10% for New Zealand. While Australian restocking may explain (some of) the difference between the Australian, and New Zealand results, import restrictions on Australian red meat products were obviously likely to have played some role. In effect Chinese restrictions would be expected to reduce Australia's exports to the country above and beyond "normal" COVID impacts. Moreover, as indicated in Section 5.2, there appears to have been some import substitution on China's part to Brazil. This may indicate a longer term shift away from Australian processors, but that is speculative at this stage.

5.1.4 Qualitative interviews

As indicated above, we undertook a series of qualitative interviews with meat processors as well as key industry and Federal government stakeholders to obtain their views on the impact of the pandemic. Respondent views were sought on both international and domestic impacts. A total of 12 interviews were conducted, including four split between Federal government and business peak bodies along with eight processors from across the country.

As indicated, we have preserved the anonymity of our respondents and have not referred to the views of specific organizations. Rather we have summarized the key findings of these interviews in respect of the international markets below. A copy of the questionnaire used for the interviews is provided in Appendix 3.

Also note that the views expressed by interviewees, reported below, are not necessarily the views of BIS Oxford Economics. Rather the points below represent a summary of anonymised interviewee feedback to the selected questions put to them.

We have however used these to suggest matters worthy of further consideration in our conclusions, given the issues raised by interviewees.

The discussion of key issues yielded the following findings:

Impact of pandemic on Australia's global meat trade

- Some respondents pointed to sizable supply disruptions as early as mid-February, given that the pandemic really began to make its national effects felt on Australia's major international meat purchaser (China) at this time. A number noted that international food services purchases (i.e., restaurants and cafes, cruise ships etc.) took a large hit early in the pandemic, while direct consumer demand from retailers such as supermarkets and, increasingly, online demand grew strongly. The role of "fear" (resulting in panic buying of traditional goods such as meat, which stripped supermarket shelves) and a consequent surge in home cooking drove a surge in demand from consumers both overseas and in Australia.

- The result was wild swings in demand from different sectors (roughly during February – June 2020 internationally and March-May 2020 domestically), as reported by several interviewees, although in Australia's case, these appeared to settle down somewhat by roughly late May 2020. It should be noted however that in revenue terms this may not be a simple offsetting effect between exports and domestic demand, as people tend to spend more on food service providers when they are travelling then they do on domestic purchases in supermarkets.
- Home delivery also offered one way for (international and domestic) restaurants to cope in some cases and, after an initial wave of shutdowns, this also helped with a pickup in sales. Some suggested that there might also be a permanent shift of some elements of the restaurant trade to home delivery as a result of the pandemic.
- While the recovery of the services trade proceeded in fits and starts (depending on the status of lockdowns in various countries) some interviewees reported that demand for prime cuts (often favoured by hotels restaurants) remained subdued, affecting margins.
- Consistent with the above was the observation that the pandemic had more impact on frozen meat exports as opposed to chilled ones. The frozen trade is the one typically heavily utilised by service establishments (restaurants, cafes, cruise ships), whereas chilled meats are typically favoured by individual consumers. These effects echoed those reported for domestic meat purchases in Australia. Some interviewees noted that even with a gradual abatement of the pandemic, consumers in foreign countries particularly the US and Europe, could be wary of eating out and that there would be a need to accommodate a medium to longer term shift to retail.
- Overall, however, once the initial shock and fear of the early stages of the pandemic abated somewhat, interviewees noted that international markets stabilized and that Australian exports held up (relatively) well in terms of adjusting to COVID-19 itself, though as noted the separate factor of restocking had significant effects. Isolated incidents of COVID-19 outbreaks in some plants aside, the general perception of Australia as a quality and safe supplier of red meat product, particularly compared to our rivals, and the basic fact that Australia handled the pandemic relatively well obviously helped ensure this. Likewise, interviewees indicated that although widely noted, disputes with China over health or other issues appear to have had only modest effects on the overall red meat export trade.
- Part of the credit also goes to work by processors to implement COVID-safe workplaces. The use of Personal Protective Equipment (PPE), extensive sanitary efforts, adoption of e-certification, the care taken to ensure employees physical and mental health issues were addressed, development of "COVID-leave" and other initiatives were rolled out relatively rapidly. This was also seen to play an important role in establishing international confidence in Australia as a reliable supplier particularly compared to facilities in North American and the EU.
- Overall, the industry showed a remarkable degree of flexibility in adapting to the pandemic and implementing new measures in cooperation with Federal and State governments. As one peak body noted, things could have been much worse had this not occurred.
- Although the international supply chain functioned well in Australia's case, there were some disruptions and logistical struggles for a time. One interviewee noted that early in the pandemic there were difficulties in getting specialized chilled containers at ports, used for export. In addition, some produce that was in transit or at docks during the early period of the pandemic spoiled due to the cancelation of orders and/or the shutdown of freezing facilities. Others noted difficulties in getting imported supplies to shipping disruptions. Some pointed to shutdowns affecting trucking companies meaning produce arrived spoilt. Still others pointed to disruptions in air freight for chilled product. A sharply decreased number of flights combined with a rapid increase in prices resulted in a clear swing away from air freight.
- However, the pandemic had relatively harsher impacts on Victoria due to a combination of outbreaks at processing plants, longer State government-imposed lockdowns and eventual workplace employee constraints noted above. Interviewees did note that a greater degree of disruption was experienced there than in other parts of the country.

- Another longer-term trend noted by some was the (likely) rise of online sales of red meat. Whereas some interviewees cited online sales as accounting for less than 10% of total pre-pandemic red meat sales in jurisdictions such as the US (and Australia) they suggested that the shock of the pandemic had already seen a rise in willingness to use online means with close to one-third of Australian consumers indicating that they were willing to make purchases using such mediums in the future.[12]
- A parallel change that may prove enduring was a switch by international consumers to safer purchasing channels – such as an (unsurprising) change away from wet markets and towards supermarkets.
- Health and safety requirements were also issues faced by processors. Increasingly stringent government requirements to be COVID-safe have had impacts on the operating costs of some processors. While some of these will be one-off costs, it is likely that health and safety requirements will be more stringent going into the future.
- Combined with the rising cost of stock (see below) this meant that quite apart from revenues, some processors faced squeezed margins and falling profitability during the pandemic. Although the pandemic, and reduced production due to restocking led to reduced employment in some areas, longer term difficulties in finding experienced labour (particularly given the closure of borders and the cutting of immigrant laborers) along with relatively high labour costs in some cases also compounded processor problems. Not all processors simply laid off workers in response to the pandemic or restocking effects. Fear of losing an experienced workforce has also caused some processors to operate certain plants at a loss for the time being to ensure the longer-term retention of skilled staff.

International relations, the role of China and diversification

- A number of respondents noted the intermingled problems of the pandemic, growing tension in Australia-Chinese relations and the future of the export trade.
- Some suggested that the handling of the China relationship has been poor. Over the past 30 years it had been accepted that we could be trading partners even if our values did not align. This stance appears to have been abandoned though with rising political tensions, some of which may have been due to Australia's call for an investigation into the origins of COVID-19 and China's response. Apart from the issue of politicizing the pandemic, there was a perception that the broader shift in tone signalled a move away from the accepted status quo. This could obviously impact the red meat export trade as well as Australia's overall trade relationship with China in the longer term.
- There were also concerns that holding China to account could be a strategic misstep given the asymmetry in power between the two countries. For example, it was pointed out that the US did not suffer a fate similar to the targeting of Australian industries, despite rising tensions.
- Others pointed to New Zealand's careful management and diplomatic management of its relationship with China as a better example for Australia to follow. Although it was noted that New Zealand is highly export focussed and also very dependent on their red meat trade with China.

12 While it does not provide detailed breakdowns for red meat products, ABS data indicates that the proportion of Australian food purchases online rose from 2.8% of all food purchases in December 2019 to 4.5% of food purchases in December 2020, having reached 5.8% of all food purchases in August 2020. These data also indicate that while online food purchases were some 69% higher during the period April- September 2020 then in the equivalent period for the previous year. This compares with rises of 22% for the equivalent period in 2019 vs. 2018 and 31%-32% for the equivalent periods in the preceding two years (i.e. 2018 vs 2017 and 2017 vs 2016). This suggests that while the pandemic produced a spike in online demand, it may have accelerated a longer term online purchasing trend, although precise figures for red meat sales are not available. See ABS, 5/2/2021 *Online Sales December 2020 – Supplementary COVID-19 analysis* at https://www.abs.gov.au/articles/online-sales-december-2020-supplementary-covid-19-analysis#food-and-non-food

- Apart from sheer size, it was pointed out that part of the reason for China's attraction to red meat exporters is the country's greater willingness to pay for Australian product. For example, one interviewee indicated that China is prepared to pay 15% above market rate for mutton with others suggesting China pays 10%-20% on average above market rates for red meat products. Others pointed to major price differentials between China and domestic Australian prices for beef and products such as lamb flaps. For example, prices of $7/kilo for lamb flaps exports to China against $2/kilo on the domestic market. Chinese demand for products such as bone and fat by-products could not easily be replicated in other markets.
- In addition, Chinese purchasers (and more particular Chinese cuisine) make use of the industry's product in a diverse number of ways that other markets do not. This means that - were access to Chinese markets to be lost – this could not simply be made up for in other markets. Attempts to move trade away from China to other markets (such as India) would need to keep this in mind. In addition, while trade with India is hampered by factors such as high duties on sheep imports. China's rising middle class and the country's growing demand for protein also make it a difficult market to simply turn away from over the longer term.
- Accordingly, while policymakers may have growing concerns about reliance on Chinese imports for Australia's red meat trade, diversification may be a difficult and long-term process, given the lower returns that other markets could offer. Some respondents pointed out that Australian exports are already diversified, with Australia exporting red meat to a large number of countries. The real question is which ones have high enough incomes to pay for what can be an expensive Australian import. The EU, UK, Singapore, Hong Kong, Canada along with traditional markets such as South Korea and Japan remain prime targets.
- Some respondents indicated that if the Federal government wanted to encourage diversification then it could be more proactive in doing so. This includes pushing for the removal of non-tariff barriers in general, particularly with potential growth countries such as Indonesia and Malaysia.
- Another issue with export diversification (and even growing exports to China) pointed to by interviewees was herd limits. It was noted that Australia's cattle herd has never exceeded 30 million head.[13] With a limited amount of grazing land, this means the country can never match the scale of export markets such as the US. Accordingly, Australia can "go deep" or "go wide" but not both. Moreover, "another Korea or Japan" is not going to materialize. Attempts to increase penetration in other markets such as Taiwan are hampered by the lack of a Free trade Agreement (FTA) while only limited progress has been made in talks with the UK and EU. Nonetheless, markets such as the EU offer some potential, with Australian meat being seen as of superior quality to their local varieties, while current quotas restrict imports. Given that market's willingness to pay on a par with China for some product, the relaxation of quotas offers some potential for Australian processors. Other markets such as the US also offer some potential. US domestic cattle stock tends to be corn fed, whereas Australian is grass fed offering some potential differentiation for Australian imports there.
- Interviewees nevertheless saw some potential for future growth in markets which are not as well acquainted with mutton and lamb such as Indonesia, Korea and China itself. In addition, there may be some opportunity for positioning of premium priced products in markets such as Japan and Korea.

13 See also ABARES (2021) *Agricultural forecasts and outlook, March quarter 2021*. Beef cattle numbers are cited as 22.4 million in 2018-19, falling to 21.1 million in 2019-20 and only reaching 22.3 million by 2025-26.

Australia's competitors

- Interviewees indicated that some of Australia's rivals were much harder hit by the pandemic, with the US and Brazil cited as being especially affected. Australia's international competitors faced more extreme challenges due to the much larger impact of the pandemic on their domestic meat processing facilities and with temporary difficulties. Interviewees reported substantial disruptions to the international and domestic trade of competitors such as the US and Brazil, due both to the larger effects of the pandemic on meat processing facilities in these countries, the difficulty of ensuring a stable workforce (particularly in the US) and its greater effect on society overall. For example, at one point, the Wendy's food chain in the US, which prides itself on using American beef, ran out of beef in nearly 20% of its stores due to the pandemic's impacts on red meat supplies.[14]
- It was also pointed out that Brazil and Argentina seemed even more hard hit then the US, not only due to the issue of plant shutdowns but from the perception of buyers about consequent hygiene concerns.
- Nonetheless, some observed that these countries had gradually found ways to deal with the pandemic. In the case of both countries, it was also noted that a falloff in domestic demand during the pandemic had also created opportunities for a boost in exports. As noted in Section 5.2 and in Appendix 2, Brazil in particular was able to overcome some of its issues and make good its export performance by increasing sales to China.
- Some interviewees noted that other jurisdictions also took a different view of meat processing workers, with countries such as the US seeing them as essential workers, akin to health care professionals. The US was also committed to keeping processors open to the greatest extent possible, with the Trump Administration even invoking the Défense Production Act to ensure that meat processors kept open, even in the face of plant outbreaks and fatalities.[15] In contrast, Australia has adopted a more cautious approach to processors including mandated shutdowns in the event of outbreaks. The merits of each approach have yet to be fully assessed but the difference was noted by some processors.
- The exception to this was New Zealand which, after its short sharp early lockdown in March-April 2020, largely escaped most of the impacts of the pandemic. Interviewees also noted the fact that New Zealand meat processing and export facilities appeared to run smoothly as a consequence and that the country did not face too many difficulties during the pandemic. While the country was affected by the early China lockdowns early in the pandemic, it was seen as having rounded strongly thereafter. Indeed, while the North Island experienced major drought conditions in 2019-20 the post-drought restocking issues which affected Australia during the pandemic period appear to have been largely absent in the case of New Zealand. (to date).[16] New Zealand remains a key competitor for these reasons.
- These characteristics of New Zealand – its position as a market which closely parallels Australia and at the same time did not experience a substantial restocking issue - make it a good benchmark in terms of teasing out the impacts of COVID-19 (as opposed to restocking) on Australia itself. Section 5.5 and Appendix 1 provide more details on this.
- A more through quantitative analysis of effects on competitor markets is also provided in Section 5.2.

14 CNBC, 5 May 2020 "Nearly a fifth of Wendy's US restaurants are out of beef analyst says " https://www.cnbc.com/2020/05/05/nearly-a-fifth-of-wendys-us-restaurants-are-out-of-beef-analyst-says.html

15 CNBC 28 April 2020, "Trump orders meatpacking plants to remain open using the Defence Production Act", https://www.cnbc.com/2020/04/28/trump-says-will-sign-order-on-virus-related-liability-problems.html

16 NASA, Earth Observatory "New Zealand browned by drought" https://earthobservatory.nasa.gov/images/146674/new-zealand-browned-by-drought ; Beef + Lamb New Zealand (2020), *New Season Outlook 2020-21*. There are indications in Beef+Lamb New Zealand that drought and restocking are anticipated to affect herd numbers for both cattle and sheep but most of the major effects would appear to occur later in 2020-21 rather than at the same time as Australia.

Exports, drought and COVID-19

- A large number of respondents noted that COVID-19 pandemic hit during the end of the drought in many regions and in a phase of drought recovery. With farmers seeking to rebuild herds as a part of that recovery – a process that can take years - a common observation was that stock was being held back by farmers from meat processors, decreasing the industry's throughput. This was seen to be true for both cattle and sheep, with a reluctance to sell on the part of farmers resulting in high prices and a decreased slaughter. Interviewees indicted that restocking gathered pace during 2020 and may continue to go on for some time (until at least 2022 according to some). Accordingly, it was pointed out that even without the COVID-19 pandemic, industry exports (and overall revenue) were likely to be down in 2019-20 and in the defined pandemic period of this report (April -September 2020 inclusive).
- Some interviewees speculated that drought recovery and restocking may have been responsible for 70% of the falloff in red meat production during the period April-September 2020 in overall terms, (whether exported or domestic), with COVID-19 responsible for 30% of the falloff. It is interesting to compare these estimates to the estimated relative effects of restocking and COVID-19 on industry revenues discussed below given their remarkable similarity.
- The issue of restocking and drought recovery are indeed material ones. It was striking how consistently this theme emerged during interviews, with interviewers almost unanimously agreeing that it had a more substantial impact then the pandemic itself. As indicated elsewhere in this report, efforts have been made to strip these out from the impacts of the pandemic itself. The approach to quantification is further discussed in Section 5.5 and Appendix 1.
- As would be expected, competition between the competing demands of farmers and meat processors is also likely to have been one reason driving high sale prices in recent times. ABARES data indicates that (in real 2020-21 dollars) saleyard prices for beef and veal rose from 459c/kg in in 2018/19 to 526c/kg in 2019-20. In 2020-21 these prices are expected to climb to 593c/kg[17].
- These factors affected both export and domestic prices. To some extent of course there were passed on to those markets with some effect on demand. This again led interviewees to indicate that prices and restocking had larger impacts on revenues then the pandemic itself.

5.2 Impacts on international competitors

In addition to the qualitative views expressed by interviewees, noted above we undertook a comprehensive review of the quantitative impacts of the pandemic on the global red meat processing industry. Our analysis below examines the impacts of the pandemic in quantitative terms globally and on Australia's major red meat export rivals (US, Brazil, Argentina and New Zealand).

Additional, more detailed discussion on Australia's major import markets is included in Appendix 2.

In interpreting these results, it is again important to recall that Australia's own export performance was hampered by restocking and the attendant high prices associated with drought recovery. Accordingly, while results for our rivals are more likely to reflect more of a "pure COVID-19" effect, those for Australia (discussed above and in Appendix 2) should be viewed in context. This includes noting that restocking was an additional factor that Australian exporters faced and one which is likely to have had more of an impact then the pandemic itself.

17 ABARES (2021) *Agricultural forecasts and outlook, March Quarter 2021*

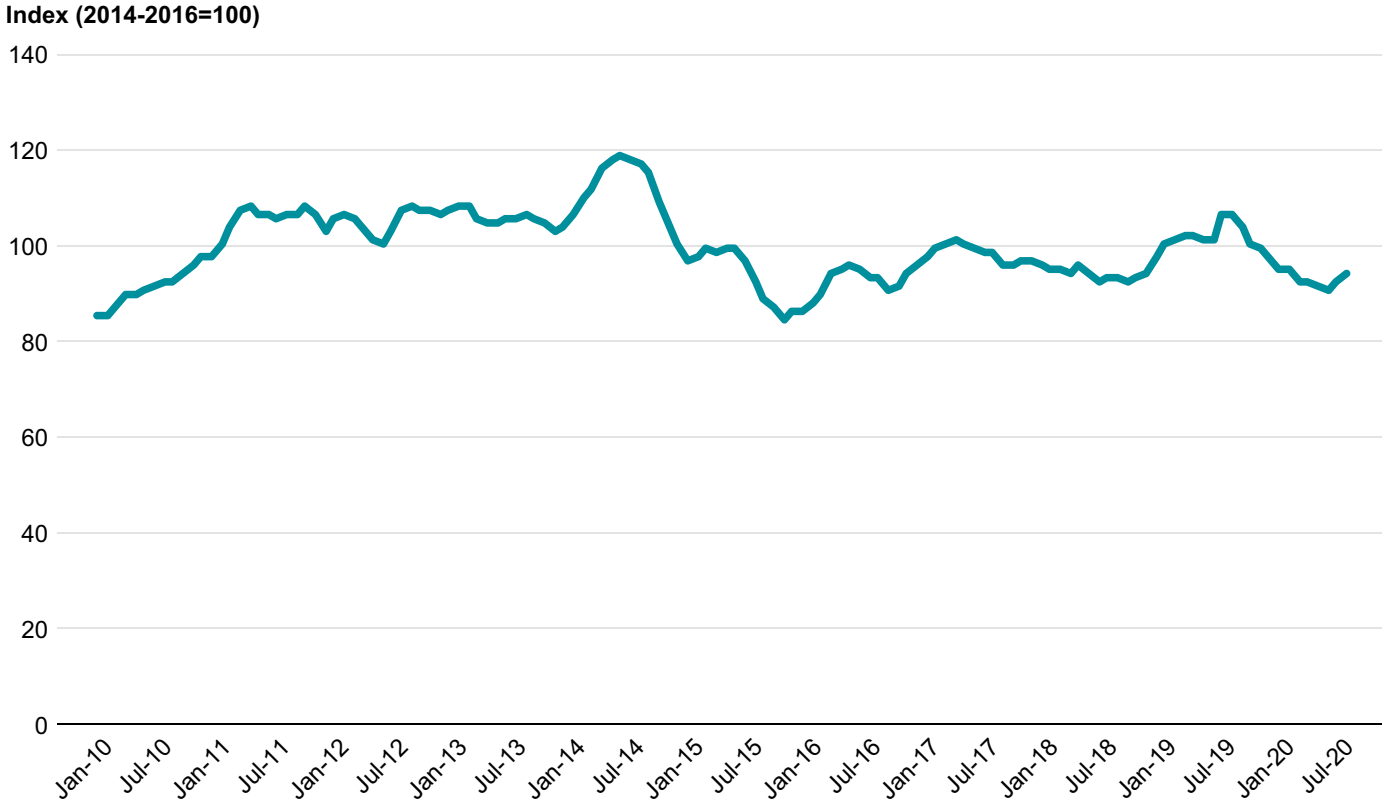
5.2.1 Global overview

While the Meat Price Index published by the Food and Agriculture Organization of the United Nations (FAO) covers more than just the “red meat” definition used for this study (covering pig and poultry as well as bovine and ovine), and the situation with Australian saleyard prices for beef has been noted above, it is an interesting tool for monitoring overarching global meat demand as measured by meat price quotations. Over the past ten years, the FAO Meat Price Index has remained flat, sitting at 103.8 in January 2020, or just 3.8 points about the base period (2014-2016). Meat prices fell in each of the first 10 months of 2020, with the FAO Meat Price Index averaging 90.7 points in October. November marked the first increase of 2020, increasing by 0.8 points, followed by a further increase of 1.6 points in December. The Meat Price index settled at 94.3 at the end of 2020, 12.3 points (or 11.6%) lower compared to the previous year end.

The start of the year was characterised by excess supply of bovine and ovine meat, resulting from a combination of earlier than anticipated slaughter (particularly in Australia and New Zealand), supply chain bottlenecks and diminished demand due to international lockdowns. Since the middle of the year, export supplies have been constrained as the narrative shifted to herd rebuilding and restricted meat processing activity. However, measured in global price terms, it was not until November that global demand, particularly from China, combined with tighter supplies due to herd rebuilding, resulted in price increases to round out 2020.

While these international trends are interesting, as indicated the situation in Australia itself is somewhat different. This has been characterised by rising prices dure to restocking and drought recovery resulting in higher supply and sharply rising prices.

Chart 7: FAO meat price index



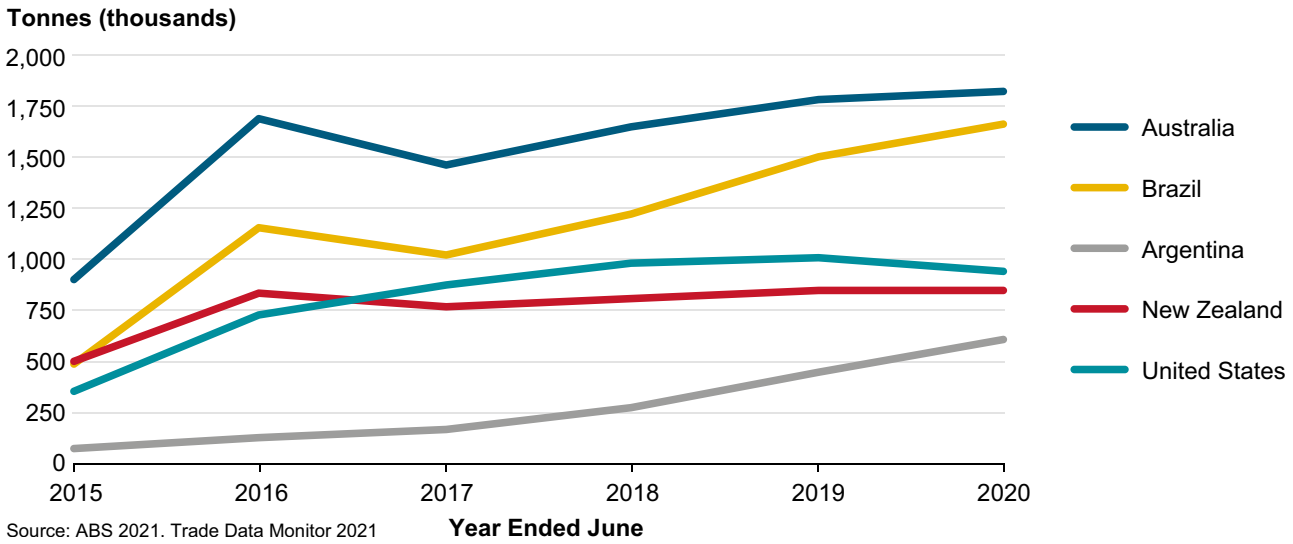
Source: FAO

5.2.2 Major rival markets overview

Looking at long term trends in terms of financial years, in terms of volume, Australia has seen trend growth in red meat exports since FY2015 along with Argentina and Brazil. Meanwhile, New Zealand and the US have seen relatively stable export volumes since around FY2017. However, in Australian dollar terms per annum, Australia and most competitor exporters have seen generally growing value since FY2015.

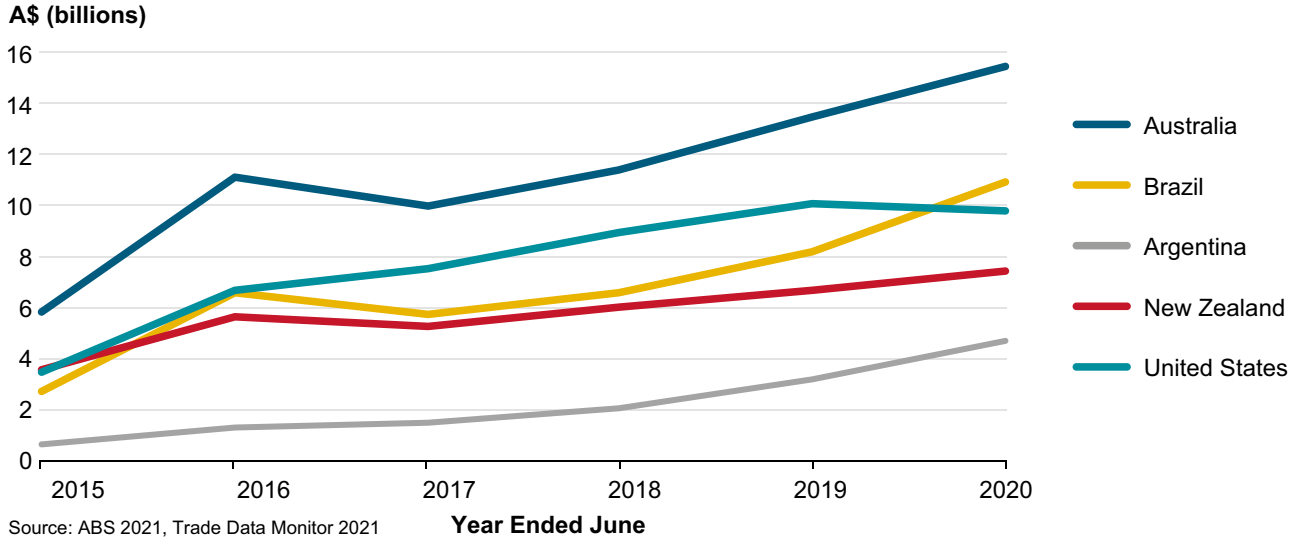
Brazil notionally saw the "best" results of major exporters over FY2020, becoming the second highest exporter in terms of volume and of value. Although less significant overall, Argentina's strong growth in value and volume continued through FY2020. It is to be noted that the US appears to have suffered in both volume and value of red meat exports over FY2020. Additionally, Australia's export volume growth flattened somewhat over FY2020. These results in the US and Australia can be partly attributed to supressed economic activity in association with pandemic-related lockdowns. However, in Australia's case, restocking is likely to have had substantial impact (accounting for an estimated two-thirds of the decline as discussed below) rather than COVID-19 itself. This suggests a relatively strong performance for Australia compared to its competitors if only the effects of the pandemic itself are considered. Nonetheless, Brazil and Argentina appear to have performed well (perhaps in part due to Chinese import substitution) while New Zealand's performance remained stable.

Chart 8: Major red meat exporter volume by year



Source: ABS 2021. Trade Data Monitor 2021

Chart 9: Major red meat exporter value by year



Source: ABS 2021, Trade Data Monitor 2021

In terms of unit value all nations (other than Argentina) have seen appreciation in value per unit since FY2015. For the US, Australia, and New Zealand this has occurred from FY2017 onwards as the US and New Zealand saw growing value outstrip stagnating volume. Meanwhile, Australia's increasing earnings have outpaced moderate volume growth. However, from peak per unit earning in FY2016 Argentina and Brazil saw declining value per tonne until a notable recovery for both nations in FY2020. This can be largely attributed to Chinese demand and that country's willingness to pay above market rates for beef, in particular.

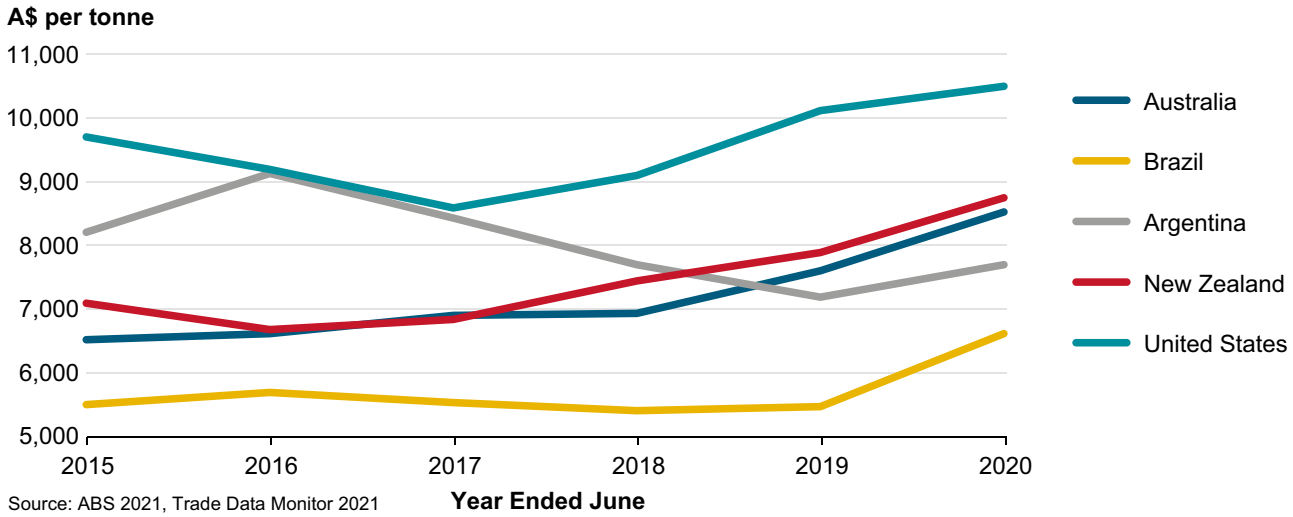
As of FY2020 Australia ranks first in terms of volume and total value with the closest competitor being Brazil.

In terms of value commanded per tonne, Australia ranks third in close competition with New Zealand and beaten out by the US.

Most nations have seen a trend decline in diversity of export destinations over the last decade. The underlying data highlights that for most nations, sheep meat exports tend to be more diversified than beef exports.

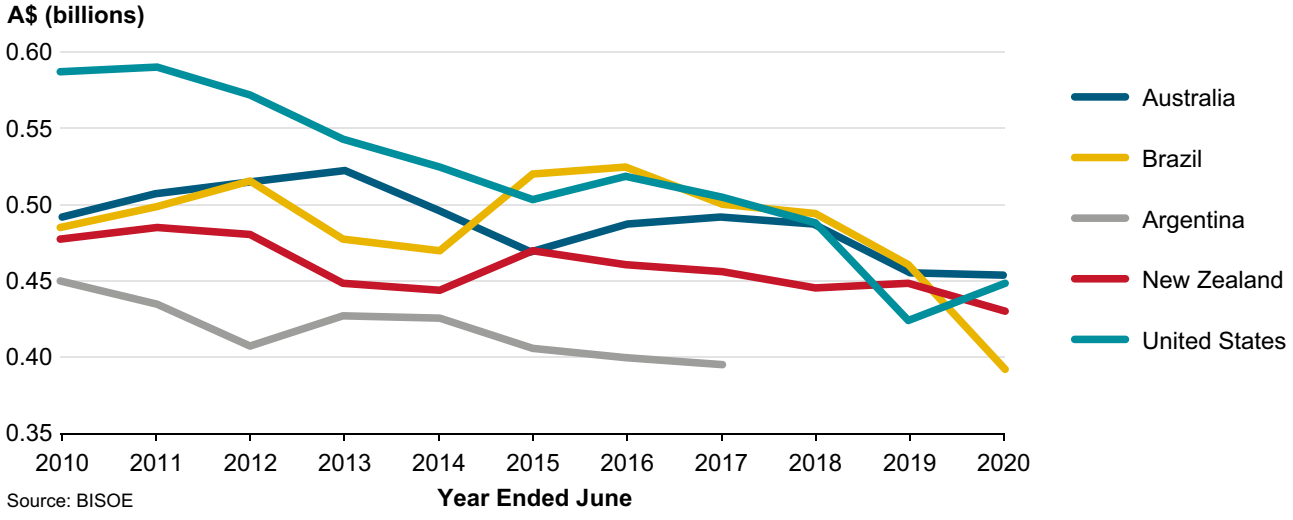
A calculation (known as Shannon's Entropy) can be used to measure export diversity. Here the results of Shannon's Entropy for isolated series are not directly interpretable, rather the process yields relative measures of diversity between exporting nations based on the number of destination markets and the volume associated.[18]

Chart 10: Major red meat exporter A$ per tonne by year



Source: ABS 2021, Trade Data Monitor 2021

Chart 11: Major red meat exporter Shannon's Entropy results by year



Source: BISOE

18 $Shannon's\ Entropy_{it} = -\sum_{i=1}^{n} P(x_i) log_b P(x_i)$ where (in this case) i is the individual exporting country, t is the year, b is the number of possible export destinations (here, b=195). The result will yield a number between 0 and 1 which indicates relative export diversification. The closer to 1 this number is the more diversified the export profile. For example, if 1/195th of Australia's exports went to 195 different countries, it would have a value of 1. Conversely, if Australia's exports went to one country, it would have a value of 0. Note: Argentina made confidential some destination country data from March 2018 onwards for meat, thus results are inconsistent and not included

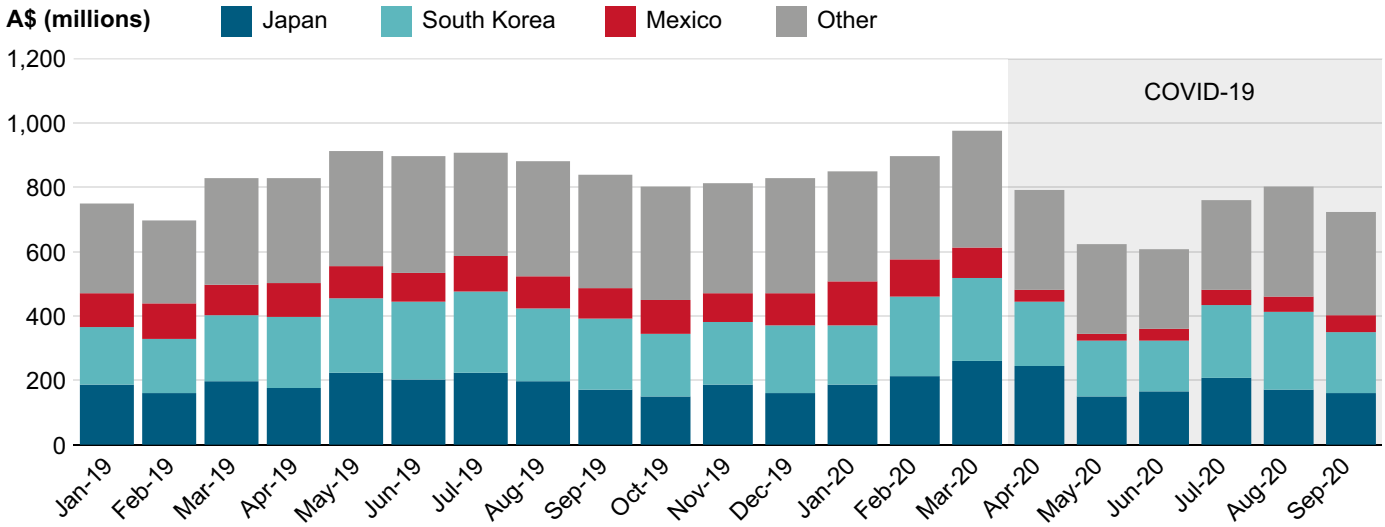
United States

Examining more recent data in calendar year terms (as opposed to long term financial year trends), and by month in order to capture the impacts of the pandemic in a more refined way, the United States exported just under A$10 billion worth of red meat in CY2019, with the top three export destinations – South Korea (A$2.5b), Japan (A$2.2b) and Mexico (A$1.2b) – accounting for 60% of the total.

In terms of volume, CY2019 saw 971,600 tonnes of red meat exported from the US, with top three export destinations – Japan (249,300 tonnes), South Korea (242,100 tonnes), and Mexico (136,200 tonnes) – accounting for 65% of the total.

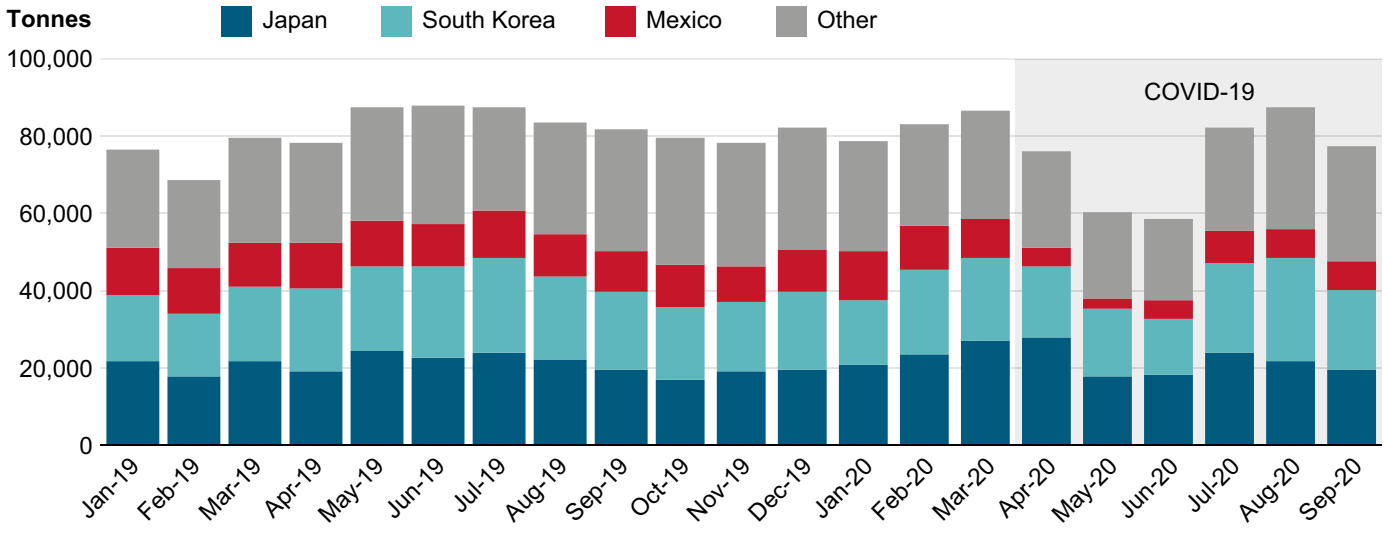
The start of CY2020 showed promising growth for red meat exports, with the US-Japan trade agreement resulting in lower tariffs on US beef from 1 January 2020 (down from 38.5% to 26.6% - the same as Australia's). Both Taiwan and the EU also represent potential US growth markets. Taiwan has announced reduced restrictions on beef imports starting 2021 while the EU is increasing the duty-free tariff rate quota of US beef from 2019 to 2026. Red meat production data from the United States Department of Agriculture also revealed continued monthly growth through much of 2020 compared to 2019, with the exception of April and May when concerns around the pandemic escalated.

Chart 12: US red meat exports by month by destination, value



Source: Trade Data Monitor 2021

Chart 13: US red meat exports by month by destination, volume



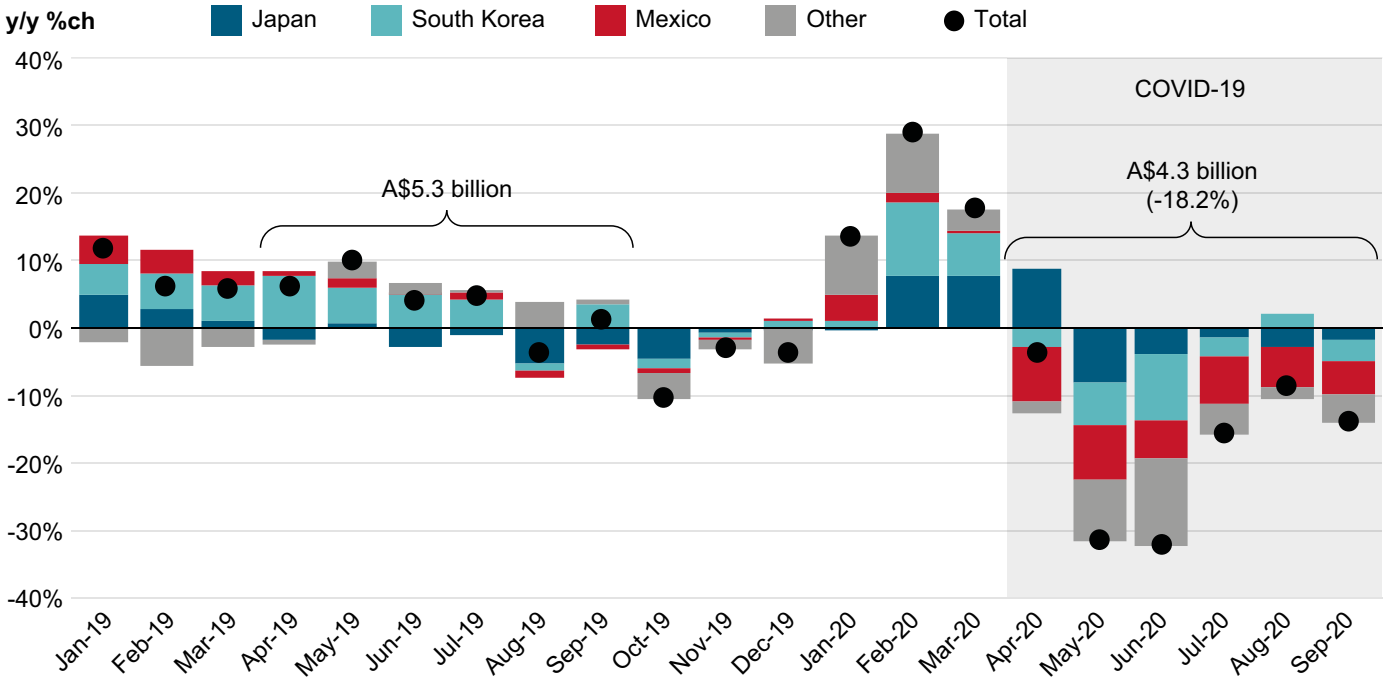
Source: Trade Data Monitor 2021

Over the six months to September 2020, red meat exports totalled A$ 4.3 billion, down 18.2% compared to the A$ 5.3 billion exported in the previous corresponding period.

In contrast, Australian exports declined 13.1% over this period (even before adjusting for the effects of restocking which might have accounted for two-thirds of the decline).

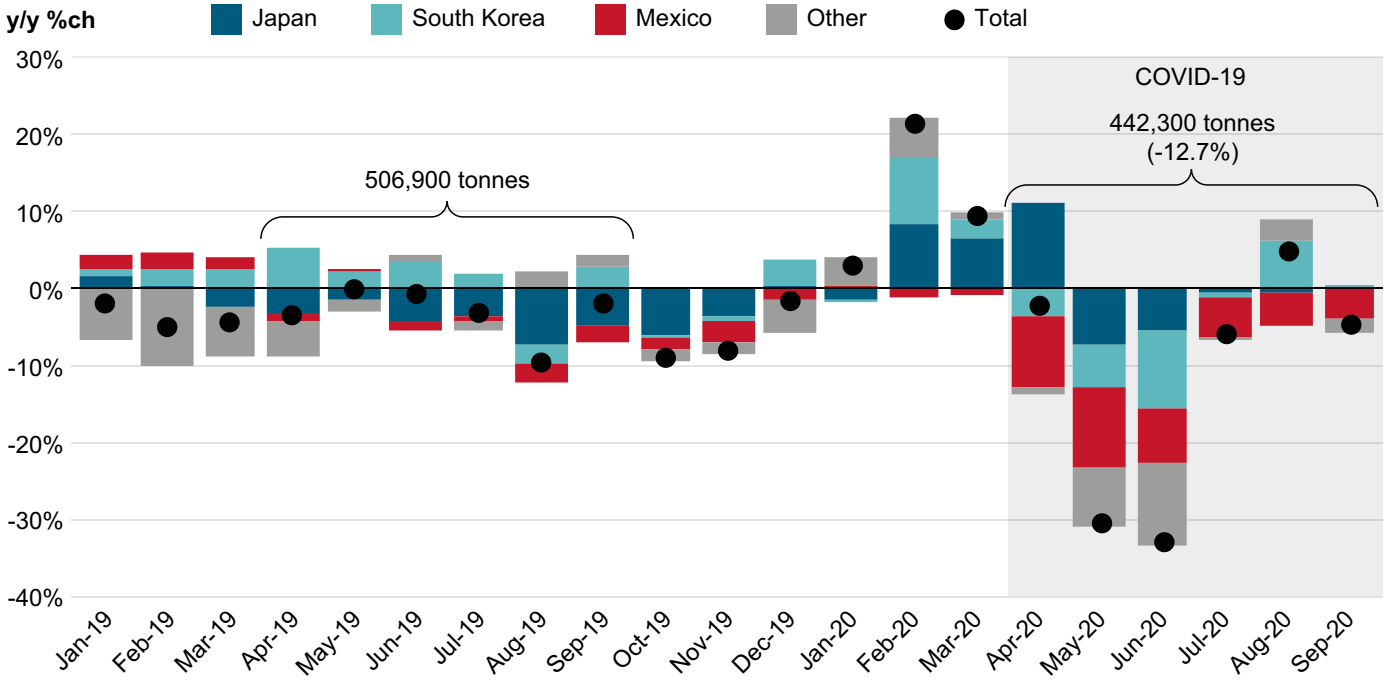
US export volumes in most months between April and September 2020 were lower than the corresponding period in the previous year, with all major export destinations contributing to the declines in most months.

Chart 14: US red meat exports by month by destination, value, year on year change



Source: Trade Data Monitor 2021

Chart 15: US red meat exports by month by destination, volume, year on year change

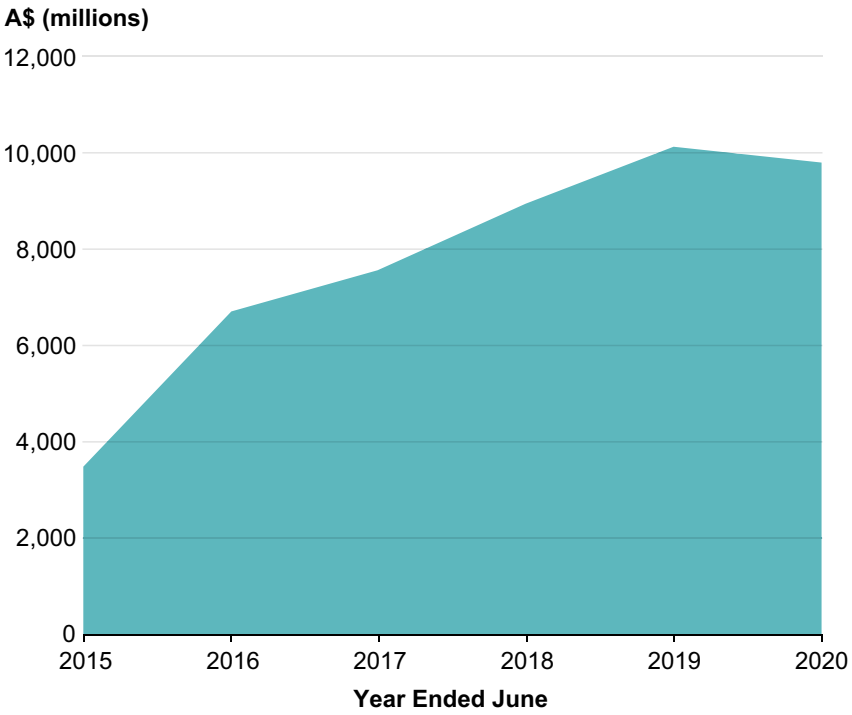


Source: Trade Data Monitor 2021

Beef dominates the red meat export of the US, with only a miniscule fraction of export value being driven by lamb exports.

Longer term trends are shown in FY terms in the charts and tables below. These include a selection of key export markets in each of the three red meat products covered by this study.

Chart 16: US red meat exports value by year by meat type



Source: Trade Data Monitor 2021

Table 4: Top 5 United States beef export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
South Korea	520	1,061	1,461	1,835	2,502	2,512
Japan	713	1,382	1,737	2,168	2,380	2,324
Mexico	500	1,041	953	1,022	1,206	1,038
Hong Kong	489	825	882	1,182	1,053	894
Canada	473	845	766	762	722	809

Source: Trade Data Monitor 2021

Table 5: Top 5 Unites States sheep meat export destinations, value, A$ thousands

	FY15	FY16	FY17	FY18	FY19	FY20
Mexico	2,023	4,249	5,138	3,803	4,861	6,709
Dominican Republic	421	1,184	1,308	2,166	1,676	1,748
Bahamas	680	1,347	2,109	2,429	3,809	1,630
Bermuda	366	811	696	961	601	1,109
Canada	1,473	1,820	1,300	2,433	1,133	697

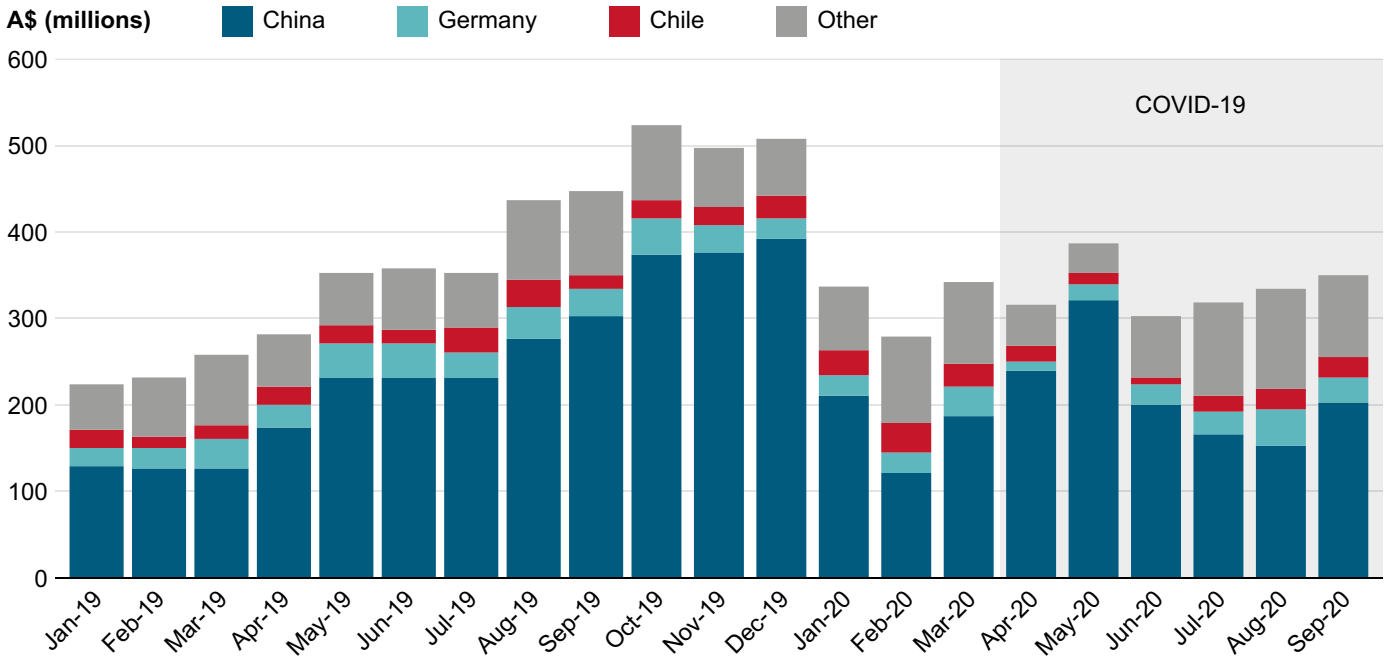
Source: Trade Data Monitor 2021

Argentina

Argentina exported just under A$ 4.5 billion worth of red meat in CY2019, with the top three export destinations – China (A$ 3.0b), Germany (A$ 0.4b) and Chile (A$ 0.3b) – accounting for just over 80% of the total.

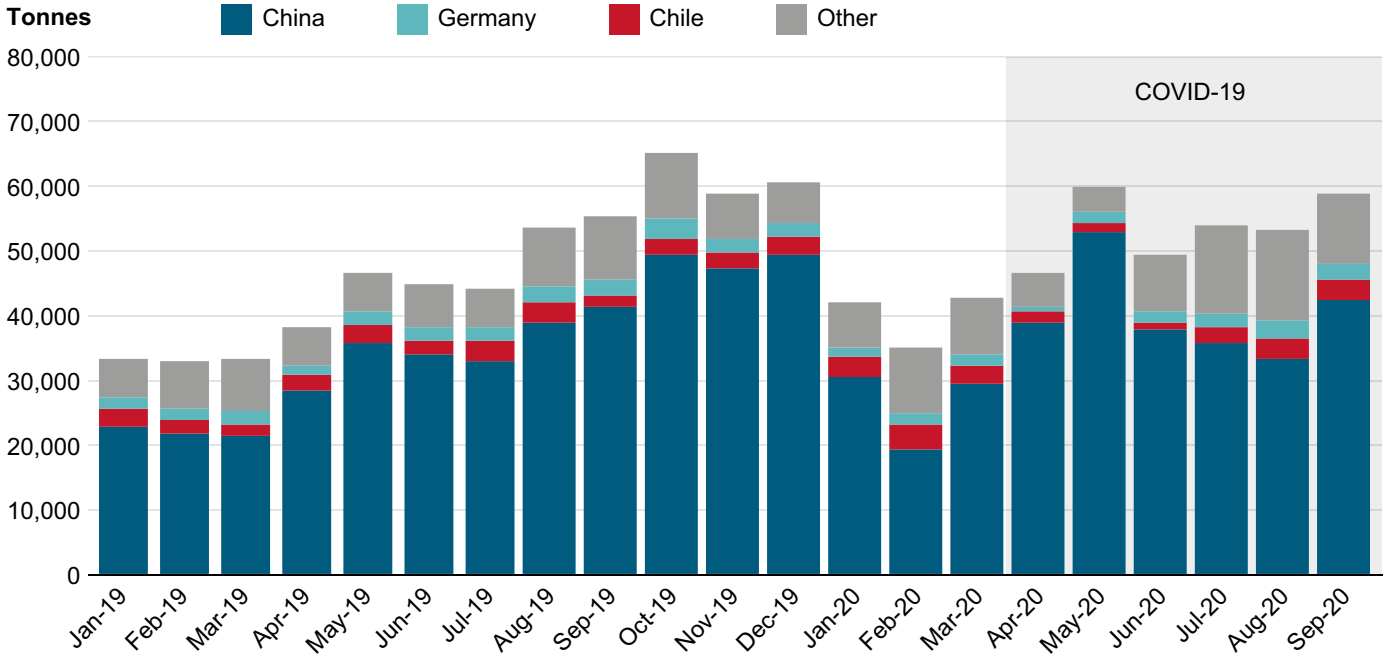
In terms of volume, CY2019 saw 569,000 tonnes of red meat exported from Argentina, with top three export destinations – China (425,000 tonnes), Chile (30,100 tonnes), and Germany (25,800 tonnes) – accounting for 85% of the total.

Chart 17: Argentina red meat exports by month by destination, value



Source: Trade Data Monitor 2021

Chart 18: Argentina red meat exports by month by destination, volume



Source: Trade Data Monitor 2021

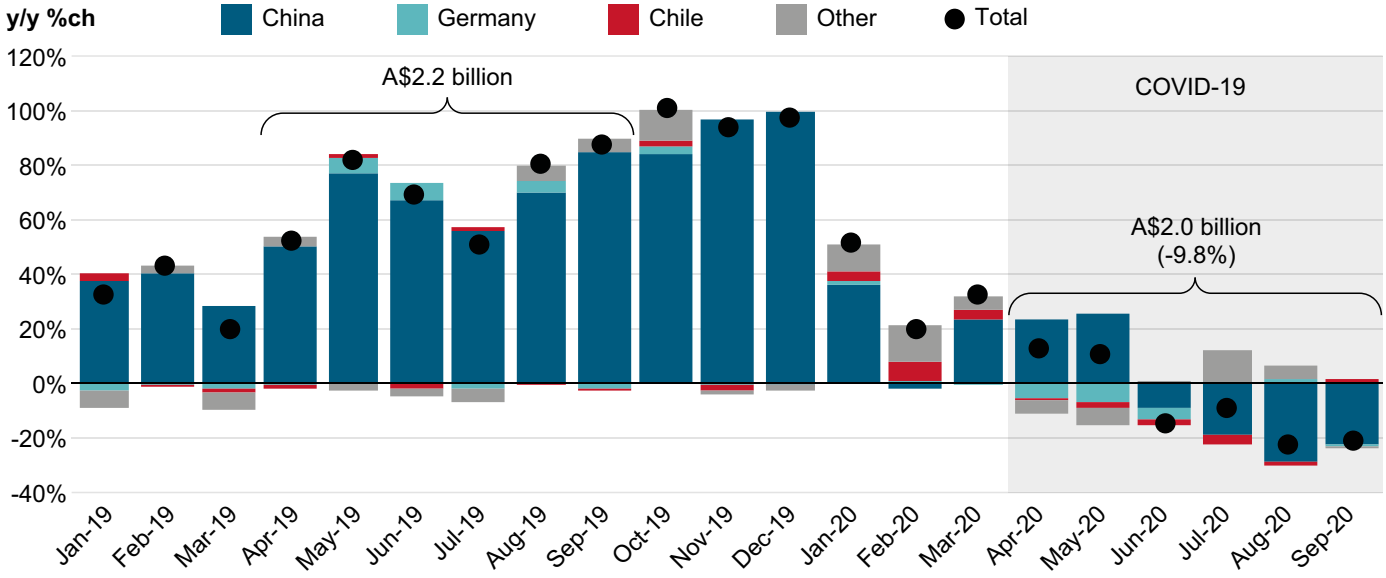
CY2019 was a record year for red meat exports from Argentina, 70% higher than 2018 which itself was 56% higher than 2017. This growth was underpinned by strong demand from China, which more than doubled its annual demand for Argentina's red meat exports in both CY2018 and CY2019. By CY2019, China was the recipient of two-thirds of red meat exports from Argentina.

Even after a record CY2019, Argentina's red meat exports continued to grow in the first five months of 2020, underpinned by strong demand from China. This narrative was not sustained past May 2020, with monthly value compared to the previous corresponding period falling for the first time since March 2017. This trend was largely driven by China's suspension of imports from a number of abattoirs, citing concerns of COVID-19 contamination.

Over the six months to September 2020, red meat exports totalled A$2.0 billion, down 9.8% compared to the A$ 2.2 billion exported in the previous corresponding period.

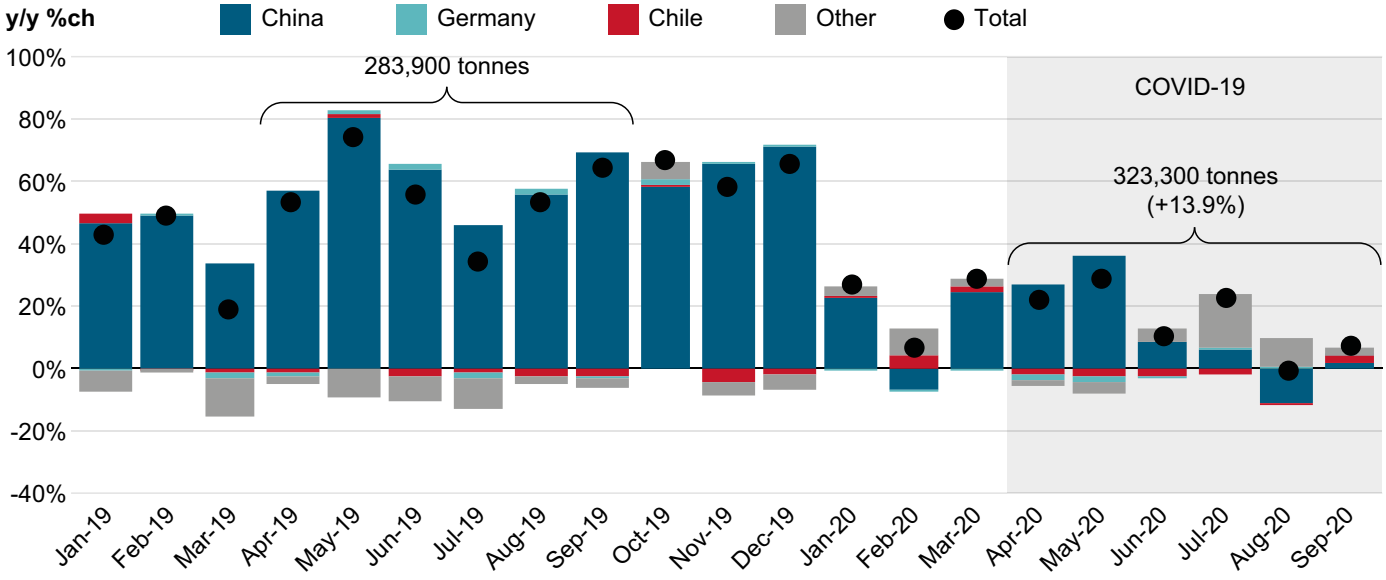
This compares with a "headline" 13.1% decline in Australian exports, though as indicated, if a notional two-thirds of Australian decline is attributed to restocking then the pandemic impacts were likely more severe in Argentina then Australia.

Chart 19: Argentina red meat exports by month by destination, value, year on year change



Source: Trade Data Monitor 2021

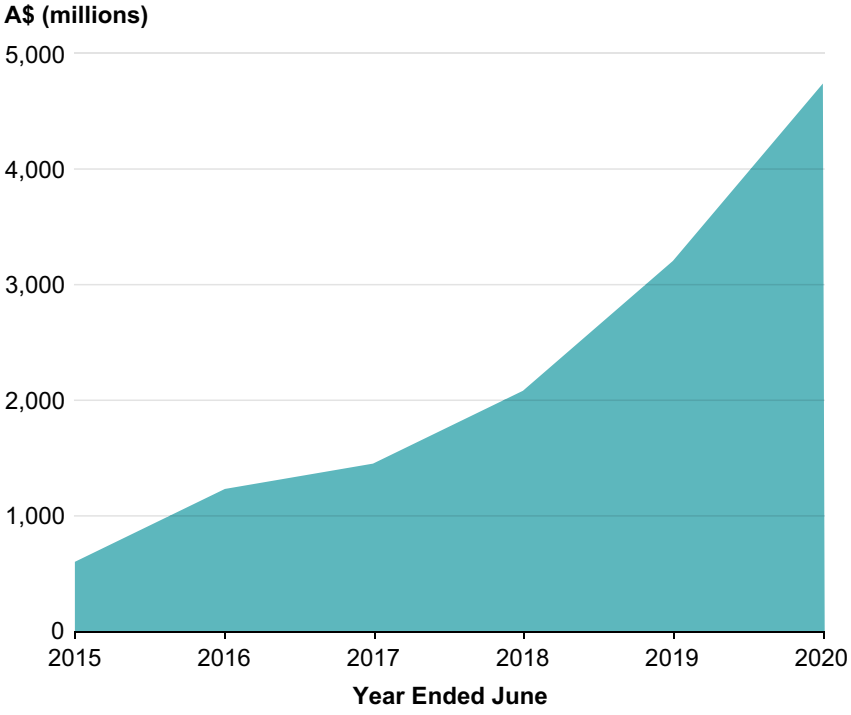
Chart 20: Argentina red meat exports by month by destination, volume, year on year change



Source: Trade Data Monitor 2021

Like the US, Argentina's red meat exports are nearly entirely beef with some marginal value gained from sheep and goat exports. Longer term trends in FY terms are shown below.

Chart 21: Argentina red meat exports value by year by meat type



Source: Trade Data Monitor 2021

Table 6: Top 5 Argentina beef export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	122	260	360	772	1,746	3,239
Germany	157	356	334	360	373	330
Chile	87	146	219	212	256	271
Israel	62	164	158	177	193	251
Netherlands	58	122	139	184	195	182

Source: Trade Data Monitor 2021

Table 7: Top 5 Argentina sheep meat export destinations, value, A$ thousands

	FY15	FY16	FY17	FY18	FY19	FY20
Confidential	0	0	0	7,358	15,359	21,010
Spain	1,096	1,323	914	2,656	657	1,354
Brazil	1,480	2,229	2,285	396	400	1,039
Israel	0	1,167	1,820	1,480	0	0
Portugal	1,163	1,011	668	941	0	0

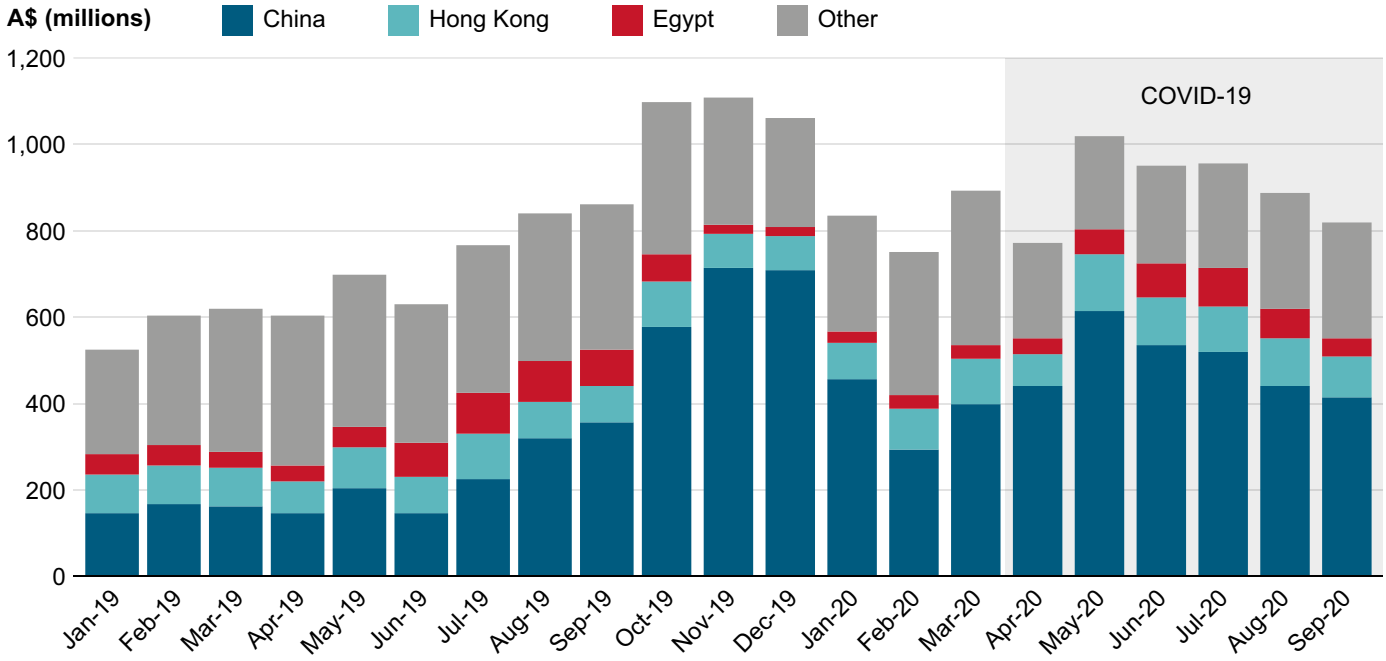
Source: Trade Data Monitor 2021

Brazil

Brazil exported just under A$ 9.5 billion worth of red meat in CY2019, with the top three export destinations – China (A$ 3.9b), Hong Kong (A$ 1.1b) and Egypt (A$ 0.7b) – accounting for almost 60% of the total.

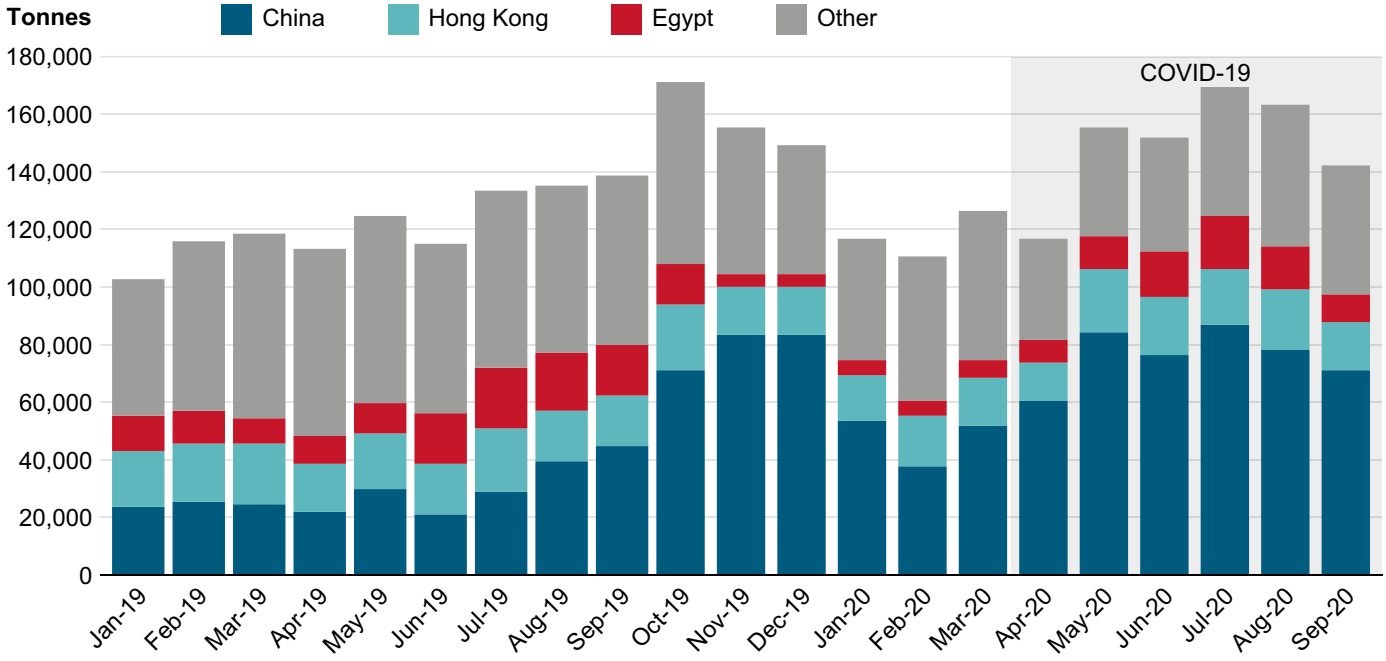
In terms of volume, CY2019 saw 1,569,600 tonnes of red meat exported from Brazil, with the top three export destinations – China (497,700 tonnes), Chile (225,300 tonnes), and Egypt (153,400 tonnes) – accounting for 56% of the total.

Chart 22: Brazil red meat exports by month by destination, value



Source: Trade Data Monitor 2021

Chart 23: Brazil red meat exports by month by destination, volume

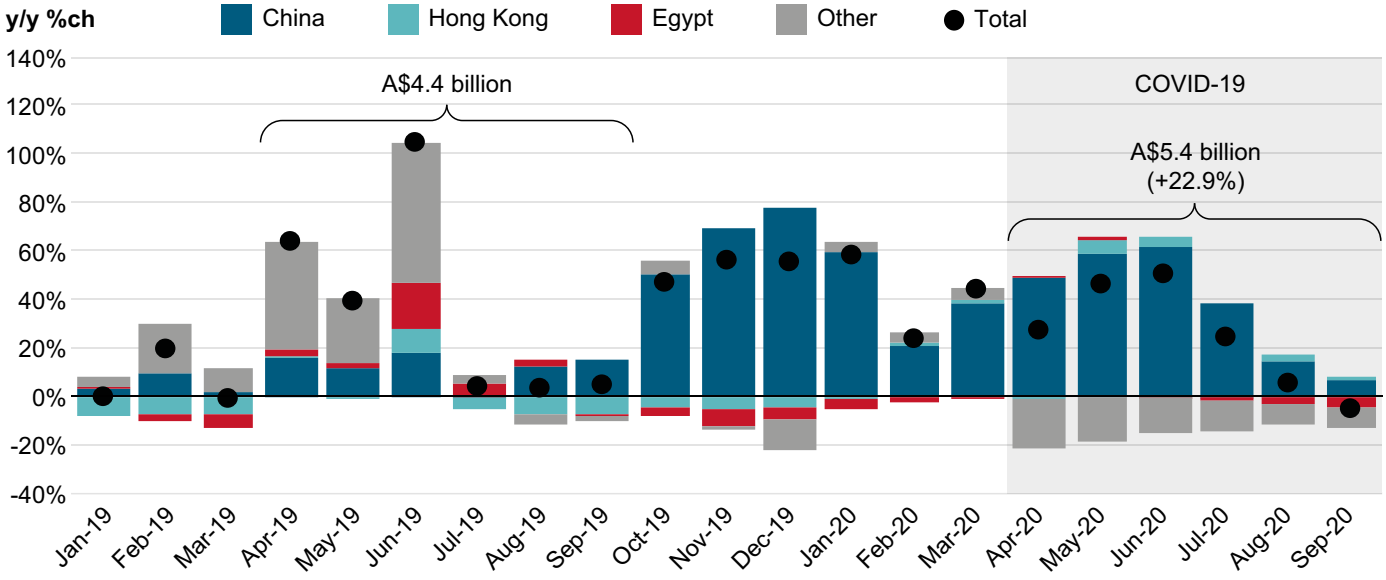


Source: Trade Data Monitor 2021

Over the six months to September 2020, red meat exports totalled A$ 5.4 billion, which is up 22.9% compared to the A$ 4.4 billion exported in the previous corresponding period. Despite China imposing restrictions on several meat processing facilities in Brazil at various times in relation to COVID-19 concerns, red meat exports to China increased every month in 2020 compared to the previous corresponding period, the largest being a 61% increase in June 2020. Demand from China alone was more than enough to offset any falls in demand from other destination markets for Brazil's red meat. Although less impactful both the US and Kuwait have passed legislation allowing higher imports of Brazilian beef from February 2020 onwards.

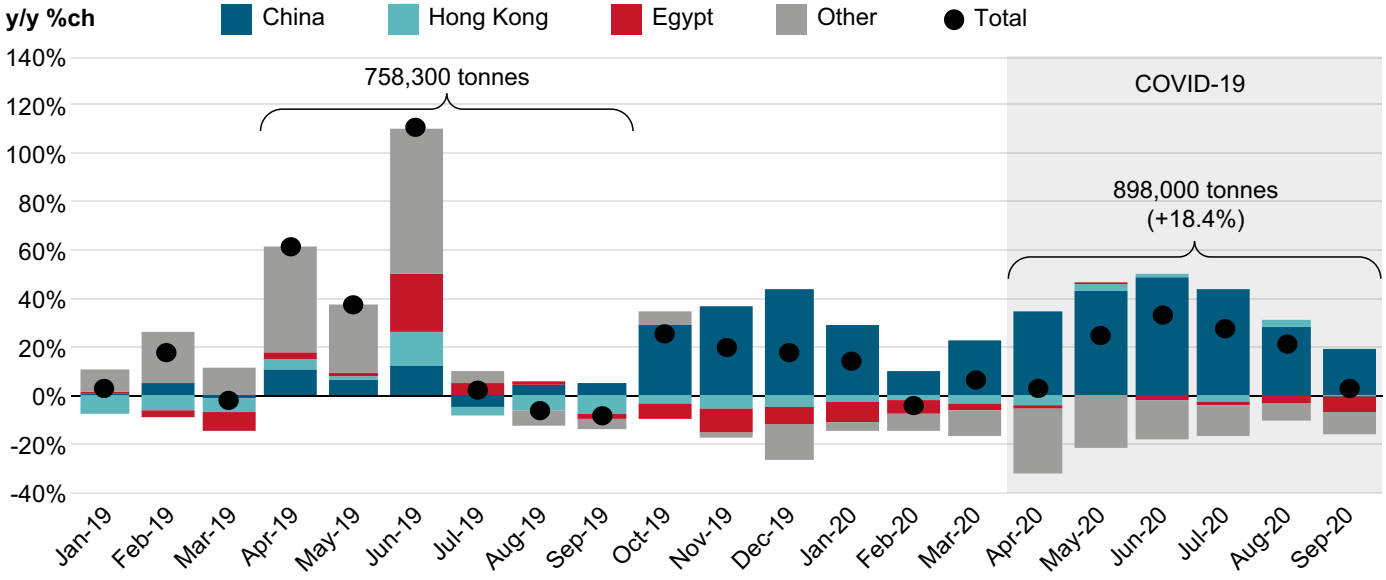
Brazil's performance during the pandemic is therefore remarkable and stands in contrast to Australia's other major rivals. As indicated stakeholder interviews pointed to early issues with Brazilian meat processing plants but also suggested that these had been gradually overcome. These data support this view. Despite ongoing problems due to the severity of the pandemic in the country and its meat processing plants, it is likely that it benefited from a degree of Chinese import substitution away from Australia. These issues are further discussed in Appendix 2.

Chart 24: Brazil red meat exports by month by destination, value, year on year change



Source: Trade Data Monitor 2021

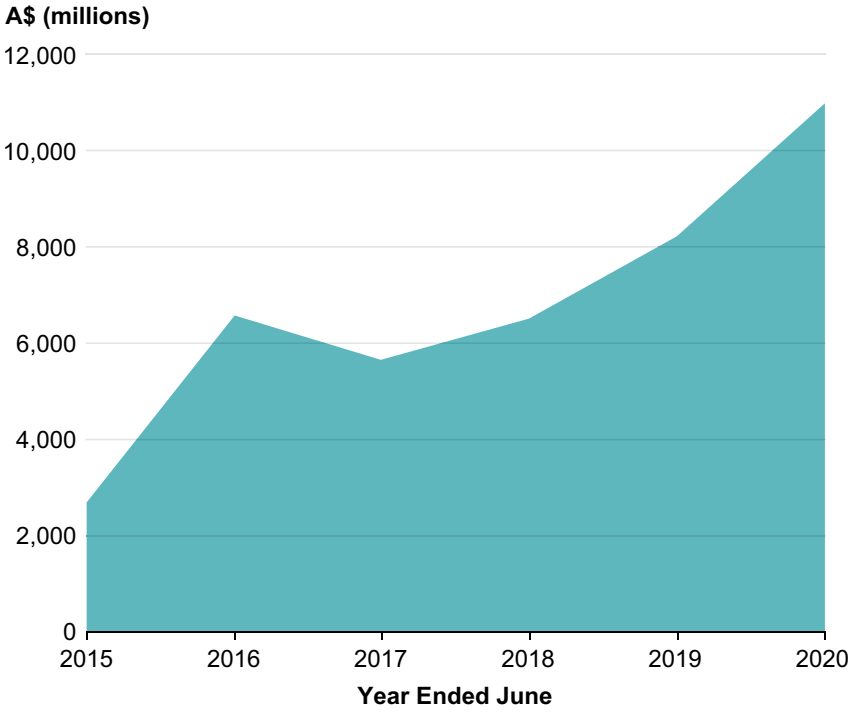
Chart 25: Brazil red meat exports by month by destination, volume, year on year change



Source: Trade Data Monitor 2021

Brazil's only significant red meat export is beef with minimal, inconsistent, or no exports of sheep and goat meat recorded. Longer term trends in financial year terms are indicated below.

Chart 26: Brazil red meat exports value by year by meat type



Source: Trade Data Monitor 2021

Table 8: Top 5 Brazil beef export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	26	1,128	979	1,412	2,256	5,651
Hong Kong	470	942	973	1,406	1,325	1,139
Egypt	376	912	451	743	724	640
Chile	149	374	375	486	631	553
Iran	244	497	542	623	483	127

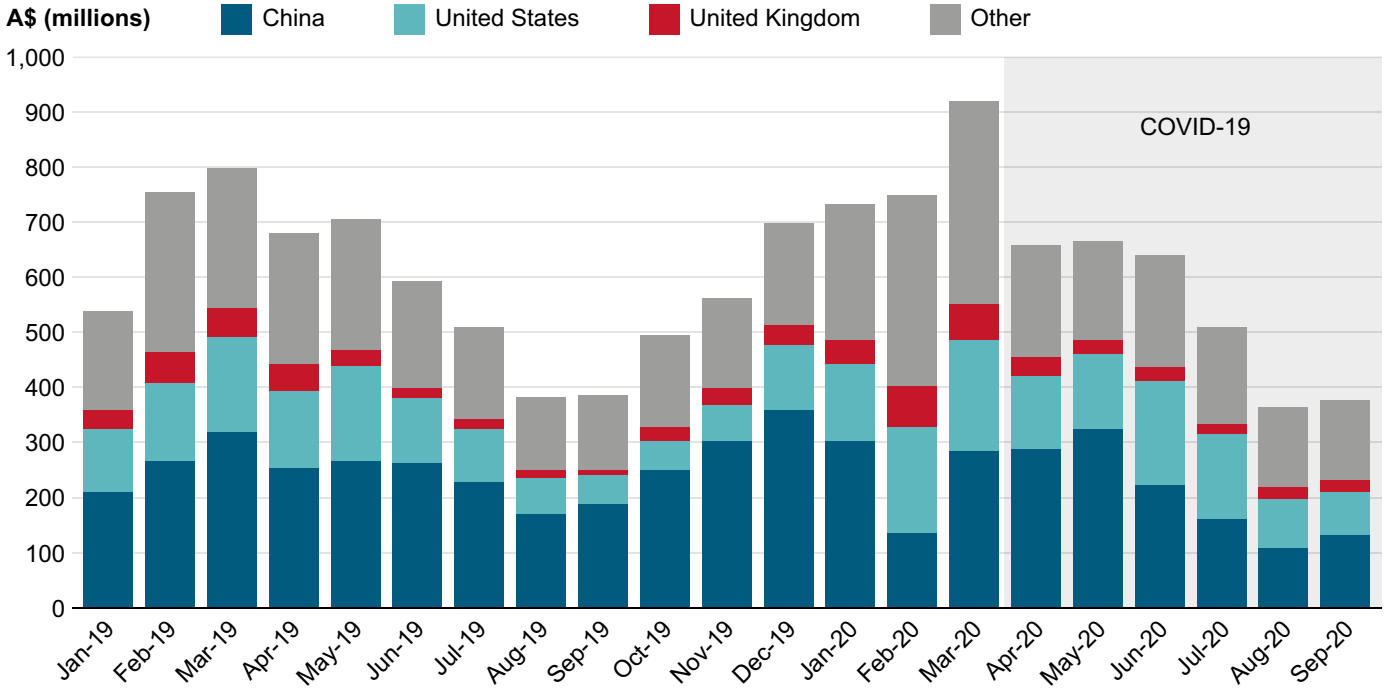
Source: Trade Data Monitor 2021

New Zealand

New Zealand exported just over A$ 7.1 billion worth of red meat in CY2019, with the top three export destinations – China (A$ 3.1b), the United States (A$ 1.3b) and the United Kingdom (A$ 0.37b) – accounting for over 67% of the total.

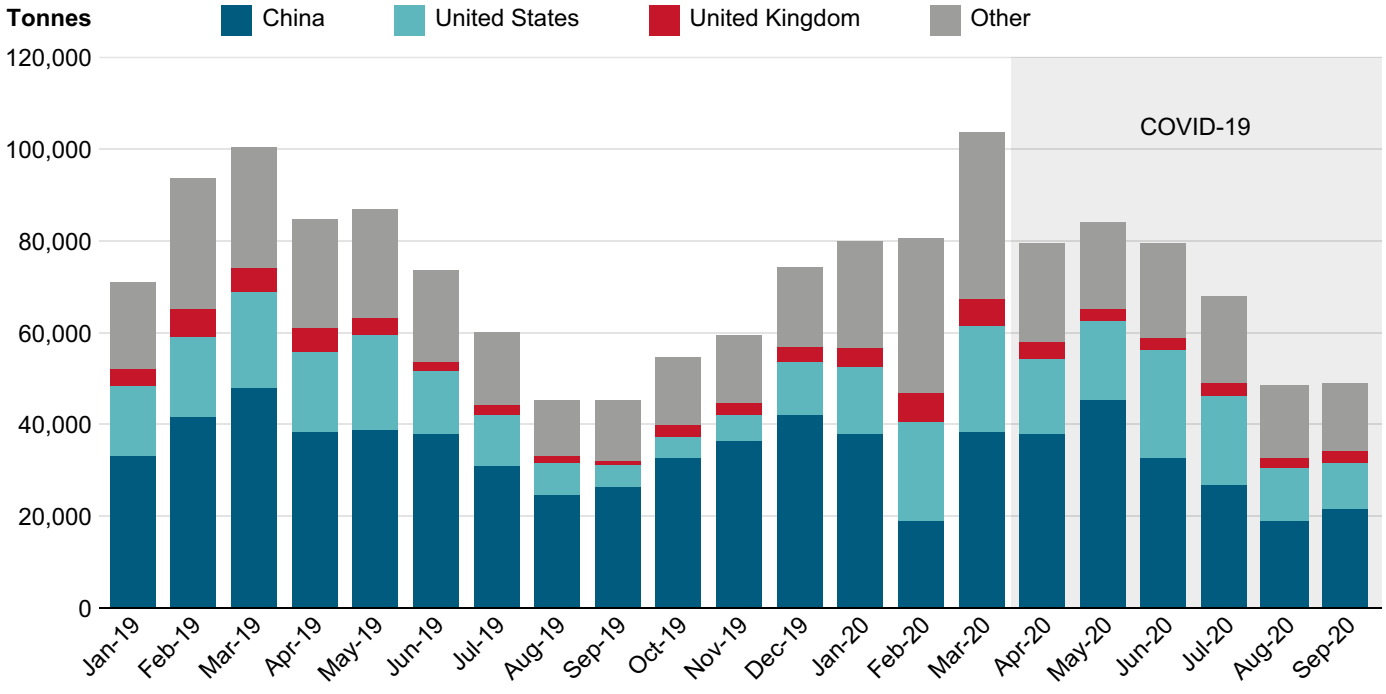
In terms of volume, CY2019 saw 851,000 tonnes of red meat exported from New Zealand , with top three export destinations – China (432,100 tonnes), the US (151,100 tonnes), and the UK (38,800 tonnes) – accounting for 73% of the total.

Chart 27: New Zealand red meat exports by month by destination, value



Source: Trade Data Monitor 2021

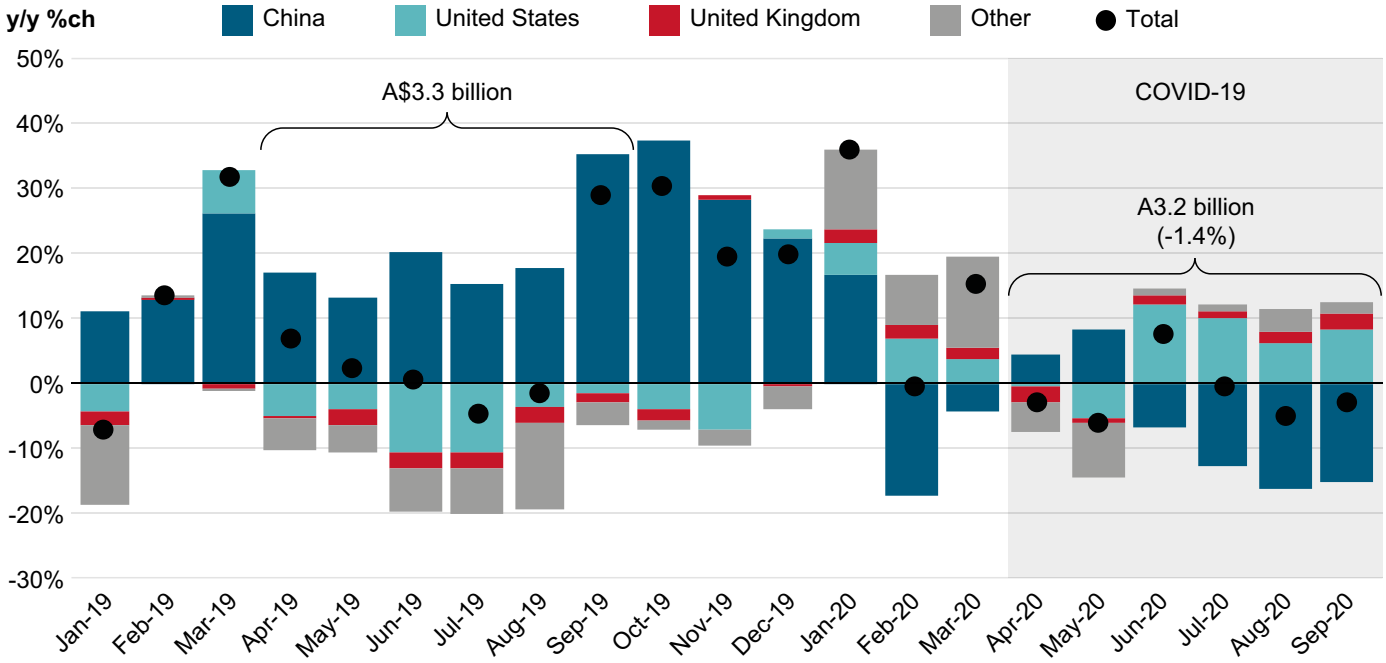
Chart 28: New Zealand red meat exports by month by destination, volume



Source: Trade Data Monitor 2021

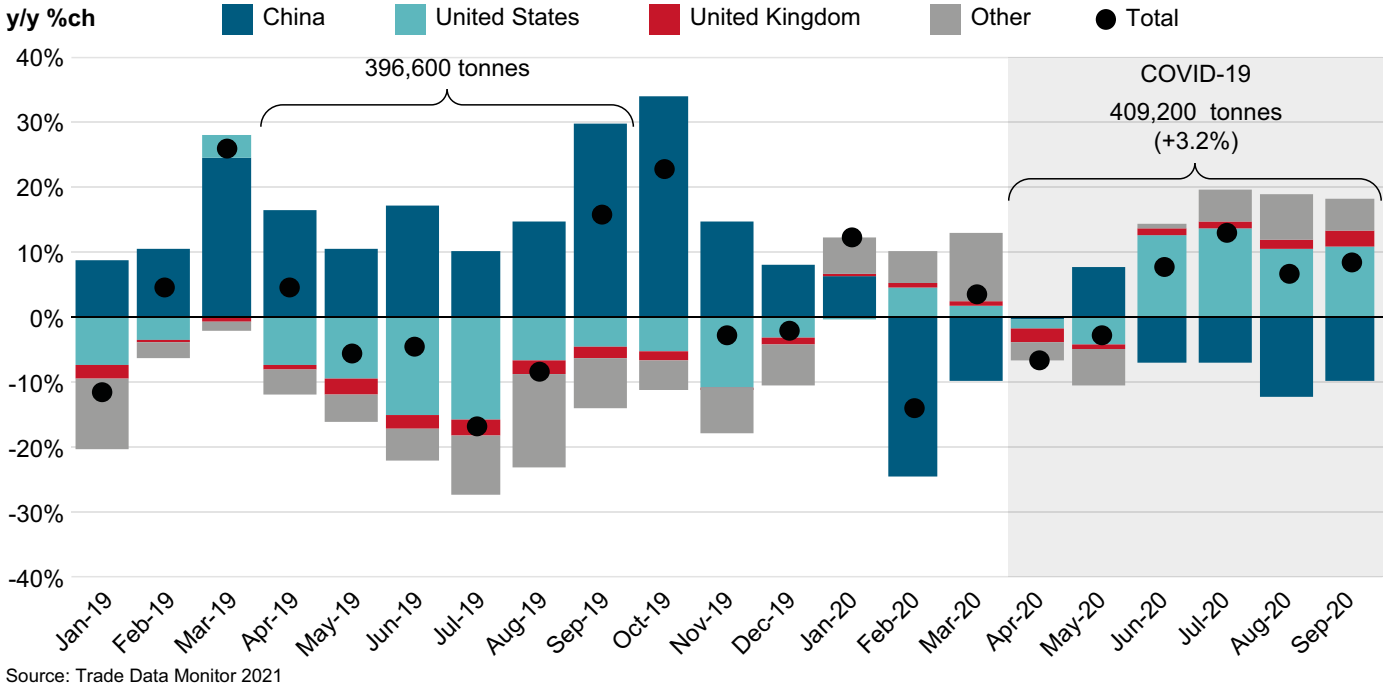
Over the six months to September 2020, red meat exports totalled A$ 3.2 billion, down 1.4% compared to the A$ 3.3 billion exported in the previous corresponding period. Most months in this period experienced declines relative to the previous corresponding period, largely due to weaker demand from China. However other destination markets went a long way to offsetting this weaker demand, the largest of which was the United States.

Chart 29: New Zealand red meat exports by month by destination, value, year on year change



Source: Trade Data Monitor 2021

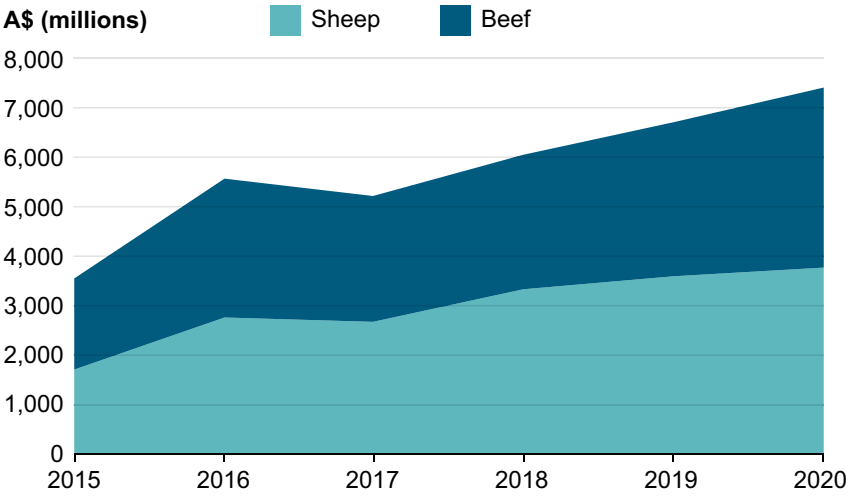
Chart 30: New Zealand red meat exports by month by destination, volume, year on year change



Source: Trade Data Monitor 2021

New Zealand's red meat exports are shared between sheep and beef, making up around 51% and 49%, respectively. Longer term trends in financial year terms are indicated below.

Chart 31: New Zealand red meat exports value by year by meat type



Source: Trade Data Monitor 2021

Table 9: Top 5 New Zealand beef export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	253	494	468	591	1,134	1,473
United States	1,008	1,286	1,098	1,161	984	1,104
Japan	83	126	138	127	172	206
Taiwan	104	195	164	159	162	160
Canada	68	131	100	105	95	113

Source: Trade Data Monitor 2021

Table 10: Top 5 New Zealand sheep meat export destinations, value, A$ millions

	FY15	FY16	FY17	FY18	FY19	FY20
China	378	574	611	917	1,303	1,602
United Kingdom	350	518	391	440	393	394
United States	140	270	299	340	428	330
Germany	150	251	240	293	250	248
Netherlands	102	219	196	284	222	197

Source: Trade Data Monitor 2021

Table 11: Top 5 New Zealand goat meat export destinations, value, A$ thousands

	FY15	FY16	FY17	FY18	FY19	FY20
United States	875	1,487	1,638	1,784	6,845	7,557
Trinidad and Tobago	81	278	1,112	73	478	1,511
Canada	360	698	1,275	1,557	1,856	1,188
Reunion	784	2,358	1,229	1,045	1,040	534
Martinique	183	685	596	542	297	180

Source: Trade Data Monitor 2021

5.3 Domestic impacts and policy issues

5.3.1 Qualitative interviews

While some 78% of Australia's red meat processing revenue consists of exports, the domestic red meat trade should not be ignored. The qualitative interviews with processors and peak bodies referred to in discussion of export markets above also covered domestic issues. Interviewees were asked about their experiences with domestic markets during the pandemic as well as for any policy issues which might seem to arise out of it.

Responses from interviewees on their experience with domestic market impacts during the pandemic are provided below. Many of the issues parallel those referred to by interviewees in the international market, however there are important nuances.

In addition, we have noted some of the potential domestic policy insights pointed to by interviewees. The need to provide policy insights of use to help guide government was referred to in our brief for this report.

Again, note that the views expressed by interviewees, as reported below, are not necessarily the views of BIS Oxford Economics. Rather the points below represent a summary of anonymised interviewee feedback to the selected questions put to them.

We have however used these to suggest matters worthy of further consideration in our conclusions, given the issues raised by interviewees.

Impact of the pandemic on Australia's domestic meat market

- Given Australia's focus on its red meat export trade, there is little direct data on trends in the domestic market. In the case of the pandemic, as indicated above, respondents indicated that in Australia (as in the rest of the world) there were wild swings in the early part of the pandemic as service consumers adjusted to lockdowns and undertook panic buying, stripping supermarket shelves. A common observation was that these trends appeared to stabilize however in most areas after a month or two (i.e. by roughly the end of May).
- Supermarkets did indeed appear to be particular beneficiates of the surge in demand. Some suggested consumer retail demand for red meat shot up by 30% above average during the early stages of the pandemic. Supermarket scanner data which might capture and verify some of these claims for red meat were not available for this study. However broader scanner data for supermarket purchases available from ABS along with other retail data for food do point to radical shifts in purchasing behaviour, especially during the early pandemic.[19]
- As indicated above, interviewees also indicated that demand for red meat products dropped sharply for service industries (hotels, restaurants cafes) even while consumer retail demand shot up.[20]

19 See ABS, 5/2/2021, *Supermarket spending December 2020 – Supplementary Covid 19 analysis*, https://www.abs.gov.au/articles/supermarket-spending-december-2020-supplementary-covid-19-analysis and ABS 4/3/2021, *Retail Trade Australia*, https://www.abs.gov.au/statistics/industry/retail-and-wholesale-trade/retail-trade-australia/latest-release The former of these publications, based on supermarket scanner data indicates that revenue for "perishable goods" shot up by 20% in March 2020 compared to March 2019 with increases ranging from roughly 8%-14% each month compared to the previous year from April to September 2020. The latter publication indicates a 27% increase in seasonally adjusted food retail revenues in March 2020 compared to March 2019. Overall revenues during April to September 2020 were 12% higher than their levels for the equivalent period in 2019.

20 ABS, "Retail Trade Australia" op. cit., indicates that seasonally adjusted cafes, restaurant, and takeaway revenues in April 2020 were half that in April 2019. Overall revenues during April to September 2020 were 75% of their levels for the equivalent period in 2019 although had recovered to 97% of their equivalent previous year levels by January 2021.

- Some processors accordingly reported little net revenue effect from the pandemic itself (as opposed to factors such as restocking). The expansion of home delivery services also acted to help service outlets manage the early lockdowns Nonetheless, some processors indicated that the fall off in demand from service industries such as hotels was enduring and had still not been corrected for – unsurprising given the restrictive legislation and subsequent waves and lockdowns. The broader ABS data noted in the footnote below also suggest that despite takeaway expansion, broader service industry revenues only began approaching the seasonally adjusted monthly revenues of the previous year in January 2021.
- Other trends were also noted. Some processors commented that the pandemic provided a boost to sales from independent butchers. Others suggested that the pandemic led to a return to tried and trusted products, with plant-based meat alternatives staying on the supermarket shelves while they were stripped of traditional meat products. While this cannot be verified with independent data, the "flight to certainty" is indeed a typical behavioural response to times of certainty.
- In addition, some interviewees noted a steep rise in online sales of red meat products, suggesting that very major increases in online sales had taken place during the pandemic during the early part of the pandemic. As noted above, ABS data on growing online sales for food in general during the pandemic do indeed point to substantial growth though specific data on red meat sales could not be obtained for this study.
- As is the case for exports, interviewees indicated that the domestic supply chain generally held up well despite the strains imposed by the pandemic. While some issues were experienced with disruptions to trucking, in general the industry did remarkably well in ensuring supply chains were maintained during the pandemic. Indeed, some commented that government had not given them sufficient credit for the strong performance of the red meat industry (along with transport providers) in ensuring that supply chains flowed as smoothly as possible.
- Likewise, processors noted that with some isolated examples, COVID-19 outbreaks had been kept out of Australian processing plants. In part this was also because processors had access to overseas data which helped them avoid some of the missteps experienced in foreign countries. However, consistent with the attitude of some jurisdictions to lockdowns, early attention to the problems in plants and rapid testing ("go hard, go early) seemed to work well in limiting effects at the plant level.
- Nonetheless, as indicated above, there was a perception that Victorian processors may have been more impacted then the rest of the country. This appeared to have been due to the fact that they suffered from more prolonged periods of lockdown (most notably the second Victorian lockdown from roughly 30 June to 19 October 2020) combined with well-publicised outbreaks in some Victorian facilities which may have increased consumer scepticism about product. At the same time, they also experienced restocking-related impacts on production.
- The difference between the Victorian experience and that of the rest of Australia allows for further clues on the impact of the pandemic as opposed to that of restocking. This is discussed in the sections dealing with quantitative impacts in Section 5.5 and Appendix 1.
- Some concern was expressed about impacts at the retail level once JobKeeper was removed at the end of March 2021. Processors were also uncertain of the impact of the pandemic on the domestic market over the longer term. Some felt that the level of product diversification might be increased, but this was seen as a relatively minor issue.

Drought, restocking and COVID-19

- As indicated above, the pandemic occurred during a period in which many agricultural areas were recovering from drought and farmers were looking to rebuild herds. Accordingly, the same issues affecting international exports were noted as affecting domestic supply – i.e., limitations on stock due to farmers holding back stock for rebuilding pushing up prices.
- This had a substantial impact on production along with COVID-19. As above, in reflecting on the pandemic period (April- September 2020) respondents indicated that the impact of drought recovery and restocking on domestic production and revenues was likely to have a larger effect than that of COVID-19.

Policy issues and insights

- A number of foreign policy issues and insights have already been referred to in the discussion about Australia's export trade including relations with China and how to treat these, the need for and prosects of diversification.
- In the case of the red meat processing industry, as indicated, workforce issues (i.e. a lack of labour and, in particular, experienced labour) were raised by several interviewees and would appear to be a key concern. While these issues have long been a problem for the industry, the pandemic helped to crystalise them. The shutting of Australia's borders and the cutting off of short (and long) term migrant labour which had been a key source of staff was a particular problem faced by the industry (and this endures today). While the pandemic led to some temporary staff cutbacks in some areas, it remains difficult for the industry to attract experienced people over the longer term, even in areas of relatively high unemployment. Getting immigration policy back on track post-COVID was therefore seen to be of key importance.
- Given the rural location of many processors, many issues are also bound up with questions of regional policy. Although a variety of Federal Government initiatives to encourage foreign immigrants to locate in rural areas were introduced pre-pandemic, initiatives such as the further encouragement of international immigration to rural areas for fixed periods (e.g. five years) post-pandemic were favoured by some Getting domestic labour into regional areas - and support for rural manufacturing - were also policies which were seen as worth pursuing as a part of broader rural industry initiatives. In general, there appeared to be a feeling that, to date, government (whether Federal or State) had not done enough to address the issue of encouraging foreign immigration to rural areas or developed enough of a rural industry focus.[21]
- Some pointed to the need for future government initiatives to support rural life post-pandemic, by tapping into city dwellers' new-found interest in rural life. This might apply not only to those who could remote work (though the industry lends itself less to that) but to those whose mindset had changed post-pandemic. This might decrease reliance on foreign labour.
- Others saw a solution to labour shortages through a different approach. They expressed concerns about reliance on imported labour and pointed to improved automation as one solution to such issues at least in part. In addition, greater automation was seen as improving yield, improving workplace safety, and removing backbreaking repetitive jobs. More broadly, increased investment in Information Technology (IT) was also seen as required to modernise the industry and as complementary to this. The pandemic was seen as an opportunity to accelerate such processes.
- A related issue was that of sustainability. Automation in the face of a sudden cut-off of labour supply was seen as one potential outcome of the pandemic. However, some processors also raised concerns about sustainability over the longer term. The two were connected in that the pandemic was seen as either adding to a situation where some smaller processors become unsustainable or retaining sustainability through new initiatives such as automation.
- Other broader issues were also mentioned which impacted on both State and Federal governments. Payroll tax was seen as a continuing burden on the industry and this was mentioned as an issue by several respondents. Ensuring the smooth operation of ports was another issue of interest.
- Health policy was also noted as one issue which was singled out and which might loom large in the long term. It is likely that health and safety requirements will become more strengthen over time. As indicated, this may impact on processors' long term costs.

21 A summary of current Federal government migration programs designed to assist regional Australia is detailed at the Department of Home Affairs website - see "Regional Migration" https://immi.homeaffairs.gov.au/visas/working-in-australia/regional-migration . Some visas (such as Subclass 491) do require the holders to stay in a designated regional area and recipients can stay for up to five years. However, it is not clear that interviewees felt the current system was targeted enough to meet the specific needs of the red meat processing sector. Visa issues relating to the red meat processing industry are the subject of a current AMPC research program. The first of a two part series of reports was recently released. See AMPC, 2021, *Working towards an Ideal Red Meat Industry Visas Program-Stage 1* at https://www.ampc.com.au/2021/02/Working-Towards-an-Ideal-Red-Meat-Industry-Visa-Program-Stage-1

- The issue of government relations during the pandemic itself was touched on above. While there was a general feeling that the Federal and State governments had handled the pandemic well, in some cases processors felt more support could have been offered. (The Victorian government was also singled out by a number of processors on this score.) Given the lengths the industry had gone to to implement increased standards of hygiene and COVID-safe workplaces, there was concern that it had nonetheless been unfairly criticized by some, given publicity around isolated outbreaks at some meat processing facilities. It was felt government (and industry body) support would have been helpful to the industry at such times. This could be a lesson for future pandemics.
- Some processors also felt that more could also have been done (by Federal and State governments and industry peak bodies) to get processors together in a coordinated fashion to discuss common issues and map out a way forward during the pandemic. Others expressed concern that when government support was forthcoming it was something of a blunt instrument. The Federal government's JobKeeper initiative, for example, while welcome to some, was not seen as really what the industry needed by others, with concern about "handouts" creating inefficiencies. A more targeted approach may have been more useful for industry during the pandemic.
- Parallel to the above concerns, the blunt instrument of closing borders was also seen as problematic by some. This cut off the supply of foreign workers which many in the industry relied on to produce and/or meant that margins were squeezed due to rising labour costs. However, opinion was not unanimous on this, with others pointing to decreased production (requiring less labour) in any event and supporting border closures for strategic national reasons.
- Concerns were also expressed by some that industry peak bodies could have acted faster in their initial responses and that it was left to industry to self-organize and take the initiative. Others indicated that peak bodies could have increased their focus and advocacy on issues such as immigration policy, the future of the labour force and the promotion of the red meat industry in general both in the context of the pandemic and the longer term. Comments were also made that peak bodies should be focusing on how well processors had fared during the pandemic (especially compared to their overseas competitors).
- However, other processors pointed to a learning curve among both government and industry. In some cases this led to the development of discussion groups between Federal and/or State governments and key industry players. This was due to the realization that the failure of a major player could jeopardize the supply chain and that it was in everyone's interest to keep the logistics working. In addition, contingencies were put in place in the event that this might occur. Processors were able to swap their experiences about how their counterparts across the State (and in other States) as well as internationally were handling the pandemic, what COVID-safe practices had been put in place and how well they were working.
- The pandemic (and perhaps the coincident issue of restocking) also led some processors to develop better relationships with producers and look to undertaking joint projects. These initiatives did not start with the pandemic, but the pandemic was seen as accelerating them. This level of flexibility and improvised cooperation is an encouraging sign for future crises.
- Some peak bodies agreed with the need for better coordination of efforts. However, they also expressed concerns about short term thinking in some sectors of the industry. Greater cooperation with a view to long term development of both export and domestic product was seen as important, with the post-pandemic period providing an opportunity for such a development.

5.4 Strengths, Weaknesses, Opportunities and Threats (SWOT)

The pandemic offers an opportunity to take stock of where the industry might head in a future, post-COVID world. Stakeholder interviews also offer a rare opportunity to hear a variety of views on how stakeholders themselves perceive the industry going forward.

With this in mind, and as a small extension to the scope of this study, interviewees were asked to indicate the industry 's Strengths, Weaknesses, Opportunities and Threats (SWOT). A summary of their responses is provided below:

- **Strengths** – Reliability, good reputation, large employer, helps ensure domestic food self-sufficiency, consistent supplier (especially given the impact of the pandemic on our rivals), strong supply chains, market range and penetration, customer loyalty, scale, beef a staple part of many people's diet, distance from rest of the world (during the pandemic), clean green image.
- **Weaknesses** – Pricing, limited range, reliance on China, labour shortages, reliance on foreign labour, climate sensitivity, aging infrastructure.
- **Threats** – Non-tariff barriers, biosecurity, intensifying competition from the US and possibly Brazil on international markets, importation of US and other foreign product into Australia, competition from plant or lab grown meat products, competition from cheaper producers, rising costs, growing political tensions.
- **Opportunities** – Global increases in meat consumption, diversification (within limits), particularly within Asia and into new markets such as India and Indonesia, penetration into the EU and UK (post-Brexit), value adding through higher quality portions of product, developing home delivery and helping the service sector recover.

5.5 Quantitative effects

The above information gathered from processors and peak bodies is very useful in painting a picture of the broader impacts of the pandemic. However, while a quantitative survey was offered to processors and some quantitative data was collected from them, as anticipated this provided only limited data. The focus was therefore on using established top down data (particularly time series data) to ascertain the pandemic's quantitative impacts.

As indicated, the impacts of the COVID-19 pandemic were quantified during the defined time period 1 April 2020- 30 September 2020.

An additional complication was that the pandemic did not occur in a vacuum. Interviews and a variety of other sources indicated that drought recovery and he associated issue of restocking meant that much stock was held back from processors during April-September 2020 (and beyond) with resultant high prices for stock also limiting processor demand. This meant that production would likely have been reduced during this period even had the pandemic not occurred.

The fact that restocking was identified as a key issue demonstrates the importance of undertaking qualitative work as a complement to quantitative estimates. Had bottom up work not been undertaken, the impact of the pandemic may have been overestimated (as restocking impacts could have been conflated with the effects of the pandemic itself). The combination of such bottom up (interviews) and top down (official quantitative data) approaches therefore allowed for a more accurate picture of the quantitative impacts of the pandemic then would otherwise have been the case.

Accordingly, the approach to quantification involved a number of steps:

- Time series data on revenues was collected from ABS sources, including the *Livestock Products Australia* publication in particular which included the value of cattle and calves and sheep and lambs slaughtered for both exports and domestic consumption on a quarterly basis.[22] Advice from the ABS indicated that the "Gross value of livestock slaughtered" figures reported in this publication were in fact "farm gate" revenues to producers.[23]
- Data from *Livestock Products Australia* for the combined June and September quarters (i.e. the period 1 April to 30 September in each respective year) over the four year period 2016 to 2019 was then used to determine the trend in such the gross value of livestock slaughtered in recent years and compared to gross value of livestock slaughtered for the June and September 2020 quarters.
- A margin (of 14%) was then added to this to determine actual processor revenues. This margin was based on the average over the three years 2016-17 to 2018-19 based on comparing the gross value of livestock slaughtered (farm gate prices) reported above and meat processing income for Australian and New Zealand Standard Industrial Classification (ANZSIC) class (1111) reported in ABS' *Australian Industry* 2018-19.[24]
- As the ABS data contained in *Livestock Products, Australia* did not include goats, supplementary export data was used to determine the total value of goat revenues (although these were minor accounting for just over 1% of total red meat revenues).[25]
- Based on the above trend data, an estimation was then made of the likely processor revenues, during the period 1 April – 30 September 2020 had the pandemic not occurred. This suggested revenue should have been $10.46 billion in that period against the actual result of $9.53 billion – implying a loss of $929 million (or 8.9% below what might have been expected during this period).[26]
- However, as indicated, this would likely be an upper-level estimate of the impact of the pandemic and in fact is likely to overstate its effect. This is because this period also saw significant restocking and high prices, suggesting red meat processors would have experienced depressed production, even in the absence of the pandemic.
- In order to overcome this difficulty, two jurisdictions (New Zealand and Victoria) were used as benchmark comparators under two different approaches to separate out the impact of the pandemic from that of restocking. Appendix 1 discusses the choice of these comparators in more detail. Analysis using both approaches produced similar results, and the more conservative "New Zealand approach" was applied.
- This suggested that $326 million (35% of the total shortfall in revenues) might be attributable to the pandemic and $603 million (65% of the total shortfall) attributable to restocking (or other factors). This result also accorded with the views of some interviewees that most of the impact during this period was due to restocking. As noted, it is striking that some suggested the same approximate proportions for the impacts of the pandemic vs. those of restocking as derived above.

22 ABS (2020) *Livestock Products Australia*, September 2020

23 BIS Oxford Economics e-mail communication with ABS, 9 December 2020

24 ANZSIC class 1111 (Meat processing) includes pigs. So, for the purposes of obtaining an industry-wide margin the gross value of pig slaughter was included in the figures. Note that the margin calculated is not intended to reflect a profit margin. Rather it is to determine the difference between the gross value of livestock slaughtered cited in *Livestock Products Australia* and processor revenues.

25 The value of goat exports in absolute terms and relative to beef and sheep meat exports was based on data obtained through Trade Data Monitor 2020, https://www.tradedatamonitor.com/ This was then grossed up to allow for a domestic component based on the domestic share of total red meat revenues to calculate total value of goat meat revenues.

26 It should again be noted that revenues cited in this report reflect only defined beef, sheep meat and goat meat products and so will differ from estimates made for the red meat industry in other publications.

- The loss of $326 million in processor revenues is equivalent to a loss of $59 million in Gross Value Added (GVA) terms and some 600 jobs (in headcount terms).[27]
- The figure of $326 million in direct revenue losses was then applied to an input-output (I-O) model of the Australian economy.[28] The I-O model indicates both the direct effects of the pandemic on processors (in terms of lost revenues, GVA and jobs) and the total effect on the rest of the economy - as these effects "flow-on" or ripple through supply chains and as those made unemployed directly among processors and down the supply chain have less money to spend. The use of the I-O model indicates that the pandemic had the following direct and total effects, as indicated in the table below:

Table 12: Direct impacts of COVID-19 on red meat processing industry and total economic impacts

Item	Revenue ($m)	GVA ($m)	Employment (Headcount)
Direct Impacts	326	59	610
Indirect and induced impacts (flow-on impacts)	666	331	2,230
Total economic impacts	**992**	**390**	**2,840**

Source: BIS Oxford Economics analysis

- Further details of the I-O modelling approach used are provided in Appendix 1.
- The direct effects ($326 million) equated to 3.1% of our estimate for where industry revenue during that period ($10.46 billion) should have been had trend production increases been maintained. Accordingly, while the effects of the pandemic were real, they were relatively modest in terms of their direct financial impacts on the industry.
- Nonetheless, even these modest effects had additional impacts down the supply chain. As indicated, total effects were notable, with the economy as a whole recording a loss of $390 million in GVA and 2,800 jobs.
- The total effects can also be disaggregated to see which industries down the supply chain were most affected by the loss in processor revenues, as processors ordered less from their suppliers and they ordered less from theirs (and so on) and as workers in the processing industry and the supply chain were laid off.
- The agricultural, forestry and fishing, manufacturing and financial and insurance services industries appear to have been hit hardest by the flow-on impacts of the pandemic from the red meat industry in terms of lost GVA, accounting for $124 million, $78 million and $31 million of GVA losses respectively. This is not surprising given the close links between processors and the agricultural industry in particular, the fact that meat processing is itself a manufacturing industry and that financial services would be widely used by both processors and their staff.
- Impacts on employment were similar with flow-on effects resulting in the estimated loss of 900 agricultural jobs, 700 in manufacturing and some 180 in retail.
- Further details on the approach to quantification and supply chain industry impacts are provided in Appendix 1.

27 GVA is equivalent to Gross Domestic Product excluding taxes less subsidies on products. In practical terms the difference between the two is small. GVA is often used to measure impacts on a given industry.

28 The mode ws based on the most recent release of ABS input-output tables- i.e. ABS, 2020 Australian National Accounts, Input-Output Tables 2017-18

6.0 DISCUSSION

The analysis above has provided a valuable insight into the impacts of the pandemic on Australia and its competitors. As indicated, Australia's red meat processing industry has performed relatively well during the defined pandemic period defined by this study (1 April - 30 September 2020), though it is acknowledged that the crisis continues to impact the country and the world at time of writing (February 2021). The picture that emerges is one of resilience. Faced with immense logistical, social, economic, health and regulatory challenges, the red meat processing sector has performed remarkedly well. Reliable supply has been maintained to both domestic and export markets.

At the same time the red meat processing industry faces a number of challenges. These challenges are not new. The difference is that the pandemic has thrown them into stark relief. The impact of the pandemic should not only be measured in quantitative costs (which to date have proven modest). Rather the pandemic has also had more strategic and qualitative terms.

1. Chief among these is Australia's relationship with China. Geopolitical tensions, the diplomatic disagreement over Australia's call for an investigation into the origin of COVID-19 , health concerns and Chinese bans on exports ranging from barley to coal have tested both the political and economic relationship between the two countries in a way unseen since the normalisation of the relationship in 1972. COVID-19 may appear to have been the catalyst for the rise in such tensions, but it was not the underlying reason for them. The difficulties of having a country which is simultaneously our largest trading partner and with which there have been a recent rise in tensions has been noted above. As indicated, this is a particular challenge for the red meat industry given the importance of China to its global exports and overall trade.
2. Associated with the above is the issue of export trade diversification. As indicated, the pandemic and the interrelated tensions with China, gave calls for diversification increasing prominence. It would seem logical for Australia to diversify its red meat export trade. However, there are practical and financial difficulties in making this a reality. The first is finding a replacement for the sheer size of the Chinese market along with the fact that Chinse cuisine makes extensive use of red meat products in a way that others do not. The second is related to the first – as indicated prices paid by Chinese market tend to be much higher for many of the industry's products than is true domestically or in other markets. This is a factor which is difficult to overcome, though building up more of a presence in other international markets would seem an essential start. What may emerge is a "China plus" approach in which China remains an important export market but there is increasing emphasis on diversification as a form of risk mitigation.
3. Another challenge arises from the nature of the workforce. The pandemic exposed the industry's (and Australia's) reliance on a high rate of immigrant workers to help staff meat processing plans. The sudden shut-off of this labour supply led to difficulties which added to the industry's longer-term problems in attracting staff. Several of the interviewed processors independently mentioned the issue of skilled labour shortages as of key importance to them. The solutions whether through a new post-COVID immigration programs, initiatives to encourage domestic participation and/or automation would seem to require a concerted effort from Federal and State governments, industry and peak bodies. This issue is also bound up with the broader issue of rural policy and Federal and State government vision for the industry and its place in the post-pandemic rural economy.
4. However, a more directly positive story is the experience of the country in dealing with the pandemic itself. Supply chains, for the most part held – both domestically and internationally. Though relations with Federal and/or State governments in various parts of the country were fraught in some instances, in general, government-industry cooperation seems to have been good and the national response excellent on the whole. Despite COVID-19 outbreaks in some facilities, overall, the red meat processing industry appears to have rapidly responded to the challenges of the pandemic though rolling out a variety of health and safety measures and, together with transport providers, by ensuring that product got through to domestic and international customers.

5. As indicated, we estimate that the direct economic impact of COVID-19 itself remained relatively modest in quantitative terms, with some $326 million in lost revenues during the period 1 April-30 September 2020. We estimate this equates to some 3.1% of red meat industry revenue (as defined for this study) compared to what could have been expected during that time had previous trend growth been maintained. However, it should be noted that impacts down the supply chain and on the national economy were more substantive, with an estimated loss of some $390 million in GVA and 2,800 jobs on a headcount basis. As noted, these estimates take into account the likely impact of restocking which occurred concurrent to the pandemic. While some difficulties have been pointed out above, much of this appears to be attributable to the work of processors themselves in ensuring rapid health and safety procedures within plants, as well cooperation amongst processors and with all levels of government.

7.0 CONCLUSIONS

The outbreak of the largest pandemic in a century posed a major challenge to Australia and the world. As indicated, the Australian red meat processing industry has generally coped well with the pandemic. Separating the impacts of the pandemic from the concurrent impacts of drought recovery and restocking, we find that the pandemic caused a $326 million loss in industry revenue and some 600 jobs over the period 1 April to 30 September 2020. By our estimates this equates to 3.1% of industry revenue compared to what could have been expected during that time had previous trend growth been maintained. This is equivalent to a loss of $59 million in Gross Value Added (GVA) terms and some 600 jobs (in headcount terms).[29]

Taking into account disruptions to the supply chain and reduced consumer spending due to job losses, as effects rippled out across the economy, the total effects across the Australian economy equate to $390 million in GVA terms and 2,800 jobs during that period.

What implications does the COVID-19 pandemic therefore hold for red meat processors in the short, medium and longer term?

As indicated, Australia's red meat processors coped well with the pandemic itself. This was evident not only from speaking to processors and peak bodies themselves but from quantitative data on meat processing revenues (and Australia's trade with its key overseas markets). Australia has emerged with its reputation as a reliable supplier, relative to its competitors, enhanced.

Nonetheless there is one key exception to this: China. Leaving aside the dispute over a relatively small number of processing plants, the question of how to manage Australia's trade and political relationship with China will loom large over the red meat processing industry for the foreseeable future. The pandemic has served to draw attention to tensions which were already building up in the years preceding it. China is likely to remain Australia's primary red meat export market for the foreseeable future. However, the pandemic, and recent tensions (whether interconnected with it or not) have given added impetus to the issue of growing alternative export markets. What may emerge could be a "China plus" policy whereby China continues to be an important market, but risk mitigation results in a trend towards market diversification.

29 GVA is equivalent to Gross Domestic Product excluding taxes less subsidies on products. In practical terms the difference between the two is small. GVA is often used to measure impacts on a given industry.

As most of the growth in the industry is likely to come from exports such diversification is also critical to establishing a long-term future basis for the industry. The pandemic has re-emphasised this. While the issues related to herd and revenue constraints on growing non-China exports have been discussed above, it is important that both industry and policymakers accelerate their efforts to find future markets to address these issues and to explore future market opportunities in more detail. This may also include actively promoting product in key growth areas such as India and South-East Asia as well as taking advantage of changes in more traditional markets such as the UK post-Brexit and the EU.

The pandemic has actually presented Australia with an opportunity do so by indicating the country's strengths in terms of reliability and quality product compared to its rivals. Australia's export performance during the pandemic was clouded by the impacts of restocking. However, Australia's key international rivals such the United States and Argentina suffered considerably more disruption to their exports due to the pandemic itself then Australia. In contrast, New Zealand also performed well, while Brazil appears to have made a remarkable recovery to expand exports – perhaps capitalising on tensions in the China–Australia relationship. Overall, however, Australia's strong performance serves to accentuate the country's strengths. This is something that should be capitalised on in the post-pandemic years.

On the domestic front, the issue of future labour supply (sometimes encapsulated within calls for a broader regional policy strategy) was a consistent theme for many processors. The eventual reopening of borders may see some of these pressures ease, but as in the case of other sectors such as travel or universities, it seems unlikely that the industry labour force structure will simply or rapidly return to its pre-pandemic "normal". It is likely that Federal and State governments (and peak bodies) will face increased calls from industry for improved rural policy to deal with labour market issues. The extent to which the industry can or should be automated is also likely to emerge as a post-pandemic issues, particularly as the border shutdown illustrated the fragility of reliance on imported labour. One positive here is that the post-pandemic period may see an increased interest in city-dwellers moving to rural areas. The industry might work with all levels of government to encourage this, which might not only help boost long term domestic labour pools but add to the future viability of rural communities.

The strong performance of the red meat processing industry during the pandemic is something it can feel duly proud of. The industry was able to maintain reliable supplies to both domestic and international customers under challenging exceptionally circumstances. These included not only dealing with the pandemic within processing plants themselves but dealing with logistical and labour supply shocks. There is little doubt that the skill and flexibility with which the industry dealt with this was in no doubt a contributing factor to the fact that the pandemic had only modest impacts on industry revenues.

Nonetheless, another implication of the pandemic is that it is likely that health and safety requirements will only strengthen in the post-pandemic years, adding further fixed costs and squeezing processor margins further. This may lead to a period which sees the exit of smaller processors and industry consolidation.

All of these themes relate to a broader one – longer term industry sustainability post-pandemic and the need to prepare for such future emergencies. As indicated, Australia's red meat supply chain worked well, thanks to industry flexibility, supply chain durability and co-operation both between processors and (to varying extents) between processors and Federal and State governments. Nonetheless, more could always be done to prepare for future pandemics or other emergencies which might disrupt the red meat supply chain. As indicated, some processors stated that government could be slow in developing an approach to the industry and that they developed initiatives individual or in cooperation with other processors, with government involvement only occurring after this.

Greater teamwork between Federal and State governments and industry and increased coordination on key issues including not only pandemic preparedness but using the lessons to deal with other major disasters (such as drought, climate change, export orientation and diversification) will be important into the future.

Accordingly, we would summarise the pandemics' policy implications as follows:

1. **Pandemic (and general disaster) preparedness** – The Australian red meat industry coped well when confronted by the pandemic. This was due to the skill, dedication, and flexibility of many in the industry and allied industries such as transport and logistics and retailers. The pandemic acted as an unforeseen industry "stress test". However, it may be unwise to rely on this combination holding for future disasters, as every such event is bound to throw up a new set of challenges. For this reason, it may be prudent to for both Federal and State governments and industry pay more attention to industry disaster preparedness and resilience and to develop more formalised strategies to deal with this. This may also address issues raised such as the speed of Federal and State government response and the ad hoc nature of the response in some cases when it did occur.
2. **Relationship with China** – As indicated, the nature of Australia's relationship with China proses a long term challenge for both countries. In the context of the red meat processing industry there are concerns that Australia's recent tensions and disagreements (whether directly related to the pandemic or otherwise) has repercussions on trade and is at odds with the implicit "live and let live" attitude of the past. The change in tone has had implications for Australia's trade with China as a whole. While there are no easy answers to the issue of maintaining an important trading relationship in the context of growing political differences, there may be a need for greater clarity and communication with industry on the part of the Federal government. More broadly there may be a case for greater government-industry coordination and charting a path forward, both in the case of the red meat industry and across the economy as a whole.
3. **Export diversification** – Related to the above, there is a clear need to develop a future export diversification strategy but one which recognises the challenges of doing so given the size of the Chinese market and its willingness to pay high prices for the industry's product. All parties interviewed in this project recognised this and there were calls from processors, Federal government, and industry peak bodies for better coordination in this regard. Realistic policies which recognise the challenges, understand that there is no overnight solution and seek to promote the industry's products in key emerging markets would seem to be the best approach here.
4. **The workforce** - Workforce issues were among those frequently cited by processors as of concern during the course of this project. The pandemic has exposed the industry's reliance on imported labour and its vulnerability to a disruption of the flow of such labour. However, beyond this, there are broader concerns about the future of the workforce and the ability of the industry to retain experienced staff and its attractiveness to domestic labour. Greater efforts on the part of Federal and State governments (perhaps through changed immigration incentives in the case of the Federal government) industry (via efforts to promote the industry and/or moves toward greater automation) and peak bodies (with additional industry support) may be required to address this issue.
5. **Broader Industry and regional policy** – Beyond the workforce itself, there is a need for better industry, peak body and Federal and State government coordination and cooperation on regional policy. Issues such as efforts to boost regional economies (again through immigration but also via domestic movement) and the role of the industry within a broader regional economy are ones which are of growing concern.

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- Stats NZ, Overseas Merchandise Trade, https://www.stats.govt.nz/information-releases/overseas-merchandise-trade-december-2020
- Trade Data Monitor 2020, https://www.tradedatamonitor.com/

9.0 APPENDICES

9.1 Appendix 1: Approach to quantifying the economic impact of the pandemic

We have detailed the approach taken to quantification in the main body of this report. This discussion is repeated here, with some additional details on approach and derivation.

Information gathered from processors and peak bodies is very useful in painting a picture of the broader impacts of the pandemic. However, while a quantitative survey was offered to processors and some quantitative data was collected from them, as anticipated this provided only limited data. The focus was therefore on using established top down data (particularly time series data) to ascertain the pandemic's quantitative impacts.

The impacts of the COVID-19 pandemic were quantified during the time period 1 April 2020- 30 September 2020.

An additional compilation was that the pandemic did not occur in a vacuum. Interviews and a variety of other sources indicated that drought recovery and he associated issue of restocking meant that much stock was held back from processors during the period in question (April 1- September 30 2020), with resultant high prices for stock also limiting processor demand. This meant that production would likely have been reduced during this period even had the pandemic not occurred.

The fact that restocking was identified as a key issue demonstrates the importance of undertaking qualitative work as a complement to quantitative estimates. Had bottom up work not been undertaken, the impact of the pandemic may have been overestimated (as restocking impacts could have been conflated with the effects of the pandemic itself). The combination of such bottom up (interviews) and top down (official quantitative data) approaches therefore allowed for a more accurate picture of the quantitative impacts of the pandemic then would otherwise have been the case.

Accordingly, the approach to quantification involved a number of steps:

- Time series data on revenues was collected from ABS sources, including the Livestock Products Australia publication in particular which included the value of cattle and calves and sheep and lambs slaughtered for both exports and domestic consumption on a quarterly basis.[30] Advice from the ABS indicated that the "Gross value of livestock slaughtered" figures reported in this publication were in fact "farm gate" revenues to producers.[31]
- Data from Livestock Products Australia for the combined June and September quarters (i.e. the period 1 April to 30 September in each respective year) over the four year period 2016 to 2019 was then used to determine the trend in such the gross value of livestock slaughtered in recent years and compared to gross value of livestock slaughtered for the June and September 2020 quarters.
- A margin (of 14%) was then added to this to determine actual processor revenues. This margin was based on the average over the three years 2016-17 to 2018-19 based on comparing the gross value of livestock slaughtered (farm gate prices) reported above and meat processing income for ANZSIC class (1111) reported in ABS' Australian Industry 2018-19.[32]
- As the ABS data contained in Livestock Products Australia was restricted to sheep meat and beef, supplementary export data was used to determine the total value of goat revenues (although these were minor accounting for just over 1% of total red meat revenues).[33]

30 ABS (2020) *Livestock Products Australia*, September 2020

31 BIS Oxford Economics e-mail communication with ABS, 9 December 2020

32 Since ANZSIC class 1111 (Meat processing) includes pigs. So, for the purposes of obtaining an industry-wide margin the gross value of pig slaughter was included in the figures. Note that the margin calculated is not intended to reflect a profit margin. Rather it is to determine the

33 The value of goat exports in absolute terms and relative to beef and sheep meat exports was based on data obtained through Data Monitor 2020, https://www.tradedatamonitor.com/ This was then grossed up to allow for a domestic component based on the domestic share of total red meat revenues to calculate total value of goat meat revenues.

- Based on the above trend data, an estimation was then made of the likely processor revenues, during the period 1 April – 30 September 2020 had the pandemic not occurred. This suggested revenue should have been $10.46 billion in that period against the actual result of $9.53 billion – implying a loss of $929 million (or 8.9% below what might have been expected during this period).[34]
- However, as indicated, this would likely be an upper level estimate of the impact of the pandemic and in fact is likely to overstate its effect. This is because this period also saw significant restocking and high red meat processors which would have depressed production even in the absence of the pandemic.
- In order to overcome this difficulty, two jurisdictions (New Zealand and Victoria.) were used as benchmark comparators under two different approaches ("the New Zealand approach" and "the Victorian approach") to separate out the impact of the pandemic from that of restocking.
- New Zealand was chosen as it was the closest comparator nation to Australia and yet one which did not suffer a drought of comparable length and magnitude in recent years (though there was a substantial drought on the North Island in 2019-20).[35] Accordingly, it could be expected that the restocking issues which impacted on Australia would be largely absent for New Zealand, but the pandemic impacts would remain. Given both countries were export oriented and good export data exist for both, the pure COVID-19 effect might therefore be discerned for both.
- New Zealand export data were therefore used to determine the impacts of the pandemic on a country with a similar experience to that of Australia, but without restocking issues. Comparing New Zealand export data during the pandemic period (1 April to 30 September 2020) with trend data over the same period for four years (2015 to 2019) suggested that export revenue growth was roughly halved by the pandemic.[36]
- This result was applied to Australian total revenue data. (It was assumed the domestic effects mirrored the export effects, since restocking affected both). Had Australian red meat processor revenue growth simply halved during the pandemic then this would imply a loss of $326 million. If compared to the actual gross loss of $929 million this implies that restocking did indeed account for the majority (i.e. 65% or roughly two-thirds) of the drop in processor revenues during the defined pandemic period (1 April – 30 September 2020).
- A second approach was to compare Victorian revenues to these in the rest of Australia during the September 2020 quarter (only). This quarter was chosen because Victoria stood out during this period as being particularly affected both by restocking and the pandemic - including restrictions on workforces allowed within processing plants and a period of lockdowns which commenced on 30 June 2020, were eventually extended State-wide and only began easing on 28 September 2020 (for the workforce). This compared with a situation in the rest of Australia where, processors were gradually dealing with the effects of the pandemic and, by 2020 standards, getting closer to "business as usual " during the September quarter, but where they also affected by restocking issues. The relative impact of the pandemic plus restocking on Victoria could be compared to the rest of the country where the effects of the pandemic itself appeared to be easing but where restocking continued be a significant issue. The difference between these results could help tease out the impacts of the pandemic in isolation vs those of restocking. This is in effect a reversal of the New Zealand to Australia comparison, where the comparison was with the less adversely affected jurisdiction.

34 It should again be noted that revenues cited in this report reflect only defined beef, sheep meat and goat meat products and so will differ from estimates made for the red meat industry in other publications.

35 NASA, *op. cit*. Beef + Lamb New Zealand op. cit. As indicated, there are indications in Beef+Lamb New Zealand that drought and restocking will herd numbers for both cattle and sheep but most of the major effects would appear to occur later in 2020-21 rather than at the same time as Australia.

36 In order to avoid currency distortions this comparison was made in original New Zealand dollar units and is based on data derived from Stats NZ, Overseas Merchandise Trade, https://www.stats.govt.nz/information-releases/overseas-merchandise-trade-december-2020

- The gross value of livestock slaughtered (including cattle and calves and sheep and lamb) for the September quarter for the period 2015 to 2019 and in 2020 were derived from the September 2020 edition of the ABS' Livestock Products Australia publication and calculated for:
  - Australia and;
  - Australia excluding Victoria.
- Estimates were then made for what September quarter 2020 gross value of livestock slaughtered should have been in both cases had trend growth continued. The Australian gross value of livestock slaughtered dropped by 12.1% compared to the result that would have been expected had trend growth been achieved in the September quarter. However, excluding Victoria those revenues dropped by only 7.4% relative to trend expectations. Since both Victoria and the rest of Australia experienced restocking during this period the difference between the two (4.7 percentage points) could be seen as attributable to a "true pandemic" effect. This suggests that the "true pandemic effect" could account for some 39% (0.047/0.121) of the drop in gross value.
- Applying this result and grossing up for processor margins (using the approach described above) and allowing for goat meat revenues suggest a $359 million direct revenue loss due to the true effects of the pandemic (and by implication a $570 million loss due to restocking or other factors). This is similar to the New Zealand approach above and produces a similar, though slightly higher, estimate of loss.
- Both the New Zealand and Victorian results therefore produced similar proportionate losses on processor revenues (35% and 39% of total losses respectively) due to the impact of the pandemic itself as opposed to restocking or other factors (accounting for roughly the remaining 61% to 65% of revenue shortfall). This result also accorded with the views of processors that most of the impact during this period was due to restocking (with some suggesting the same approximate proportions for each effect as derived above).
- In the interests of adopting a conservative approach, the first (New Zealand) approach was adopted for this report. Accordingly, the estimated direct revenue loss to processors during the pandemic period (1 April – 30 September 2020) was assessed at $326 million using the "New Zealand Approach").In other words 35% of the total shortfall in revenues might be attributable to the pandemic and $603 million (65% of the total shortfall) attributable to restocking (or other factors). This result also accorded with the views of some interviewees that most of the impact during this period was due to restocking. As noted, it is striking that some suggested the same approximate proportions for the impacts of the pandemic vs. those of restocking as derived above.
- The loss of $326 million in processor revenues is equivalent to a loss of $59 million in Gross Value Added (GVA) terms and some 600 jobs (in headcount terms).[37]
- The more conservative ("New Zealand Approach" figure of $326 million) in direct revenue losses was then then applied to an input-output (I-O) model of the Australian economy.[38]
- The I-O model indicates both the direct effects of the pandemic on processors (in terms of lost revenues, GVA and jobs) and the total effect on the rest of the economy - as these effects "flow-on" or ripple through supply chains and as those made unemployed directly among processors and down the supply chain have less money to spend.
- The I-O model allows for three type of effects:
  - **Direct effects** – i.e. those directly experienced by processors in terms of lost jobs, revenue and (by derivation) GVA.
  - **Indirect effects** – The supply chain effects which result from processors reducing speeding on suppliers who then reduce spending on theirs and so on.
  - **Induced effects** – which represent the impacts of the losses in consumer (employee) spending as employees are laid off in both the processor facilities and/or down the supply chain.

37 GVA was estimated based on revenue losses using the three year average (2016-76 to 2018-19). The GVA/Gross Output (i.e., revenue) ratio for the meat processing industry (ANZSIC class 1111) reported in the ABS' *Australian Industry 2018-19* was applied to revenue losses to determine GVA losses. Job losses were measured on a headcount basis and were based on the three year average ratio of employees per million dollars in GVA, also as estimated in *Australian Industry 2018-19*. The jobs/$ million GVA ratio was then used to determine job losses.

38 The model was based on the most recent release of ABS input-output tables- i.e. ABS (2020) *Australian National Accounts, Input-Output Tables 2017-18*

- The total economic effects are the sum of the direct, indirect and induced effects.
- As indicated data, supplied by the ABS *Australian National Accounts: Input-Output Tables 2017-18* and its Australian Industry 2018-19 publication allow for the derivation of GVA and (headcount) employment effects as well as revenue losses stemming from the effects of the pandemic on industry revenues. This allows for the use of three indicators to measure the impacts of the pandemic down the supply chain, though economists prefer the use of GVA to revenue as a measure, since the latter represents a net effect, allowing for most costs as opposed to a gross measure (revenue).
- The use of the I-O model indicates that the pandemic had the following direct and total effects, as indicated in the table below:

Table 13: Direct impacts of COVID-19 on red meat processing industry and total economic impacts

Item	Revenue ($m)	GVA ($m)	Employment (Headcount)
Direct Impacts	326	59	610
Indirect and induced impacts (flow-on impacts)	666	331	2,230
Total impacts	992	390	2,840

Source: BIS Oxford Economics analysis

- The direct effects ($326) equated to 3.1% of our estimate for what industry revenue during that period ($10.5 billion) should have been. Accordingly, while the effects of the pandemic were real, they were relatively modest in terms of their direct financial impacts on the industry.
- Nonetheless, even these modest effects had substantial additional impacts down the supply chain. Total effects were notable, with the economy as a whole recording a loss of $390 million in GVA and 2,800 jobs.
- The total effects can also be disaggregated to see which industries down the supply chain were most affected by the loss in processor revenues, as processors ordered less from their suppliers and they ordered less and so on and workers in the processing industry and the supply chain were laid off.
- The agricultural, forestry and fishing, manufacturing and financial and insurance services industries appear to have been hit hardest by the flow-on impacts of the pandemic from the red meat industry in terms of lost GVA, accounting for $124 million, $78 million and $31 million of GVA losses respectively. This is not surprising given the close links between processors and the agricultural industry in particular, the fact that meat processing is itself a manufacturing industry and that financial services would be widely used by both processors and their staff.
- Impacts on employment were similar with flow-on effects resulting in the estimated loss of 900 agricultural jobs, 700 in manufacturing and some 180 in retail.

- The table below provides a full breakdown to total economic effects across all major Australian industry groups in terms of revenues, employment (by headcount) and GVA.

Table 14: Breakdown of total economic impacts of COVID-19 on the red meat processing industry

Industry	Revenue ($m)	GVA ($m)	Employment
Agriculture, Forestry and Fishing	262	124	900
Mining	7	4	7
Manufacturing	376	78	700
Electricity, Gas, Water and Waste Services	25	10	33
Construction	27	8	70
Wholesale Trade	26	13	68
Retail Trade	18	11	178
Accommodation and Food Services	11	5	109
Transport, Postal and Warehousing	41	18	133
Information Media and Telecommunications	13	6	29
Financial and Insurance Services	49	31	87
Rental, Hiring and Real Estate Services	44	28	30
Professional, Scientific and Technical Services	36	18	152
Administrative and Support Services	23	14	96
Public Administration and Safety	4	3	21
Education and Training	7	5	57
Health Care and Social Assistance	9	6	78
Arts and Recreation Services	4	1	23
Other Services	10	5	75
Total	**992**	**390**	**2,844**

Source: BIS Oxford Economics analysis

9.2 Appendix 2: Overview of major Australian export markets

This Appendix provides a more detailed look at some of Australia's major export markets. While (apart from China) a detailed discussion of export markets was not specifically within the scope of this study, such an overview may be useful. This is particularly so given the comments of interviewees on the issue of diversification and the export market policy directions suggested above.

In considering the discussion below, however, it is also important to recall that restocking is likely to have had a large impact on exports over the pandemic period. Simply comparing declines in Australian exports to our key markets with those of our competitors may therefore mask the effect of restocking on the figures.

Raw figures should therefore be treated with some caution. Accordingly, while Australia may have navigated the pandemic itself better than many of its competitors, export volumes to key markets over the period 1 April – 30 September 2020 may nonetheless be affected by as much or more than our competitors due to the impact of restocking on production rather than the pandemic itself. The outcomes experienced by New Zealand, discussed below, may provide a good rule of thumb for an adjusted measure of Australian export performance during the pandemic without the impacts of restocking.

9.2.1 China

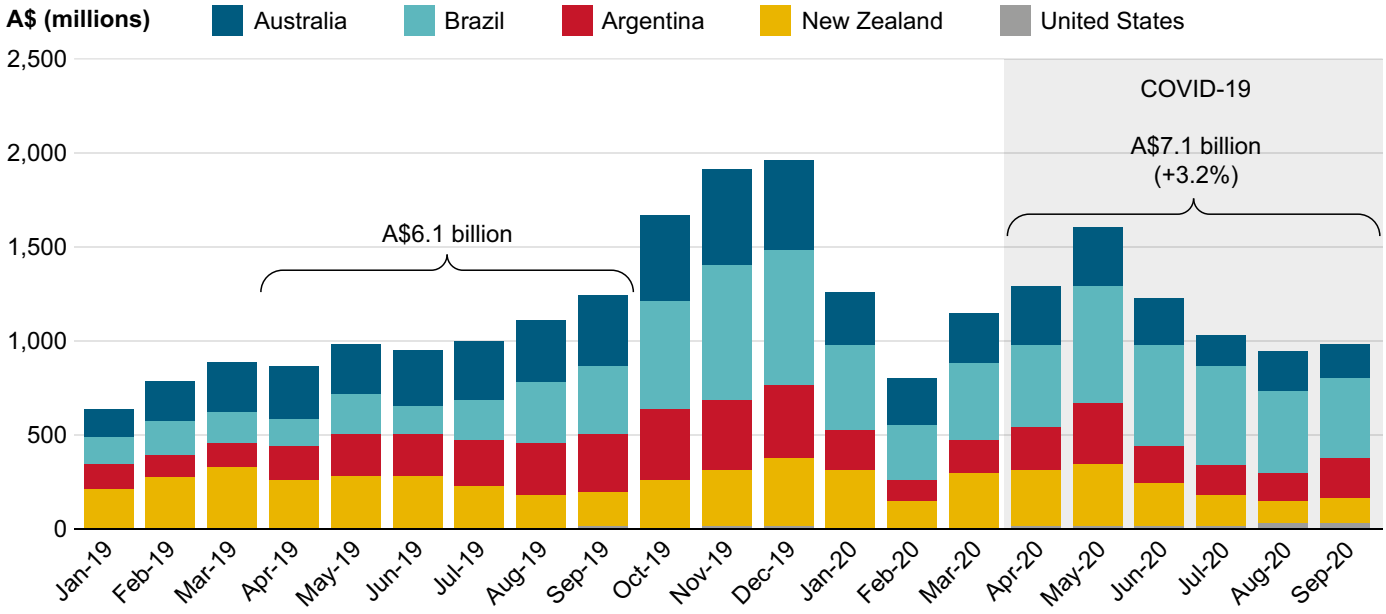
In CY 2019 China imported around A$ 14 billion in red meat from the major red meat exporters, with the vast majority being beef. April to September 2020 saw a 15% uptick in the value of red meat imports compared to the same period in 2019 and also saw a notable shift in the composition of sources. Both Australia and New Zealand saw declines in both total value (down 23% and 10%, respectively, over April to September 2020 compared to the same period in 2019) and proportion of total Chinese imports. China substituted this demand with increased value from Brazil (up 12% from April to September 2020 as compared to the same period in 2019) and to a lesser degree with red meat sourced from the US. The notable supplementation of red meat imports from Brazil and Argentina continued over CY2020 despite sporadic import suspensions of Brazilian and Argentine facilities.

Apart from the pandemic itself, much of the fall in demand for Australian produce may be due to restocking, as discussed above. Nonetheless, the substitution away from Australian produce despite the more severe impact of the pandemic in Brazil and the US is interesting. It is possible that this is due to ongoing political tensions, with attendant implications for future trading relationships but it is of course difficult to prove causation.

Whether or not it is considered pandemic-related or due to other underlying trade and pollical factors, Chinese bans on selected meat processing plants have had an effect, although this seems modest compared to subsequent actions on other commodities, as noted in the main body of this report. As at mid-December 2020, eight Australian abattoirs have blocked from exporting red meat to China:

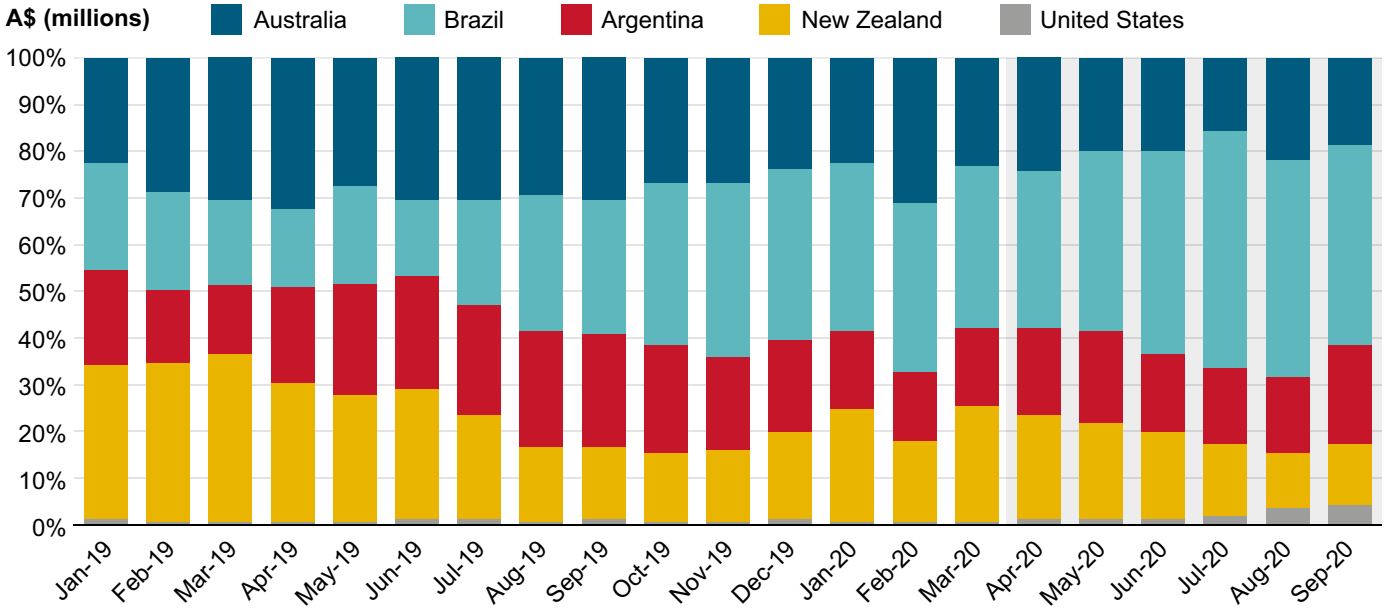
- May: Four abattoirs (three in Queensland, one in New South Wales) blocked citing labelling issues, representing an estimated 35 per cent of beef exports to China[39].
- July: Two Victorian abattoirs voluntarily stopped exporting to China after staff tested positive for COVID-19. They remain blocked by China.
- August: A Queensland abattoir was suspended from supplying China with beef following contamination concerns.
- December: Another Queensland abattoir blocked for unknown reasons.

Chart 32: China red meat imports by month by destination, value



Source: Trade Data Monitor 2021

Chart 33: China red meat imports by month by destination, proportion of five exporter total



Source: Trade Data Monitor 2021

39 ABC, 2020. https://www.abc.net.au/news/rural/2020-05-12/china-trade-escalation-as-beef-farmers-are-targeted/12237468

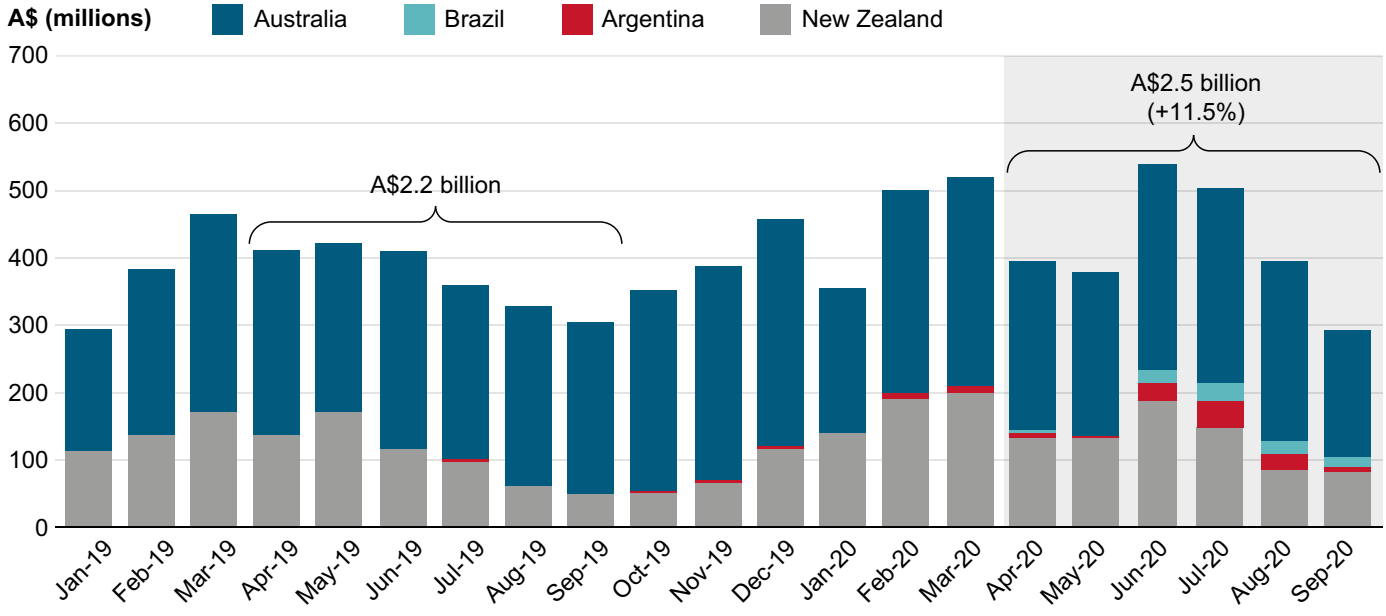
9.2.2 United States

The US imported around A$ 4.6 billion in red meat from the major red meat exporting nations in 2019. From April to September 2020 the US imported A$ 2.5bn of red meat up 11.5% from the same period in 2019. Much of this new value was imported from New Zealand (+22%) with new additions from Brazil and Argentina (A$ 85m and A$ 110m, respectively). Australian imports stagnated somewhat, shrinking 4% over this period.

In interpreting these figures, it is again important to consider the impact of restocking (which may explain some of the difference between the Australian and New Zealand results in particular).

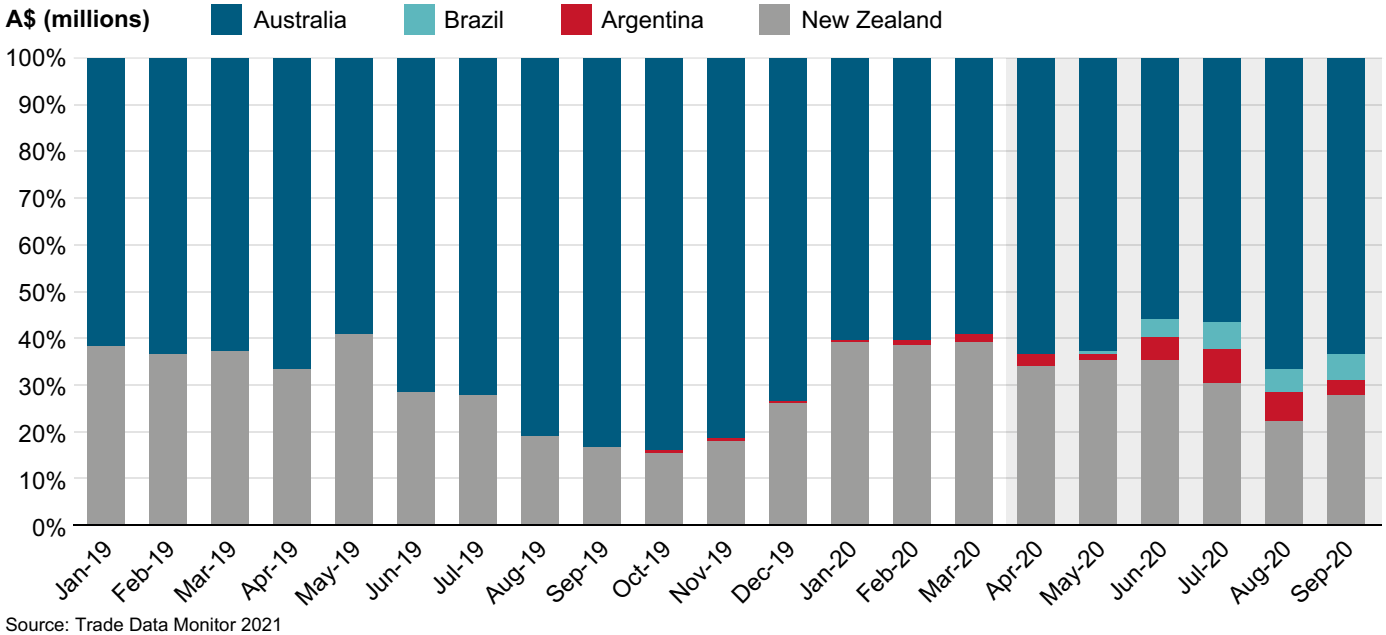
Of the major red meat exporters, the US sources most of its red meat imports from Australia and New Zealand. However, in recent months Brazil and Argentina have begun to compose a growing proportion of US red meat imports.

Chart 34: US red meat imports by month by destination, value



Source: Trade Data Monitor 2021

Chart 35: US red meat imports by month by destination, proportion of 5 exporter total



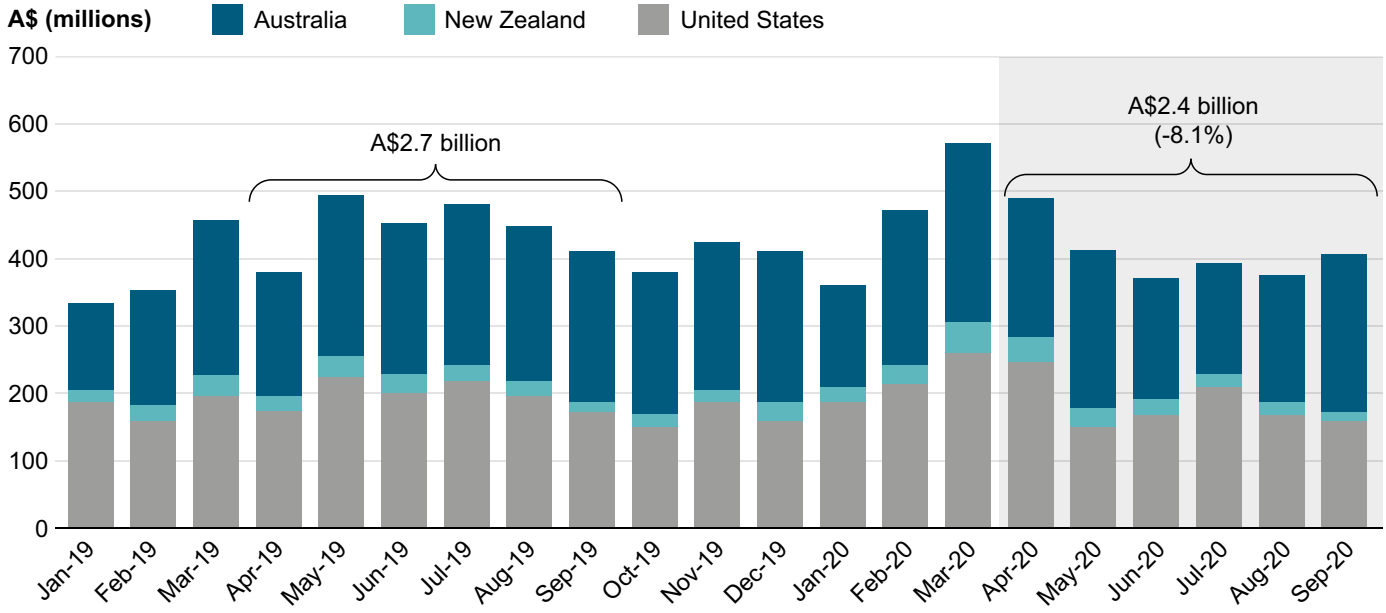
Source: Trade Data Monitor 2021

9.2.2 Japan

Japan imported around A$ 5 billion of red meat from the major exporters in CY2019, with most of this coming from Australia and the US. From April to September 2020 Japan imported around 8% less red meat in A$ terms, with Australia and the US seeing 10% and 8% lower import values respectively. Although less significant in total value, New Zealand saw around 5% growth in exports to Japan over the period.

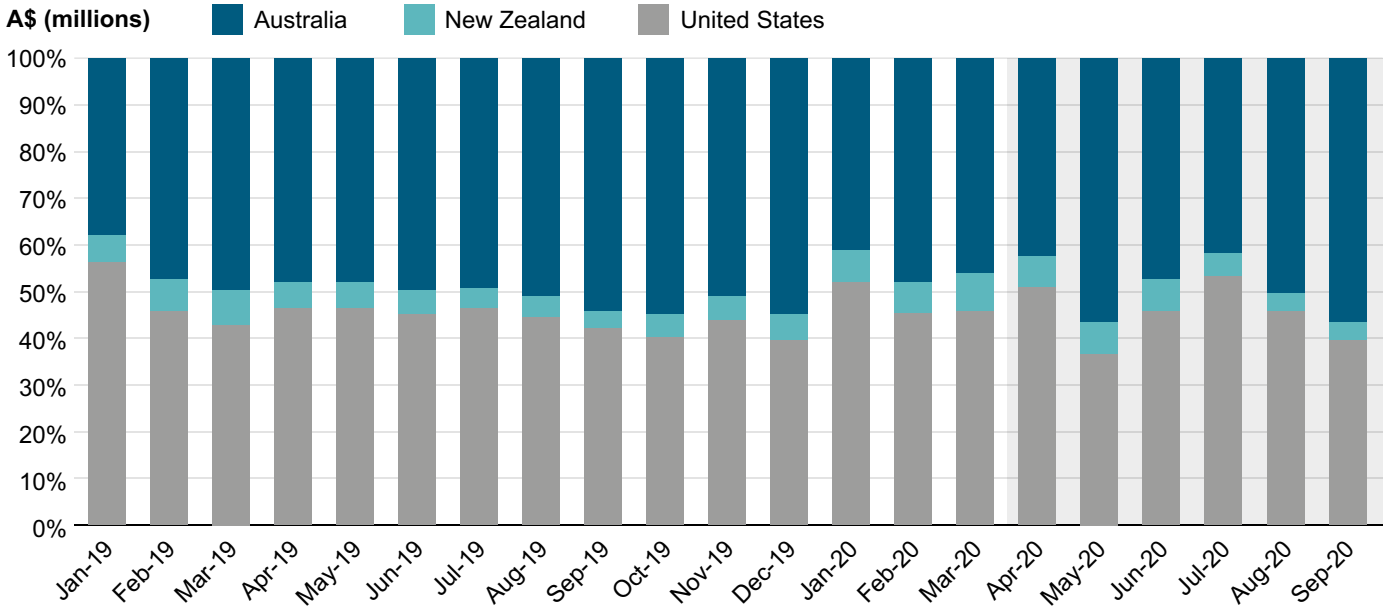
The difference between the Australian and New Zealand results again suggests that restocking may have had some part to play in the fall in Australian import revenues. As indicated, absent restocking, Australian export declines may well have been closer to those experienced by New Zealand.

Chart 36: Japan red meat imports by month by destination, value



Source: Trade Data Monitor 2021

Chart 37: Japan red meat imports by month by destination, proportion of 5 exporter total



Source: Trade Data Monitor 2021

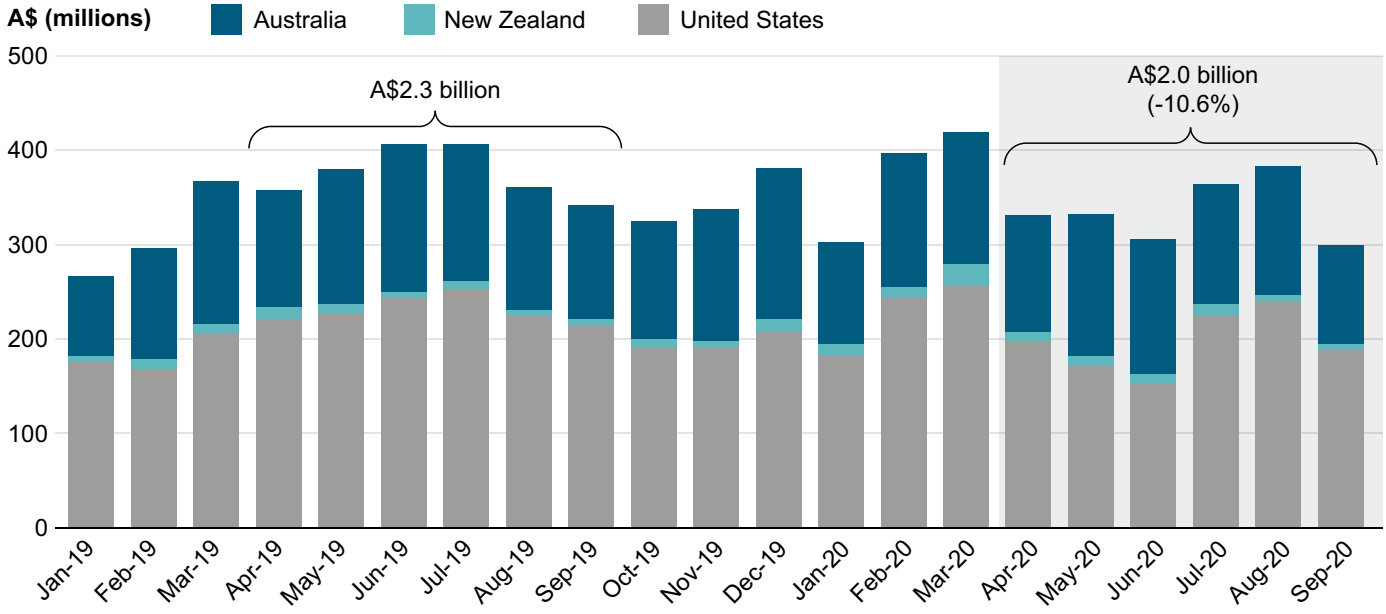
9.2.3 South Korea

South Korea imported around A$ 4.3 billion in red meat from the top 5 major red meat exporters in CY2019, mostly coming from Australia and the US much like Japan. From April to September 2020 around 11% less red meat was imported in A$ terms (compared to the equivalent period in 2019) with the US and Australia seeing declines of 15% and 5%, respectively.

Australia's better export performance than the US during this period (despite restocking) is notable.

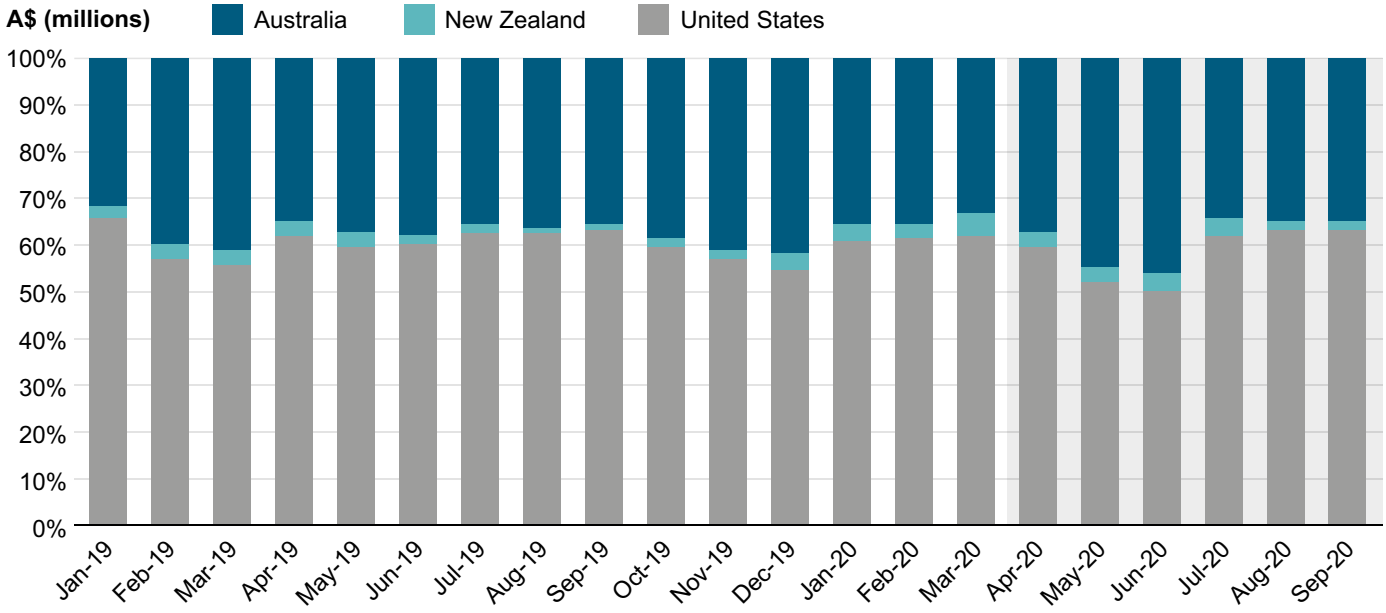
As compared to Japan, South Korea has a higher proportion of red meat imports from the US and lower proportions from Australia and New Zealand.

Chart 38: South Korea red meat imports by month by destination, value



Source: Trade Data Monitor 2021

Chart 39: South Korea red meat imports by month by destination, proportion of 5 exporter total

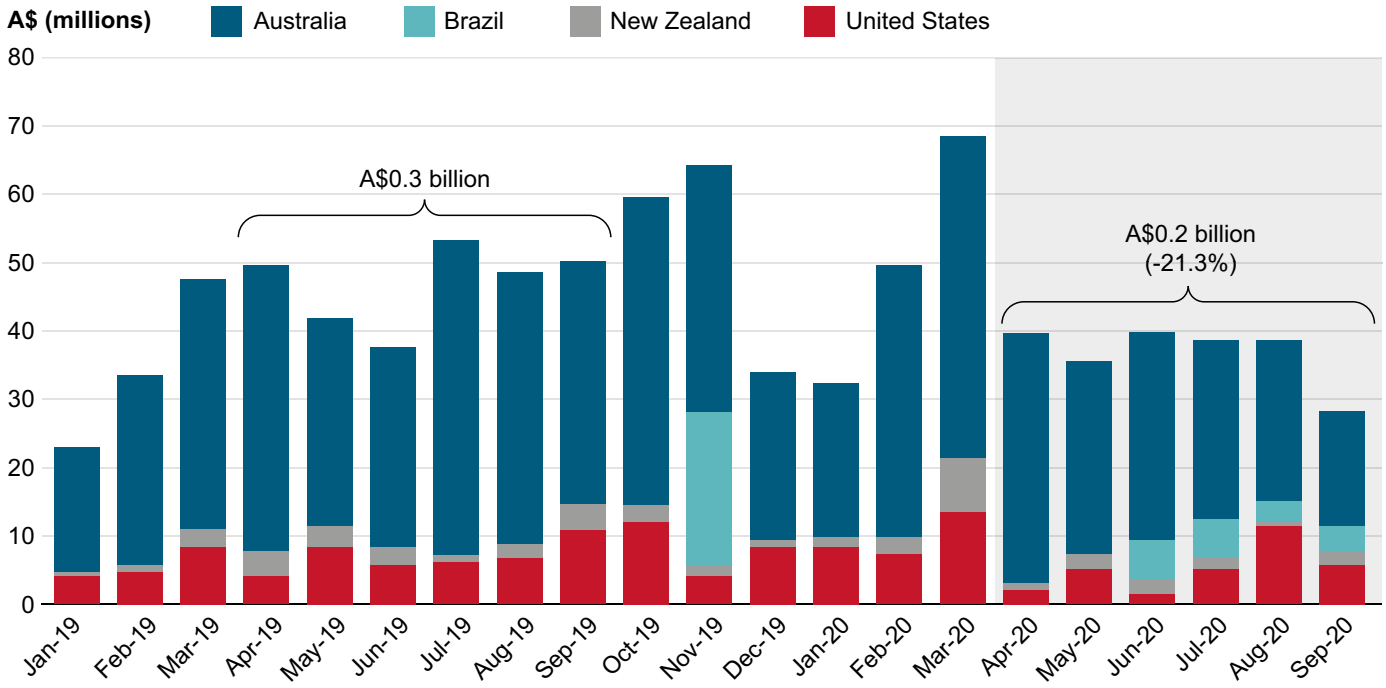


Source: Trade Data Monitor 2021

9.2.4 Indonesia

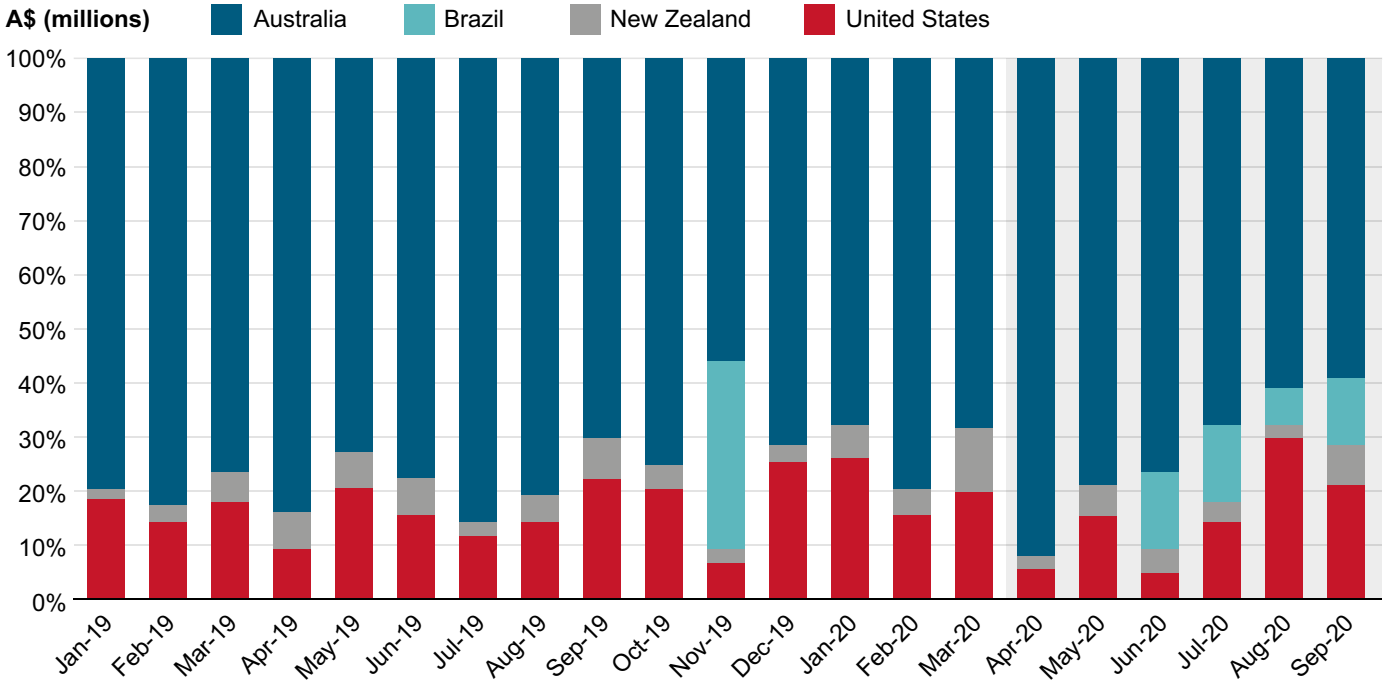
Indonesia imported around A$ 544m of red meat from the major red meat exporters in CY2019, mostly from Australia, the US, and New Zealand. Brazil saw around A$ 22m of red meat exports to Indonesia in November 2019 and is seeing more stable flows over the later part of CY2020. From April to September 2020 total red meat imports were down 21% with all destinations suffering other than Brazil.

Chart 40: Indonesia red meat imports by month by destination, value



Source: Trade Data Monitor 2021

Chart 41: Indonesia red meat imports by month by destination, proportion of 5 exporter total



Source: Trade Data Monitor 2021

9.3 Appendix 3: Qualitative Survey

The impact of COVID-19 on the Red Meat Processing Sector - Qualitative Survey

Thank you for agreeing to participate in the BIS Oxford Economics' study on the impact of COVID-19 on the Australian Red Meat Processing Sector. This work is being conducted on behalf of the AMPC. We are interviewing a number of organisations associated with sector in order to get an idea of how the pandemic is affecting the domestic and international processed meat sector trade. We will also collect quantitative data in a supplementary data request.

If there are questions you cannot answer, do not wish to answer, or do not feel are relevant you may skip these and move on to others.

Note that individual firm responses supplied in this survey will be anonymised. (If, however, you do wish specific responses or viewpoints to be attributed to your organisation we could do so with your permission.) Our interest is in determining how the COVID-19 pandemic has affected the red meat processing industry as a whole. Aggregated and/or anonymised responses will be used as part of a report to AMPC about the impact of COVID-19 and this report is intended for public release.

If you have any queries about this process, please contact:

Andrew Tessler: atessler@oxfordeconomics.com

Tel: 0408 495 066

Background

1. What is your organisation's name ?
2. What is your job definition and role?
3. What is your organisation's role within the sector?
4. Which types of red meat does your organisation mostly deal with ?
5. What was your approximate employment (by headcount) in 2018-19 ?
6. What was your organisation's annual turnover in 2018-19 ? (You can give an approximate figure if you wish).

Global issues

1. The COVID-19 pandemic has triggered global shutdowns and caused disruptions to international trade over 2020. We will come to the domestic market later on but thinking about the **international market**, have there been any major effects of the pandemic in terms of its impact on the export orientation of:

   a. The Australian agricultural sector in general

   b. The red meat supply chain

   c. Red meat processors?

   If so, please provide details on what you consider those impacts to be.

2. In some cases, the pandemic has also affected relations between nations. Again, thinking broadly, how do you think the pandemic has affected Australia's red meat trade with our key trading partners? We're thinking particularly of the last six-seven months or so (i.e. roughly the June and September quarters).

3. The table below allows you to indicate how you think the pandemic has affected red meat processing export revenues in the immediate past (i.e. April and June quarters), over 2019-20 as a whole. It also allows you to project how it will do so in 2020-21. Please indicate Yes or No to the following to the best of your knowledge. If you truly can't say you can indicate "Don't know".

Question	Time period		
Thinking about the time periods on the right, has/will the COVID-19 pandemic…	1 April–30 September 2020 (only)	2019-20 Overall	2020-21 Overall (projection)
Boosted my export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Boosted the red meat processing sector's overall export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Reduced my export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Reduced the red meat processing sector's overall export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Had no substantial impact on my export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Had no substantial impact on the red meat processing sector's export revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know

4. Do you have any statistical or other data on revenues or other information to support your answers to 1 - 3 above (see also the discussion about statistical data at the end of this questionnaire)?

5. How do you think the pandemic has affected the red meat export market of our key competitors namely:
   a. New Zealand
   b. Brazil
   c. Argentina
   d. United States

6. How do you think the pandemic has impacted on the global processed red meat supply chain in general?

7. What implications does this have for Australian producers?

8. China is a key market for Australian processed red meat products. Thinking first in terms of the current pandemic and then in the longer term, how do you see the following issues affecting our red meat trade with China?
   a. Changes in the Chinese economy
   b. Changes in Chinese foreign policy and relations with Australia
   c. Any other factors

9. Do you have any supplementary revenue or other data which might support your thoughts?

10. Apart from China are there other export markets which you think are worth mentioning as important either in the context of the current pandemic or over the longer term?

11. Allied to the above question, do you think that any potential diversification strategy to markets other than China is likely to be:
    a. Practical
    b. Advisable
    c. Material

12. Are there changes to Australian foreign (or domestic) policy which you think might be beneficial in terms of supporting the industry at this time and into the future? If so, what might these be? How might they affect the specifics of the red meat export trade and supply chain?

13. Do you think that the pandemic will lead to permanent changes in some aspects of the of the red meat export trade? If so which ones? And how will these aspects change?

14. In considering the ***impacts of the pandemic*** on Australian processed red meat export trade how would you rate the impacts on the following on a scale of 1-10 (with 1 being "Totally unimportant" and 10 being "Extremely important")
    a. Potential disruption to export supply chains
    b. Loss of revenues (if applicable)
    c. Increase in revenues (if applicable)
    d. Trade with China
    e. Trade with our other major export partners
    f. Export market prices
    g. Competitors obtaining an advantage
    h. Other (please specify)

15. In terms of the most important factors facing Australia's processed red meat export trade ***over the next ten years*** how would you rate the following key elements on a scale of 1-10 (with 1 being "Totally unimportant" and 10 being "Extremely important")
    a. Trade with China
    b. Trade with our other major export partners
    c. Diversification of export markets
    d. Export market prices
    e. Climactic conditions (e.g. drought, flood)
    f. Ensuring efficient supply chains
    g. Competitive threats
    h. Meat substitutes
    i. COVID-19
    j. Other (please specify)

16. Again, thinking over the longer term again (i.e. next 10 years) in terms of our processed red meat export trade, it may be useful to do a SWOT (Strengths Weaknesses Opportunities Threats) analysis. What do you feel are the major:
    a. Strengths
    b. Weaknesses
    c. Opportunities
    d. Threats
    e. associated with the trade and why?

Domestic issues

17. Now turning to the domestic market, what do you see as the major impacts of the pandemic in terms of its impact on the domestic support for:
    a. The Australian agricultural sector in general
    b. The red meat supply chain
    c. Red meat processors

18. The pandemic has introduced elements of volatility in terms of domestic demand at certain times. Again, thinking broadly, how do you think the pandemic has affected our domestic processed red meat market and supply chain? We're thinking particularly of the last six-seven months or so (i.e. roughly the June and September quarters).

19. The table below allows you to indicate how you think the pandemic has affected red meat processing domestic revenues in the immediate past (i.e. April and June quarters), over 2019-20 as a whole. It also allows you to project how it will do so in 2020-21. Please indicate Yes or No to the following to the best of your knowledge. If you truly can't say you can indicate "Don't know".

Question	Time period		
Thinking about the time periods on the right, has/will the COVID-19 pandemic…	1 April–30 September 2020 (only)	2019-20 Overall	2020-21 Overall (projection)
Boosted my domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Boosted the red meat processing sector's overall domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Reduced my domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Reduced the red meat processing sector's overall domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Had no substantial impact on my domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know
Had no substantial impact on the red meat processing sector's domestic revenues	Yes/No/ Don't' know	Yes/No/ Don't' know	Yes/No/ Don't' know

Are there particular parts of your organisation (or the industry) which have benefitted or suffered – if so which ones?

20. Do you have any statistical or other data on revenues or other information to support your answers to 17-19 above (see also the discussion about statistical data at the end of this questionnaire)?

21. How do you think the pandemic has impacted on the domestic supply chain in particular? Are there any "take aways" from this experience which could be applied to future pandemics or other supply disruptions?

22. What changes do you think the pandemic will bring about in terms of domestic policy towards the red meat processing sector? How could these specifically impact on areas such as:
    a. The workforce
    b. Manufacturing
    c. Agriculture
    d. Regional policy
    e. Taxation

23. What insights does the pandemic (or other current issues) provide in terms of developing policy positions for the AMPC and advocacy programs?

24. What insights does the pandemic (or other current issues) provide in terms of guiding government policy so that it does not negatively impact on the red meat processing sector (or its domestic and export markets)?

25. Do you think that the pandemic will lead to permanent changes in some aspects of the of the domestic market for processed red meat? If so which ones? And how will they be changed going forwards?

26. In considering the ***impacts of the pandemic*** on the domestic processed red meat export trade, how would you rate its impacts on the following on a scale of 1-10 (with 1 being "Totally unimportant" and 10 being "Extremely important")
    a. Disruption to domestic supply chains
    b. Loss of revenues (if applicable)
    c. Increase in revenues (if applicable)
    d. Changes in consumer demand
    e. Structural change within industry (e.g. workforce changes, restructuring)
    f. Government policy action
    g. Other (please specify)

27. In terms of the most important factors facing Australia's processed red meat domestic trade ***over the next ten years*** how would you rate the following key elements on a scale of 1-10 (with 1 being "Totally unimportant" and 10 being "Extremely important")

    a. Changes in consumer demand

    b. Market prices

    c. Climactic conditions (e.g. drought, flood)

    d. Ensuring efficient supply chains

    e. Meat substitutes

    f. Structural change within industry (e.g. workforce changes, restructuring)

    g. Government policy action

    h. COVID-19

    i. Other (please specify)

28. Again, thinking over the longer term again (i.e. next 10 years) in terms of our processed red meat domestic market, it may be useful to do a SWOT (Strengths Weaknesses Opportunities Threats) analysis. What do you feel are the major:

    a. Strengths

    b. Weaknesses

    c. Opportunities

    d. Threats

    associated with the trade and why?

Case studies

29. Are there any case studies you can think of which might bring some of the key issues discussed above to life? These might include examples of

    a. Disruptions to supply chains and how they were overcome

    b. The use of new techniques to overcome challenges

    c. Hints at how the industry future could look coming out of the pandemic

    d. Improvements to supply chains

    e. Or any other topics.

Other issues

30. Are there any other issues, areas of importance etc. concerning organisation and/or the industry in general or other topics would you like to raise or see raised? These could relate to the pandemic and/or longer-term issues.
    What are the areas do you think have functioned well during the pandemic, Which need improvement? What lessons have been learned?

Quantitative data

31. This study also has a quantitative aspect. This will explore how the pandemic has affected your organisation and the industry in numeric terms. A data sheet exploring these issues will be provided to you separately.

Thank you!