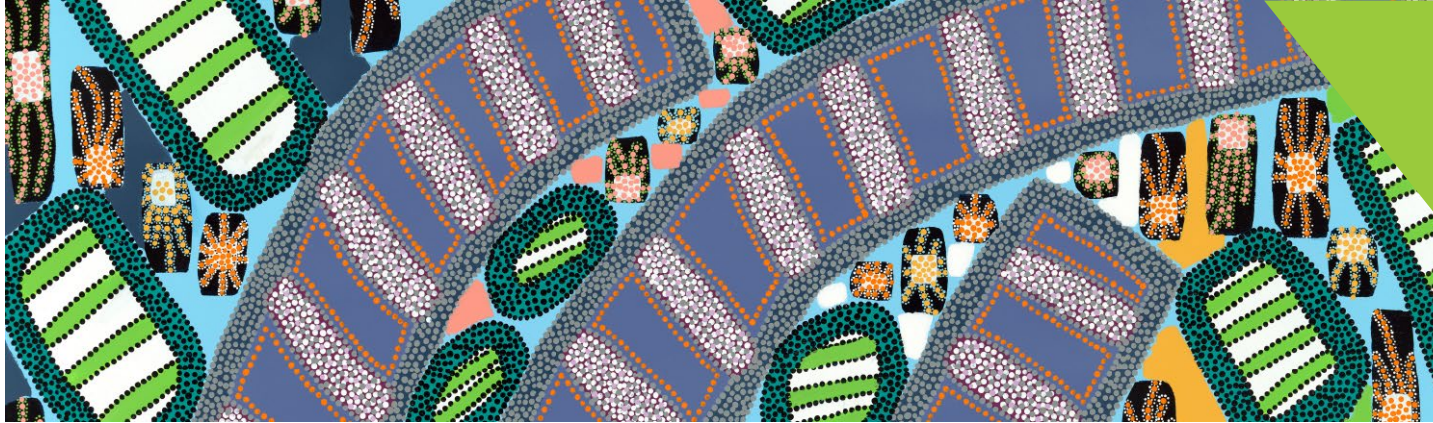


Review of Rice Vesting Proclamation

NSW Productivity Commission submission



Acknowledgement of Country

The NSW Productivity Commission acknowledges that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia, and the oldest continuing culture in human history.

We pay respect to Elders past and present and commit to respecting the lands we walk on, and the communities we walk with.

We celebrate the deep and enduring connection of Aboriginal and Torres Strait Islander peoples to Country and acknowledge their continuing custodianship of the land, seas and sky.

We acknowledge the ongoing stewardship of Aboriginal and Torres Strait Islander peoples, and the important contribution they make to our communities and economies.

We reflect on the continuing impact of government policies and practices, and recognise our responsibility to work together with and for Aboriginal and Torres Strait Islander peoples, families and communities, towards improved economic, social and cultural outcomes.

Artwork: 'Regeneration' by Josie Rose 2020

Summary

Any regulation that restricts competition must be supported by clear evidence that it creates net public benefits. The Department of Primary Industries (DPI) Review of the Rice Vesting Proclamation (Rice Vesting Review) offers a timely opportunity, in line with the recommendation of the NSW Productivity Commission (the Commission) 2021 White Paper, to assess the evidence as it relates to Australia's last single desk export arrangement.

An evidence base has been developed through detailed stakeholder engagement and economic analysis

The Commission has undertaken industry engagement and independent economic modelling to determine whether the rice vesting arrangement delivers a net benefit, to inform the findings of the Rice Vesting Review. Work completed includes:

- on the ground industry engagement totalling 39 separate meetings and workshops
- analysis of a range of detailed data sources to understand the domestic and global context
- application of a range of economic techniques to determine whether rice vesting arrangements deliver a price premium
- analysis of scenarios to determine the likely costs and benefits should rice vesting be removed in whole or in part.

The analysis is a step forward from previous examinations of the topic, as it has been informed by significant industry engagement. This has enabled a deeper understanding of current domestic and global trends impacting the rice industry and agriculture more generally. It has also gone beyond examination of price premiums to address the critical question of what would happen in the absence of rice vesting.

The analysis has been informed by a variety of detailed data sources including public and non-public sources of information.

The industry needs flexibility to adapt and innovate

Key findings which emerged from consultation and data analysis which informed the development of scenarios for analysis, and assumptions applied, are:

- Rice production in the Riverina/Murray has declined as a result of water availability and gross margins of competing crops such as corn, which have become attractive to an increasing amount of younger and corporate farmers.
- As a result, export volumes have also declined and have focussed on high value markets and branded, differentiated products, driving an increase in export prices.
- Stakeholder feedback, global market trends and agricultural trends towards micro-milling capacity suggest there is scope for smaller, differentiated players to enter the market. These opportunities exist:

- for growers in the Northern Rivers, who have already developed a modest presence in the domestic market and believe further growth is possible.
- for some growers in the Riverina/Murray, who believe that higher returns would be possible through development of their own products and branding.
- Industry stakeholders believe that export market access, and the additional scale and risk mitigation it would provide, is necessary to achieve these growth opportunities. Some stakeholders also point to regulation of the domestic market, including licencing of domestic buyers and associated reporting and restrictions on storage of rice on farm, as a constraint to growth and innovation.
- New and / or expanded market participants would primarily focus on differentiated, branded product rather than competing directly with the established supply chain, expanding the overall value of production. Limited product substitution would, however, take place so the analysis looked at low and moderate substitution scenarios, with headline analysis conservatively based on moderate substitution.
- If the rice vesting arrangements were removed, entry of another major player is unlikely to be a commercial proposition. Existing infrastructure and regional economies of scale suggest that the current sole and exclusive export licence (SEEL) holder would retain a dominant market position regardless of what happens to rice vesting.

Removing rice vesting would make farmers and the NSW community better off

Key findings from the analysis were:

- Econometric and market analysis does not provide any evidence that the SEEL holder has market power in export markets. This suggests that differences in observed prices in export markets are not the result of rice vesting, but rather a range of other factors including branding, perceived quality of Australian agriculture and service quality provided by the SEEL holder.
- Should rice vesting be changed, a small loss in sales and freight scale advantage for the existing supply chain would be more than offset by gains to new and expanded supply chains in the Northern Rivers and Riverina/Murray.
- Removing rice vesting and domestic regulations would create net economic benefits through an increase in value of domestic and export rice sales. This could deliver increases of between \$80 million to \$133 million in the value of NSW rice sales over the next six years, relative to a scenario where rice vesting is retained. Benefits would be expected to be higher over the longer term, as the industry develops and innovates.
- Greater competition and innovation will deliver higher returns to growers, enhancing the long-term viability of the rice industry.
- New jobs will be created in drying, storing and milling in the Northern Rivers and Riverina/Murray. There is some potential adjustment to existing drying, storing and milling jobs in the Riverina/Murray, due to a loss of throughput for some of the

existing mills, but new jobs created would be expected to exceed any jobs lost overall.

- Labour productivity on farms will increase in the Northern Rivers as farmers shift to rice from crops with lower gross margins; and in the Riverina/Murray as some growers achieve higher returns from development of their own products and marketing. The enterprise mix would not change significantly in the Riverina/Murray, and would involve only marginal changes in the current crop configurations in the Northern Rivers, suggesting overall farm employment would be stable with no jobs lost.

Greater benefits can be achieved if an integrated approach is taken to reform

The consultation and analysis completed has identified a number of additional issues which are impacting the ability of a competitive rice industry to develop in NSW.

Regulation of the domestic rice industry creates costs and barriers to entry above that created by export restrictions. These domestic restrictions alone are estimated to cost between \$42 million and \$70 million in lost production over the next six years.

Current arrangements for rice varietal breeding, combined with restrictions on the ability of farmers to store rice on farm, creates a restricted supply chain for rice farmers which limits flexibility and ability to innovate. A number of stakeholders highlighted this as a serious constraint.

Finally, should rice vesting be removed, incentives to undertake activities such as research and development may be lower, as the benefits would not be captured by a single player. This would result in less-than-optimal investments in these activities; a market failure which would justify government intervention. This highlights the need to support industry transition by examining, and adjusting as required, existing arrangements and support for activities such as research and development (e.g. varietal breeding programs). Previous agricultural reforms, such as reform of the wheat single desk, may provide lessons here.

These matters go beyond the explicit scope of the Rice Vesting Review and have not been considered in detail by the Commission for this submission. Further analysis and consultation with industry will be required to settle a path forward. Nevertheless, they are important issues for the competitiveness and long-term viability of the NSW rice industry and need to be addressed. It would be beneficial if the Rice Vesting Review, at a minimum, canvassed these issues and outlined next steps for a broader program of reform to support development of a competitive NSW rice industry.

Introduction

The NSW Productivity Commission

Peter Achterstraat AM was appointed NSW's Productivity Commissioner in May 2018 with a mandate to develop a productivity reform agenda that will enhance the lives of NSW residents, businesses, and communities, and to drive specific reforms. The NSW Productivity Commission completes objective analysis to identify and prioritise recommended reforms. This includes regulatory reforms, as regulation is a major policy lever which can unlock or constrain productive potential.

The NSW Productivity Commission White Paper, released in May 2021, set out a productivity reform agenda for NSW with 60 recommendations across seven topic areas. One of the recommendations was that the rice vesting export arrangement be allowed to expire, unless shown to deliver a net public benefit (Recommendation 4.11).

Evidence considered by previous reviews, including DPI's 2016 Review of the Rice Vesting Proclamation¹ and the 2016 Commonwealth Productivity Commission's 2016 Inquiry into Regulation of Agriculture², as to whether the arrangement delivers public benefits is contested. Moreover, significant changes to the domestic and international industry context have occurred over the past five years, making a detailed assessment of these matters important and timely.

The White Paper acknowledged that more detailed analysis and stakeholder consultation is required to evaluate whether rice vesting delivers a net public benefit to NSW. The 2021 Review of Rice Vesting Proclamation (Rice Vesting Review), which is being undertaken by the Department of Primary Industries (DPI) presents an opportunity to do this work.

Following on from this recommendation, the Commission has undertaken detailed research, stakeholder consultation and economic modelling to evaluate whether rice vesting delivers a net public benefit to NSW. This submission presents the findings from this work and provides a rigorous, independent evidence base to inform the Rice Vesting Review.

Competition, regulation and statutory single-desk marketing

Competition is critical to driving improvements in productivity. With effective competition, businesses face increased pressures to incorporate new technologies, remove organisational slack and improve their productivity performance. It is widely acknowledged that competitive markets will generally best serve the interests of consumers and the wider community. Regulations have a critical influence on incentives and capacity to compete

¹ Department of Primary Industries (2016) Review of Rice Vesting Proclamation. Available at: [Review of Rice Vesting Proclamation \(nsw.gov.au\)](https://www.nsw.gov.au/review-of-rice-vesting-proclamation)

² Productivity Commission (2016) Regulation of Australian Agriculture Inquiry Report. Available at: [Inquiry Report - Regulation of Australian Agriculture \(pc.gov.au\)](https://www.pc.gov.au/inquiry-report-regulation-of-australian-agriculture)

throughout the economy, including in the private, government and not-for-profit sectors. The NSW Government has a long-standing commitment to promoting competition, as a signatory to the Competition Principles Agreement 1995 (CPA). The CPA specifies that regulations should not restrict competition unless the benefits outweigh the costs to the whole community and there is no other way to achieve the objective. The onus is on governments to show that there are net public benefits from restricting competition.

Where regulations impose restrictions on competition, they should be regularly reviewed to ensure the restrictions are still in the public interest. This is consistent with good regulatory practice (NSW Government Guide to Better Regulation, TPP 19-01).

Under the *Rice Marketing Act 1983* (NSW) all rice grown in NSW is vested in the Rice Marketing Board (RMB). The RMB, consistent with the provisions of the Act, grants a Sole and Exclusive Export Licence (SEEL), which provides the holder exclusive rights to export NSW grown rice. Riceworkers Limited, trading as SunRice, is the current holder of the SEEL. SunRice was first granted the SEEL in 2006, since renewed in 2011, 2015 and 2016. The current SEEL is due to expire on 30 June 2022.³

The RMB is Australia's only remaining statutory single-desk marketing board, though Australia has a long history of statutory marketing of agricultural commodities. These arrangements seek to use perceived market power in export markets to boost prices and revenues for farmers. This comes at a cost, however, primarily through restricted competition and a lack of incentives for innovation in products and marketing.

Many of these arrangements were reformed as part of the National Competition Policy reforms, with legislative reviews finding that the costs of restricting competition outweighed any benefits. Observation following reforms shows a range of benefits, without prices being undermined. For example, the Commonwealth Productivity Commission found:

- following reform of barley marketing in Victoria, the sector saw the entry of new competitors, innovation in related services, and increased investment to take advantage of new market opportunities
- following abolition of the single desk for domestic and export lamb marketing, producers received clearer market signals which made them more responsive to market needs leading to higher returns, and there was significant investment in the industry.⁴

This submission

This submission represents the view of the NSW Productivity Commission and does not represent NSW Government policy. It has been informed by the Commission's own consultation and research, as well as an independent economic evaluation undertaken by

³ Available at: <https://www.rmbnsw.org.au/files/Service%20Level%20Agreement%20May%202019.pdf>

⁴ Productivity Commission (2005) Review of National Competition Policy Reforms Inquiry Report. Available at: <https://www.pc.gov.au/inquiries/completed/national-competition-policy/report/ncp.pdf>.

the Centre for International Economics (the CIE) to determine whether rice vesting delivers a net public benefit to NSW (see Attachment A).

It presents:

- an overview of the NSW rice industry and other context of relevance
- the process, methodology and findings of the economic evaluation
- responses to the Rice Vesting Review Terms of Reference.

The NSW Rice Industry

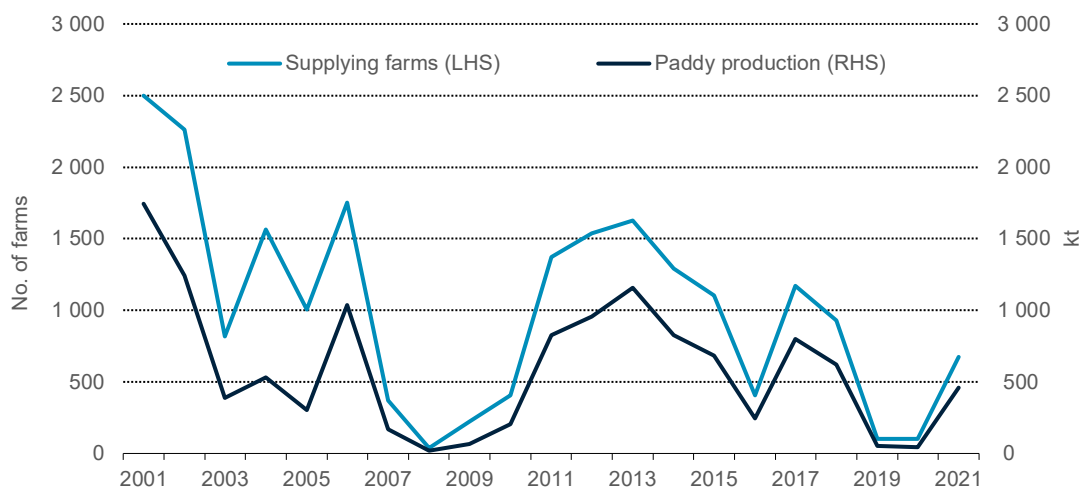
A changing landscape for rice in NSW

Declining production in the Riverina, but growth in the Northern Rivers

The majority (over 90 per cent) of Australia’s rice production occurs in NSW’s Murray and Murrumbidgee regions in Southern NSW. Rice makes an important contribution to the regional economy, in particular around Leeton, Griffith, Deniliquin and Coleambally. The Northern Rivers also produces a small, but increasing amount of rice.

Rice production is variable by year, but there is a clear long-term trend towards fewer rice farms and lower paddy production in the Riverina (see Figure 1). Water allocations in the Riverina are extremely volatile; over the past 20 years there have been four years with no allocation, and seven years with less than 40 per cent allocation. Traded water prices are also subject to significant volatility. Rice production is dependent on the availability and allocation of water for irrigation, hence water allocations drive much of the variability seen in Figure 1.

Figure 1: Riverina rice production trends



Source: the CIE, 2021

Structural changes in the industry are also driving long term trends. Rice farms in the Riverina are multi-enterprise operations, where rice can be complementary to other crops, such as lamb, grain and cotton. Farmers adjust according to water availability and expected margins per megalitre. Rice can have a lower gross margin per hectare and per megalitre of water compared to some other crop options, such as cotton and corn. As such, alternative crops have become increasingly attractive, in particular for an increasing number of corporate and younger farmers. This, combined with water availability, has resulted in rice production as a proportion of farm revenue dropping in recent years—from about 80 per cent

of revenue prior to introduction of the Murray Darling Basin Water Plan in 2012 to around 40 to 50 per cent⁵, though the proportions vary by farms.

In contrast, rice production in the Northern Rivers is increasing, albeit from a small base. Paddy production increased from less than one kilo tonne in 2016-17 to around 5.5 kilo tonnes in 2020-21.⁶ Rice growing in the region is distinct from that of the Riverina/Murray, with unirrigated production leading to a market positioning focussed on sustainability credentials. Rice is becoming an attractive option for farmers in the region, in particular where there has been a wet summer and there is sufficient soil moisture. Access to rice as a crop in the region also provides farmers with additional flexibility and resilience to adapt to changing climates and markets.

Rice grown in the Northern Rivers is currently restricted to the domestic market, as growers are unable to export themselves and the costs and logistics involved with transporting rice make export via the SEEL holder uneconomic.

Rice exports have shifted to lower volume, higher value products

Rice export volumes have trended downwards in recent years, with variation roughly in line with supply shifts. Prices, however, have trended upwards, from around \$800 per tonne in 2013 to around \$1600 per tonne in 2020 (see Figure 2). This divergence commenced around the time the SEEL holder 'deliberately transitioned from bulk to branded sales in key global markets' and implemented a strategy to 'supplement local production with global sourcing' in order to 'sell Riverina rice to premium markets first.'⁷ Figure 3 illustrates this shift away from bulk to branded product.

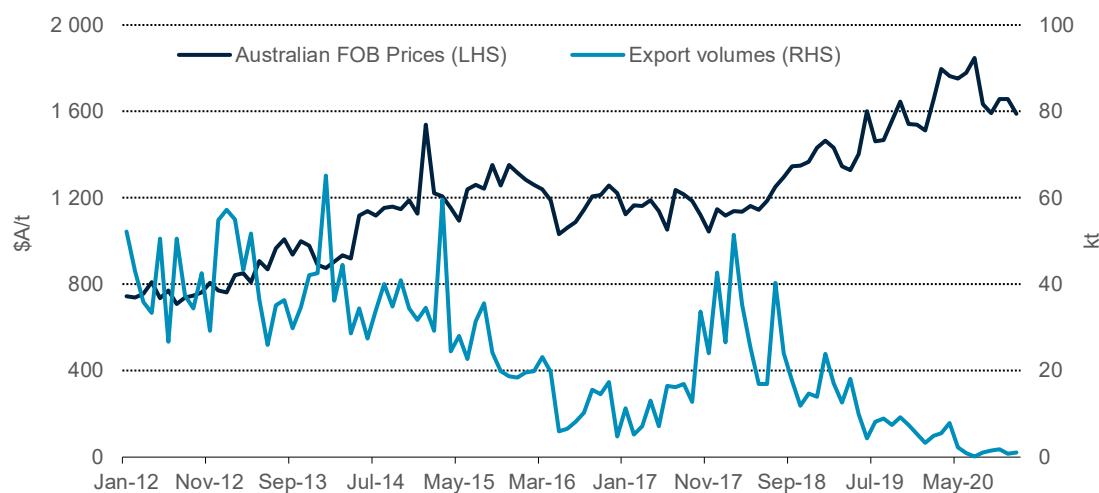
This is a logical outcome of declining supply, which made it advantageous to focus on higher cost, differentiated products, supported by investments in product positioning and marketing. China has also emerged as a major supplier of medium grain rice on the global market, with cheaper prices allowing it to capture market share in some of Australia's traditional markets, such as the Pacific.

⁵ Centre for International Economics (CIE), 2021. *Rice Vesting Economic Evaluation*. Prepared for the NSW Productivity Commission.

⁶ Centre for International Economics (CIE), 2021. *Rice Vesting Economic Evaluation*. Prepared for the NSW Productivity Commission.

⁷ Sunrice Annual Report 2015.

Figure 2: Australian rice export trends



Source: the CIE, 2021

Figure 3: Export volumes and returns by pack size

REDACTED

Source: the CIE, 2021

New opportunities for smaller producers are emerging

Global and domestic trends will further change the landscape for Australian rice for domestic sale and export. The world market is becoming less commodity focused and more focused on quality, differentiation and branding, in particular in premium markets. For example, this may include products such as high-quality sushi rice for European sushi restaurants, black rice, or rice with particular cooking characteristics or sustainability credentials. Against this backdrop, an agricultural trend towards micro and scalable milling capacity is making it possible for smaller producers to establish themselves in niche markets with differentiated products. This trend is already evident to some extent in the Northern Rivers rice industry.

Further issues impacting competitiveness of the NSW rice industry

A number of other constraints may impact the ability of a competitive rice industry to develop in NSW. These issues are not explicitly covered in the scope of the Rice Vesting Review and are not all legislative in nature. They are, however, relevant to the rice vesting arrangements as they also impact industry flexibility and competitiveness. As such, they need to be considered in tandem with the rice vesting arrangements to ensure any reforms can maximise net public benefits.

Domestic market regulation creates costs that need to be justified

Domestic marketing of rice was reformed in 2006. All rice grown in NSW must be sold and delivered to an 'authorised buyer.' These buyers must be licenced by the RMB; a process

which involves disclosure of detailed financial and operational information, as well as ongoing reporting to the RMB about the quantity of rice purchased, sold and stored.⁸ There are currently 12 buyers licenced by the RMB, however a number are not currently active in the market.

Part of the rationale for the licencing process is to support compliance with export restrictions (i.e. having oversight of domestic market sales enables the RMB to monitor that product is not being exported, other than by the SEEL holder). This regulation, however, creates costs through additional barriers to entry to the market, as well as ongoing compliance requirements beyond those seen in other industries. As with the rice vesting export arrangements, the need for such regulation needs to be justified by evidence that it creates public benefits.

An open supply chain is critical to support industry development

The Australian Rice Partnership breeding program is a tripartite agreement between NSW DPI, Rice Research Australia Pty Ltd (RRAPL, the SunRice-owned subsidiary) and Agri-Futures, with each making a contribution to the programs' funding. Under the program, the SEEL holder is granted an option to obtain Plant Breeders Rights (a form of intellectual property) to varieties of commercial value in exchange for this contribution. The SEEL holder then determines the quantity and varieties of seed that growers receive. Some older, unrestricted varieties also exist, however tend to have lower yield and less desirable growing characteristics. It is also understood that there is currently a lack of clarity over how these varieties are treated by the tripartite agreement.

Under the current rice vesting and RMB domestic licencing arrangements, farmers must transfer rice to a licenced storage facility within 24 hours. As a result, farmers who are not also authorised buyers are unable to store rice on farm. This reduces flexibility for farmers, who for example may wish to store seed for planting the following season.

Development of new varieties is a resource intensive and lengthy process. Breeding programs, and their protection through Plant Breeders Rights, provide important incentives and support for development of new varieties that can benefit all farmers. But current arrangements, combined with restrictions on ability of farmers to store rice on farm, results in a restricted supply chain and a lack of flexibility for growers. Some stakeholders have expressed concerns that the current arrangements limit the quantities of seed, and types of varieties they may access, which in turn has implications for production levels and market development.

Other agricultural industries in Australia have more flexibility. For example, in the wheat industry growers pay an end point royalty on each tonne produced to the variety owner,

⁸ Further details about the application process and conditions are available on the RMB website: https://www.rmbnsw.org.au/files/Application_Package.pdf?v2

which in turn is used to fund breeding of new varieties. Breeding in the wheat industry is now wholly funded through these end point royalties.

There is a role for Government to support transition to a competitive market

The SEEL holder currently carries out industry-good functions. These include research and development, investment in breeding programs, industry promotion and advocacy, using market intelligence to identify commercial opportunities and collection and publication of statistics. While these functions are not regulatory requirements, they are critical for industry growth and innovation and create benefits for the industry at large, regardless of who completes them. In other words, the functions create ‘positive externalities.’


Should rice vesting arrangements be reformed, incentives for the SEEL holder to deliver some of these functions for the industry at large would be reduced, as they would no longer be certain of capturing all of the benefits. Other market participants would likely be too small or lack the coordination to wholly undertake these functions, making some level of government intervention potentially justified to achieve these positive externalities.

Should the Rice Vesting Review recommend reform of the rice vesting arrangements, detailed consideration of industry good functions for the industry, what gaps would exist in a deregulated industry and examination of options for Government to support a transition should be undertaken. Transition may take a number of years, so consideration of these issues should commence as early as possible. For example, options for consideration could include whether separate independent bodies should be tasked with research and development activities.

Past reforms of single desk export arrangements may provide some lessons. For example, following reform of the wheat single desk, industry-good functions previously carried out by the Australian Wheat Board were subsequently undertaken by a mix of individual companies, industries bodies, and Australian Government bodies (see Table 1 below).

Table 1: Wheat industry-good functions following single desk reform – 2008/09

Function	Provider
Industry strategic planning	Industry bodies, individual companies
Research and development	Grains Research and Development Corporation
Wheat Receival Standards	Grain Trade Australia
Wheat classification	Grains Research and Development Corporation
Australian Wheat Crop Report	ABS and ABARE
Crop shaping	Individual exporters and domestic traders informed by GTA wheat receival standards
Technical market support	Individual exporters and commercial providers; wheat export technical market support grants program funded by the Australian Government in 2009



Promotion/branding	Individual companies and industry associations
Trade/regulatory advocacy	Industry associations

Economic Evaluation of Rice Vesting

Process

The economic evaluation has been undertaken independently by the CIE for the NSW Productivity Commission. It applies a cost-benefit analysis to assess whether rice vesting delivers net public benefits. This analysis is an input into the Rice Vesting Review. The DPI has been engaged in completion of the evaluation and has provided input into the approach and methodologies applied.

Consultation

The process undertaken has involved significant industry engagement and consultation. In total CIE attended 39 separate meetings and workshops (see Table 2). Representatives of the NSW Productivity Commission and DPI also attended a number of these meetings.

Table 2 Summary of consultation

Group	Consultation
Riverina/Murray industry	<ul style="list-style-type: none">• 11 meetings/workshops conducted by the Rice Growers Association (RGA). Included informal discussions with ricegrowers and industry suppliers before and after these meetings.• 16 discussions with ricegrowers and industry stakeholders of the southern rice industry outside of the RGA/RMB meetings.
Northern Rivers industry	<ul style="list-style-type: none">• One formal meeting with the Northern Rivers Rice Growers Association (NTRGA) and another meeting with the Natural Rice Company.• Discussions with seven other ricegrowers and supply chain stakeholders.
Other	<ul style="list-style-type: none">• One formal meeting with the Rice Marketing Board (RMB) with informal interactions with RMB Board members who attended each of the RGA meetings.• Two meetings with SunRice.

Source: CIE, 2021

Key messages from consultation

The majority of ricegrowers in the southern industry support the current arrangements and SunRice holding the SEEL. A common view was that without rice vesting, the SEEL holder would not be able to function commercially as it does now, with significant impacts on the incomes of ricegrowers and flow-on impacts to communities. The SEEL holder itself contrasts the current vesting arrangements with the California rice industry, where large corporate players compete against one another in tender markets, bidding down the price of

rice. It contends there will be a 'race to the bottom' for the price of Australian rice in export markets in the absence of vesting.

Other groups in the Riverina/Murray, however, do not support rice vesting and would like to develop their businesses independently of the current regulatory arrangements. These stakeholders believe that they could get higher paddy prices through branding and marketing their own product, but need access to export markets to provide the scale necessary to justify the required infrastructure investments and attract investors. This group contrasted the declining production and profitability of rice with the growing popularity of other water-intensive crops including almonds and cotton. They felt that arrangements for vesting and seed allocation restrict competition in rice marketing and production, with growers getting insufficient returns and consumers having fewer options. In their view, without reform, the Riverina/Murray rice-growing industry faces decline as growers turn to other crops with fewer regulatory restrictions and better returns.

Northern Rivers stakeholders see potential for significant further growth in the region. They consider the vesting arrangements to be a key constraint because it is uneconomic for them to export via SunRice's facilities in the Riverina. Export access is also seen as necessary to support diversification and manage risk, particularly given domestic market restrictions. The Northern Rivers rice industry views itself as distinct from SunRice, based on its sustainability credentials arising from relying on rainfall rather than water allocations. As such, the industry does not consider itself to be in direct competition with SunRice. Access to seed was also a significant concern for Northern Rivers stakeholders.

Some growers voiced concerns that the RMB and SunRice boards share two directors. In their view, this gives rise to a perceived conflict of interest, as RMB is given access to sensitive market information about SunRice's domestic competitors as part of the licensing of domestic rice marketing.

Data

Quantification of the costs and benefits of rice vesting is a highly data-intensive task. A range of data was requested from RMB and SunRice during consultation, to better understand:

- the details behind the claimed benefits from rice vesting, namely export premiums and freight scale advantage (FSA)
- current supply chain configuration from farm through milling to domestic and export markets, including performance by market or market grouping.

The verification of export premiums and freight scale advantage prepared by consultants for the RMB and SunRice's freight scale discount calculations by year and market were supplied to the DPI Review and the Productivity Commission, as were some estimates of the benefits derived from FSA. Other information requested, such as detailed export volumes by partner country and product, was not provided.

The full details of the requests and information supplied are summarised at Table 6 of Appendix A.

Alternative data sources

A range of other data sources were accessed during this evaluation as shown in Table 7 of Appendix A. All but the Australian Border Force (ABF) data are in the public domain.

Overall, despite the gaps (outlined below), the data accessed is comprehensive and provides a much more granular understanding of the industry than that available to previous reviews. This gives the Commission a high level of confidence in the robustness of the analysis completed. In particular, the ABF data provided detailed export volumes by partner country and product.

Data gaps

- RMB rice crop statistics were incomplete for the Northern Rivers region in recent years and ABS data proved unreliable outside 2015-16 (the Agricultural Census). Best estimates for the Northern Rivers were developed using information gathered from the consultation.
- Estimates provided by SunRice on FSA were not able to be independently verified.
- Costs attributable to the Growers' Pool and rice marketing was requested from SunRice but was not provided. This limited the econometric methods that could be used to test whether rice vesting delivers price premiums.

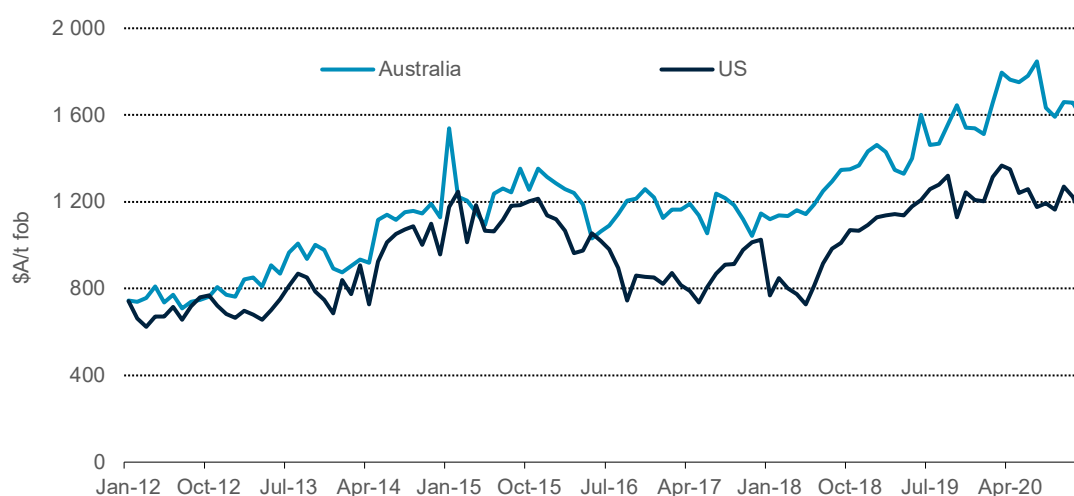
Methodology and results

A new approach to determine whether rice vesting delivers a net benefit is needed

The rationale for rice vesting is that it provides scope for the SEEL holder to achieve higher export prices than would exist in a competitive situation by manipulating sales across markets (this is known as possessing 'market power').

Previous reviews, including DPI (2016) and the Commonwealth Productivity Commission (2016), tested this proposition by comparing prices for Australian rice to prices for a benchmark comparison of Californian rice, considered to be the closest global comparator to Australian rice. A simple price comparison of Australian to Californian rice does suggest a price differential, with the gap widening in recent years (see Figure 4). There are, however, flaws with this approach. Market characteristics and supply chain costs vary greatly for the two countries. Moreover, with the shift towards branded, differentiated product discussed above, it is unlikely that such comparisons will be valid.

Figure 4: Comparison of Australian and US rice FOB prices



Source: the CIE, 2021

Instead of replicating the approach of previous reviews, a variety of approaches were taken to test whether the SEEL holder would achieve higher export prices than in a competitive situation. These are summarised in Figure 5 below, followed by a more detailed description.

Figure 5: Overview of methodology

ANALYSIS QUESTION	METHODOLOGY APPLIED
<p>1. Is there evidence of market power creating price premiums?</p>	<ul style="list-style-type: none"> • Econometric analysis of elasticity of demand (i.e. whether a firm is able to increase prices) • Observation of extent to which price exceeds marginal cost • Analysis of market data
<p>2. Is there evidence of a freight scale advantage?</p>	<ul style="list-style-type: none"> • Review of RMB and SEEL holder data • Analysis of extent to which benefits would be reduced in the absence of rice vesting (see 3)
<p>3. What would the impacts of reform be?</p>	<ul style="list-style-type: none"> • Cost benefit analysis of reform scenarios • Analysis of employment impacts

These approaches improve upon analysis in previous reviews by:

- Testing whether price premiums are attributable to the SEEL holder possessing market power as opposed to other factors, such as branding, service quality and inherent quality and reputation of Australian rice.
- Acknowledging that the holder of the SEEL is a large multi-national company which sources and markets rice from a range of locations, including NSW. For example, the

scale and sophistication of such global operations, which are unrelated to holding the SEEL, can confer advantages when it comes to negotiating freight contracts and supplying into domestic and export markets.

- Assessing the economic impact on the NSW community from enabling access to export markets by more than one Australian exporter, compared to retaining rice vesting. This contrasts to previous reviews, which limited their analysis to comparing prices achieved by the SEEL holder to their overseas competitors.

1. Is there evidence of market power creating price premiums?

Several methods, including testing of export price comparisons, demand elasticities and observations of market behaviour were applied to assess whether the SEEL holder possesses market power. None provided evidence that the SEEL holder possesses market power that is delivering higher prices for NSW rice exports than would be the case without rice vesting.

Marginal cost or average variable costs

Generally, a supplier's market power is expressed by the extent to which the commodity's price exceeds the supplier's marginal cost of production.⁹ As a firm's marginal cost is often not known, an alternative is to substitute average variable cost (that is, the total variable cost per unit of output).

Results: in the absence of data on the SEEL holder's costs, it was not possible to accurately conclude whether export returns or growers pool revenue were higher than the marginal or average variable cost to deliver rice for export.

Estimation of elasticity of demand

Another indicator of market power that has been widely used in the context of international trade has been the inverse elasticity of demand. The inverse elasticity measures how much the import price of a product will change if the quantity in supply changes. The higher the inverse elasticity of demand, the greater the market power of a firm, taking into account supply from other firms. The residual inverse elasticity of demand can be estimated using simple econometrics, the details of which is provided in the CIE report.

The approach is sensitive to data frequency, continuity, and quality. This confined the analysis to New Zealand and Saudi Arabia.

Results: For Saudi Arabia, the results suggested a perfectly competitive market (i.e. no market power). For New Zealand, the results suggested Australia, the US and Thailand have similar levels of market power, providing some scope for product differentiation to drive price differences.

⁹ Marginal cost is the change in total production cost from producing one additional unit of a product.

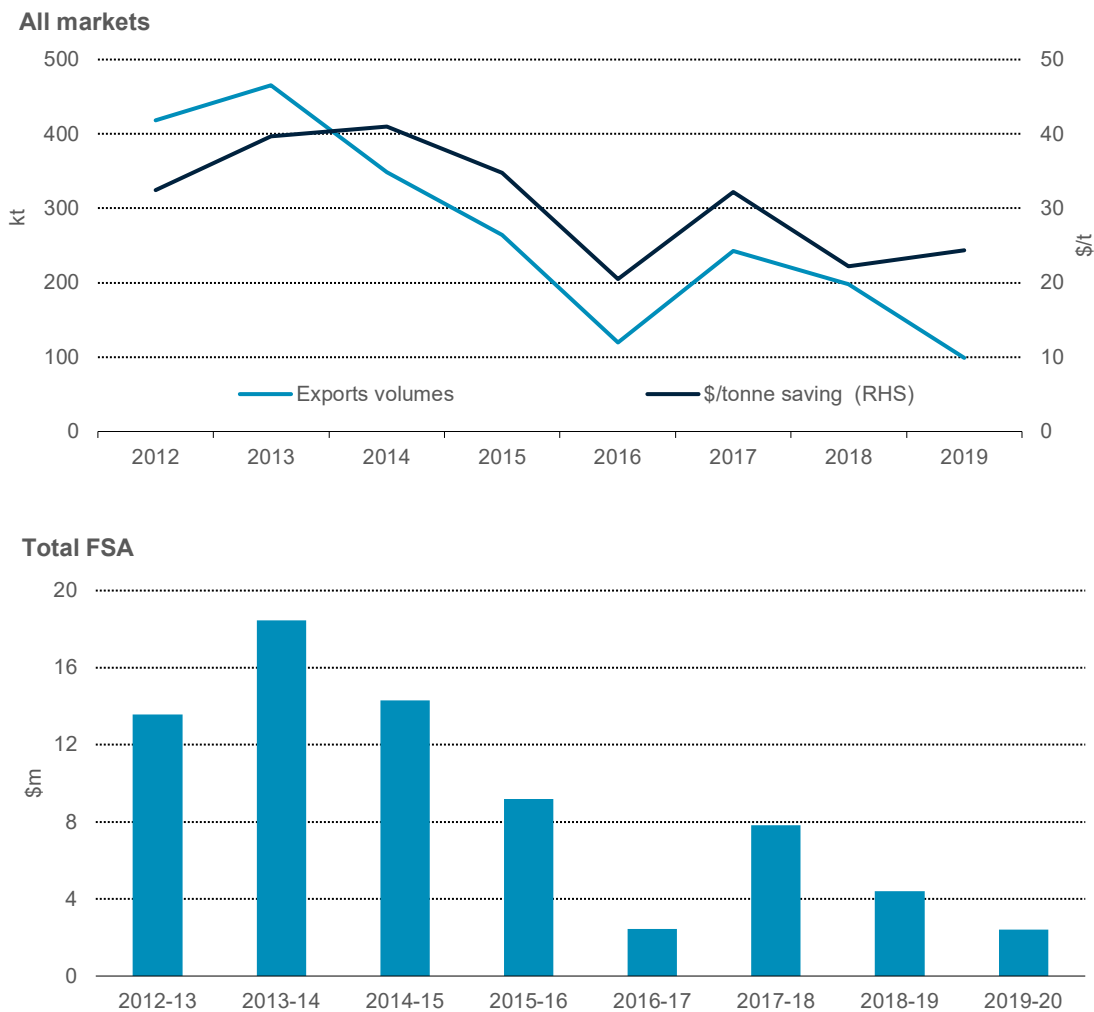
Observations of market behaviour

The econometric findings are consistent with observations of market behaviour. The SEEL holder is subject to a range of market forces, including competition from the US and lower-cost medium-grain rice from Egypt. In such a dynamic environment, the SEEL holder uses branding, year-round supply and market positioning to target premium markets, rather than price discrimination, to increase average returns across all markets.

2. Is there evidence of a freight scale advantage?

Another potential source of advantage from vesting is freight scale advantage (FSA); that is, the ability of the SEEL holder to negotiate lower freight rates than if NSW rice grown for export was split across multiple buyers. The RMB's verification reports calculate an annual FSA based on indications provided by freight companies on discounts to published rates offered by shipping firms in letters to the SEEL holder (see Figure 6). Independent testing of these figures is extremely difficult due to a lack of appropriate comparisons and commercial sensitivities involved with freight rates.

Figure 6: RMB estimates of freight-scale advantage



Source: the CIE, 2021

The FSA calculations fluctuate considerably in line with the variations in export volumes, from a peak of approximately \$18 million in 2013-14 to a low of approximately \$2.5 million in 2019-20.

The cost benefit analysis examines how the freight scale advantage would be impacted if rice vesting was completely or partially removed. It is assumed there is a freight scale advantage from rice vesting in line with the benefits calculated by RMB. The extent to which this benefit would be reduced under different reform options was then tested.

3. What would be the impact of reforms to completely or partially remove rice vesting?

Costs and benefits if rice vesting was wholly or partially removed under three scenarios were examined (see Table 3), compared to the situation where rice vesting is retained (the 'baseline'). Specifics of the scenarios were developed based on stakeholder consultation and historical data.

Table 3: Scenarios analysed

Scenario	Description and key assumptions
1: Retain the rice vesting export arrangement in its entirety (the baseline)	The current SEEL holder is awarded the SEEL for the next 5 years.
1b: Retain the rice vesting export arrangement in its entirety and reform of domestic regulations	The single desk is retained but removing domestic licensing and associated requirements such as reporting and seed storage restrictions would encourage competition in the domestic market by lowering barriers to entry.
2: Complete removal of the rice vesting export arrangement and reform of domestic regulations	<p>The current SEEL holder continues to maintain a significant market advantage due to its ownership of large-scale milling and storage infrastructure in the Murray/Riverina¹⁰ and its established operations servicing customers in domestic and export markets.</p> <p>Several smaller players are likely to emerge alongside the current SEEL holder:</p> <ul style="list-style-type: none"> • A group of Riverina/Murray ricegrowers breakaway from the SunRice Growers Pool and seek to target premium export markets, such as New Zealand, the Middle East and Japan, in addition to the domestic market. • Northern Rivers ricegrowers expand their production, focusing on niche export markets (for instance, wholefoods stores in New Zealand).

¹⁰ This infrastructure is currently underutilised.

Scenario	Description and key assumptions
3: Rice vesting is confined to the Murray and Riverina regions and domestic regulation is reformed	The Northern Rivers region expands its production along the lines described in Scenario 2. Greater domestic competition emerges in the Riverina.

Given the SEEL holder's advantage from owning the existing storage and milling infrastructure, and the uncertainty around rice production levels, under all scenarios it is considered unlikely that an additional major player (for example, another multi-national food company) will be attracted to the industry.

Modelling approach

A partial-equilibrium economic model was used to simulate the impacts on sales and export prices from these scenarios. Sensitivity testing was also employed, to account for substitutability of rice produced by the Northern Rivers and Riverina breakaway group compared to established Australian or US product.

Two different substitutability levels were considered:

1. Low substitution with existing products. This would be the case if the new product has a limited impact on sales for existing product.
2. Moderate substitution, where there is some but not total displacement of existing product (used as the headline analysis).

High substitution was not examined. It is considered improbable as new and expanding players will have strong incentives to differentiate their products and target different markets to make the activities commercially viable.

Sensitivity testing was performed to evaluate the impacts on the FSA depending on (1) the reduction in the current SEEL holder's export volumes and (2) the per tonne freight scale advantage. A median value was used in the headline analysis outlined below.

Quantitative results

The economic analysis has found that reforming rice vesting arrangements and domestic regulations would create net economic benefits through an increase in the value of domestic and export rice sales. This could deliver increases of between \$80 to \$133 million in the value of NSW rice relative to the baseline scenario in the next six years, depending on the level of substitution (see Table 4 and Table 5). A short six year time horizon for the analysis was employed due to uncertainties involved with a longer forecast timeframe. It would, however, be expected that benefits will grow over time as the industry innovates and establishes new products.

The results suggest that rice farmers and regional communities will be better off without rice vesting. A loss to the existing supply chains' revenue and a reduction in SunRice's freight

scale advantage is more than offset by gains to expanded and new supply chains in the Riverina and Northern Rivers. The key benefits are derived from:

- Northern Rivers farmers being able to expand their production, either into paddocks that are uncultivated (because they are too waterlogged for other crops) or which are used to cultivate less profitable crops.
- Some growers in the Riverina reconfiguring production towards more premium varieties of rice and the use of differentiated branding and marketing to extract higher returns compared to the current growers pool.

The below tables only show changes in gross revenue and does not account for potential revenues lost where expanded rice production in the Northern Rivers replaces other, less profitable, crops.¹¹ Nor does it include the costs associated with production, milling, storage, marketing and export for the new supply chains. However, ricegrowers are expected to be better off if rice vesting and domestic regulations are removed, as they are free to extract greater returns through access to larger markets and differentiated branding. If the returns are not available, they would either not export, or would remain with the existing supply chain.

Table 4: Moderate substitution results relative to baseline¹²

	Existing supply chains	Expansion of existing and new supply chain	Reduction in FSA	Total change in sales
	\$m	\$m	\$m	\$m
<i>Scenario 1b: domestic regulation reform</i>				
Northern Rivers only	-2.4	14.3	0	11.9
Riverina/Murray only	-27.1	57.6	0	30.5
Total	-29.6	71.9	0	42.4
<i>Scenario 2: Complete removal of the single desk and domestic regulation reform</i>				
Northern Rivers only	-4.2	37.4	0.0	33.1
Riverina/Murray only	-57.1	119.4	-1.3	61.0
Total	-56.1	137.6	-1.3	80.2
<i>Scenario 3: Single desk confined to the Riverina/Murray and domestic regulation reform</i>				
Northern Rivers only	-6.6	51.7	0.0	33.1
Riverina/Murray only	-27.1	57.6	-0.5	30.0
Total	-31.3	95.0	-0.5	63.1

Source: CIE, 2021

¹¹ In the Riverina/Murray it is assumed that the enterprise mix and land use does not change significantly.

¹² Net present value of domestic and export sales over the period 2020-21 to 2026-27 and FSA using a discount rate of 7 per cent. Result for combined regions is not the sum of each region as the results for each region were modelled separately. The combined results are the outcome between all three groups after price adjustments by market.

In the moderate substitution case, the total value of export and domestic sales by the Northern Rivers group could expand by \$37 million in Scenario 2. This could displace a small amount of the sales (\$4.2 million in Scenario 2) by the existing supply chain which must either adjust production or divert this product to another market.

The Riverina/Murray breakaway could increase their domestic and export sales by \$119 million relative to the baseline in scenario 2. The \$57 million loss to the existing supply chain is primarily the result of lower rice volumes being supplied to the Growers' pool, with a small amount of the existing supply chain's remaining product displaced from domestic and export markets by the Riverina/Murray group's product.

The freight scale advantage (FSA) will only be affected in Scenarios 2 and 3, declining by between \$0.5 million and \$1.3 million, as the breakaway group in the Riverina/Murray reduces export sales volumes for the current SEEL holder. As estimated, it is the equivalent of a change in export price.¹³

Table 5: Low substitution results relative to baseline¹⁴

	Existing supply chains	Expansion of existing and new supply chain	Reduction in FSA	Total change in sales
	\$m	\$m	\$m	\$m
<i>Scenario 1b: domestic regulation reform</i>				
Northern Rivers only	0	17.8	0	17.9
Riverina/Murray only	-20.1	72.6	0	52.5
Total	-20.0	90.4	0	70.3
<i>Scenario 2: Complete removal of the single desk and domestic regulation reform</i>				
Northern Rivers only	0.3	47.2	0.0	47.5
Riverina/Murray only	-46.5	153.2	-1.3	105.4
Total	-44.8	178.9	-1.3	132.8
<i>Scenario 3: Single desk confined to the Riverina/Murray and domestic regulation reform</i>				
Northern Rivers only	0.3	47.2	0.0	47.5
Riverina/Murray only	-20.1	72.6	-0.5	52.5
Total	-19.8	119.8	-0.5	99.5

Source: the CIE, 2021

¹³ As sellers pay for freight to most markets (apart from Korea and Japan), changes in FSA will impact export returns.

¹⁴ Net present value of domestic and export sales over the period 2020-21 to 2026-27 and FSA using a discount rate of 7 per cent. Result for combined regions is not the sum of each region as the results for each region were modelled separately. The combined results are the outcome between all three groups after price adjustments by market.

The key difference in the low substitution scenario is that there is lower displacement of SunRice and other competitors' rice, as expenditure by consumers increases to pay for the new product. In addition to the obvious quantity effects, this also leads to higher prices received compared to the medium substitution scenario.

Employment impacts

At a farm level, there is not expected to be any change in employment in any scenarios. Instead, farms will experience higher labour productivity, with greater returns for the same amount of employment.

Regional employment will remain stable and may increase slightly in line with increased rice production. Overall, approximately 30 to 35 new full-time jobs are expected to be created in drying, storing and milling in the Northern Rivers and Riverina. There is some potential loss of existing drying, storing and milling jobs in the Riverina due to reduced throughput to existing mills, but this will be outweighed by new jobs associated with increased rice production. This contrasts to recent years in the Riverina/Murray where there has been substantial variability in milling employment along with significant job losses due to production shifts.

Findings in response to the Review Terms of Reference

Key findings from the economic evaluation are presented in response to the three questions posed in the Rice Vesting Review's Terms of Reference.

1. Do the benefits of rice vesting outweigh the costs to the community as a whole?

A range of approaches indicate that the benefits of rice vesting do not outweigh the costs to the community as whole:

- The econometric and market analysis does not provide any evidence that the SEEL holder has market power as a result of rice vesting. Observed price differentials are likely the result of a range of other factors including branding, quality of Australian rice and service quality provided by the SEEL holder.
- FSA is highly volatile, with the RMB's estimates of the FSA ranging between \$2 million and \$18 million in the last eight years depending on the volume of rice produced in NSW.
- Removing rice vesting is estimated to increase the value of NSW rice production by \$80 to \$133 million over the next six years, and by a larger amount over the longer term. While the precise extent of the benefits is uncertain, results are positive under a range of scenarios and are based on conservative assumptions around potential growth, providing a high degree of confidence that reforms will deliver net benefits.

2. Are any net benefits (or the majority of these benefits) derived as a result of rice vesting alone?

- The evaluation found no evidence of market power derived as a result of rice vesting resulting in price premiums (see response to ToR 1).
- The analysis has found that, should rice vesting be removed the SEEL holder's operations would largely continue and any loss of FSA would be small at around \$1.3 million.

3. In the absence of rice vesting, would a viable rice export market continue to provide benefits for NSW rice growers?

- There is no evidence to support the proposition that in the absence of rice vesting another large global player would undermine viability of the existing export market.
- There is, however, evidence that smaller and differentiated players will respond to demand for differentiated products by entering niche markets, and that access to export markets is necessary to provide the scale required to support growers to invest and develop these opportunities.
- Growers would have a choice between joining new supply chains or continuing to participate in the grower's pool. In the medium term, the SEEL holder would have to offer their remaining growers' competitive rates, to incentivise them to remain, resulting in benefits for all NSW rice growers.
- Removing rice vesting is expected to increase labour productivity on farms, as growers receive greater returns for the same amount of labour. Higher rice production is also likely to lead to a small increase in drying, storage and milling jobs in the Northern Rivers and Riverina.
- The benefits of removing rice vesting are greater when combined with domestic reforms. Reforms to the domestic market alone are likely to lead to between \$42 and \$70 million in increased sales of NSW rice.
- The ability of the industry to innovate and develop new products in response to market signals is dictated not just by access to export markets, but also domestic regulations, supply chain flexibility (i.e. access and storage of seed) and the carriage of industry good functions such as research and development. Considering these matters in tandem with rice vesting would lead to further competition and innovation and benefits for the industry.

Appendix A: Data sources

Table 6: Requests for data made to NSW RMB and SunRice¹⁵

Request	Provided?	Comments/Alternatives
<i>NSW Rice Marketing Board</i>		
Annual Reports to NSW Rice Growers prepared by SunRice	✓	Publicly available on the RMB website
Detailed consultants reports: Verification of export premiums and freight scale advantage. Prepared for RMB ¹⁶	✓	Confidential to RMB Provided by RMB to the DPI review and NSW Productivity Commission
RMB Board Minutes including decision to award SEEL	✗	
Detailed market briefings provided to RMB by SunRice	✗	
Industry stock levels as of June , 2011 to 2021	✓	Provided by RMB to the DPI review and NSW Productivity Commission Does not distinguish between new season and carryover stocks
Detailed Service Level Agreement between RMB and SunRice 2019-2022	✓	Publicly available on the RMB website
<i>SunRice (Ricegrowers Limited)</i>		
Detailed export volumes by partner country and product	✗	Volume information was available from the Consultants verification report for RMB and information on the gross value of sales by market
Rice production volumes by variety	✗	SunRice and RMB indicated ranges of production by variety in consultation
Production configuration by package format (Bulk/bags/packs)	✗	SunRice indicated broad trends during consultation

¹⁵ These requests were made formally through the DPI Rice Vesting Review

¹⁶ Data tables not in the report but in spreadsheets were not supplied for the 2018 and 2019 crop year reports.

Request	Provided?	Comments/Alternatives
		but has not provided specifics
Indicative costs from farm gate to ex-mill by year (costs attributable to Growers' Pool)	X	
Indicative freight, insurance and agent fees from SunRice California operations to destination markets	X	
Freight cost to Port and Free on Board loading charges	X	
Freight scale discount calculations by year and market	✓	Available in Consultants verification report for RMB Supplementary information provided by SunRice
Submission to Rice vesting review 2021	X	
Consultant's Report 'RBB Economic Report'	X	

Source: the CIE, 2021

Table 7: Alternative data sources accessed

Description	Timeseries accessed	Coverage/ Description	Source
Detailed Australian export trade data	<ul style="list-style-type: none"> 2011-2020 By shipment 	<ul style="list-style-type: none"> Detailed exports of milled rice by format (bulk, bagged and packaged) Includes both Ricegrowers Limited and other exporters Values and volumes 	<ul style="list-style-type: none"> Australian Border Force (Customs)
Middle East rice imports	<ul style="list-style-type: none"> 2015-2020 Annual only 	<ul style="list-style-type: none"> Saudi Arabia, Jordan, Kuwait, United Arab Emirates, Bahrain, Qatar By source country Value and volume 	<ul style="list-style-type: none"> Un Comtrade database General Authority for Statistics — Kingdom of Saudi Arabia

Asian rice imports	<ul style="list-style-type: none"> • 2010-2020 • Monthly 	<ul style="list-style-type: none"> • Japan, Korea, Taiwan, Singapore, and Hong Kong • By source country • Value and volume 	<ul style="list-style-type: none"> • Respective Customs and Statistics agencies in each country
New Zealand rice imports	<ul style="list-style-type: none"> • 2012 to 2020 • Monthly 	<ul style="list-style-type: none"> • By source country • Value and volume 	<ul style="list-style-type: none"> • NZ Infoshare
US rice exports	<ul style="list-style-type: none"> • 2012-202 • Monthly 	<ul style="list-style-type: none"> • Exports by country identified by rice type (including medium grain) • By export market • Value and volume • California identified separately 	<ul style="list-style-type: none"> • USDA Foreign Agricultural Service Global Agricultural Trade System. • USDA State Agricultural Trade data
Global Rice market indicators and outlook	<ul style="list-style-type: none"> • 2010-2020 	<ul style="list-style-type: none"> • Rice export indicator prices for the United State, Thailand, Vietnam, and India by month • Global production and import trends 	<ul style="list-style-type: none"> • USDA Economic Research Service
Export market strategies and trends	<ul style="list-style-type: none"> • 2011-12 to 2020-21 	<ul style="list-style-type: none"> • Key developments and strategies in exports markets for Riverina/Murray rice. 	<ul style="list-style-type: none"> • SunRice Annual Reports and Investor relations communications • Verification reports
Ricegrower production, and water use	<ul style="list-style-type: none"> • 2001-2020 	<ul style="list-style-type: none"> • Supplying farms, paddy production and average yield by district. • System irrigation allocations, use and pricing. 	<ul style="list-style-type: none"> • NSW Rice Marketing Board • Murray Irrigation/ABA RES Water

			Market Outlook
Growers Verification Reports	<ul style="list-style-type: none"> • 2012-13 to 2019-20 	<ul style="list-style-type: none"> • Quantification of export premiums and freight-scale advantage from the holder of the SEEL. 	<ul style="list-style-type: none"> • NSW Rice Marketing Board
Riverina/Murray supply chain information	<ul style="list-style-type: none"> • 2011-12 to 2020-21 	<ul style="list-style-type: none"> • Growers Pool Revenue by market and Grower Payments • Operating segment revenues • Paddy pool pricing information 	<ul style="list-style-type: none"> • SunRice Annual Reports and Investor relations communications

Source: the CIE, 2021