NSW DPI STRATEGY & POLICY

Review of Rice Vesting Proclamation

December 2016

Published by the NSW Department of Primary Industries

Review of Rice Vesting Proclamation, December 2016

First published December 2016

More information

Strategy & Policy

htpp://www.dpi.nsw.gov.au

Executive Summary

Industry statistics

The Australian Bureau of Statistics report that between 2012-13 and 2014-15 the NSW rice industry:

- had a gross value of production of $270-300 million;
- had produced 690 to 1,160 kilo tonnes;
- was comprised of 560-745 agricultural businesses; and,
- was regionally concentrated in the Murray and Riverina regions.

The global rice industry is:

- fragmented with regional consumer preferences for certain rice varieties entrenched and limited development of financial markets;
- highly political as rice remains a key staple and source of income that results in relatively high levels of government intervention such as export bans and government procurement; and
- thinly traded compared to other global cereals such as wheat.

Terms of reference

The review was conducted in accordance with the National Regulatory and Competition Reform Compact, which requires that legislation should not restrict competition unless it can be demonstrated that, with regard to the vesting of rice in NSW, the benefits of the restriction to the community as a whole outweigh the costs; and the objectives of the legislation can only be achieved by restricting competition.

The review examined whether an extension of vesting by the Board can be justified by the realisation of premium returns to growers on export sales.

Findings

The 2016 Review of NSW Rice Vesting Proclamation found:

- evidence that a price premium exists of between $65-$120 per tonne for NSW rice exports;
- evidence that part of this premium is derived from sources that benefit from co-ordinated export sales and that vesting provides a proven way to achieve this;
- that the current cost of vesting is small at around $1.00 per tonne;
- that the benefits of vesting are highly likely to outweigh the cost;
- that the costs from restricted marketing are limited as indicated by the very strong support for the continuation of vesting within Murray and Riverina community and in particular from growers (99 per cent of NSW production);
- evidence that current vesting arrangements are discouraging the future growth and development of the rice industry in Northern NSW, which may have substantial future costs from lost export earnings;
- that there are concerns the governance structure of the Rice Marketing Board prevents it from representing the industry in an impartial manner; and
- that the removal of vesting would create some risk of losing the benefits it currently provides, not return any financial resources to Government and be against the strongly stated desires of communities in the Murray and Riverina.

Recommendations

1. NSW continue vesting rice in the Rice Marketing Board to ensure price premiums from market power continue to be captured.
2. A review of vesting policy occurs in three years.
3. The Rice Marketing Board investigates and implements ways to develop the rice industry outside the Murray and Riverina, to avoid costs from restricting the growth of the industry in northern NSW.
4. An independent review of the Rice Marketing Board is undertaken, to ensure that any risk of conflict of interest is appropriately addressed.

Contents

1. Background to the Review

1.1 Rice vesting

Rice vesting is established through the *Rice Marketing Act 1983* (the Act) with the objective of delivering net benefits to rice growers and the broader community. Under the Act, all rice produced in the State of NSW is the legal property of the Rice Marketing Board (the Board).

As sole owner the Board determines who can deal in NSW rice. Since July 2006, vesting powers have been restricted to rice exports and the Board has been exempt from vesting all rice sold in the domestic market. At present the Board issues one *Sole and Exclusive Export License (SEEL)* and authorises 10 domestic buyers. The objectives of the Board are to:

- encourage the development of a competitive domestic market for rice;
- ensure the best possible returns from rice sold outside Australia based on the quality differentials or attributes of Australian-grown rice; and
- liaise with and represent the interests of all NSW rice growers in relation to the Board's functions and objects.

1.2 Reason for the Review

Rice vesting is established by Government proclamation and is for a specified period. The current proclamation period expires on 30 June 2017. Prior to a decision on the future of rice vesting, the Hon Niall Blair MLC, Minister for Primary Industries (the Minister) has requested a review of whether vesting continues to be in the best interests of the NSW rice industry.

The Minister's request for a review is consistent with the statutory review requirements of the Act. In addition to this, the provisions of the *Subordinate Legislation Act 1989* require that no proclamation last longer than five years without review and a public benefit case be made for its renewal. This review is the fifth review of rice vesting in NSW.[1]

1.3 Scope of the Review

The terms of reference for this Review are that:

a. The review will be conducted in accordance with the National Regulatory and Competition Reform Compact, which requires that legislation should not restrict competition unless it can be demonstrated that, with regard to the vesting of rice in NSW,
    - the benefits of the restriction to the community as a whole outweigh the costs; and
    - the objectives of the legislation can only be achieved by restricting competition.
b. The review will examine whether an extension of vesting by the Board can be justified by the realisation of premium returns to growers on export sales.
c. If vesting is recommended to be extended, the review will also recommend the period of extension.

1.4 The NSW rice industry

The NSW rice industry produced 690 to 1,160 kilo tonnes of rice between 2012-13 and 2014-15. This was worth $270 to $300 million and supported 560 to 745 agricultural businesses.

Rice production is highly variable as it is largely reliant on the supply of irrigated water. In years when irrigated water is plentiful, around 1,000 kilo tonnes of rice have been produced. In drought years as little as 18 kilo tonnes have been grown.

NSW rice is sold domestically and overseas. The amount of rice sold overseas varies with production. In non-drought years up to 80 per cent of rice is exported (RGA 2016).

[1] See Appendix A for further details on the history of rice vesting reviews.

In 2014-15 the ABS estimate that 99.6 per cent of Australian rice was grown in NSW. Nearly all rice grown in NSW is grown in the Murray and Riverina regions, with less than 1 per cent grown in non-traditional areas such as in the Northern Rivers (Rice Marketing Board 2016).

Rice is a summer crop that has been grown in the southern regions of NSW since the 1920s. It is planted each year and is often produced in rotation with winter crops such as wheat, barley or canola.

Rice competes for the use of irrigated water with cotton but also other crops. In drought years rice growers have sold water to other farmers who are keen to maintain perennial crops such as orchards and, to a lesser extent, pasture. Since 2009-10 some rice growers have switched from growing rice to cotton as newer varieties of cotton better suited to the climate of southern NSW have been developed.

1.4 The global rice industry

Rice is a food staple that is a particularly important source of calories in developing Asia. In some parts of this region rice is estimated to account for 50-70 per cent of calorific intake (IRRI 2007).

Around 480 million tonnes of rice are produced globally each year. Rice is not a standardised commodity with a number of different rice varieties produced and consumer preferences for specific types of rice entrenched. Unlike wheat, rice is not typically consumed as milled flour but as cooked grains. This means that there are a host of additional differentiating factors beyond nutritional content and quality that influence demand for rice. This includes texture, length, firmness, stickiness and aroma. The production of different varieties of rice is largely determined by geography, with factors such as soil type and climate important determinants of where rice grows (USDA 2016).

Less than one-tenth of global rice production is traded or around 45 million tonnes. Rice exports are dominated by five countries that account for around 80 per cent of trade and are mainly from Asia.[2] Imports are more fragmented with China the largest single importer accounting for 10 per cent of trade. Trade flows have historically been regionally focussed due to the high cost of freight (FAO 2006). The regional focus also reflects the entrenched preferences of different regions, with certain varieties of rice highly preferred for different cuisines. For example, south Asian cuisine uses drier, thinner, firmer and spicy aromatic rice; south-east Asian cuisine uses soft, slightly sticky and floral aromatic rice; and, Japanese sushi uses sticky, bouncy and short-grained rice.

Large exporting countries mainly produce long grain varieties of rice such as Indica and Aromatic. In contrast, the majority of rice grown in NSW are medium grain varieties. In non-drought years Australian rice exports account for just over 1 per cent of global trade. NSW's share of world exports is much higher as a proportion of medium grain rice as only a few countries export medium grain rice.[3]

The importance of rice as a staple, together with the limited sources of exports and strong consumer preferences make rice particularly political. Rice trade is therefore particularly susceptible to government policies and these can be driven by a pursuit of social objectives. For example, policies to address food security and price stabilisation such as export bans or the use of state-trading enterprises are not uncommon. As rice also provides a source of income to a large number of rural farmers, government policies to support farm incomes such as export subsidies and quotas have also been used (FAO 2006).

[2] In order of size in 2014/15 they were India, Thailand, Vietnam, Pakistan and the United States.

[3] NSW's share of medium grain rice exports is reported to be 25 per cent (RGA 2016)

The global rice market is not only highly political but also highly fragmented between varieties. With rice not being a standardised commodity and being thinly traded, the development of widely used global benchmark prices, established quality standards or futures markets has been hindered. Government policies that reduce price volatility as well as those that limit private trading opportunities have also contributed to a lack of futures markets (ADB 2012).

2. The 2016 Review

2.1 The Review team

The Review has been conducted by the Economic & Analysis unit within the Strategy and Policy Branch of the NSW Department of Primary Industries (NSW DPI). Assistance was provided by the Cabinet & Legislative Services unit of Strategy and Policy Branch. All members of the team are employees of the NSW Government, and have no association with, or financial interests in the NSW rice industry.

2.2 The Review process[4]

The Review was publicly announced in June 2016 with an information paper released on the NSW Department of Primary Industries website. This information paper conveyed that the Review was open, the NSW Government was calling for submissions, how submission could be made and the closing date for submissions. Key background information to aid those intending to make a submission was also provided, such as the Review's terms of reference.[5]

NSW DPI notified potentially interested parties of the public meeting schedule by sending letters to all parties that had participated in the 2012 Review, advertising in State-wide and local newspapers, and by placing notifications in industry body newsletters.

Alongside the above notification methods, NSW DPI attended several rice-grower association meetings, held its own public meetings and met directly with industry participants as requested. The purpose of these interactions was to encourage submissions from all interested parties through raising awareness of the Review and its process.

NSW DPI also engaged NSW Treasury and the Department of Premier and Cabinet throughout the Review process to ensure that they were aware of the process and up-to-date with the progress of the Review. This internal engagement ensured the Review process was thorough and that all evidence collected was tested rigorously for accuracy and relevance to the Review's terms of reference.

2.3 Participation in the Consultation

NSW DPI's engagement and public consultation program resulted in strong industry participation in the 2016 Review.

- NSW DPI held, or participated in 14 meetings in the months leading up to the closing date for submissions. These meetings facilitated interactions with over 400 industry stakeholders.
- Meetings were held across the main rice growing regions of southern NSW, as well as in Greater Sydney (see full list of locations at Appendix D).
- Rice industry attendees represented the complete rice supply chain from growers through to retailers and exporters, along with local business councils, councils and businesses impacted by the NSW rice industry.
- Attendees expressed a broad range of views regarding vesting and NSW DPI encouraged all participants to make submissions to the Review.

2.4 Submissions to the 2016 Review

- The Review received 249 submissions; 231 (93 per cent) of which were in general support of vesting, 17 (7 per cent) of which were against. There was one neutral submission.

[4] Further details in Appendix B

[5] A full list of submissions can be found in Appendix C

- Of the 17 submissions opposed to vesting, 13 (76 per cent) were representing the interests of the Northern NSW rice industry.
- 197 submissions (79 per cent) were received from growers, 49 submissions (20 per cent) from non-growers, and 3 submissions (1 per cent) whose interests were not stated.

As a comparison, the 2012 Review received a total of 97 submissions. Further details about the consultation process and individual submissions can be found in Appendices C and D.

3. Premium returns to growers

3.1 Analytical question

Do current vesting arrangements result in premium returns to growers on export sales?

3.2 Methodology

The starting point for a comparative analysis is to establish a base case. For this analysis the base case is no rice vesting in NSW and the base case question is what would the value of export returns be if there was no rice vesting in NSW? Without vesting, it is assumed that multiple exporters would market NSW rice exports.

The price of rice exports under the base case (the base case price) is compared to the NSW export price that has historically occurred under vesting (the historical price). All prices are measured in Australian dollars per tonne and the comparison is undertaken on a monthly and a financial year basis.

Historical price (price with vesting)	-	Base case price (price without vesting)	=	Price discount OR Price premium

The simple average of this calculation will either be a price discount or price premium and this is tested using statistical inference to ascertain whether or not a price premium exists.

The existence of a price premium is calculated and tested using statistical inference.

The statistical analysis of price premiums requires the establishment of two hypotheses. These are the default, or null hypothesis, and the alternate hypothesis. The null hypothesis is that the average difference between the historical and base case price is less than or equal to zero, and the alternate is that the average difference is positive. Mathematically, they are represented as:

$H_0: \bar{x} \leq 0$

$H_A: \bar{x} > 0$

Where

$\bar{x}$ = the average difference between the historical and base case price for NSW rice exports

H_0 is the null hypothesis

H_A is the alternate hypothesis

A 5 per cent level of significance was chosen for the t-test of significance and provides a 95 per cent degree of certainty that if the null hypothesis is rejected, it would not be due to random chance.

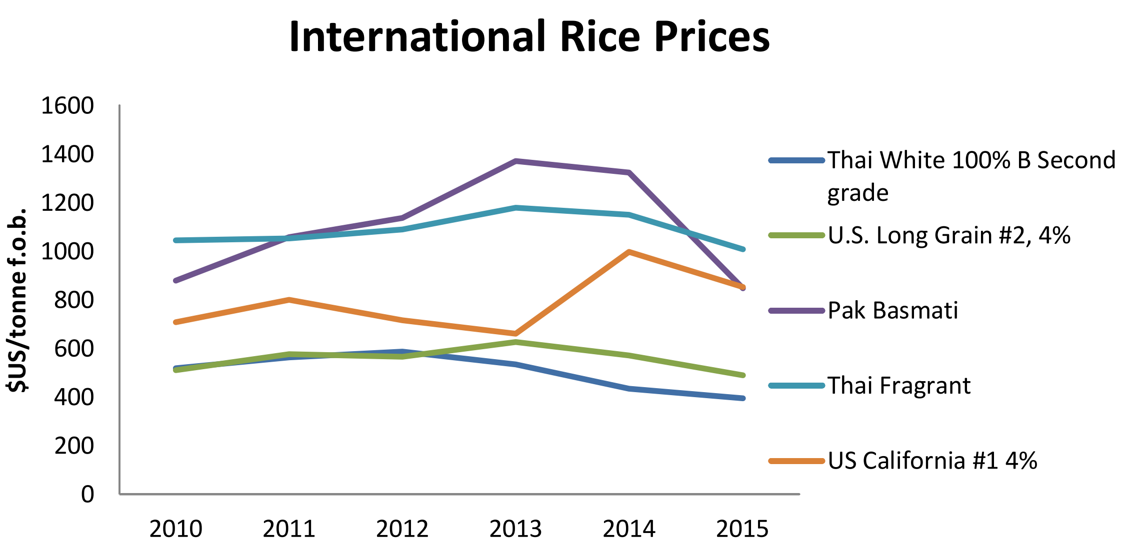
3.3 Data

The base case price is the Californian export price.

A proxy for the base case price was chosen to be the export price achieved for Californian rice. This is because, as identified in previous rice vesting reviews, the Californian rice export market is the most similar real life export market to the hypothetical base case of a NSW rice industry without vesting.

California and NSW predominantly produce and export medium grain rice. Egypt is one other traditional large producer and exporter of medium grain rice (FAO 2004). However, its exports have been subject to government policies over a number of years that include export bans and export taxes (USA Rice 2015). All other large exporting countries predominantly grow long-grain rice.[6]

Adjustment for differences in the price between long and medium grain rice is not feasible as there is considerable market fragmentation between rice varieties. While some long grain varieties, such as the Thai fragrant Hom Mali rice, grade A or Pakistani basmati super kernel white, typically trade at a premium to medium grain, others trade at a heavy discount. In addition to this, the premiums and discounts to medium grain are not constant (see below).



While comparisons to a number of markets would provide more robust analysis, appropriate alternatives to compare against NSW are limited. This is especially true if countries where price influencing government intervention occurs are excluded.[7] In the US, the long grain rice price typically trades at a discount to Californian medium grain rice. However, this discount is not constant and has fluctuated between 5 and 74 per cent between 2010 and 2015. As a result the California market is chosen as the only appropriate market for comparison.

Data for Californian medium grain rice is sourced from Creed Rice Co., Inc. which, at the request of NSW DPI, provided weekly prices data in US dollars per tonne between January 2001 and July 2016. Monthly price data for NSW rice exports were sourced from IHS Global Trade Atlas for the same period and measured in Australian dollars per tonne.[8]

Price variable metadata

	New South Wales price	California price
Original frequency	Monthly	Weekly
Data period	January 2001 – July 2016	January 2001 – June 2016

[6] This includes India, Thailand, Vietnam and Pakistan, which together account for around 70 per cent of global exports.

[7] The FAO considers 14 different prices series in its Rice Market Monitor. The US long grain and California medium grain price series are the only two that are free from government-related distortions.

[8] Data for Australian exports is used because nearly all Australian rice exports come from NSW, whether or not it is exported out of a NSW port.

Original currency	Australian dollar	United States dollar
Calculations to raw data	$A price = $A value/by $A volume	Conversion to $A/tonne using exchange rate data from the RBA
Export Basis	Free on board	Free on board
Data provider	IHS Global Trade Atlas	Creed Rice Co Inc

3.4 Assumptions

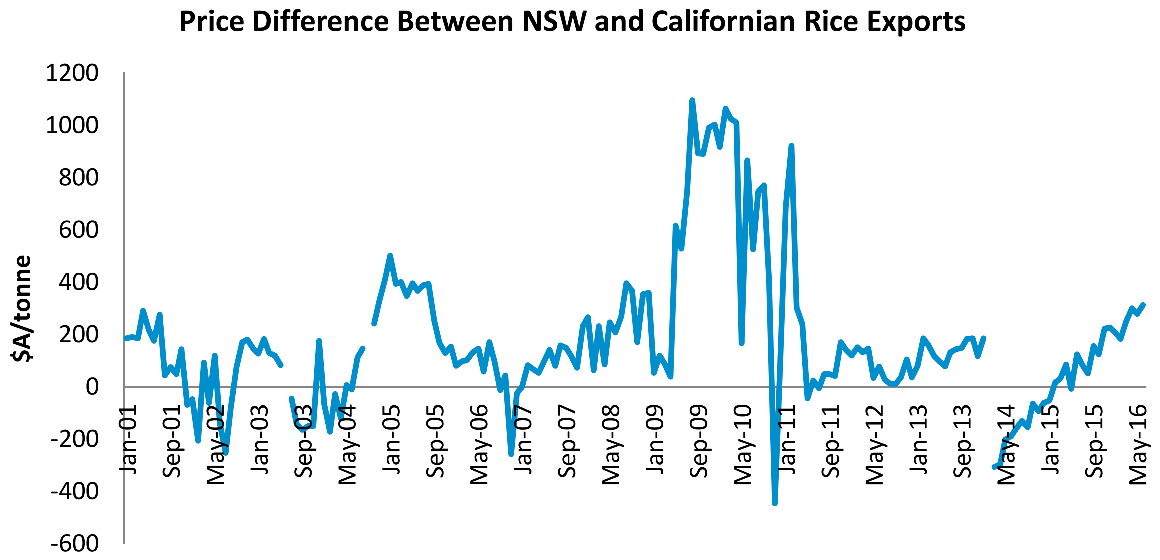
A number of key assumptions underlie the following analysis. They are that:

1. Californian and NSW rice export prices are determined under the same market conditions;
2. Californian and NSW rice production costs at the farm are the same;
3. Californian and NSW rice exports are marketed in the same way;
4. Californian and NSW rice is exported to the same destinations; and
5. The difference between Californian and NSW rice prices is normally distributed.

3.5 Analysis

A price premium is observed 80 per cent of the time using monthly data and 87 per cent of the time using financial year data.

Based on the comparison of NSW and Californian rice premiums, and the above assumptions, the difference between the historical and the base case price of NSW rice exports since 2001 has largely been positive. Between January 2001 and June 2016, a price premium was recorded for 147 out of 183 months, or around 80 per cent of the time. The remaining 36 months showed a price discount, with no observations equal to zero. Financial year data showed that a price premium was observed in 13 out of the 15 years, or 87 per cent of the time.



Statistical inference suggests that, with 95 per cent *confidence, a price premium exists and that it is not observed due to random chance.*

A t-test of statistical significance was conducted on the full sample of observations to determine if a price premium exists over time. As the purpose of the t-test is to establish whether a price premium exists, opposed to a discount, a one-sided t-test was used.[9]

The results of this test indicate that a price premium exists for NSW rice exports for the period January 2001 to June 2016.[10] This finding was observed for both monthly and annual data. The results indicate that there is only a 5 per cent chance that the observed price premium was due to chance, or no premium exists. The premium calculated in this analysis is likely to overstate the actual amount as discussed in below in the sensitivity analysis where a more robust estimate is presented.

3.6 Sensitivity analysis

The results presented above are sensitive to the assumptions outlined in section 3.4. This section considers how robust the results are to reasonable changes in these assumptions.

Sensitivity analysis indicates:

- *that the existence of a price premium is robust to changes made to improve the comparability of the data; and,*
- *a price premium of around $65-120 per tonne is observed*

Assumptions tested

	Concern	Adjustment
Export prices are determined under the same conditions	Drought affects California and NSW at different times.	Remove drought years from the sample
Farm production costs are the same	Costs such as labour are likely to differ	Adjust costs to account for differences
Marketing costs are the same	Some rice is sold packaged, some in bulk	Remove data where Californian rice is not packaged from the sample

The results of the sensitivity analysis indicate that the original results are robust to adjustments made to the data to account for concerns about the validity of the underlying assumptions. Sensitivity testing found a price premium of between $65-120 per tonne. A full discussion of these assumptions and the results of the tests are in Appendix F.

3.7 Analysis by others

Submissions to both this Review and previous reviews have utilised different methodologies and come to different conclusions. A number of weaknesses in these alternate analyses have been identified and include:

- a comparison of an average Australian price weighted by the volume of rice exported each year against an unweighted average Californian price distorts the analysis of price premiums.[11] By not weighting the Californian price, production is assumed to be constant year to year. As California is the proxy for NSW without vesting this also assumes, unreasonably, that the volume of rice produced in NSW without vesting would be unaffected by drought. With or without vesting, Australian production will be subject to variable

[9] This test assessed whether the difference in prices were statistically less than or equal to zero. If there is insufficient evidence to conclude this is true, the difference between the prices is inferred to be positive and therefore, a premium exists.

[10] Statistical inference output can be found in Appendix E.

[11] This methodology has been argued to address claims that in drought years when a high price premium is earned and there is little to export the price premium has little impact and should count for less. We address this concern through sensitivity testing (see Appendix F).

production and drought. This methodology does not therefore allow for a fair analysis of the underlying question of whether a price premium exists between NSW with vesting and NSW without vesting.

- a comparison of export prices by individual country markets using the data cited in these reports is not possible. Australian rice export data is incomplete because confidentiality commitments require reporting of ‘no country details’. Rice import data is similarly only available for some of the markets Australia exports to. In addition to this, any comparisons of individual country markets should be made against a base case with country details, not against aggregate Californian export prices to the world.

4. The objectives of rice vesting policy and its relationship with restricting competition

4.1 The objectives of the Board

The Board is established under the *Rice Marketing Act 1983*. The objectives of the Board are to:

a. encourage the development of a competitive domestic market for rice;
b. ensure the best possible returns from rice sold outside Australia based on the quality differentials or attributes of Australian grown rice; and
c. liaise with and represent the interests of all NSW rice growers in relation to the Board's functions and objects.

Objective a. and c. can clearly occur in an environment free of vesting. However, there are theoretical reasons why objective b. may require restricting competition, or vesting.

4.2 Analytical question

Would price premiums be at risk if vesting was removed?

Restricting competition to ensure the best possible export returns is one argument in favour of vesting. This justification requires that: (1) export prices are higher with the restriction on competition, or in the language of this Review, that there are price premiums; and (2) that these price premiums would be at risk if the restriction were to be removed, or in other words that the price premiums are reliant on restricting competition.

Section 3 found that price premiums exist. This section will consider if these price premiums would be at risk if vesting was removed. To analyse this question, the source of the price premiums needs to be considered. This is because only price premiums derived from certain sources are threatened by removing vesting.

The exact share of premiums derived from market power cannot be quantified with publicly available data. However, what can be done is to identify whether or not there are sources of market power that contribute to the price premium. This is examined below.

The source of the price premiums for rice can be grouped into two broad categories: (1) market power or the ability to restrict volumes; and, (2) marketing expertise (Productivity Commission 2000). Below is a table that summarises key reasons why price premiums exist for NSW rice, the source of the premium and an explanation of how premiums are derived.

Reason for price premium	Source of premium	Explanation
Proximity to market	Market power	Proximity to market can provide a price premium in situations where differences in transportation cost with competitors are significant and there are few close substitutes. The ability to co-ordinate supply into such markets is important to capture these premiums.
Bargaining power	Market power	In markets where there are limited large buyers the ability to co-ordinate sales can result in higher export returns than where multiple exporters compete. If there are few close substitutes or competition is weak, a co-ordinated seller can

Reason for price premium	Source of premium	Explanation
		capture price premiums.
Import quotas	Market power	A single marketing body allows NSW to potentially capture price premiums in countries where import quotas raise domestic prices above the world price.
Quality or brand	Marketing expertise	A price premium generated by quality or brand can be achieved in a competitive marketing environment. The premium is derived from consumers' willingness to pay and not from a restriction on quantity sold.
Scale efficiencies	Marketing expertise	A price premium generated by scale efficiencies can be achieved in a competitive marketing environment. The premium is derived from providing least cost marketing services and not from a restriction on quantity sold.

4.3 Analysis

NSW rice exporters currently have three potential sources of market power. Market power provides a justification for co-ordinated export sales. While their share of the premiums cannot be calculated with the data available, the benefits from vesting are likely to outweigh the low costs identified in section 5 of around $1.00 per tonne.

NSW rice exporters currently have three potential sources of market power. While their share of the premiums cannot be calculated with the data available, the benefits from vesting are likely to outweigh the costs identified in section 5 of around $1.00 per tonne. This is because market power only need to account for just over 1 per cent of the premium to exceed the costs identified in section 5. The most relevant forms of market power are the existence of state-trading enterprise buyers and NSW's proximity to certain markets. Import quotas for rice have declined in use as most quotas have been converted to tariffs.

Market power summary table

Source	Current situation	Decade trend	Verified by
State trading enterprise buyers	In operation in 12 countries	Steady	WTO
Proximity to market	Significant cost difference between Australia and California in certain markets	N/A	Industry
Import quotas	Applied by 1 country	Declining	WTO

Bargaining power

Rice buying state-trading enterprises reportedly operate in 12 countries and their existence provides some rationale for co-ordinated export sales.[12] Where there is weak competition or few close substitutes, co-ordinated sales by a single exporter can provide greater bargaining power to counteract the buying power of a state-trading enterprise. The extent to which there is market power will vary from market to market and be influenced by factors such as consumer preferences for long-grain rice and proximity to other medium-grain rice exporters.

Government procurement of rice through state-trading enterprises has occurred over a number of decades and largely reflects the highly political nature of rice. This is particularly the case in Asia where rice continues to be a key staple and on average makes up over 30 per cent of the daily calorific intake (Toriyama, Heong and Hardy 2005).[13] Government use of state-trading enterprise buyers is often motivated by concerns over food security or price volatility (FAO 2003).

Proximity to market

Australia's proximity to certain overseas markets provides it with the opportunity to derive price premiums by co-ordinating its exports and selling where the highest prices can be achieved. This is true for some nearby markets where proximity is one factor resulting in lower shipping rates for NSW compared with its competitors. For example, direct shipping lines from Papua New Guinea, as well as the Solomon Islands, to California do not exist for a number of major shipping companies (Maersk Line 2016 and Hamburg Sud 2016). An analysis involving all markets is not possible due to a lack of publicly available by country data.

In comparison there are much shorter and more frequent direct shipping lines from Australia to these destinations (Swire 2014 and ANL 2016). The Food and Agriculture Organisation of the United Nations has previously acknowledged that proximity has some influence on the direction of global rice trade, which has historically been regionally orientated (FAO 2006).

Import quotas

While the Philippines currently still applies import quotas to rice, it has agreed to convert these to tariffs from June 2017. This follows similar action by Japan, South Korea and Chinese Taipei in line with commitments made during the Uruguay Round of WTO negotiations. 16 countries still apply tariff-rate quotas, which are a combination of tariffs and quantitative limits that can be used to restrict the volume of imports and raise domestic prices.

Despite the trend away from quotas, the possibility that a country may choose to act contrary to its WTO commitment remains. For example, in mid-2016 the Papua New Guinean government held meetings with SunRice subsidiary Trukai Industries Ltd to discuss the possible introduction of a quota for rice (SunRice 2016).

The role of vesting

The removal of vesting poses a risk to the ongoing ability to extract price premiums for NSW rice exports that derive from market power.

The ability to exploit market power does not theoretically rely on vesting. What it does require is some sort of co-ordinating body to avoid multiple NSW exporters competing away the premiums as well as relatively weak competition from other countries.[14]

[12] These operate in Chile, China, Dominica, Indonesia, Japan, South Korea, Malaysia, Mauritius, Philippines, Saint Vincent and the Grenadines, Chinese Taipei and Thailand.

[13] Rice's share of a person's average calorific intake is estimated to be as high as 70 per cent in the region.

[14] As noted earlier, direct competition for NSW rice in some markets is not particularly strong. Significant quantities of medium grain rice are exported by only a few countries that are geographically far from Australia. While there are large volumes of long-grain rice traded, the extent to which this is a close substitute depends on individual market preference that can be entrenched (FAO 2006).

Vesting is a historically proven and industry supported form of co-ordinated NSW rice exporting. While there are alternatives such as export quotas, export taxes or self-coordination the rice industry heavily supports vesting as a form of co-ordination. Alternate methods such as export quotas or taxes would require more Government intervention than vesting, which leaves decisions about where to export and how to monitor this behaviour to the Board. Furthermore the ability of self-coordination or other alternatives to successfully extract price premiums related to market power are unproven and largely unsupported. The removal of vesting would therefore involve risk and uncertainty over the ongoing ability to achieve the price premiums that derive from market power.

5. Costs of rice vesting policy

The purpose of this section is to highlight a number of the key costs associated with the current rice vesting policy.

5.1 Operating the Board

The costs of operating the Board are small at around $0.65 per tonne.

Over recent years the Board has recorded operating costs of around $500,000 a year and revenues of around $700,000. The largest costs are employee wages and board members' fees, at just over 50 per cent of costs, while earnings come almost exclusively from fees charged for buyer's licenses. On a per tonne basis, the costs of operating the Board has fluctuated greatly with drought ranging from $0.40 per tonne in high production years to $22 per tonne when only 18,000 tonne were produced. For comparison against the benefits calculated in the sensitivity analysis from section 3.6 we use a cost of $0.65. Using a longer time period gives a cost of $0.90 per tonne.

5.2 Restricted marketing choice for producers

There are no costs from restricted marketing to growers in the Murray and Riverina. The revealed preference of rice growers indicates they believe that removing vesting would not result in alternative marketing options that are cheaper or more innovative.

A potential cost of current vesting arrangements is that it prevents producers from accessing alternative marketing options that may be more innovative and cheaper. The Productivity Commission (2016) argues that removing vesting will create incentives for innovation and cost savings in rice marketing that could increase premiums for some rice growers.

The Board currently uses its vesting power to grant one Sole and Exclusive Export License (SEEL) and 10 authorised buyer's licenses for marketing in Australia. No applications for a domestic license having been denied. There is currently competition in domestic rice marketing but no competition in the marketing rice exports.

While deregulation of export sales could create incentives to innovate and lower costs it is not certain that this will result in more innovative or cheaper forms of marketing. Scepticism whether deregulation will actually deliver any benefits has been expressed by the vast majority of submissions to this Review (231 or 93 per cent of all submission). These submissions represent the Murray and Riverina communities and growers from this community largely believe vesting provides them with the best possible returns, provide certainty and reduces risk, supports premium brands, as well as supports research and development.

On the contrary, 13 submissions (3 per cent of all submissions) from Northern NSW growers were opposed to vesting arrangements on the basis that it hindered their ability to export rice. A full discussion of this is considered in 5.3.

In considering the theoretical possibility that removing vesting will lead to export marketing that is more innovative or cheaper, against the scepticism of industry, it is important to consider the specific context of the rice industry. In particular, that:

- in a small largely geographically concentrated domestic industry where most growers are satisfied with vesting and recognise the benefits that scale provides a sole exporter, the proliferation of alternate cheaper and innovative export marketing is not guaranteed;
- in a global industry where markets are thin, further diluted by fragmentation and government procurement not uncommon, opportunities for private traders are limited; and,
- in a global industry where established global price benchmarks and quality standards do not exist innovation in financial instruments to manage risk are limited.

5.2.1 Marketing behaviour of the Sole and Exclusive Export License holder SunRice

SunRice, the sole NSW rice exporter, and its eight subsidiaries market NSW rice under different brands, as different products and into different markets. It does not sell rice as a standardised commodity.

Its marketing of rice involves the sale of rice for animal feed, to premium buyers (e.g. sushi grade rice, red rice, black rice), to health conscious buyers (e.g. organic rice, low GI rice, brown rice, rice blended with other grains) and to consumers with different preferences across a variety of regions and cuisines (e.g. Jasmine rice for south-east Asian preferences, Basmati for south Asian preferences, Arborio for risotto).

SunRice also contributes to rice research and development that has contributed to varietal developments such as rain fed rice. Product development has also occurred and SunRice sells a number of microwavable rice products, rice snacks and rice-related ready meals. On the financial side SunRice has also innovated and in 2016 began offering farmers the opportunity to purchase a contract to supply SunRice with rice for 2017.

5.3 Constraints on the Northern NSW producers

Current vesting arrangements cost around$0.25 per tonne in lost export earnings from northern NSW rice grower and may, among other things, impede the future development of rice production in Northern NSW. This could impose a substantial future cost from lost export earnings.

A small number of growers and firms made submissions to this Review arguing that current vesting arrangements restrict the development of the rice industry in Northern NSW. There are two parts to this claim: (1) that transportation costs are large and prohibitive, which prevents northern growers from selling their rice to SunRice to export and (2) that being constrained to sell into the small domestic market restricts their ability to increase scale and compete with SunRice.

Claim 1 has been verified.

- The closest SunRice receivables facility (e.g. storage facility or mill) is in the Riverina, which is over 1,000kms away and road freight between Northern NSW and Riverina is reported by industry to be around $135 per tonne.
- The most recent DPI gross margin budget estimates suggest that gross margins were roughly $120 per tonne (NSW DPI 2013).

Given farmers must pay for the transportation of their rice to a SunRice facility out of their gross margins it is likely that transportation costs between Northern NSW and Riverina is preventing growers from this region from exporting rice.

Claim 2 has been partially verified.

- ABARES data indicates that total domestic demand for milled rice is close to 350 kilo tonnes. In a non-drought year where imports are used to satisfy at least 150 kilo tonnes of this demand, the domestic market for domestically grown rice is approximately 200 kilo tonnes.

Given that domestic production in non-drought years is around 1,000 kilo tonnes and global consumption close to 500,000 kilo tonnes, opportunities to sell domestically grown rice in Australia are limited.

The Northern NSW region has historically produced only small quantities of rice ranging from 200 to 1,600 tonnes since 2008-09 (RMB 2016). In each of these years this has been less than 1 per cent of total Australian production, notably smaller in most years. However, DPI agronomists have noted the potential of Northern NSW to significantly develop the industry.

Historical yields in Northern NSW are reported by the Board to have reached 5 tonnes per hectare in 2011/12 but have averaged closer to 3.5 tonnes per hectare. DPI agronomists believe achieving average yields of 5 tonnes per hectare in Northern NSW is highly probable and have observed some commercial plantings in the region that achieved 7 tonnes per hectare in 2010.

If Northern growers were able to acquire additional land to grow rice, then current vesting arrangements would hinder the development of the rice industry in Northern NSW and preventing potential export earnings. As present it appears that vesting arrangements are one of a number of constraints on Northern NSW rice producers preventing it from expanding.

Overall, the cost from lost potential export earnings is estimated to be $0.25 per tonne when comparing it against the benefits calculated in the sensitivity analysis. This is calculated by considering average rice production in northern NSW and multiplying it by the difference between Australian rice export prices and estimated wholesale domestic Australian rice prices.[15] This figure is then divided by total average Australian rice production. Using a longer time period a higher cost of around $0.45 per tonne can be found.

[15] Estimated to be $285 000. This assumes that the foregone benefit to society would have included the value-add by shipping. However, in some cases the value-add by shipping is not captured by Australia and so this figure is an upper bound.

6. Additional Factors

6.1 Regional flow-on

In addition to attracting a price premium for NSW growers, rice vesting is noted in submissions to bring a variety of other benefits to domestic producers and their regional communities.

Of the 231 submissions that supported the continuation of vesting, the overwhelming majority mentioned the broader package of benefits that SunRice provides rather than solely focusing on the price premium. These include 79 per cent of the supporting submissions which agreed that vesting provides employment benefits, 77 per cent which agreed that vesting provides economic benefit to regional communities and 74 per cent which agreed that vesting encourages research and development in the rice industry.

NSW DPI received submissions from a range of local councils, chambers of commerce and regional development committees stressing the importance vesting plays in regional development and employment in the Murray and Riverina region.

> *Rice growers play an important role in the fabric of businesses and community in the Murray region. The changes in production due to availability and price of water as well as market conditions have led to changing fortunes for growers and consequently business confidence in the region. A strong and vibrant rice industry supported by vesting will mean stronger business confidence and hence a stronger region.*

At present, Northern NSW rice growers and their communities are not enjoying the same flow-on employment and regional economic benefits as growers in the Murray and Riverina. In addition to the freight disadvantage that they face, the rice industry employment opportunities in roles including storage, milling, processing, packaging, logistics, administration and management are based in the Murray and Riverina, where the NSW SunRice infrastructure is predominately located, not in the Northern Rivers region.

6.2 Governance

A number of submissions discuss the perceived conflict of interest between the Board and SunRice. The Board is made up of seven members, three of whom are also SunRice Directors. The Rice Marketing Board Crop Auditing policy is to monitor the total rice grown in NSW using annual returns by authorised buyers, annual returns from the SEEL holder and grower declarations.

With SunRice having three board members who are also on the Board, there is some industry concern that they have access to see which farmers are not selling to them and who they are choosing to sell to. For example, one submission commented that they refused to purchase a domestic licence to purchase rice from NSW farmers, as they believed it would place their commercial relationships in jeopardy and disclose sensitive company information to a competitor.

7. Recommendations

1. NSW continue vesting rice in the Rice Marketing Board to ensure price premiums from market power continue to be captured.
2. A review of vesting policy occurs in 3 years.
3. The Rice Marketing Board investigates and implements ways to develop the rice industry outside the Murray and Riverina, to avoid costs from restricting the growth of the industry in Northern NSW.
4. An independent review of The Rice Marketing Board is undertaken, to ensure that any risk of conflict of interest is appropriately addressed.

References

Asian Development Bank (ADB) 2012, 'Prefeasibility Study of an ASEAN Rice Futures Market', ADB Sustainable Development Working Paper Series: www.adb.org/sites/default/files/publication/29676/asean-rice-futures-market.pdf, viewed 28 October 2016.

ANL 2016, 'Transport Solutions From All Zones to All Zones', https://www.anl.com.au/products-services/line-services/solution, viewed 28 October 2016.

Department of Agriculture and Water Resources 2004, 'Price Determination in the Australian Food Industry 2004', http://www.agriculture.gov.au/ag-farm-food/food/publications/price-determination, viewed 28 October 2016.

Food and Agriculture Organization of the United Nations (FAO) 2003, 'Sustainable rice production for food security', Proceedings of the 20th Session of the International Rice Commission: http://www.fao.org/docrep/006/y4751E/y4751e00.htm#Contents, viewed 28 October 2016.

FAO 2004, 'Rice in Global Markets', Proceedings of the FAO Rice Conference 2004: http://www.fao.org/docrep/008/a0033e/a0033e00.HTM, viewed 28 October 2016.

FAO 2006, 'Rice International Commodity profile', http://www.fao.org/fileadmin/templates/est/COMM_MARKETS_MONITORING/Rice/Documents/Rice_Profile_Dec-06.pdf, viewed 28 October 2016.

Hamburg Sud 2016, 'Liner Services', http://www.ecom.hamburgsud.com/ecom/en/ecommerce_portal/schedules_2/liner_services/ep_liner_services_site_1099.xhtml, viewed 28 October 2016.

International Rice Research Institute (IRRI) 2007, 'The Importance of Rice', http://www.knowledgebank.irri.org/ericeproduction/bodydefault.htm#Importance_of_Rice.htm, viewed 28 October 2016.

Maersk Line 2016, ' Routnet', http://www.maerskline.com/ar-om/shipping-services/routenet/maersk-line-network/oceania, viewed 28 October 2016.

New South Wales Department of Primary Industries (NSW DPI) 2013, 'Rice – Medium Grain (aerial sown)', Farm Enterprise Budget Series – Murrumbidgee Valley Summer 2012/13: www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/175886/Rice-Medium-Grain-aerial-sown,-Murrumbidgee.pdf, viewed 28 October 2016.

Productivity Commission 2000, 'Single-desk Marketing: Assessing the Economic Arguments', Productivity Commission Staff Research Paper, AusInfo, Canberra.

Productivity Commission 2016, 'Regulation of Australian agriculture', Productivity Commission Draft Report: http://www.pc.gov.au/inquiries/current/agriculture/draft/agriculture-draft-overview.pdf, viewed 28 October 2016.

Rice Growers Association (RGA) 2016, 'About the Rice Industry', http://www.rga.org.au/the-rice-industry.aspx, viewed 28 October 2016.

SunRice 2016, 'Trukai Industries: Developments in Papua New Guinea', NSX Announcement, https://www.sunrice.com.au/media/577325/160805_nsx-announcement_trukai.pdf, viewed 28 October 2016.

Swire Shipping 2014, 'Schedules', http://www.swireshipping.com/index.php?option=com_content&view=article&id=144&Itemid=11, viewed 28 October 2016.

The Rice Marketing Board (RMB) 2016, ‘Statistical Summary’, http://www.rmbnsw.org.au/statistical-summary, viewed 28 October 2016.

Toriyama K., Heong KL., Hardy B, editors. 2005, ‘Rice is Life: Scientific Perspectives for the 21st Century’, Proceedings of the World Rice Research conference: http://books.irri.org/getpdf.htm?book=9712202046, viewed 28 October 2016.

United States Department of Agriculture (USDA) 2016, ‘Background’, http://www.ers.usda.gov/topics/crops/rice/background.aspx, viewed 28 October 2016.

USA Rice 2015, ‘Egypt Bans Rice Exports as of September 1’, https://usarice.com/blogs/usa-rice-daily/2015/08/28/egypt-bans-rice-exports-as-of-september-1, viewed 28 October 2016.

Appendix A History of rice vesting reviews in NSW

1. The 1995-96 National Competition Policy review

The 1995-96 National Competition Policy review found that the single desk export selling arrangements of the NSW rice industry generated market premiums for the rice industry and a net public benefit. As a consequence, the NSW Government agreed that the single desk arrangements would be retained.

The preferred approach, however, was for new arrangements to be established under Commonwealth regulation. As the Federal Government did not agree to establish a single export desk under its jurisdiction, the NSW Government at the time extended vesting for six years to 31 January 2004 and scheduled a further review to determine what statutory arrangements should apply in the longer-term.

2. The 2004-05 review

The 2004-05 review concluded that the single desk export marketing arrangements for rice were continuing to deliver substantial net benefits to the industry and broader community. However, while recommending that the arrangements be retained, it was also recommended that the Board establish rigorous accountability protocols for assessing and communicating to Government and growers SunRice's performance in delivering grower and community benefits.

3. The 2009-10 review

The 2009-10 review did not conclusively argue that the single desk export marketing arrangements were delivering price premiums to growers and broader community benefits. Importantly, however, the review expressed the view that given the domestic market had been deregulated, any costs associated with vesting were likely to be imposed on rice growers rather than Australian rice consumers, and therefore, strong grower support for the arrangement could be interpreted as a proxy for the grower benefits it provides. It further concluded therefore that it is critical that the Board provide growers with enhanced levels of information about prices received so that well informed choice in relation to the retention or otherwise of vesting can be expressed by growers in future.

This review therefore called for the establishment of stronger accountability arrangements and, in particular, the development by the Board of performance metrics in relation to each Board objective and a Performance Management Plan in regard to its sole export agent (SunRice). It proposed that these initiatives and the associated performance information would form a key consideration in any decision to continue the present arrangements beyond 2013.

4. The 2012-13 review

The 2012-13 review concluded that the single desk enabled by vesting continued to deliver price premiums in export markets relative to SunRice competitors selling into those markets. Conflicting arguments were presented to the review though on balance it was decided to recommend vesting by the Rice Marketing Board be retained until at least early 2017. The justification for this date was to allow the Board to fulfil its financial commitments to growers to repay the Growers' Equity Fund without disruption. To better understand the merits of vesting it was recommended that extension beyond early 2017 be subject to a review of performance metrics over the intervening period that provided clear evidence of continued aggregate price premiums in excess of Board costs.

Appendix B The review process

The review was undertaken by the Economics and Analysis unit within the Strategy and Policy Branch of the NSW Department of Primary Industries (NSW DPI), as follows:

- an Information Paper was circulated to stakeholders that called for submissions, which were considered and evaluated. Notification of the review occurred via a number of mediums that included: online through the DPI website, advertisements in local newspapers and industry circulars, by mail to persons that made submissions to the previous review, and in person by attendance at grower meetings;
- public meetings were held in Griffith, Coleambally and Deniliquin in July 2016, to assist growers and other stakeholders to make submissions;
- NSW DPI Strategy & Policy undertook research to determine:
    - the performance of the Board in achieving rice export premiums through its vesting power; and
    - the significance of the SEEL in securing the financial position of SunRice.
- the review would be concluded by December 2016, in time for the industry to be informed of its conclusions, and for any necessary administrative steps to be taken before the current vesting proclamation expires;
- DPI consulted closely with the Rice Marketing Board in the course of the review; and
- the review will report to the Minister for Primary Industries.

The deadline for written submissions was 14 September 2016.

Appendix C List of Submissions Received

Submission no:	Name:
97	Adams, Allan
55	Amaloo Pastoral Company
220	Amberley Pastoral Co
34	Anderson, Craig
22	Andrezza, Bruno
192	Andrews, Daniel
137	Andreazza, Glen
23	Andrezza, Rodney
235	Armanini, Steven & Daniela
202	Arthur, Andrew
184	Arthur, Fay
105	Arthur, John
221	Arthur, LJ
64	Basham, Craig
112	Beard, Adrian & Pennie
212	Beer, Andrew
71	Beer, James
68	Beer, Walter
193	Begbie, Aileen
90	Blight, Ian
4	Boag, Rex
164	Private and Confidential
244	BR&C Agents
183	Brain, Ken & Wendy
204	Braithwaite, Drew
213	Braithwaite, Ian
194	Breed, Sharon
20	Briggs, Greg
206	Brill, Bruce & Glenda
139	Brill, Clinton
102	Brill, Kylie
145	Bull, Colin
38	Buller, Moira
59	Buller, Stuart & Debbie
81	Burke, Keith
42	Burke, Michael
198	Cameron, Andrew
246	Private and Confidential
163	Private and Confidential

170	Casino Rail Freight Terminal Pty Ltd
182	Challis, James
32	Chapman, Geoff
61	Chirgwin, Christine
177	Clark, Kevin
9	Cobden, Margaret
180	Coleambally Chamber of Commerce and Industry Inc.
118	Collins, Sean
31	Condon, Tom
209	Cremasco, Steven & Jacalyn
157	Crump, Benjamin
226	Cudmore, Hayden & Veronica
211	Culross, Richard
186	Dahlenburg, Alison
188	Dahlenburg, Judith
241	Dal Broi, Benjamin
239	Dal Broi, Elis
240	Dal Broi, Joseph
185	Deniliquin Business Chamber
123	Deniliquin Freighters
245	Private and Confidential
134	Dick, Graeme
230	Dissegna, David
232	Dissegna, Diana
228	Dissegna, Dino
229	Dissegna, Michael
138	Dixon, RJ & MA
82	Donnellon, Brian, Theresa & Nicholas
54	Dossetor, Mark & Donna
11	Doyle, Paul
69	Dunmore, Laurel & John
214	Dunn, RJ, VJ, PJ, JA, BJ & KM
234	Durrant, Knox
196	Edward River Council
16	Ellwood, Anthony
40	Evans, MP
41	Fairden P/L
148	Favero, Allan
149	Favero, Walter
222	Fawns, Linda
114	Fawns, Steve
181	Finley Chamber of Commerce, Industry & Agriculture Inc.
99	Flanagan, Rob

45	Fleming Partners
95	Forbidden Foods
109	Fowler, John
37	Francis Kelly & Grant
35	Frankling Family Trust
88	Gitsham, Sandy & John
86	Glasson, Ian
141	Glenn, Alison
27	Glowreys Law Firm
167	Private and Confidential
166	Private and Confidential
154	Gordon Family Farms
65	Goudie, Kevin
93	Graham, JJ, JE & DE
251	Graham, John
250	Graham, Judith
94	Graham, Louise
6	Gribble, Rod
24	Griffith Business Chamber
63	Griffith City Council
43	Hand, John & Judith
56	Hardy, Chris
104	Hardy, Perry & Catherine
28	Hayes, PS
84	Hedditch, Mike
129	Hehir, Jennie
173	Hehir, Nathan & Emily
7	Hemley, John
115	Hermiston, Andrew
121	Hibbert, Frederick
50	Hogan, Barry
113	Hogan, JW
70	Hogan, Scott & Anita
1	Hogan, Terry
83	Holmfield, Gary & Louise
152	Hopwood, Tim
130	Hutcheon & Pearce
197	IKC Rural
172	Irrigation Research & Extension Committee
231	Jackson, Andrew
74	Jarrott, David
79	Jarrott, Sue
127	Kaylock, Laura

51	Kelly, Ian & Denise
29	Kerr, Russell
57	Knaggle Family Trust
218	Knight, Arthur & Joy
190	Landmark Deniliquin
98	Lanza, Steven
176	Leeton Shire Council
201	Lolicato, Amy
203	Lolicato, John
210	Lowing, N
131	Macdonad, Jim
66	Mailler, RK
13	Mannes, John
12	Mannes, Lyndall
8	Marsden, David
189	Mason, Ian
135	Massina, Robert
124	McDonald, Peter
162	Private and Confidential
191	McNaughts Transport
80	Mensforth, JE & ML
238	Minato, Ben
101	Minato, John
237	Minato, Ottelio
236	Minato, Rodney
120	Moreshead, Chris
207	Morona, Martin
96	Morona, Nick & Diane
199	Morona, Steven
215	Morton, Ian & Margaret
87	Morton, Jeremy & Renee
133	Moulamein Co-Operative
179	Moulamein Cropping Group
33	Murphy, Lindsay & Valerie
155	Murrumbidgee Council
60	Murrumbidgee Valley Food & Fibre Association
132	National Farmers' Federation
161	Private and Confidential
52	Nicholls, Graham & Judith
103	NSW Irrigators' Council
44	Oconnor, Peter
18	O'Donnell, John
187	Organic Harvest

174	Private and Confidential
39	Painting, JG & SI
122	Payne Farming Co
224	Payne, Merna
136	Peppin Planners - Simpson, B
108	Peppin Planners - Brown, R
156	Perkins, Andrew
85	Perkins, Scott
225	Pietroboni, Fran
3	Pike, David
208	Pound, Shane
25	Pound, Tony & Kellie
219	Randall Organic Rice
78	Rawlinson & Brown Pty Ltd - Wood, I
125	Rawlinson & Brown Pty Ltd - Cobden, J
171	Regional Development Australia, Murray
126	Regional Development Australia, Riverina
159	Rice Marketing Board for NSW
153	Rice, Stanleg
151	Ricegrowers' Associarion of Australia Inc.
75	Robertson, Liam
10	Robertson, MJ & ST
128	Robertson, Sarah
168	Private and Confidential
142	Private and Confidential
233	Rooks, Janine
15	Rose Farming Enterprises
243	Salvestro, Angelo
227	Salvestro, Lea
242	Salvestro, Wayne
111	Sammut, Victor & Kaye
89	Sartor, Lawrence
91	Schimizzi, Domenic
21	Scoullar, Tony
140	Sheldrick, Paul
67	Sheppard, Peter
17	Simpson, Geoff & Karen
119	Small, Josh
36	Star Brothers Farming
217	Stephens, Tom
48	Stimson, Jean
47	Stimson, Lloyd
49	Stimson, Lynne

46	Stimson, Milt
175	Stuckings, JW & LA
30	Sullivan, RP & EM
158	Private and Confidential
223	Super Payne Pty Ltd
165	Private and Confidential
144	Taskers Deniliquin
58	Temporali, Trent
178	Tubb, Matt
92	Turner, Trevor
195	Tyrrell, Peter
248	Vagg, Andrea
150	Vagg, Lachlan
247	Vagg, Max
73	Vagg, Ryan
143	Vial, Brian
19	Vial, Leigh
147	Viola, Domenico
146	Viola, Suzanne
5	Walsh, GJ & PD
26	Walsh, Larry
117	Walter, BD
205	Waterfall, Jennifer
116	Wearne, Richard
76	West Berriquin Irrigators Inc.
106	Whelan, Bernard
107	Whelan, Mick
72	Wills, Nae
14	Wiseman, Alexander
169	Private and Confidential
2	Yenda Producers Co-op
53	Young, Penny

Appendix D Stakeholder Consultations

Date	Location	People in attendance	Purpose
27/04/2016	Sydney	10	Meeting with SunRice
6/06/2016	Deniliquin	41	Rice Growers Association Deniliquin and Victoria Branch meeting
7/06/2016	Wakool	28	Rice Growers Association Wakool Branch meeting
7/06/2016	Finley	40	Rice Growers Association Berriquin Branch meeting
8/06/2016	Coleambally	35	Rice Growers Association Coleambally Branch
8/06/2016	Hay	5	Rice Growers Association Hay Branch
9/06/2016	Leeton	25	Rice Growers Association Yanco Branch
9/06/2016	Griffith	60	Rice Growers Association Mirrool Branch
11/07/2016	Deniliquin	30	Public meeting
12/07/2016	Coleambally	25	Public meeting
13/07/2016	Griffith	5	Public meeting
3/08/2016	Sydney	5	Public meeting
4/08/2016	Deniliquin	120	Rice Growers Association Annual General meeting
26/08/2016	Penrith	2	Meeting with the Green Group

Appendix E Statistical Inference Output

1-sided t-test results – full sample

	Monthly data	Annual data
No. of observations	183	15
Mean of price premium variable	174.24	128.57
Standard error of price premium variable	275.23	188.73
t-value	8.56	2.64
t-critical value	1.65	1.76

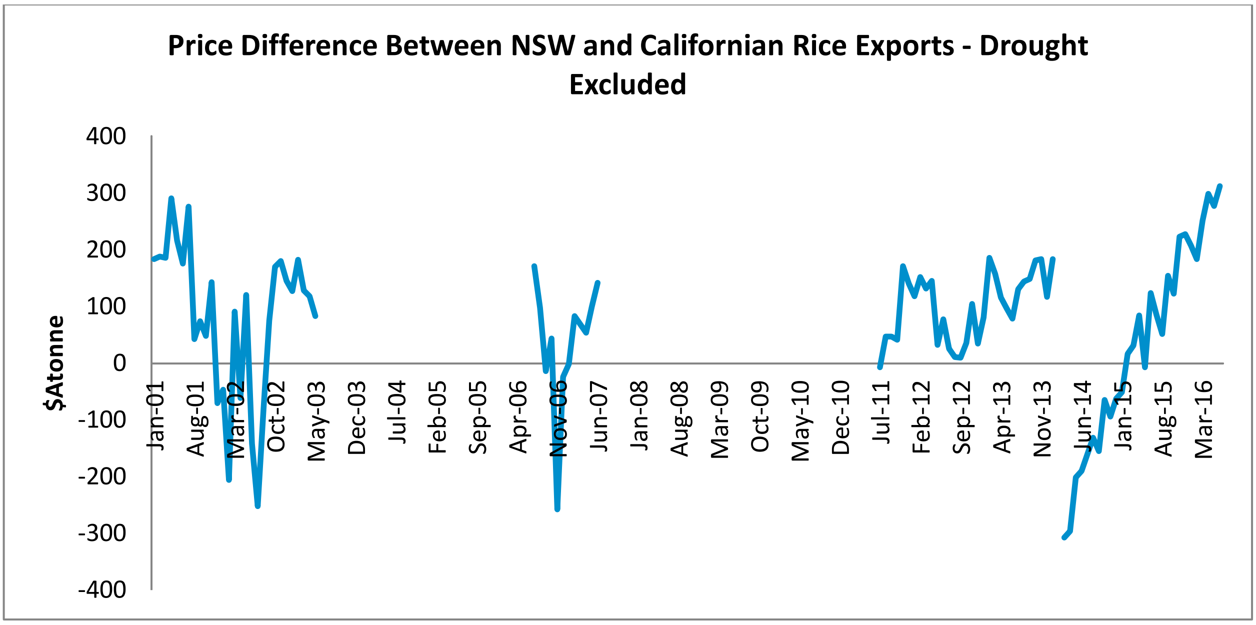
Appendix F Sensitivity Analysis Output

Assumption tested: Export prices are determined under the same conditions

The existence of a price premium can be statistically inferred when drought periods are excluded

If this does not hold the conclusions drawn from the comparison between NSW and Californian prices are ambiguous as differences in price may be due to something other than vesting. For example in a situation where a volatile price movement occurs and one exporter sells before the change in price and one after, the two set of exports will not be sold under the same conditions. This is of particular concern for this Review as large price movements do occur and rice is produced and marketed at different times in California and NSW.

To address this specific concern, the sample was grouped into two broad periods and the period of large price volatility excluded from analysis. The two periods are a drought-affected period that appears to coincide with high price volatility and a non-drought-affected period. Drought-affected periods are defined as those with below average production, with average production calculated based on annual figures between 2001-02 and 2014-15. This results in the exclusion of 7 out of the 14 years' worth of observations.[16] Statistical analysis on the reduced sample is performed only for monthly data as the annual sample is too small for meaningful inference.



The results indicate that a positive price premium can be inferred when drought-affected observations are excluded. The t-value for this reduced sample has fallen, from 8.6 to 5.7, but is still well above the t-critical value required to reject the null hypothesis and infer the alternative.

[16] The drought-affected years were identified as 2002-03 to 2004-05 and 2006-07 to 2009-10. As a crop is largely exported in the year after it is produced data sensitivity analysis applies also applied a one year lag when removing drought years.

1-sided t-test results – sensitivity test for drought

	Monthly data	Annual data
No. of observations	100	n/a
Mean of price premium variable	69.06	n/a
Standard error of price premium variable	132.35	n/a
t-value	5.22	n/a
t-critical value	1.66	n/a

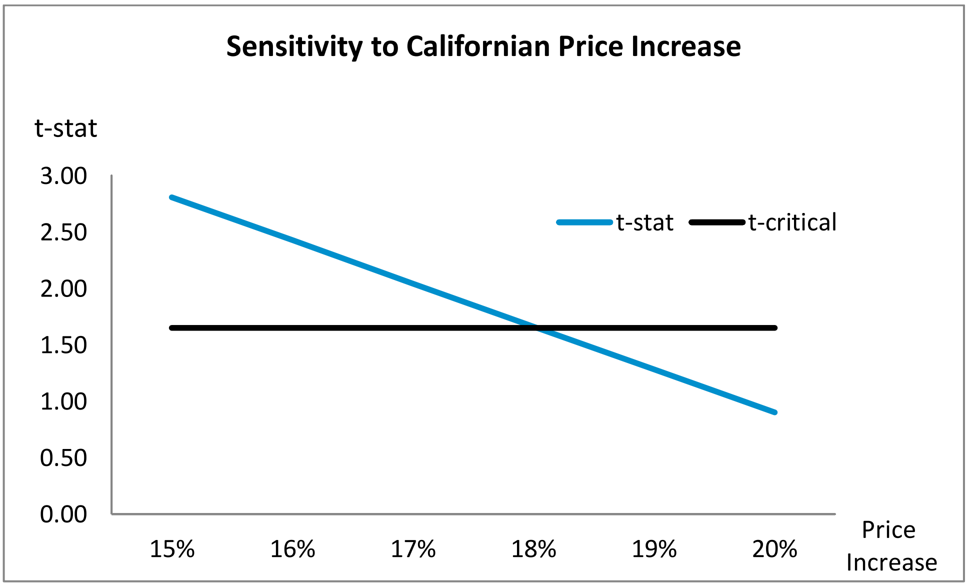
Assumption tested: Farm production costs are the same

The existence of a price premium is robust to increases in the cost of Californian production and therefore its price of up to 18 per cent

If the farm cost of production between NSW and Californian producers varies significantly the use of the base case is compromised. This is because, in the absence of vesting, farm costs are likely to be unchanged in NSW and therefore, if California is to be a fair base case, its costs should be the same as in NSW.[17]

To broadly test how sensitive the results are to differences in costs, the Californian price is adjusted upwards to the point where a price premium can no longer be inferred. This type of analysis assumes that Californian costs of production are lower than in NSW.

The results indicate that if Californian prices were 10 per cent higher a price premium for NSW exports can be statistically inferred. However, if Californian prices were 20 per cent higher a price premium for NSW exports cannot be inferred. At a price increase of around 18 per cent the price premium between NSW and Californian rice exports can no longer be inferred.



1-sided t-test results – sensitivity test for Australian costs

	10 per cent increase in Californian prices	20 per cent increase in Californian prices
No. of observations	183	183

[17] Marketing costs include the value-add from transport, packaging, storage etc. beyond the farm gate and up to purchase by a wholesaler.

Mean of price premium variable	96.47	18.70
Standard error of price premium variable	275.71	279.57
t-value	4.73	0.90
t-critical value	1.65	1.65

One reason why NSW and Californian farm costs differ may be labour costs. The minimum wage in Australia is around one third more than in California,[18] though average incomes are slightly lower in Australia than in California on a per capita GDP basis.

For the sensitivity analysis, it was assumed that California has lower labour costs and so Californian wages were adjusted up by 33 per cent to reflect rough differences in the minimum wage. This flows through to the final export price as around a 2 per cent increase in export price. This is based on the assumption that wages are 15 per cent of milling costs and milling costs make up 40 per cent of the final export price.[19] This is below the 18 per cent increase in the price of California rice exports required to no longer infer a price premium.

The existence of a price premium can be statistically inferred when rice exports in NSW and California are both packaged

Assumption tested: Marketing structure is the same

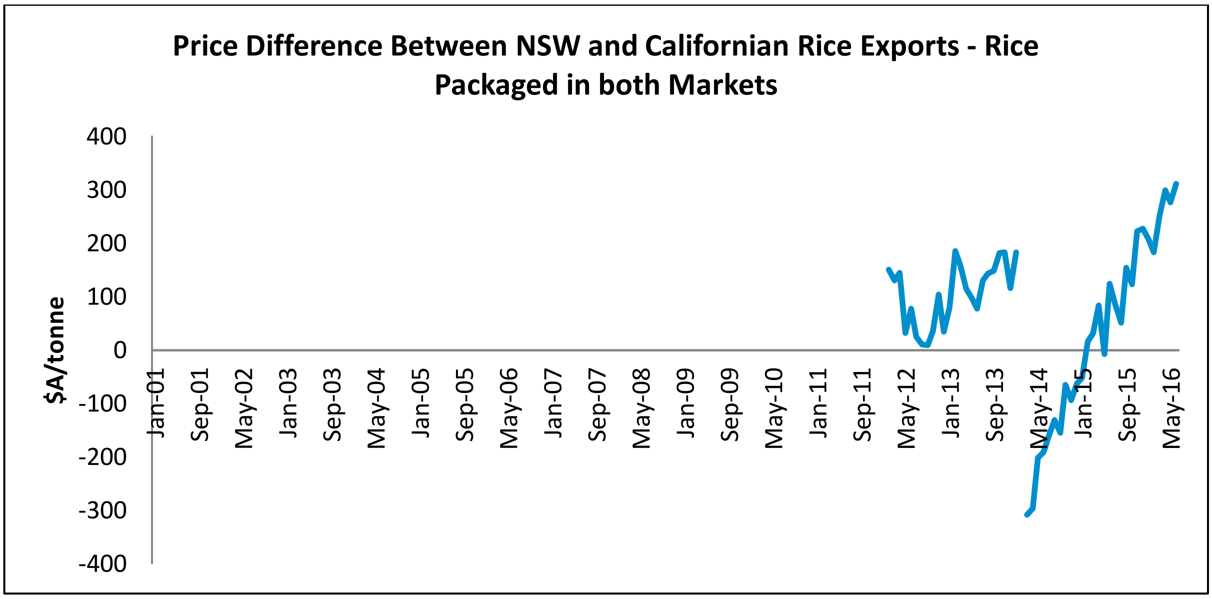
If there is a difference in the way a product is marketed, any difference in price cannot solely be attributed to vesting. One reason marketing may differ is if some rice is sold in bulk and some packaged. Historically, NSW rice was predominantly exported as packaged rice while most Californian rice was sold unpackaged in bulk. Since February 2012 the majority of rice exports from California have been packaged and exported in containers.

To test the effect of differences in marketing, we considered the sample from February 2012 onwards. This reduces the sample size to only 52 monthly observations. Statistical analysis on the reduced sample is performed only for monthly data as the annual sample is too small for meaningful inference.

The results indicate that a positive price premium can be inferred when rice is packaged in both markets. The t-value for this reduced sample has fallen, from 8.6 to 3.4, but is still well above the t-critical value required to reject the null hypothesis and infer the alternative.

[18] The minimum wage in California is $US10 per hour, while in NSW it is $A17.70 per hour or $US13.42 per hour at an exchange rate of one Australian dollar buys 0.76 US dollars.

[19] These rough figures were taken from work by Department of Agriculture and Water Resources (2004).



1-sided t-test results – sensitivity test for packaging of rice in both markets

	Monthly data	Annual data
No. of observations	52	n/a
Mean of price premium variable	67.30	n/a
Standard error of price premium variable	142.80	n/a
t-value	3.40	n/a
t-critical value	1.68	n/a