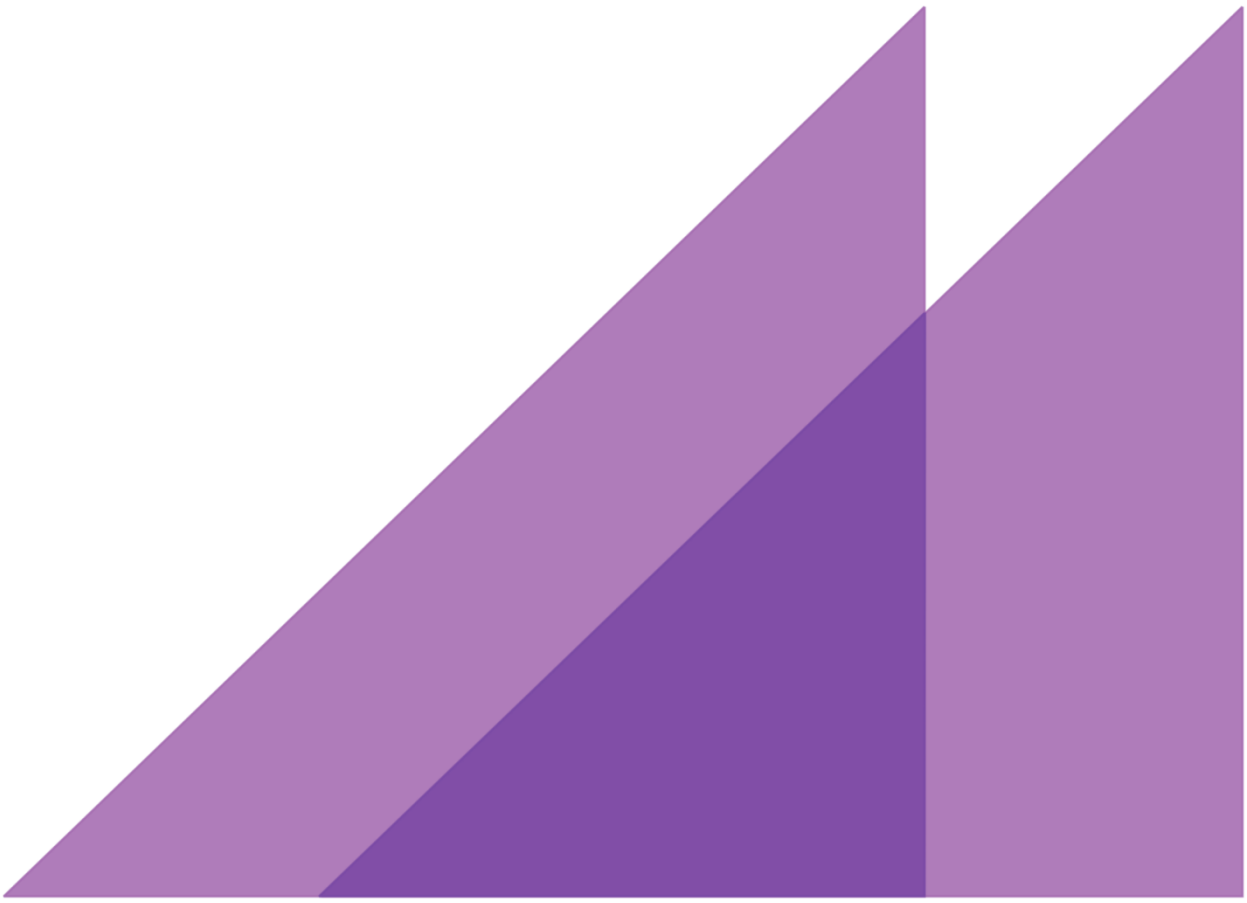
ACIL ALLEN CONSULTING

REPORT TO

POTATO MARKETING CORPORATION OF WESTERN AUSTRALIA

MARCH 2014

REGULATION AND THE POTATO INDUSTRY IN WA



ACIL ALLEN CONSULTING PTY LTD
ABN 68 102 652 148

LEVEL FIFTEEN
127 CREEK STREET
BRISBANE QLD 4000
AUSTRALIA
T+61 7 3009 8700
F+61 7 3009 8799

LEVEL TWO
33 AINSLIE PLACE
CANBERRA ACT 2600
AUSTRALIA
T+61 2 6103 8200
F+61 2 6103 8233

LEVEL NINE
60 COLLINS STREET
MELBOURNE VIC 3000
AUSTRALIA
T+61 3 8650 6000
F+61 3 9654 6363

LEVEL ONE
50 PITT STREET
SYDNEY NSW 2000
AUSTRALIA
T+61 2 8272 5100
F+61 2 9247 2455

SUITE C2 CENTA BUILDING
118 RAILWAY STREET
WEST PERTH WA 6005
AUSTRALIA
T+61 8 9449 9600
F+61 8 9322 3955

ACILALLEN.COM.AU

REGULATION AND THE POTATO INDUSTRY IN WA

Executive summary

The potato growing industry in Western Australia is small on a national scale. The industry is regulated by the Potato Marketing Corporation of Western Australia (PMC), a statutory body established under legislation in 1946.

Despite the industry's lack of scale, there is no evidence that potato consumers in Western Australia pay more than consumers in other States. Similarly, there is no evidence that potato consumers in Western Australia suffer from limited choice or poorer quality than their counterparts in other States.

There is evidence that the activities of the PMC do reduce the supply excesses and shortfalls that lead to price variations in other States. Similarly, there is evidence that small scale potato growers are supported by the activities of the PMC, but such support is not provided at the expense of consumers of potatoes.

There is clear evidence that the activities of the PMC are self-funding and that the Corporation is not dependent on financial support from the State Government.

There is no evidence that the PMC restricts competition in the potato industry by controlling the area of land licenced for the growing of potatoes. In practice, the PMC surveys and licences land area on the basis of individual grower area requirements to meet their domestic market entitlement (DME). Growers request the extent of this area from the PMC on an annual basis. The purpose of this area licencing is to enable the PMC to match supply and demand for potatoes.

There is a current reform process in progress within the local potato industry that is based upon the recommendations of the McKinna Report in 2011. This reform process is not complete, and should be encouraged in order to maintain an acceptable level of performance by the potato industry in Western Australia.

On this evidence, there is no strong case able to be made for the removal of regulation from the potato industry in Western Australia. Due to its limited scale and separation from other States, the local potato industry has evolved to a point where it delivers an acceptable product to consumers in Western Australia, with potential for continued improvement.

Any rapid dismantling of the regulatory framework of the local potato industry will cause significant dislocation to smaller scale growers of potatoes, with various regional impacts across the potato growing regions of the State. Analysis of the industry and its outcomes has shown that the cost of such dislocation is not warranted at the present time, and that encouraging the Potato Marketing Corporation to complete its process of reform within a reasonable time is an acceptable mechanism to ensure that local consumers of potatoes are not at a national disadvantage.

The weight of evidence suggests that:

a) reform of the local potato industry will be difficult, and
b) the likely efficiency gain from deregulation is small.

Using the inquiry suggested assessment framework, these two facts suggest no further action should be taken.

It is clear that there are other more important areas of economic reform to be pursued within Western Australia, with much greater implications for the welfare of consumers, such as the electricity market, the domestic gas allocation policy and retail shopping hours.

C O N T E N T S

Executive summary ii

1 Introduction 1

2 The potato industry 3

2.1 The potato industry in Australia 3
2.2 Ware potatoes in Eastern Australia 3
2.2.1 Growers 3
2.2.2 Wholesalers 4
2.2.3 Retailers 4
2.3 Ware potatoes in Western Australia 5
2.3.1 Growers 5
2.3.2 The domestic market entitlement 9
2.3.3 Wholesalers 10
2.3.4 Grower payments 11
2.3.5 Retailers 15
2.3.6 Interstate trade in potatoes 15
2.4 Is competitive tension evident? 15
2.4.1 What does competitive tension look like? 15

3 Consumer impact 17

3.1 Are consumers being adversely affected? 17
3.1.1 Potato pricing in Western Australia 17
3.1.2 Speciality varieties and choice 22
3.1.3 Summary 23

4 Industry impacts 24

4.1 Context to the discussion 24
4.2 Cost of regulation 25
4.3 Benefits of regulation 26
4.3.1 Qualitative summary of the winners and losers 28
4.3.2 Quantitative summary of costs and benefits 28
4.4 Impact on productivity 29
4.5 Costs and benefits summary 30

5 Future role of the PMC 31
5.1 Existing reform program 31
5.2 Additional PMC roles 34
6 Conclusions 35

List of boxes

Box 1 Red Gem 4
Box 2 Beta Spuds 11
Box 3 Grower payments 12

List of figures

Figure 1 Annual ware potato production by grower group – 2013 calendar year 7
Figure 2 Net cash per grower – 2013 calendar year 8
Figure 3 Cash return versus production in 2013 9
Figure 4 Retail market share in WA 15
Figure 5 Retail potato prices: September 2012 to September 2013 18
Figure 6 Retail washed potatoes: 72 weeks to February 2014 19
Figure 7 Impact of regulation 29
Figure A1 Terms of Reference A-1
Figure B1 Response to ERA from CCI WA B-3
Figure C1 Supply and Demand curves C-6
Figure C2 Price path for agricultural markets C-8

List of tables

Table 1 Non-ware potato licenses for 2014 in Western Australia 5
Table 2 Ware potato production per pool by growers in 2013 – tonnes 6
Table 3 2013-14 DME data by potato type (tonnes) 10
Table 4 Pool payment history $/tonne 13
Table 5 Payments to growers in Pool 1 – history by type and class 14
Table 6 Price picture at the time of the NCP review into potato pricing 18
Table 7 Woolworths online price sample: January – February 2014 20
Table 8 Coles online price sample: January – February 2014 21
Table 9 DME allocations to broad categories of potato and future projections (%) 22
Table 10 Simulation summary values: dollars per tonne 29

1 Introduction

The Economic Regulation Authority of Western Australia has been requested by the Treasurer of the Government of Western Australia to investigate the scope for further microeconomic reform in Western Australia. The terms of reference are contained in Appendix A.

The ERA has published an issues paper, seeking responses from interested parties. One response, from the Chamber of Commerce and Industry in WA (CCIWA) raised the issue of the regulation of the potato industry in Western Australia, and the need for such regulation to be abolished. An excerpt from the ERA's summary of the CCIWA submission is contained in Appendix B.

This report has been commissioned by the Potato Marketing Corporation to review the claims made by CCIWA, and to address the reform assessment framework used by the ERA and its application to the local potato industry.

This report provides information relevant to addressing the following question, as outlined in ERA (2013b):

> Is there a role for the Potato Marketing Board to continue regulating the growing and marketing of potatoes, and if so, what is it?
>
> a) What factors should be taken into account when evaluating the costs and benefits associated with the operation of the Potato Marketing Board?

The detail presented follows the framework identified by the ERA (2013a) where it is indicated that factors to consider are to include:

1. Adjustment costs
2. Complexity of assessing the value of the reform
3. Who will benefit
4. Which groups will bear the costs of reform and be disadvantaged
5. Extent of legislative change required.

Consistent with the approach outlined in ERA (2013a), consideration is given to the Compensation Principle, where it is understood questions of efficiency and equity are to be considered separately.

Consideration is also given to the overall context of reform as detailed in ERA (2013a; 2013b) where the stated objective is to identify high priority reforms. Using the framework presented in both ERA (2013a; 2013b) a high priority reform is defined as a reform that is both "Easy to Implement" and will deliver a "Large Potential Benefit". More fully, the categories and recommended actions for classifying different potential options are identified as:

1. Reform is difficult to implement and the benefit is small → No action
2. Reform is easy to implement and benefit is small or unknown → Low priority
3. Reform is difficult to implement but the potential benefit is large → Undertake further investigation
4. Reform is easy to implement and the potential benefit is large → High priority.

The report structure is as follows. First, details of the way the potato market operates in Western Australia are provided. It is not clear that the way the market operates, and the reforms undertaken in recent years are well understood. As such this information provides important contextual detail. Second, the impact of the regulated market is considered from the point of view of the consumer. Consideration is given both to likely price impacts and choice impacts following deregulation. Third, consideration is given to the impact on industry efficiency and the potential for deregulation to contribute to productivity growth. Following this discussion the future role of the Potato Market Corporation is then considered. The report ends with a summary and conclusion section.

2 The potato industry

In order to address the microeconomic reform inquiry and the issues raised through the inquiry process, it is useful to describe the characteristics of the potato industry, both elsewhere in Australia and in Western Australia.

2.1 The potato industry in Australia

For the year ending December 2011, Australian potato production was 1,191,265 tonnes[1].

South Australia produced 38% of national production, followed by Tasmania (24%), Victoria (21%) and NSW (8%). Western Australia produced 5% of the national production, 59,563 tonnes. South Australia has emerged as the major growing region in Australia due to its sandy soils, its climate and the availability of water.

Total fresh and processed potato consumption per capita in 2011 was 38.6 kg, purchased at an annual average price of $2.40 per kg for a total expenditure per capita of $92.64. The domestic retail market value of fresh potatoes purchased by consumers is about $831 million per annum.

The potato market in Australia consists of three components, fresh potatoes, seed potatoes and processed potatoes. Of the 1.19 million tonnes grown, 60% are used to produce processed potato products. Only 40% are used as fresh potatoes. Of that 40%, 7% are exported as fresh potatoes, 80% are sold through retail outlets and 13% are used in the food service industry (restaurants etc.).

The major supermarkets dominate the retail distribution of potatoes, with a 75% market share. Greengrocers have a 25% market share.

2.2 Ware potatoes in Eastern Australia

2.2.1 Growers

The major growing regions in Australia are the wet temperate coastal regions of South Australia, Tasmania and Victoria. Between them, these regions produce about 83%[2] of the national production. South Australia is the major producer, with about 38% of national production.

Potatoes South Australia maintains a web site[3] which provides the following summary data about the South Australian potato industry:

- Potatoes represent the largest horticulture contribution to gross food revenue (>$440 million)
- Nation's largest potato producer with farm gate production worth $206 million
- On average more than 385,000 tonnes are produced annually

[1] Fresh Logic "Potato Market Profile" July 2012

[2] ibid

[3] https://www.potatoessa.com.au/industry/south-australian-snapshot/

- 100,000 tonnes are processed annually (French fries and crisping)
- Produces 80% of the nation's fresh washed potatoes
- Significant contributor to the processed market
- Employs more than 2000 people
- More than 11,900 hectares are under cultivation
- Approximately 100 potato businesses of which approximately 50 are growers
- Seven key grower/washer/packer facilities are strategically located in the state. One has recently been placed into receivership and sold, a result of the tight margins in the unregulated system
- The industry is becoming more and more vertically integrated
- Exports represent just 2% of production
- In horticulture, potatoes contribute to 33% of interstate trade worth $171 million.

2.2.2 Wholesalers

In general, potato growers supply their products to intermediaries, termed wash packers, who process and sell the ware potatoes. In South Australia, there are 7 wash packers who aggregate the production from growers and supply retail outlets. It appears that there is an increasing amount of vertical alignment or integration in the industry, and wash packers tend to supply a particular retail market participant. For example Red Gem has built its business on supplying Coles. The following is a typical description of the activities and linkages surrounding a wash packer in the potato industry.

Box 1 **Red Gem**

Red Gem: Nar Nar Goon, Victoria

> This potato growing company supplies Coles with the exclusive Crème Royale brushed potato, as well as other much loved brushed and washed potato varieties. They have supplied Coles for more than half of its business lifetime. Last year, we supplied Coles with a staggering 9,500 tonnes of quality fresh produce says Red Gem's business manager, Alan Hansson.
>
> This is not only good news for Red Gem, but for the families of the 70 people it employs at its Nar Nar Goon packing facility, as well as their dedicated grower base of 20 growers and the 120 people they employ…….

Source: http://www.coles.com.au/helping-australia-grow/aussie-made-and-grown/meet-our-farmers-and-growers/meet-our-growers

2.2.3 Retailers

In Australia, 80% of fresh potatoes are distributed through retail outlets. A further 13% is distributed through foodservice outlets, and the remaining 7% is exported.[4]

The major supermarkets dominate the distribution within the retail channel and hold a 75% share. In 2011, the retail channel sold 346,347 tonnes of fresh potatoes. This generated annual retail value of $831 million at an average price of $2.40 per kg.

[4] Fresh Logic July 2012

2.3 Ware potatoes in Western Australia

2.3.1 Growers

In Western Australia, ware potatoes are sourced from up to 78 licenced growers (in 54 family groups). These growers produce around 50,000 tonnes per annum of ware potatoes. There is a small processed potato industry comprising two large facilities and three small facilities. This is a significant difference to the situation on the east coast, where around 60% of potatoes are processed, and 40% are sold fresh. In effect, local potato growers are dependent upon ware potato sales, whereas their eastern states counterparts have a very significant market for potatoes for processing.

In the current year, the estimated quantity of non-ware potatoes to be grown under licence is shown in Table 1.

Table 1 **Non-ware potato licenses for 2014 in Western Australia**

Application	Quantity	Number of growers
Export	1,850 tonnes	3 sites
Organic	190 tonnes	3 sites
Processing	24,600 tonnes	19 sites
Seed	9,300 tonnes	31 sites
Other	90 tonnes	4 sites
Total licensed	**36,030 tonnes**	

Source: PMC

The total annual quantity of potatoes grown in Western Australia by licensed growers is around 86,000 tonnes, of which 1,850 tonnes are exported and approximately 25,000 tonnes are processed into potato products such as chips. For processing potatoes the PMC has a role in terms of licencing but does not have a role in terms of any other functions. The role of the PMC is simply to monitor production of potatoes to ensure that they are not diverted to the local ware market, with a consequent impact on the supply / demand balance for ware potatoes.

Ware potatoes are grown in four distinct regions in the State, each based upon soil type and weather conditions, which results in a relatively constant supply of fresh potatoes to the local market. Generally, potatoes in the Western Australian market are fresh and have not been subject to long term storage. There are four pools per year in Western Australia.

In terms of ware potatoes, the quarterly pool contribution by each grower group in the calendar year 2013 is shown in Table 2. The data shows that most growers contribute to more than one pool, but it is rare for a grower to contribute to all pools. Thus, based upon climate and land use issues, it is reasonable to conclude that no grower is dominant in all pools.

Table 2 **Ware potato production per pool by growers in 2013 – tonnes**

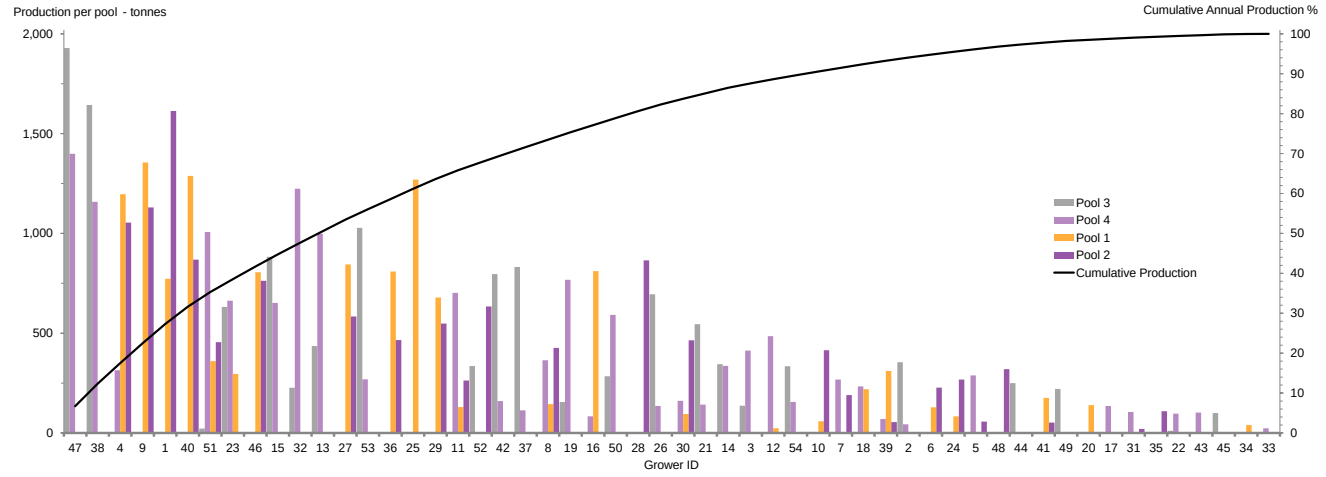
Grower	Pool 3	Pool 4	Pool 1	Pool 2	Total
1	0	0	773	1613	2386
2	355	44	0	0	399
3	137	413	0	0	549
4	0	314	1196	1054	2565
5	0	288	0	57	345
6	0	0	129	227	356
7	0	268	0	190	457
8	0	365	144	426	936
9	0	0	1355	1130	2485
10	0	0	59	415	474
11	0	702	130	263	1095
12	0	485	24	0	509
13	435	998	0	0	1434
14	345	336	0	0	681
15	883	652	0	0	1534
16	0	83	811	0	895
17	0	135	0	0	135
18	0	234	219	0	453
19	155	768	0	0	922
20	0	0	140	0	140
21	545	142	0	0	687
22	11	97	0	0	108
23	632	662	296	0	1590
24	0	0	83	268	351
25	0	0	1270	0	1270
26	695	135	0	0	830
27	0	0	845	584	1429
28	0	0	0	865	865
29	0	0	679	548	1227
30	0	161	95	464	721
31	0	105	0	20	125
32	227	1224	0	0	1451
33	0	23	0	0	23
34	0	0	40	0	40
35	0	0	0	109	109
36	0	0	809	466	1274
37	832	113	0	0	945
38	1644	1158	0	0	2802
39	0	70	311	54	435
40	0	0	1288	868	2156
41	0	0	176	52	228
42	796	160	0	0	956
43	0	102	0	0	102

Grower	Pool 3	Pool 4	Pool 1	Pool 2	Total
44	250	0	0	0	250
45	100	0	0	0	100
46	0	0	805	763	1568
47	1929	1399	0	0	3328
48	0	0	0	320	320
49	221	0	0	0	221
50	284	591	0	0	876
51	22	1007	360	455	1843
52	335	0	0	634	969
53	1028	269	0	0	1297
54	334	156	0	0	490
Totals	12193	13659	12036	11845	49733

Source: PMC

The data in Table 2 has been sorted to list producers in terms of their annual production across all four pools. The result is displayed in Figure 1. Also shown in the figure is the cumulative contribution, in percentage terms, of the growers as their production is accumulated, starting with the largest producer.

Figure 1 **Annual ware potato production by grower group – 2013 calendar year**



Source: PMC

The data shows that the 5 largest growers produce about 25% of the annual production, the 12 largest growers produce 50% of the annual production, and that 75% of production comes from the 23 largest growers. The remaining 31 growers contribute the remaining 25%. This suggests that there are scale economies available in the production of potatoes that are being captured by the larger growers. Further, it suggests that for a relatively small increase in annual production, the 23 larger producers could displace the 31 smaller producers. In practice, it may not be this simple, since some of the smaller producers may be growing particular varieties, may have high quality product, may be producing larger quantities of non-ware potatoes, or there may be climate and geography reasons why this could not happen.

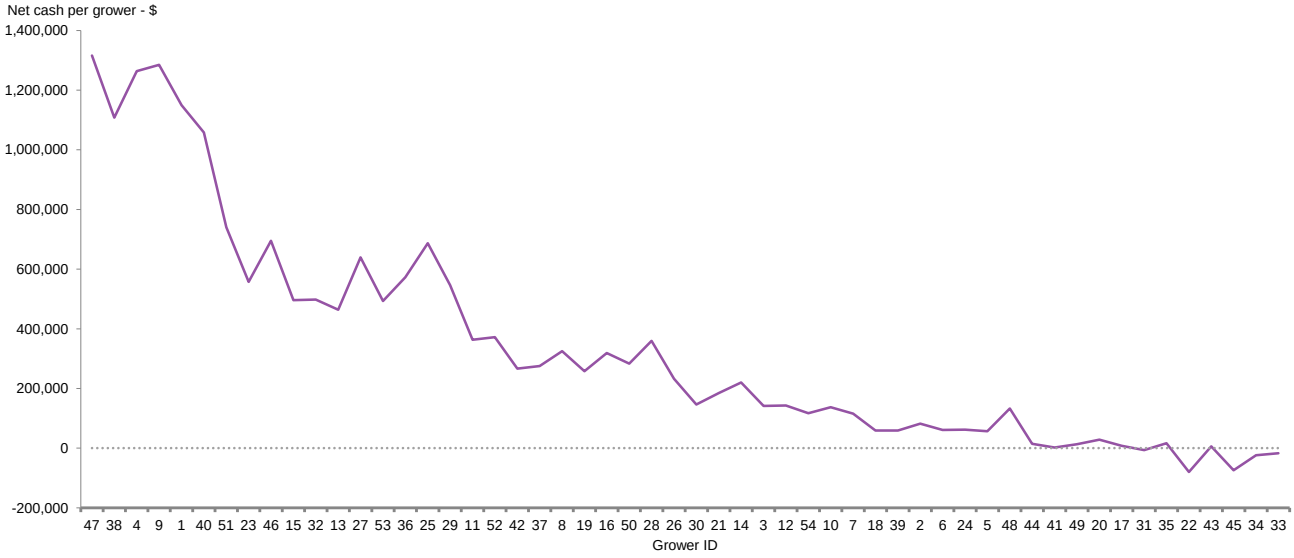
However, this does illustrate one of the control mechanisms available to the PMC. The PMC can encourage or discourage the participation of the smaller growers in the ware

potato industry through its price setting role. The price setting role of the PMC relates to setting what is essentially the farm gate plus washing and grading price. This price is different to the wholesale price. A low price would discourage the participation of small scale growers (unless they are high quality producers), or growers whose produce is of such low quality that their post pack returns are insufficient to justify growing ware potatoes. A high price, sufficient to support profits for all growers, could result in significant gains for large producers that can benefit from economies of scale and effective quality control.

The PMC's ability to set price is not absolute. Price is affected by a range of factors, some of which are beyond the control of the PMC. They include competitive pressures (from interstate imports), retailer quality standards, consumer demand and the quality of supply.

We have developed basic cost and revenue data for each of the 54 family groups (78 growers) in the 2013 calendar year, and have plotted in Figure 2 the net cash generated by each grower.

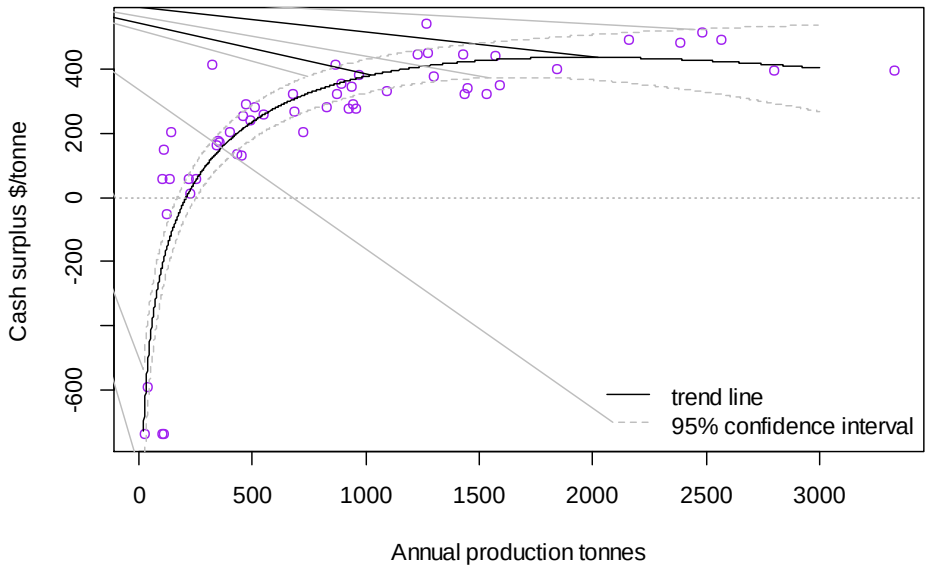
Figure 2 **Net cash per grower – 2013 calendar year**



Source: PMC data, ACIL Allen Consulting

This shows that in 2013, several of the smallest producers operated at a loss or failed to generate any cash from the growing of potatoes. The scale effect is illustrated in Figure 3, where we have plotted the cash surplus per tonne of production against the scale of production for all 54 ware potato grower groups in 2013.

Figure 3 **Cash return versus production in 2013**



Source: PMC, ACIL Allen Consulting

2.3.2 The domestic market entitlement

On a pool basis, the PMC seeks applications from registered growers for the next pool for ware potato supply. The PMC determines the quantity of potatoes required in each pool, and provides an indication of the quantity of each type (colour) of potatoes that are required. In response, growers indicate the quantity that they are prepared to grow and supply. The PMC then awards the DME tonnage (domestic market entitlement) which that grower is required to grow and supply to a licensed wash packer (of which there are 5), at a regulated price. The price varies both between pools and within pools, based upon competitive factors. In this manner, the PMC manages the supply of potatoes on a forward looking quarterly basis so as to minimise the supply demand balance imbalance that is a typical characteristic of agricultural markets (see Appendix C for a characterisation of the issue). This process also minimises wastage from overproduction, and provides growers with some certainty of revenue which otherwise they would not have. Furthermore, the PMC and the growers liaise to ensure that there is a relatively constant supply of fresh potatoes, of the required varieties, in each week of the 13 week pool.

Table 3 shows the data on potato varieties and quantities for the four pools in the current financial year. There are many types of potatoes grown in Western Australia, albeit that the production is dominated by the Nadine, Royal Blue, Ruby Lou, White Star, Rodeo and Lady Christl varieties. The table shows that the six main varieties account for 88% of the annual production in 2013/14. It is useful to recognise that this concentration on these varieties is not driven by the growers. It is the retailers that specify the variety mix of potatoes that they wish to sell, which is then translated into the planting volumes necessary to achieve consumer demand. The current colour mix required for the local market is broadly 70% yellow/white potatoes, 10% red potatoes, and 20% blue potatoes. The long list of the smaller varieties in the table is indicative of growers trialling particular varieties that fit into these colour categories. The retailers will clearly not stock 36 varieties of potato, but at a minimum they do sell the four colours of potato.

Table 3 **2013-14 DME data by potato type (tonnes)**

		2013 Pool 3		2013 Pool 4		2014 Pool 1		2014 Pool 2		Totals		
#	Variety	DME Issued	DME Received	DME Issued	DME Received	DME Issued	DME Received	DME Issued	DME Received	DME Issued	DME Received	% total
1	Nadine	7903	7739	8886	8806	6568	5178	5556	4645	28913	26368	53
2	Royal Blue	2258	2135	3129	2199	3253	2003	2443	2122	11083	8459	17
3	Ruby Lou	366	282	443	405	1195	927	978	1160	2982	2773	6.0
4	White Star	73	73			695	1102	1580	1523	2348	2698	5.4
5	Rodeo	395	433	758	601	437	297	468	469	2058	1800	3.6
6	Lady Christl	401	423	430	305	714	532	377	384	1922	1643	3.3
7	Carisma	221	274	316	207	693	360	507	241	1737	1082	2.2
8	Mondial					464	371	364	558	828	929	1.9
9	Harmony				162	763	667	26	20	789	849	1.7
10	Delaware	220	120	100	71	146	167	101	97	567	455	0.9
11	Laura	86	91	319	358					405	449	0.9
12	Red Rascal	212	212	2	16	49	124	28	48	291	401	0.8
13	Virginia Rose	39	37	80		150	104	188	142	457	282	0.6
14	Dutch Cream	52	52	47	19	40	70	184	137	323	277	0.6
15	Kestrel	92	94	48	86					140	180	0.36
16	Almera	14	14	119	63	115	37	81	52	329	165	0.33
17	Eureka	10	10	53	133					63	143	0.29
18	Kipfler	51	51	63	29	17	16	42	35	173	132	0.27
19	Maris Piper			81	56		10	77	56	158	123	0.25
20	Nicola			10	14	67	31	49	57	126	102	0.21
21	Desiree	82	83							82	83	0.17
22	Emma	25	33	19	19					44	52	0.10
23	Melody	7	7	16	21			20	17	43	45	0.09
24	Granola			1	42					1	42	0.08
25	Marlin					64	11	40	21	104	32	0.06
26	Norland	18	19	13	9					31	28	0.06
27	Maxine			24	28					24	28	0.06
28	Mozart							44	27	44	27	0.05
29	Orla					80	25			80	25	0.05
30	Inova			16	10			10	9	26	19	0.04
31	Cabaret					32	6	12	10	44	16	0.03
32	SIFRA							15	12	15	12	0.02
33	Romeo	8	8							8	8	0.02
34	Purple Delight								7	0	7	0.01
35	Banana	4	4							4	4	0.01
36	Sapphire	2	2	1	2					3	3	0.01
	Total	**12539**	**12194**	**14974**	**13660**	**15542**	**12037**	**13190**	**11852**	**56245**	**49742**	**100**

2.3.3 Wholesalers

The local industry contains five licenced wholesalers, termed wash packers. These organisations receive potatoes from growers, wash and grade them, and pack them for sale in various quality and size categories.

The wash packers sell their product to the various sales channels, including the dominant retail chains. The retail chains set their own retail prices, and generally specify to both the PMC and the wash packers the type and quantity of potatoes that they require from the wash packers. As an outcome of its Sales and Operational Planning (SOP) process, the PMC then develops a forecast of the future demand for potatoes, and communicates that to

growers. In effect, the PMC orders its future supply of potatoes from (licenced) growers in a managed way, and is required under legislation to purchase those potatoes at a regulated price. This provides price stability for growers, and eliminates large variation in the wholesale supply of potatoes. This reduces wastage and supply shortages.

The PMC does not constrain growers from introducing new trial varieties of potatoes. Rather, the PMC communicates the future demand for potatoes of a certain type to growers, which means that it may be a risk for growers to grow other varieties. The PMC develops these varietal forecasts based upon the colour/variety demand from retailers. It does not dictate to retailers the variety of potatoes that will be available. Similarly, the growers are free to grow potatoes for export or contract if they wish. Due to its role in the domestic ware potato market, the PMC licences potatoes grown for export but is not otherwise involved in this market.

The commentary shown in Box 2 is typical of the activities of a wash packer in the local industry.

Box 2 **Beta Spuds**

Established in 1994, Beta Spuds grows a wide range of potato varieties, including Coles' exclusive variety, Carisma, along with Royal Blue, Rodeo and Crème Gold among others. Much has changed at Beta Spuds since the business began as a family market garden in Perth's suburb of Spearwood, but while that market garden has been replaced by a 160 hectare farm at Binningup - supported by growing partners at Pemberton – the destination for the potatoes has not. Beta Spuds has been supplying Coles with potatoes for 15 of its 20 years. "We started supplying small amounts," says Matthew Cocciolone, who runs the business with his brother Jason, "but with continued investment and opportunities with Coles, we now supply up to 200 tonnes a week."

Between the Beta Spuds growing property in Binningup and its growing partners, Beta Spuds produce spuds 12 months of the year. "We deal with more than 30 Western Australian growers and our packing capabilities help keep their businesses strong, economical and sustainable," says Matthew. In addition, Beta Spuds employs more than 35 staff at its packing facility, as well as providing regional employment opportunities on its farms in Binningup and Pemberton

Source: http://www.coles.com.au/helping-australia-grow/aussie-made-and-grown/meet-our-farmers-and-growers/meet-our-growers

2.3.4 Grower payments

Payments to the growers of ware potatoes are determined in accordance with the quality of their produce and the farm gate plus wash and grade price as determined by the PMC. A detailed description of the process is shown in Box 3.

Box 3 **Grower payments**

Grower Payments

Potato growers grow in four Pools throughout each year, coinciding with the financial quarters. Broadly, the Pools are as shown below:

- Pool 1: July to September
- Pool 2: October to December
- Pool 3: January to March
- Pool 4: April to June

Growers are paid according to the quality of the potatoes delivered to the merchant – the better the quality, the higher the return on the product. This quality is measured by the pack out, which is the result of how each grower's potatoes are graded by wash packers (merchants) in accordance with the following grades:

- Class 1
- Class 2
- Smalls
- Waste
- Soil / Variables

There is a clear direct relationship between grower performance and reward – the higher the level of Class 1, the more the individual grower receives. The price differential between Class 1 and Class 2 is substantial, so from that perspective there exists a major incentive to improve. From the pack out result, various levies are deducted as appropriate, as are Corporation costs.

If an unforseen weather or other event (e.g. disease) occurs in a given Pool, then the Pool may have to dispose of potatoes by discounting or, in the worst case, dumping non-saleable stock. In this case, the amount of the discounting is spread equally across the Pool in the form of a deduction. However, the final amount each grower receives is still based on the quality of his potatoes as reflected in the individual pack out result. Thus, individual growers are incentivised to increase their growing performance.

Source: PMC

Over the last two years, the wash packers have graded, to PMC standards, ware potato production as 41% class 1, 26.5% class 2, 15% smalls and 1.7% dry brush. These proportions are similar to the results achieved in other States.

The PMC sells its ware potatoes to the wash packers at a farm gate plus wash price set by the PMC. The wash packers then on sell the potatoes to their retail and market outlets at whatever prices they achieve: this price is the wholesale price. The PMC distributes the revenue it collects, after deduction of its costs and various fees and levies, back to growers in accordance with the class and quantity of ware potatoes that they supplied.

In 2012/13, the PMC costs were $51.06 per tonne[5], and the average return to growers was $673.00 per tonne. In total, the PMC sold 51,877 tonnes of potatoes. Its total revenue was $36.4 million and its total cost of operation was $2.8 million, resulting in payments to

[5] PMC Annual report 2012/13

growers of $34.0 million. These payments to growers are made in a timely manner, typically growers receive a first payment of 65% within 7 days of delivery to the wash packer.

The pool price history is available in the PMC annual report, and is reproduced in Table 4.

Table 4 **Pool payment history $/tonne**

Year	Pool 1	Pool 2	Pool 3	Pool 4
	$/T	$/T	$/T	$/T
2004	500	549	576	471
2005	395	400	421	410
2006	461	591	652	522
2007	518	540	552	532
2008	779	804	786	723
2009	876	947	941	679
2010	829	879	783	700
2011	730	709	656	614
2012	741	761	691	557
2013	798	745	652	653

Source: PMC Annual Report 2012-13

These payments to growers can be further disaggregated to reflect potato type and quality, as shown in Table 5. This illustrates the generally rapid reduction in payments per tonne as the quality of the potatoes decreases. The data also demonstrates the stability of the payments per tonne for the same type and class of potato over the past 5 years.

Table 5 **Payments to growers in Pool 1 – history by type and class**

	2012/13	2011/12	2010/11	2009/10	2008/09
Variety and class	$/tonne	$/tonne	$/tonne	$/tonne	$/tonne
Whites - all whites not otherwise listed					
Class-1	1,015	1,105	1,101	1,072	1,114
Class-2	355	343	438	495	575
Small	710	710	726	725	746
Dry brush	590	590	577	615	555
Whites (WPPL – Mondial)					
Class-1	1,050	1,070	1,011	1,046	1,114
Class-2	355	353	363	508	575
Small	675	675	660	691	746
Dry brush	585	405	0	0	555
Whites (Elders - Nadine, Harmony, Kestral, Inova, White Lady)					
Class-1	1,065	1,100	1,081	1,072	1,114
Class-2	405	358	415	495	575
Small	690	700	715	725	746
Dry brush	595	550	771	615	555
Whites (Moratis - Lady Chrystl, Almera)					
Class-1	1,090	1,325	1,090		
Class-2	390	358	445		
Small	690	735	0		
Dry brush	0	0	0		
Reds - all reds not otherwise listed					
Class-1	1,150	1,190	1,170	1,183	1,237
Class-2	388	338	398	530	505
Small	250	355	355	621	615
Dry brush	690	700	722	210	335
Reds (WPPL - Rodeo)					
Class-1	1,120	1,170			
Class-2	343	318			
Small	190	415			
Dry brush	0	0			
Reds (Elders - Maxine)					
Class-1	650	1,225			
Class-2	200	318			
Small	170	435			
Dry brush	0	0			
Reds (Moratis - Red Rascal)					
Class-1	1,120	1,275			
Class-2	400	313			
Small	350	705			
Dry brush	0	0			
Royal Blue					
Class-1	1,350	1,355	1,260	1,255	1,237
Class-2	380	358	425	525	505
Small	380	360	354	662	615

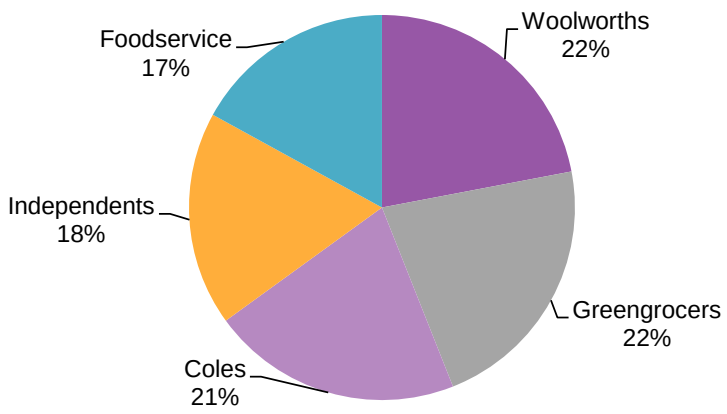
	Dry brush	725	710	745	210	335
Kipfler						
	Class-1	2,120	1,610	0	0	2,150
	Class-2	0	0	0	0	910
	Small	1,350	0	0	0	910
	Dry brush	1,350	710	745	210	335

Source: PMC Annual Report 2012 – 13

2.3.5 Retailers

Potatoes are sold through various sales channels, of which retail is the largest. Retail is in turn dominated by the major supermarket chains. The market shares of the various outlets are illustrated in Figure 4.

Figure 4 **Retail market share in WA**



Source: Fresh Logic via PMC

2.3.6 Interstate trade in potatoes

There has traditionally been only a limited supply of ware potatoes entering WA from other states. This is principally due to the transport cost and time to move the ware potatoes into WA. In the last 4 completed financial years, an average of 2370 tonnes of ware potatoes have been sourced from interstate. This represents less than 5% of the local ware potato market.

2.4 Is competitive tension evident?

2.4.1 What does competitive tension look like?

There are a number of approaches to supply chain management. At one extreme the supply chain might be characterised by an open market competition approach where discussions and negotiations are largely about price, and relationships across different levels of the supply chain are adversarial. At the other extreme the supply chain could be characterised by deep integration, joint strategic planning, and the transparent sharing of information (Spekman et al. 1998). However, the idea of competitive tension is not about whether the supply chain is adversarial or collaborative, but about whether the supply chain works to consistently deliver value to the consumer.

Characteristics of a supply chain where competitive tension is evident would include efficient production, investment in new efficient technology, production at both large scale where economies of scale are reaped and small scale niche production, the introduction of new varieties and a high level of responsiveness to consumer demand.

A necessary condition for a supply chain that is working to consistently deliver value for the consumer is a consumer centric supply chain. A regulated market provides no guarantee that a consumer focused supply chain will develop. A market with some regulation does not, however, preclude the development of a consumer centric supply chain.

There is some evidence of competitive tension in the WA potato supply chain. For example, there has been, and continues to be, consolidation in the industry. In 2004 there were 151 growers. In 2014 there are 78 growers, and further consolidation is expected. This suggests that market pressure to achieve lower prices for consumers is forcing the least efficient growers to leave the industry. In effect, 73 growers have left the industry in 10 years in a managed way, without the need for compensation.

A mix of approaches are evident in the relationship between growers and wash-packers, with some growers testing the market for wash-packing services and others building relationships with a specific wash-packer. This is evidence of competitive tension.

There is also evidence of industry investment in new technology, with substantial new investments currently being undertaken by two different wash-packer operations in the Myalup region.

Finally, there is evidence of large scale and niche production in the WA industry, which is consistent with the presence of competitive tension in the local industry.

3 Consumer impact

3.1 Are consumers being adversely affected?

A consistent feature of the models used in the deregulation discussion for Australian agriculture, since the earliest days where discussion was focused on the egg market (Alston 1986), through to recent consideration of wheat market deregulation (McCorriston and MacLaren 2007), has been that reform will improve consumer welfare through lower prices.

There is no evidence regulation of the potato market in Western Australia results in higher retail prices.

3.1.1 Potato pricing in Western Australia

A key claim of the Chamber of Commerce and Industry (CCI) is that Perth has the highest average potato prices across capital cities, and that between 2007 and 2011, relative to prices in the lowest market, average retail prices in Western Australia were about one dollar per kilogram higher. There is no factual basis for this claim.

The evidence cited to support the CCI position is a discontinued ABS price series: Average Retail Prices of Selected Items (ABS Cat. No. 6403.0). Following a detailed review, the ABS Average Retail Price series was discontinued. The reason the price series was discontinued was because:

> The review determined that the Average Retail Prices (ARP) data neither performs the function of showing price change over time (temporal measure) nor a detailed price level comparison between capital cities (spatial measure) in an unbiased, robust manner.

To be clear, the ABS explicitly state that the data series cannot be used in the manner it has been used in the CCI submission.

For the specific case of potato price comparisons, the ABS has previously explained that cross-city comparisons are not valid. The comparisons do not compare like products with like products. As documented in ACIL (2002), when the issue was raised at the time of the 2002 NCP review, ABS Assistant Director, Consumer Price Index Section, Steve Whennan advised:

> Because the mix of potatoes priced varies from capital city to capital city, the average prices as represented in Average Retail Price of Selected Items (ABS Cat. No. 6403.0) are not directly comparable.

As such, the CCI present no valid price comparison information in their submission. Over time, a number of valid price comparison studies of potatoes have been undertaken. As detailed below, none of these studies have found prices in Western Australia to be higher than in other jurisdictions.

The retail price for potatoes in Western Australia has been considered in numerous reviews. As part of the NCP review, data was collected on potato price changes through time, and the level of retail prices in 2002, where the price comparison was for a common product: loose washed potatoes.

Table 6 **Price picture at the time of the NCP review into potato pricing**

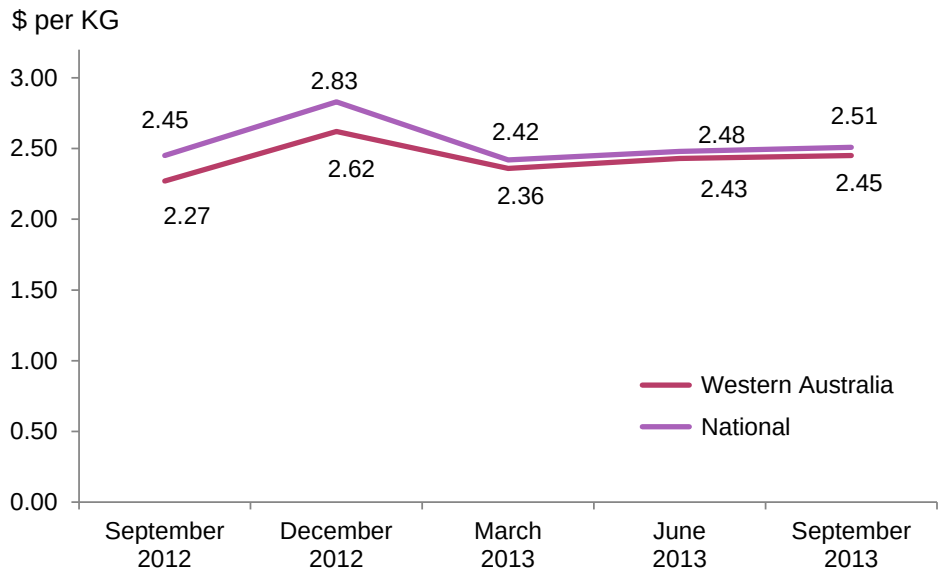
	Units	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Darwin
Cumulative price change 1991-2001	(%)	63	121	130	52	37	129	86
Price level 1kg loose washed potatoes	($)	1.83	1.29	1.65	1.20	1.36	1.64	1.88

Source: Market Equity and ABS as cited in ACIL (2002)

The evidence at the time demonstrated that: (i) retail prices in Western Australia were lower than in many other Australian jurisdictions; and (ii) price growth had been quite subdued.

Consistent with previous findings, the recent evidence suggests that prices for potatoes in Western Australia are not higher than in other jurisdictions. For example, Figure 5 shows that over sustained periods the retail price of potatoes in Western Australia is consistently below the national average price.

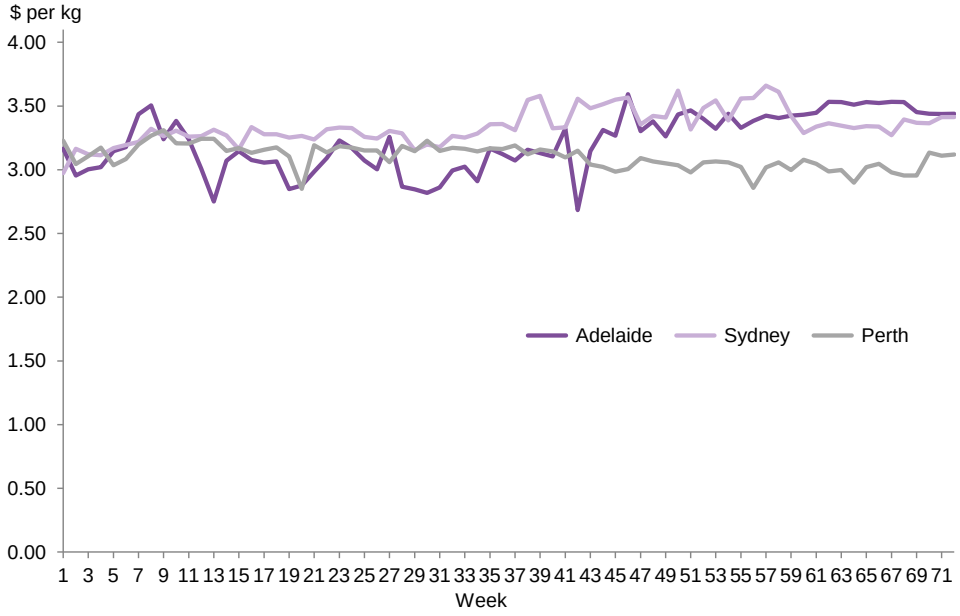
Figure 5 **Retail potato prices: September 2012 to September 2013**



Source: Fresh Logic provided by PMC

As noted in previous reviews, where consideration is given to the issue of import parity pricing, comparisons to the national average price are not necessarily conclusive. Retail prices do fluctuate substantially, but as shown in Figure 6, there are sustained periods where, for identical items the retail price in Western Australia is lower than in other states, and importantly, lower than in South Australia, which is the relevant reference market for considering the issue of import parity pricing. Specifically, Figure 6 plots information for Perth, for Sydney, as the largest market where economies of scale effects at the retail level might be realised, and Adelaide as the relevant import parity market.

Figure 6 **Retail washed potatoes: 72 weeks to February 2014**



Source: Fresh Logic provided by PMC

The lead time for the current study was quite condensed, but it was still possible to sample potato price information at leading retailers over a period of several weeks. Table 7 shows sample information for matching items at Woolworths. Two notable aspects of the sample information from Woolworths are the very uniform nature of the approach to pricing across states, and that for each sample there is at least one category where the retail price in Western Australia is lower than the retail price in South Australia. Conversely, there is also at least one category in South Australia where the retail price is less than in Western Australia.

Table 7 **Woolworths online price sample: January – February 2014**

Category/ sample date	Sydney	Melbourne	Brisbane	Adelaide	Perth
Sample date (28/01/14)	($)/kg	($)/kg	($)/kg	($)/kg	($)/kg
Red delight washed-prepacked 2kg	2.99	-	2.99	2.49	2.99
Red delight washed (min 500g)	3.48	3.48	3.48	3.48	3.48
Kipfler brushed (min 1kg)	4.98	4.98	4.98	4.98	4.98
Cream delight (min 1kg)	3.48	3.48	3.48	3.48	2.98
Cream delight-prepacked 2kg	2.99	-	2.99	2.99	2.99
Baby cream delight-prepacked 1kg	2.98	2.98	2.98	2.98	2.98
Baby red delight-prepacked 1kg	2.98	2.98	2.98	2.98	2.98
Sample week (11/02/14)					
Red delight washed-prepacked 2kg	2.99	-	2.99	2.49	2.99
Red delight washed (min 500g)	3.48	3.48	3.48	3.48	3.48
Kipfler brushed (min 1kg)	4.98	4.98	4.98	4.98	4.98
Cream delight (min 1kg)	3.48	3.48	3.48	3.48	2.98
Cream delight-prepacked 2kg	2.99	-	2.99	2.49	2.99
Baby cream delight-prepacked 1kg	2.98	2.98	2.98	2.98	2.98
Baby red delight-prepacked 1kg	2.98	2.98	2.98	2.98	2.98
Sample date (21/02/14)					
Red delight washed-prepacked 2kg	2.99	-	2.99	2.49	2.99
Red delight washed (min 500g)	3.48	3.48	3.48	3.48	3.48
Kipfler brushed (min 1kg)	4.98	4.98	4.98	4.98	4.98
Cream delight (min 1kg)	3.48	3.48	-	3.48	2.98
Cream delight-prepacked 2kg	2.99	-	-	2.49	2.99
Baby cream delight-prepacked 1kg	2.98	2.98	-	2.98	2.98
Baby red delight-prepacked 1kg	2.98	2.98	2.98	2.98	2.98
Ruby Lou washed-prepacked 2kg	2.99	2.99	2.99	2.49	2.99

Source: Woolworths on-line shopping. In each case the CBD post code was used to select a store.

Table 8 provides price sample information for matching items identified for sale at Coles in the different mainland states. Across the states the pricing approach at Coles is more varied than at Woolworths. The picture is also complicated by a number of special items. In the table specials are identified with an asterisk. Although pricing is more varied, in each sample there are clearly major product lines where the price in Western Australia is lower than in South Australia, which is the relevant market for any import parity pricing discussions.

Table 8 **Coles online price sample: January – February 2014**

COLES (28/01/14)	Sydney	Melbourne	Brisbane	Adelaide	Perth
Sample date (28/01/14)	($)/kg	($)/kg	($)/kg	($)/kg	($)/kg
Potatoes-mashing 2kg	-	-	-	2.99	3.49
Kestrel, loose	-	-	-	3.98	2.98
Chat washed, loose	-	3.98	-	-	2.98
Carisma washed-prepacked 2kg	3.49	2.99	2.00*	2.99	3.99
Brushed-prepacked 3kg	2.33	1.17*	2.33	1.99	1.33*
Baby washed-prepacked 2kg	2.99	2.99	2.99	1.50*	2.49
Washed-prepacked 2kg	1.75*	2.99		2.99	2.49
Sample week (11/02/14)					
Chat washed, loose	-	3.98	-	-	2.98
Carisma washed-prepacked 2kg	3.49	2.00*	3.49	2.00*	3.99
Brushed-prepacked 3kg	1.17*	1.99	2.16	1.99	1.99
Baby washed-prepacked 2kg	2.99	2.99	1.50*	2.99	2.49
Washed-prepacked 2kg	1.75*	2.99	-	-	1.75*
Sample date (21/02/14)					
Chat washed, loose	-	3.98	-	2.98	2.98
Carisma washed-prepacked 2kg	3.49	3.49	3.49	3.49	2.25*
Brushed-prepacked 3kg	1.00*	1.99	2.33	1.99	1.99
Baby washed-prepacked 2kg	2.99	2.99	2.99	2.99	2.49
Washed-prepacked 3kg	2.99	2.63	2.99	2.66	2.99

[a] * indicates special and so prices are not directly comparable
Source: Coles online shopping. In each case the CBD post code was used to select a store.

The above information on retail prices is important for understanding the impact the regulated market has on consumers in Western Australia. South Australia is the market leader in the potato market and the average production cost for a tonne of potatoes in South Australia is less than in Western Australia. Specifically, the average cash cost for potato production, including an allowance for imputed labour, is around $120 per tonne lower in South Australia (ABARES 2012). Estimates of transport costs between Western Australian and South Australia vary, but McKinna (2011, p. 23) mentions a value of around $350 per tonne. A large efficient supply chain may, however, be able to achieve lower average transport costs. A reasonable adjustment might be to say that a large efficient integrated supply chain would face transport costs that were 20 percent lower than this reference value, so say $280 per tonne. This is not unreasonable given that in 2002 the Department of Agriculture (WA) used a value of $200 per tonne for transport costs when calculating the extent of market protection transport costs afforded the local market (Department of Agriculture 2002).

If production costs are around $120 per tonne lower in South Australia, and transport costs around $280 per tonne, then it could then be argued that the import parity wholesale price in Western Australia should be around $160 per tonne higher than the South Australian price. Based on reasonable industry mark-ups, on average, the import parity retail price for potatoes in Western Australia would be something like $0.30 per kilogram above the price in

South Australia. There is no evidence of systematically higher retail potato prices in Western Australia.

In terms of consumer price effects the following facts emerge:

1. Retail prices in Western Australia are not consistent with the retail price that would be expected if the PMC was able to achieve import parity pricing in Western Australia
2. Retail prices in Western Australia do not appear to be above those in other markets
3. In States where production costs are low, ware potatoes do not appear to sell for significantly less than they do in states where production costs are high
4. Across major supermarkets, outside of specials, there appears to be relatively little price variation across the states.

3.1.2 Speciality varieties and choice

Consumer choice is valuable. As noted in earlier reviews, it is difficult to establish the counter factual regarding variety availability for an unregulated market, so it is difficult to make definitive statements in this area (see ERA (2013) for summary of earlier reviews). It is, however, possible to make some reasonable inferences. First, as detailed in Table 3, 36 different varieties were delivered into pools in Western Australia during the past year.

Second, supermarkets are not prohibited from importing ware potatoes. The potential for any misalignment between what the supermarket chains want, in terms of varieties, and what they get is therefore limited.

Third, there is communication along the supply chain such that trends in consumer demand, as observed by retailers, are reflected from supermarkets through to growers. For example, the preferences of supermarket chains are reflected in the changing nature of the planned ware DME allocations going forward.

Fourth, the total shelf space allotted to potatoes in any given retain outlet is approximately fixed, and so within large scale retailers the focus will remain on high volume product lines.

These factors all suggest that for consumers shopping at large retail outlets there is little impact on choice due to the regulated market.

Table 9 **DME allocations to broad categories of potato and future projections (%)**

Variety	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Yellow	8	14	25	30	35	40	40
White	65	57	44	37	32	25	25
Blue	16	17	18	19	19	20	20
Red	11	12	13	14	14	15	15
Total	100	100	100	100	100	100	100

Note: Forecasts are regularly updated based upon retailer preferences and changes in consumer demand.

Source: Pers Comm. PMC (2014)

Outside of the large supermarket chains, there are other distribution outlets where specialist potato varieties may be sold, subject to consumer demand, and a range of varieties, including specialist varieties such as Maris Piper, Kipfler, Norland, Nicola, and Kestrel, are sold via roadside stalls and into local independent retail outlets.

There has been no constraint placed on any grower wishing to service these markets. Specifically, over the past five years only two requests have been made to supply markets outside the mainstream with specialist varieties and in both cases Special Licences have

been granted. On both occasions additional DME has been approved. There are also a number of trial varieties for which Special DME is granted, and these potatoes are sold through normal channels into markets and greengrocers.

As specialist varieties, the volume of production in this category is necessarily small. There is no advantage to industry to restrict the availability of these products, and requests to grow these varieties have been approved.

More generally, it is difficult to measure the change in consumer welfare following the introduction of a new good or brand, although a number of approaches have been suggested, for example Hausman (1996). The introduction of new goods can increase consumer welfare, but it is difficult to find evidence on the effect of a new brand or variety that is relevant to the current situation.

In agricultural markets research has tended to focus on the introduction of new varieties that may have additional nutritional value or some other new health attribute. The analogy is not exact, but the closest example that could be found in the peer reviewed literature was for a new brand of potato chip in the US. The study found that, on average, consumer welfare did increase following the introduction of a new potato chip brand, but across the ten markets considered, when both brand and price effects were considered, welfare increased in only six of the ten markets (Arnade et al. 2011).

In summary, in an unregulated market it is probable that the specific product mix available in stores would be different, but exactly what the counter factual would be remains unclear. That the price comparison details for recent periods identified a number of identical potato variety by packaging combinations available across the different mainland states suggests that the differences in varieties available in an unregulated market, on the balance of probabilities, would not be great.

3.1.3 Summary

The working assumption when considering agricultural market reform, supported by much observed real world experience, is that product market deregulation results in consumer welfare gains through lower prices and increased choice. The evidence presented in this report suggests that without regulation, retail prices are unlikely to fall and consumer choice is unlikely to change much. That in turn suggests approximately no change in consumer welfare.

Given the market structure, in theory it should be possible for the PMC to achieve import parity pricing such that retail prices in Western Australia are consistently higher than they would otherwise be. If the PMC were pursuing a policy of trying to extract a rent equal to the import parity price we would expect to see retail prices in Western Australia average around $0.30 per kg more than in South Australia. The evidence shows this is not the case.

There are a number of possible reasons for this. One possible reason is that the PMC and growers are aware that if real evidence of systematically higher potato prices in Western Australia were to emerge, it would be very difficult to argue in favour of retaining a regulated market. As the majority of ware potato growers favour retention of the regulated system, the farm gate plus wash and grade price is then not set at the import parity price but at approximately the price that would prevail in a deregulated market. It is apparent that the PMC sets prices based upon a range of variables, some of which are beyond its control, but include competitive pressure, consumer demand and the quality of supply.

4 Industry impacts

The terms of the inquiry relate not only to consumer welfare impacts, but the effect of reform on productivity, in terms of the efficient allocation of resources to activities.

4.1 Context to the discussion

Prior to discussing specific issues as they relate to the ware potato market, it is worth placing the issue of potato market regulation within the broader economy wide reform context. As reported in ERA (2013b) at a national level, when productivity growth is measured at the industry sector level the Agriculture, Forestry, and Fishing industry is one of the top performers. The reason for this is not discussed in ERA (2013b) but it is in large part driven by strong labour productivity growth, something that in turn is driven by increasing capital utilisation made possible through increases in scale. (see Eslake (2011) for further detail).

The two worst performing sectors in terms of productivity growth performance are the mining sector and the utilities sector (ERA 2013b). In the case of the mining sector, what looks like poor performance in part reflects a logical and profitable response to an improvement in the terms of trade, and in part reflects the long delay between investments in new capacity and when these investments start to yield a return.

Despite strong productivity growth, the role of the Agriculture, Forestry, and Fishing industry sector has fallen through time, and as reported in ERA (2013b) the sector represents 1.9% of total factor income in Western Australia. In contrast, the Mining sector and the Construction sector represent, respectively 42.8% and 14.4% of Industry factor income.

As detailed in ABARES (2012), in terms of importance within Agriculture, the horticultural industry represents around 7% of gross value. Within the horticulture sector total potato production represents around 13% of gross value, with ware potato value a fraction of this.

Ware potato production therefore represents a negligible fraction of production within the Agricultural sector, which in turn represents a very small fraction of industry factor income in Western Australia. As total productivity growth is the weighted sum of the productivity changes in each sector, even extreme changes in productivity growth in the ware potato market have an approximately zero impact at a State level. Changes to the regulation of the ware potato industry would have negligible impact at a State level.

Further, as a baseline position, overall agricultural sector productivity growth is relatively high, due to increases in scale that have allowed increases in labour productivity. The number of potato growers in Western Australia has halved over the past decade; so, although detailed information is not available, the changes observed in the industry are consistent with the pattern that would be expected in the case of increases in scale delivering labour productivity improvements that in turn generate high productivity growth. This in turn suggests that the maximum increase in productivity growth in the sector following reforms would be modest.

4.2 Cost of regulation

There are costs to operating a regulated system. However, the evidence presented on the retail price of potatoes, and the nature of the retail market in Western Australia, demonstrates that the regulated market imposes no costs on consumers.

A number of previous attempts have been made to characterise the nature of the costs associated with the operation of a regulated market. Here, a range of potential costs associated with a regulated ware potato market are identified. Some attempt is made to quantify these costs, but it should be clearly understood by the reader that there is significant uncertainty in this process.

The costs of a regulated market include the following:

— The operating cost associated with the PMC

  If the PMC did not exist some of the functions of the PMC would need to be performed by other parts of the supply chain. As such, it would not be appropriate to define the net cost of regulation as the total cost of the PMC. A decade ago an attempt was made to characterise the specific time allocation of each PMC function and cost to work out a detailed cost profile by function, but given the total expenditure of the PMC is modest a full time of use study seems unwarranted. Here we take operating expenses of the PMC to be the sum of PMC employee benefits expenses, supplies and services expenses, depreciation expense, administration expenses, accommodation expenses, and other expenses as detailed in the last three annual reports. Across the past three years these expenses have averaged $2.6M. We then assume for the central case that the efficiency gain would be a reduction in these costs of 50 percent. With total DME of around 50,000 tonnes this is an implied cost of around $26 per tonne, although one might reasonably consider net cost savings of anywhere between 40 percent and 60 percent, or a range of around $21 to $31 per tonne

— Opportunity cost of capital for DME

  This value is difficult to calculate. The Department of Agriculture (2002) consider a variety of approaches to put a production cost effect to the existence of DME. Based on per hectare DME transfer information, in 2002 the Department estimated a production cost effect of $25 per tonne in 2002. Notwithstanding that DME is re-issued every year, here we assume the market price for a 'permanent' transfer of DME is between $150 per tonne and $300 per tonne. The average small business term interest rate for the past ten years has been 8.78 percent.[6] This in turn implies an annual per tonne cost of production effect of between $13 and $26. To the extent that there have been market reforms in recent years, and that the earlier Department calculation was at time when an area licence system was in use rather than a per tonne licence system, the method of calculation used here seems reasonable

— Non optimal use of farm level inputs due to quantity and land restrictions associated with DME

  Department of Agriculture (2002) put this cost at around $1M. Although the extent of this effect was disputed, the reason for the production inefficiency was that an area licencing system was used. Such a system provided an incentive to maximise yield from a fixed area of land rather than use inputs at their optimal level. The move to a quantity

[6] Based on RBA reference series F5 Indicator Lending Rates, Small business: Variable: Term.

based quota system in 2004, rather than a fixed area system, addressed this issue as a source of production inefficiency

— Restriction of grower ability to pursue economies-of-scale and or economies-of-scope in operations

Again this is an area where it is difficult to put a precise value on this impact. The factors of production in terms of soil structure, temperature, and access to water vary by state, and so it is not appropriate to reference production in other states.[7] The specific approach used here is as follows.

First, we take the three-year average cash cost of production information for farms by size from ABARES (2012, p. 34). Cost of production information is grouped by farms harvesting less than 100 tonnes, 100 to 250 tonnes, 250 to 1,000 tonnes, and more than 1,000 tonnes. The representative cost of production values using this approach, are, from lowest to highest production level: $1,391 per tonne, $593 per tonne, 329 per tonne and $257 per tonne.

Second, we determine total estimated production costs in Western Australia by multiplying these cost values by the actual production level of growers in Western Australia.

Third, we define the least cost efficient frontier as the total cost of production where all production is by firms with production costs in the lowest band. Using this method we determine what we refer to as the theoretical lower bound for production costs.

Fourth, we define the difference between actual production costs and the lower bound production cost as representing the maximum level of economies of scale and scope and related inefficiencies.

Fifth, we divide the maximum inefficiency value by total ware production to derive a per tonne inefficiency effect. Using this approach we derive a value of $86 per tonne as the theoretical upper bound to economies of scale and scope inefficiencies. We also know that there will always be some niche high cost of production high value varieties in the market, and so adjust this value down by 5% to be $82 per tonne. Practical market realities suggest that even in the most efficient system not all farms can be on the efficient frontier at all times. We therefore use a representative value for the economies of scale and scope effect of $72 per tonne; with $62 per tonne and $82 per tonne as upper and lower bounds for sensitivity analysis.

There are potentially other costs that have not been considered, including the cost to growers of the time required to comply with the PMC's systems. To address this we provide an allowance of $2 per tonne to represent all costs that fall outside the main cost groupings identified.

4.3 Benefits of regulation

If the market were to be deregulated, there would be social dislocation effects. The total number of growers that would be affected is relatively small, but the impact on these growers would be real, as would the effect on the regional economies in which these growers live.

[7] Note, if would be possible to use cross state information if a panel of data was available across different vegetables that would allow for inclusion of fixed effects.

In other agricultural markets where there has been substantial deregulation, structural adjustment packages have been made available. The extent to which such packages would be made available to potato growers is unknown, but if an adjustment package is made available, this would be a transition cost.

In terms of a recent example of the scale of adjustment payments, Harris (2004) reports that the average payment to dairy farmers in Western Australia as part of the structural adjustment program that saw the end of the dairy quota system in Western Australia was $262,000 per dairy. Although it is not clear in the report, this value would appear to include both the compensation provided through the Commonwealth Dairy Structural Adjustment Program and the State Government contribution.

Compensation payments are a real consideration. For the current owners of DME it represents a marketable asset and the total value of this asset is assumed to be between $7.5M and $15M. Any grower that has recently purchased DME would have made a considerable investment in an 'asset' that would be worthless if the DME allocation system is removed. ERA (2013a) clearly identifies compensation to losers of reform as a principle to be considered. Note that the PMC is required to register the transfer of DME between growers, but it has no involvement in these market transactions.

The bounds to compensation payments might be thought of as the full estimated value of DME and zero. The case for zero compensation payments could be made if a long enough time horizon for the end to the regulated market were specified (Edwards 2003). There is debate about what such a time horizon would be, but eight years would not be an unreasonable number. In practice such a timeline (i) allows sufficient time for the depreciation of any recent purchase of DME, and (ii) still provides an incentive for larger scale producers to purchase existing quota as they increase scale in anticipation of deregulation.

If for the purpose of analysis the cost of compensation payments are spread over eight years, matching the time frame in the no compensation discussion, then we have for the case of immediate deregulation a range for compensation payments of $19 to $38 per tonne, and a cost of zero for the case of specifying deregulation in at some future point in time, say eight years in the future.

The PMC co-ordinates marketing and other support activities with funding from grower contributions, and previous reports into the ware potato market in Western Australia have used a value of 100 percent as the return for this activity (Department of Agriculture 2002). The reason for assuming a 100% return is not clear, but given a role in the co-ordination of Western Australian research and development activity, and other marketing activities that serve to grow the market, the previously used return figure is considered reasonable. At current funding levels the implied net benefit from this activity is $20 per tonne. To the extent that this activity would disappear in a deregulated market this may be treated as a cost. For practical purposes we define a 90 percent confidence interval around this value as $15 to $25.

There may be a number of other costs associated with deregulation. At the margin some production may leave the state, and there may be some marginal reduction in freshness. There is also the role of the PMC in the co-ordination of supply that works to mitigate the price-quantity cycles that are generally present in agricultural markets. To capture this, and also any other costs that may have been excluded we add an expected "all other costs" value of $5 per tonne, and define a skew 90 percent confidence interval around this value as $0 to $8.

Another outcome from the presence of the PMC is that growers effectively sell their produce to an organisation of substance, such that they achieve shorter payment terms (15 days) than they would otherwise expect (up to 90 days) in a deregulated market. At the extreme, the benefit of this 75 day improvement can be quantified as $34 million per annum multiplied by 8.78% overdraft interest rate multiplied by 75/365 which equates to $0.6 million, which is the equivalent of about $12 per tonne per annum saving in interest to growers. This benefit for growers is derived from the supply chain, principally from the wash packers.

Within the current market structure, the PMC is actively involved in the purchase of seed from holders of plant breeder rights (PBR), and also ensuring that the appropriate royalty is paid to the holder of those PBR regardless of who purchased the seed. This in turn provides a larger market for the holders of PBR, and minimises the formation of closed variety loops.

The final cost consideration is the cost of legislative change. To deregulate would involve significant legislative changes. Due to competing interests, experience suggests that achieving such change will be difficult. For example, in the past the State Government has preferred to incur a financial penalty rather than deregulate the potato market.

4.3.1 Qualitative summary of the winners and losers

In qualitative terms we have as the winners from deregulation:

- Regional economies that are optimal for growing potatoes
- The most efficient growers that can expand
- The larger wash-packers who would increase their market share as a result of accessing the lowest cost supplies from the largest growers
- The most efficient wash-packers, who would gain market power at the expense of growers

and as the losers from deregulation:

- Regional economies that are not optimal for growing potatoes
- Less efficient producers that cannot increase scale
- The smaller wash-packers that cannot access the scale growers, hence their input costs are higher and their market share falls
- Growers that have purchased DME.

The consumer is neither a winner nor a loser.

4.3.2 Quantitative summary of costs and benefits

As noted throughout the discussion there is considerable uncertainty regarding the cost and benefit values discussed. For this reason we choose to run a simple simulation as a way of trying to capture this uncertainty. The distribution assumptions and key parameter values for the simulation are detailed in Table 10.

For the simulation we draw a value from each distribution, for each cost and benefit and sum these values. We then repeat this process 10,000 times and plot the distribution of results. If the costs of regulation outweigh the benefits the simulation generates a negative value.

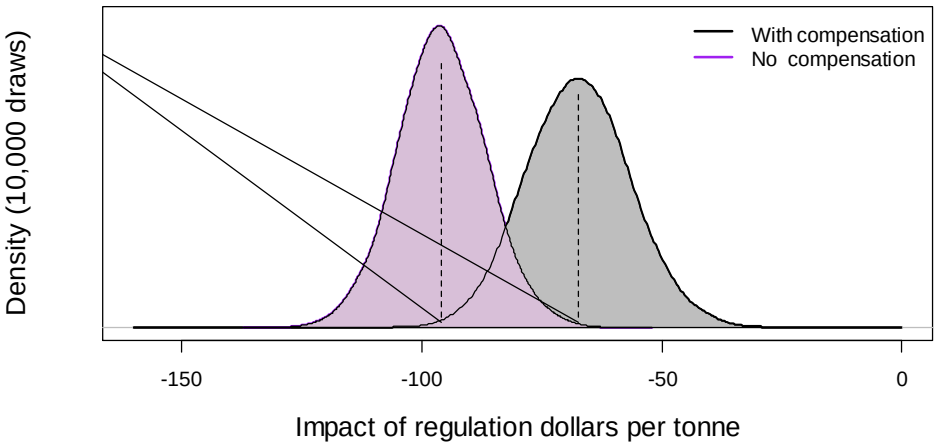
Table 10 **Simulation summary values: dollars per tonne**

	Savings from deregulation				Cost from deregulation			
	PMC cost	Opp. cost capital	Econ. of scale	All other benefits	Forgone marketing	With Compensation	No Compensation	All other costs
Distribution	Normal	Normal	Normal	Normal	Normal	Normal		Log-normal
Mean	26	19.5	72	2	20	28.5	0	5
Lower 90 CI	21	13	62	1	15	19	0	0
Upper 90 CI	31	26	82	3	25	38	0	8
Simulation values								
Mean	26	19.5	72	2	20	28.5	0	5
Standard deviation	3	4	6	.6	3	6	0	1
Lower 90 CI	21	13	62	1	15	19	0	0
Upper 90 CI	31	26	82	3	25	38	0	8

Note: CI = confidence interval
Source: ACIL Allen

Figure 7 plots the distribution of values for the case of immediate deregulation with the payment of compensation, and the case of delayed deregulation and no compensation payments. Under both scenarios there is a net cost to regulation, but under the delayed deregulation scenario, the potential gain is greater due to the avoidance of the need to make compensation payments.

Figure 7 **Impact of regulation**



Note: Unlike with a histogram or frequency polygon, the y-axis values in a density plot have no direct interpretation. The y-axis labels have therefore been deliberately suppressed.
Source: ACIL Allen Consulting

4.4 Impact on productivity

A central concern of the microeconomic reform process is that deregulation of a market leads to an improved allocation of resources that can lead to improvements in productivity growth. Dairy industry deregulation provides a recent example that is relevant to the current discussion. Following full deregulation, the observed pattern was for some farmers to leave the industry, with others increasing production and production intensity (Nossal and Yang 2010).

One way to consider the effect of deregulation is to consider Total Factor Productivity (TFP) growth. In Western Australia, between 1988-89 and 2000-01, TFP growth in the dairy

industry averaged around 1.1 percent. For both the period 1988-89 to 2004-05, and the period 1988-89 to 2007-08, TFP growth in the Western Australian dairy industry was 1.7 percent (Nossal and Yang 2010). One possible interpretation of this information is that prior to deregulation the Western Australian dairy industry, despite the quota system, was performing quite well with solid average TFP growth over a long period of time. In the years directly following deregulation there was a period of quite high TFP growth, but after a period of about four years the productivity growth slowed. Despite the slowdown in the rate of productivity growth, the new rate of productivity growth stabilised at a higher value than observed in earlier periods, but not dramatically higher. In practical terms the changes in TFP are consistent with: (i) a transition from less efficient producers to more efficient producers generating a temporary boost to TFP and (ii) a permanent, though less dramatic increase in productivity due to an increase in the average quality of the firms that remain in operation.

Relating the dairy experience to the ware potato market suggests that regardless of market structure, there will be solid productivity growth over the long run. Following any large scale period of consolidation there would be a temporary increase in productivity growth, and ultimately stabilisation at a new rate of change that would be similar to or slightly higher than the current rate of productivity growth.

4.5 Costs and benefits summary

Two deregulation scenarios were considered. In the first scenario, deregulation takes place immediately and compensation payments are made for the lost value of DME. Under this scenario the estimated annual production efficiency gain from deregulation is around $3.3 million. In the second scenario, a deregulation timeframe is specified that provides a sufficient time lag such that compensation is not required to be paid to growers for the loss in value of DME. Under this scenario the production efficiency gain is estimated to be around $4.8 million dollars. Note that this result is in large part driven by the assumption regarding the potential for economies of scale and scope effects.

Across the industry, those that would gain from deregulation are the large scale producers that have the financial capacity to expand production. High quality niche growers would be unaffected. Those that would lose from deregulation are the smaller producers that do not have access to the financial or other resources that would allow substantial expansion. In the case of immediate deregulation with compensation payments, the State is also a loser. The consumer remains unaffected.

In terms of the pure mechanics of deregulation, the process is well understood. However, as the reform would require legislative change, and there are competing interests, it is far from clear that reform implementation would be straight forward. On balance, historical evidence suggests reform in this area is likely to reflect political considerations and be difficult.

The weight of evidence suggests that:

a) reform in this area will be difficult, and
b) the efficiency gain from deregulation is small.

Using the inquiry suggested assessment framework, these two facts suggest no further action should be taken.

5 Future role of the PMC

Using the inquiry framework, and a reasonably robust approach to considering the costs and benefits of reform, it has been demonstrated that the appropriate response from the ERA is to take no further action. This conclusion is based on:

1. clear evidence that market regulation has approximately no impact on consumers,
2. a robust approach to considering costs and benefits which found the potential gain from deregulation to be small, and
3. the expected practical difficulty of reform implementation.

The conclusion of no further action, in turn, implies a continuing role for the PMC in regulating the ware potato market. This role is discussed below.

5.1 Existing reform program

A continuing role for the PMC does not mean no change in the ware potato market. Rather, the role of the PMC should be to continue the reform process outlined in the McKinna (2011) report. These reforms work to improve sector efficiency and increase the industry focus on the consumer.

The current reforms and their status are detailed below.

Reform 1: Introduction of a voluntary protocol integrity system

Status: Whilst the thrust of this recommendation was accepted by the Board, it was recognised that there already existed several levels of accreditation in the current supply chain and that it was important to build on these existing systems, rather than try to establish an entirely new system. The main focus for improvement is around quality and traceability, which link to several other reform recommendations. In discussions after delivery of the analysis, McKinna agreed that the time for this option had passed and that the other options in his analysis should be pursued instead.

Reform 2: The issue of special category wash/packer licences

Status: Completed

Expressions of interest were called in 2013, with only one response received. The appointment of Patane Produce was made based on this process.

Reform 3: The introduction of a demand management process

Status: Completed

A Sales and Operational Planning (S&OP) process has been introduced at the PMC, which involves liaison with wash packers, retailers and growers via the PMC supply and marketing team. This enables a significantly more robust estimate of demand and supply availability for each Pool. This work is ongoing and subject to an internal continuous improvement process.

Reform 4: Restructuring pools

Status: Completed

The previous 7 Pool system has been transformed into a 4 Pool system, with consequent savings in administration, and better results for growers.

Reform 5: Reform of DME allocation

Status: Pending

This has been implemented to the extent that the PMC already allows specialisation by allowing growers to, in effect, trade off Domestic Market Entitlement (DME) for certain varieties with other growers better placed to grow that variety. There is significant analysis required to complete this reform, which the PMC will be undertaking over the current year. The PMC Board has recently reaffirmed commitment to allocating DME in a way that maximises efficiency and quality outcomes. The PMC must continue to ensure supply of the correct mix of colours to meet consumer demand.

Reform 6: Redraft the grading standards

Status: Completed

A comprehensive internal review has found no material difference to retailer's standards. There has been a minor change to the classification of large potatoes.

Reform 7: Introducing value-added potatoes into the pool

Status: Not legally possible

The PMC has received legal advice that it is not possible to implement this reform. A major issue that it was aiming to address, the leakage of non-ware potatoes into the ware system, has been largely addressed through improved compliance protocols.

Reform 8: Improvement with compliance reporting requirements of wash/packers

Status: Underway

New compliance protocols have been introduced. New agreements discussed with existing wash packers. New level of reporting with the appointment of Patane and the agreement with Galati, both of which require a more transparent reporting protocol than with the other existing wash packers. A new pack out policy has been developed and has received Board approval. It has been implemented at the largest wash packer and is being introduced at the remaining wash packers.

Reform 9: Tightening of on-farm standards

Status: Underway

Especially aiming to improve seed and potato quality across the grower base.

Reform 10: Expansion of benchmarking

Status: Underway

The PMC has instituted a formal benchmarking process for all growers across all pools. Those growers at the bottom of each pool are interviewed and reviewed by PMC Operations Staff.

Reform 11: Tighter management of growers with consistently poor pack-outs

Status: Underway

The PMC has instituted a policy addressing consistently underperforming growers which, while allowing for unforseen weather events, sickness and other mitigating factors, will see the removal of DME from those growers if they continue to underperform.

Reform 12: Introduction of minimal seed standards

Status: Underway

The PMC has introduced seed management standards as part of the annual licence conditions for DME.

Reform 13: Continuous improvement initiative

Status: Underway

The PMC has introduced a number of initiatives to drive continuous improvement in the supply chain including the establishment of Potato Research WA (PRWA), a centre which focuses on the potato industry, and has the capability and capacity to drive quality improvement across the whole production process, including seed quality. The agreed focus is on quality, variety development and yield and PRWA brings together DAFWA, private sector agronomists and other research groups. In addition, the PMC funds and supports grower based initiatives such as the Manjimup/Pemberton Potato Improvement Group whose activities seek to improve farm performance. The PMC also funds specific initiatives such as specific on-farm problem solving of quality issues and tuber quality improvement through acquiring expertise so that it can shared across the grower network via workshops.

Reform 14: Accreditation of ware potato transportation

Status: Pending

The current PMC focus is on performance rather than accreditation, given that a number of firms are already independently accredited under HACCP (Hazard Analysis and Critical Control Point) protocols.

Reform 15: Introduction of a new class of merchant licence

Status: Complete

Wholesaler licence has been introduced, which allows for more flexibility than pre-existing licences. The PMC has already licenced niche sales for specialty and mainstream varieties.

Reform 16: Restructuring the marketing function

Status: Completed

At the request of growers and with the agreement of Western Potatoes, the PMC has assumed responsibility for category marketing and promotion. It is currently managing a major grower funded marketing campaign designed to lift the consumption of potatoes.

Reform 17: Cooperative brand marketing program

Status: Underway

Although the PMC's focus is on category marketing, it has also supported brand based marketing efforts from wash packers, and has introduced a new brand based product line, Karri Country potatoes.

Reform 18: Increase the marketing levy to 4% of wholesale value

Status: Effectively completed

The current consumption campaign, combined with other marketing initiatives, effectively comes close to this level of funding.

Reform 19: Restructuring the Board

Status: Complete

Changes to the Board have been made with the appointment of an additional independent member. Further changes would require an amendment to the Act.

As can be seen from these details, a substantial reform process is underway across the ware potato industry. The PMC should continue to implement this reform program and

report against reform progress, both to growers and the general public, through its Annual Report.

5.2 Additional PMC roles

Implementation of the McKinna reforms, along with its other normal functions, should not be the only role of the PMC.

There has been considerable consolidation in the ware potato industry over the past decade. Yet despite this consolidation there remain significant economies of scale and scope efficiencies to be gained through further industry consolidation. As can be seen from the detail reported in Table 10, lack of scale is a significant contributor to production inefficiency effects.

Through a proactive approach the PMC can assist with co-ordinating further industry consolidation, ensuring that DME progressively moves into the hands of larger scale and / or higher quality producers. Such an approach will assist the industry in maintaining strong productivity growth, which is the core objective of the Inquiry.

This productivity growth will be further enhanced by additional value adding activities that the PMC should pursue. It is vital that the PMC continues to address the decline in potato consumption, as well as provide additional value to consumers and growers via a continuing strong marketing and new product development program. This will over time provide growth for the industry and provide additional funding for growers enabling increased scale and productive efficiencies. New product lines will improve consumer choice and satisfaction. Additionally, the PMC should pursue initiatives itself, or in concert with others, to enhance the effectiveness of and the relationship between ware, seed, export and processing sectors in terms of adding value to the State.

It is also clear that from time-to-time the continuing role of the PMC in regulating the ware potato market will need to be reviewed. Should evidence emerge that the PMC was pursuing a policy of extracting the rent available from a policy of setting an import parity equivalent farm gate plus washing price, the circumstances would be such that moving to a deregulated market would generate lower consumer prices. As consumers would gain from deregulation there would be a strong case to deregulate. Such a case could also be made should it emerge that the PMC was not pursuing the McKinna reforms, adopting a value adding approach to its operation, or focussing on continuous improvement in the supply chain. It would therefore also seem appropriate to recommend a formal date for the next industry review.

Given the scale of the McKinna reforms, the small staff of the PMC and implementation lag effects, sufficient time should be allowed for both full implementation and evidence of reform effects in the supply chain. Therefore, a period of at least five years would be required before the success or otherwise of these major reforms could be judged.

Moreover, given the nature of the industry, it should be expected that some of the reforms will be difficult to achieve within the current legislative framework. Some will certainly create controversy and tension in the supply chain. There may be value in reviewing the Marketing of Potatoes Act and Regulations, with a view to facilitating the PMC's ability to achieve the required level of change.

6 Conclusions

This report has examined the ware potato industry in Western Australia as it exists in 2014, following the adoption of the recommendations of the McKinna report into the industry.

The examination has found no evidence that local consumers of potatoes are at a disadvantage compared to their counterparts elsewhere in Australia. The price of potatoes, their quality, and the varieties available to consumers are not materially different from the situation in the Eastern States.

There is evidence that there is a long term trend to consolidation on the supply side of the industry, with grower numbers now about half of their number ten years ago. Although State level data is not available, a trend of consolidation is a characteristic of industries that exhibit solid total factor productivity growth. At a minimum this industry characteristic suggests that total factor productivity growth in the sector would not have been below average. On balance, and consistent with many other agricultural industries, total factor productivity growth in the sector is likely to have been above average.

Furthermore, there is a long term trend emerging in terms of changes to the variety mix available to consumers, which the PMC appears able to manage with minimum adverse impact on growers or consumers. There is no evidence that the PMC has pursued a policy of setting the farm gate plus wash and grade price at the import parity level. This in turn suggests that the PMC is not extracting any economic rent from consumers.

The activities of the PMC are funded by wholesalers and growers, not consumers. Analysis has shown that the cost of regulation of the industry is around $65 to $95 per tonne of potatoes, depending upon the value ascribed to the domestic market entitlement that growers receive from the PMC. Equity considerations and historical policy practice suggest that rapid removal of the domestic market entitlement would require significant compensation to growers from the State Government. To deregulate would also involve significant legislative change, and the historical evidence suggests achieving legislative change in this area is difficult.

Therefore, in response to the terms of reference provided to the ERA by the Treasurer, the weight of evidence suggests that:

a) reform in this area will be difficult, and
b) the efficiency gain from deregulation would be small.

These two facts suggest no further action should be taken at this time.

The PMC is in the process of implementing the recommendations of the McKinna report into the ware potato industry. Its progress on this journey should be reviewed in say 5 years, when it would again be opportune to assess the ongoing role of the PMC.

Appendix A Inquiry into microeconomic reform in Western Australia

Figure A1 **Terms of Reference**

INQUIRY INTO MICROECONOMIC REFORM IN WESTERN AUSTRALIA

TERMS OF REFERENCE

I, TROY RAYMOND BUSWELL, in my capacity as Treasurer and pursuant to section 38(1)(a) of the *Economic Regulation Authority Act 2003* request that the Economic Regulation Authority (ERA) undertake an inquiry every four years into the microeconomic reform priorities for Western Australia.

The objective of the inquiry is to develop the most advantageous package of microeconomic reform measures that the Western Australian Government could implement to improve the efficiency and performance of the Western Australian economy.

The inquiry should identify areas of reform that have the potential to achieve the following outcomes:

- improved productivity and flexibility of the Western Australian economy;
- increased choice for consumers and business that leads to net economic benefits to Western Australia;
- increased opportunities for Western Australian businesses to effectively compete for national/international market share; and
- the removal or streamlining of unnecessary regulation.

In developing its recommendations, the ERA must give consideration, but not be limited, to the following:

- assess the current level of efficiency of Western Australia's economy, including by comparison with other relevant national and international economies;
- identify those areas in the economy where reform could enhance their contribution to the overall Western Australian economy;
- identify options for improving economic efficiency of the key areas identified above;
- prioritise key areas of reform based upon the potential impact on overall economic efficiency and future growth; and
- recommend a small number of specific key reforms or sectors that require further investigation by the ERA and policy development by the Government.

For the first inquiry, the ERA will publish an issues paper as soon as possible after receiving these terms of reference. During the course of the inquiry, the ERA will publish a draft report and then provide a final report to the Treasurer by 30 June 2014.

For subsequent inquiries, the ERA will publish an issues paper not later than nine months prior to the election of a new State Government, publish a draft report not later than three months after the election, and provide a final report to the Treasurer as soon as practicable thereafter.

Hon Troy Buswell MLA
TREASURER

Source: ERA

Appendix B Response to ERA discussion paper

In response to the request from the Treasurer, the ERA issued a discussion paper which was intended to outline the micro economic issues and elicit responses from interested parties. This paper was issued in August 2013.

One of the responses received by the ERA raised the issue of the structure and regulation of the ware potato industry in Western Australia, and suggested that the current arrangements should be altered. The ERA summary of the response from the Western Australian Chamber of Commerce and Industry (CCI) is shown below.

Figure B1 **Response to ERA from CCI WA**

The growing and marketing of potatoes in Western Australia are controlled under the *Marketing of Potatoes Act 1946*. The Act prohibits the production of potatoes in Western Australia for fresh domestic sale, unless the production has been licensed by the Potato Marketing Corporation. These licences restrict the volume of land available for growing potatoes for fresh local consumption but not for processing or export. The Potato Marketing Corporation sets wholesale prices and pools sale proceeds, paying growers an average return after deducting its own costs. Grower payments are reflected by the grading and volume of the potatoes grown, but not the variety. Western Australia is the only State that operates potato marketing regulation.

As part of the NCP reforms, a review of the legislation was conducted in December 2002 by the then Western Australian Department of Agriculture. The review recommended that the Government maintain the current regulated supply system, after finding a lack of evidence that any significant changes would result in an improvement in the public interest. The review also recommended that the Government investigate ways to improve the operation of the Act.

In 2003, the State Government confirmed that it would retain the regulation of supply management and price fixing. However, following advice from an advisory group in July 2004, the then Minister for Agriculture stated that the Government would introduce amendments that:

- change the basis of supply restrictions from licensed growing area to quantity;
- introduce incentives for growers to supply varieties preferred by consumers;
- move the responsibility for setting aggregate supply and fixing wholesale prices from the minister to the Potato Marketing Corporation; and
- transfer the functions of promotion, marketing and exporting to a grower owned entity.

The Minister stated that the changes would improve the effectiveness of the *Marketing of Potatoes Act 1946*, without materially altering the regulation of domestic supply of potatoes, and that the continued statutory marketing of potatoes would provide industry stability in regional areas.

These changes include the Potato Marketing Corporation no longer participating in the export market, and the Potato Producers' Committee taking over the marketing promotion functions under the *Agricultural Produce Commission Act 1988*.

10.3.3.1.1 Submissions

Chamber of Commerce and Industry (CCI)

CCI advocated for removing Western Australia's potato marketing regulations as it restricts competition. CCI believes competition is restricted by allowing the State Government to restrict the availability of land for growing potatoes, and an ability to fix the wholesale price of such potatoes, while requiring the potatoes be sold to the Government's statutory marketing authority.

10.3.3.1.2 ERA Analysis

The *Marketing of Potatoes Act 1946* clearly restricts competition in that it prohibits unlicensed growers from growing potatoes for fresh domestic sale in Western Australia. Therefore, using the framework implemented by the NCC, it must be shown that restricting the supply and pricing of table potatoes brings benefits to the community that outweigh the costs, and that the objectives of the legislation can be achieved only by restricting competition.

In 2002, the Western Australian Government argued that a retail price survey commissioned by the Potato Marketing Corporation shows that consumers in Western Australia enjoy cheaper potatoes than consumers in other states and, thus, that it is in the public interest for the legislative restrictions to be retained.

In response, the NCC noted that while this might be the case, a survey cannot demonstrate the counterfactual of what the market prices would be in the absence of the *Marketing of Potato Act 1946*. Nor can it demonstrate what the product quality and mix would be in the absence of restrictions.[95] The NCC noted that it is likely that there would be material changes to both the quality and variety mix in the absence of restrictions.[96] Around 83 per cent of potatoes sold in Western Australia during the 2012 growing year are made up of just four varieties,[97] up from 74 per cent in the 2011 growing year.[98]

In its final review in 2005, the NCC stated that it was not convinced that "restricting the supply and pricing of table potatoes brings benefits to the community that outweigh the costs, or that the objectives of the legislation can be achieved only by restricting competition."[99]

Source: ERA

Appendix C Agricultural product cycles

One of the benefits claimed for the regulated ware potato market was the ability to co-ordinate supply and demand rather that experience the product cycles. There is some evidence from the east coast that the unregulated potato market does operate as a classical agricultural market with periods of supply-demand imbalance.

The following discussion explains why, in a typical unregulated agricultural product market, we might expect to observe periods of both over supply and under supply.

Overview of agricultural markets

When considering agriculture markets it is usually the case that activity takes place in discrete time periods rather than in continuous time. For most agricultural commodities it is not possible, for example, to adjust output in continuous time in response to changes in market prices. Once the crop is planted it is necessary to wait until the next planting season to adjust output.

Standard agriculture market economic analysis is therefore usually conducted using discrete time tools and models. Specifically, the standard tool of dynamic agricultural market analysis is to describe the market conditions by way of difference equations. A difference equation describes the path of a variable, say output or price, through time.

For a first-order difference equation the variable of interest – say price – at time period two depends on the price in time period one. For a second-order difference equation the price at time period two depends on the price in time period one and the price in time period zero. The same process holds for higher-order difference equations.

That economic activity in agricultural markets takes place in discrete time has important implications for the time path of prices. Specifically, it means that the smooth adjustment to an equilibrium price that underlies much classical economic analysis does not necessarily hold when considering agricultural markets. By way of illustration, consider the following scenario.

Let there be, for some reason, an increase in the demand for potatoes. The increase in the demand for potatoes causes the price of potatoes to increase. Market participants notice the increase in the price of potatoes and so start to plant new fields. However, it takes some to acquire land, organise production etc., and so even though new planting is under way prices remain high, which encourages further people to expand plantings.

This process of adding extra production lasts until the first of the new product becomes available for sale. At this point, prices start to fall. As prices start to fall new entrants are no longer attracted to the industry and new plantings begin to slow or stop entirely. However, there is by now a significant wave of new production set to come onto the market in future periods. As each successive wave of extra production come on to the market prices continue to fall. Wash packer inventories begin to rise and retail prices fall. Ultimately, prices fall so low that some growers switch production to other activities and replant with some other more profitable agricultural product. The reduction in supply ultimately sees prices rise once more and the cycle then repeats.

Depending on the exact nature of the agricultural market under consideration, the possibility that the market will behave in the same way as the market for other goods in not ruled out. That is, a smooth transition to a stable equilibrium price is not impossible. Rather, the agricultural market framework of analysis simply allows for an expanded set of possible price paths to be considered, where the expanded set matches real world observations.

In contrast to much standard economic theory, agricultural markets can be characterised by periods of shortage and high prices followed by periods of surplus and low prices.

A stylised agricultural market model

Solving difference equations requires an understanding of several involved concepts. It is however possible to set out a simple stylised version of the market for potatoes based on a first-order difference equation. Such a model captures the essential nature of the market under consideration and serves as a useful illustrative model.

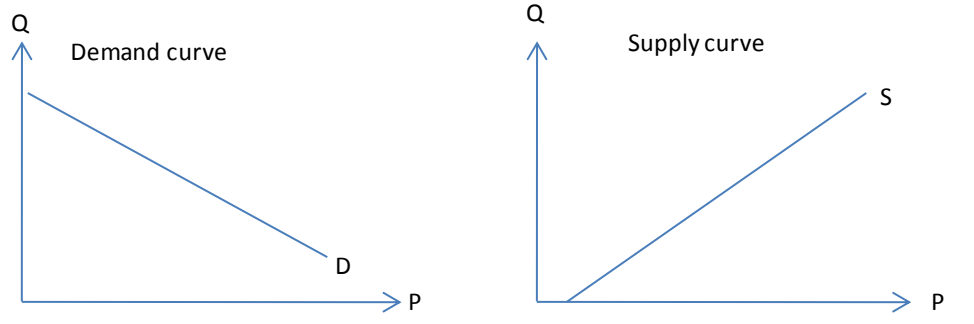
The essential feature we need to capture in the model is that the decision to supply product is made in advance of the actual sale date. That is, the decision to supply potatoes at time period one was made at time period zero. On the demand side there is no such relationship. The quantity purchased at time period zero depends on the price at time period zero, and the quantity demanded at time period one depends on the price at time period one.

To build up the simple market model we need to describe the market supply curve, the market demand curve, and also impose a market clearing requirement. It is easiest to work with linear demand and supply curves so that we ultimately have a linear first-order difference equation. The market supply curve and market demand curve are shown below in Figure C1. In each figure quantity is plotted on the vertical axis and price on the horizontal axis[8].

The demand curve slopes down from left to right, and so has a negative slope. The point of intersection between the demand curve and the vertical axis shows that even if price was to fall to zero there would be a limit to how much people would demand.

The supply curve slopes up from left to right and so has a positive slope. That the curve intersects the horizontal axis shows that quantity supplied would fall to zero before price falls to zero.

Figure C1 **Supply and Demand curves**



Formally, the demand curve shown in the left-hand plot of Figure C1 is written as:

$$Q_{Dt} = \alpha - \beta P_t \qquad \alpha, \beta > 0, \qquad \text{(equation 1)}$$

[8] In quantitative economic applications it is traditional to plot quantity on the vertical axis and price on the horizontal axis. In introductory economic text books it is more common to see price plotted on the vertical axis and quantity on the horizontal axis.

where Q_{Dt} denotes quantity demanded at time period *t*, P_t denotes price at time period *t*, and α and β are parameters that are constrained so that we have the well behaved down sloping demand curve shown in Figure C1. The equation simply says that as price in a given period increases the quantity demanded in that same period falls.

The supply curve shown in right-hand plot of Figure C1 is formally expressed as:

$$Q_{St} = -\gamma + \delta P_{t-1} \qquad \gamma, \delta > 0, \qquad \text{(equation 2)}$$

where Q_{St} denotes quantity supplied at time period *t*, P_{t-1} denotes price at time period $t-1$, and γ and δ are parameters that are constrained so that the supply curve looks like the standard up sloping curve shown in Figure C1. The specification says that quantity supplied at a given point in time depends on the price in the previous period. Specifically, a higher the price in period one calls forth an increase in supply in period two.

The final requirement for the model is that quantity supplied equal quantity demanded, and this is a requirement that we formally write as:

$$Q_{Dt} = Q_{St}. \qquad \text{(equation 3)}$$

By substituting the specific expression for demand shown at equation 1, and the specific expression for supply shown at equation 2, into the market clearing condition expressed by equation 3, we have the expression shown at equation 4:

$$\alpha - \beta P_t = -\gamma + \delta P_{t-1}, \qquad \text{(equation 4)}$$

where, when we roll the time subscripts forward one period, and re-arrange we have the first-order difference equation shown at equation 5:

$$P_{t+1} = \frac{\alpha + \gamma}{\beta} + \frac{\delta}{\beta} P_t. \qquad \text{(equation 5)}$$

The specific solution to the difference equation is somewhat involved[9]. As such, rather than focus on the technical detail, emphasis is instead placed on what the time path for prices looks like under conditions where there is a delay in the supply response. Specifically, for models where the supply decision has to be made in advance of when the output is sold, the model suggests three possible time paths for prices, all of which involve price oscillations.

The first possible time path for prices is one of price oscillations where the oscillations become smaller and smaller through time. The implication is that the market fluctuates between periods of shortage (high prices) and surplus (low prices), but that the various periods of shortage and surplus become less pronounced through time. This is the situation described in the upper left-hand plot of Figure C2.

The second possible time path for prices is one of uniform price oscillations. The market fluctuates between periods of shortage and surplus and the extent of the fluctuations remains constant through time. This is the situation described in the upper right-hand plot of Figure C2.

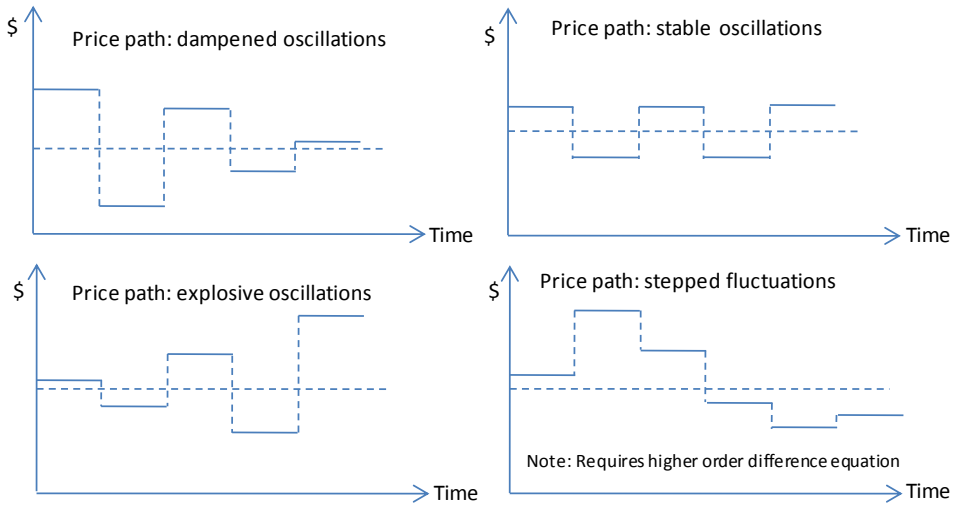
The third possible time path for prices is one of explosive price oscillations. The market fluctuates between periods of shortage and surplus and the extent of the fluctuations

[9] Complete solutions to the cobweb model specification and more complete and involved model specifications that do not impose the market clearing requirement but allow for inventory accumulation can be found in Chiang (1984).

become more pronounced through time. This is the situation described in the lower left-hand plot of Figure C2.

If the basic model is extended by adding extra lags then a time path such as the one shown in the lower right-hand plot of Figure C2, where the oscillations in price are stepped is possible.

Figure C2 **Price path for agricultural markets**



Source: : Chiang (1984)

References

Chamber of Commerce and Industry (2013) CCI's Submission to the ERA Discussion Paper on Microeconomic Reform in Western Australia

ACIL (2002) A Paper Describing the Value of the Regulated Potato Industry in Western Australia, prepared for Western Potatoes.

Alston, J. M. (1986). Consequences of deregulation in the Victorian egg industry. *Review of Marketing and Agricultural Economics*, *54*(1), 33-43.

Arnade, C., Gopinath, M., & Pick, D. (2011). How Much Do Consumers Benefit from New Brand Introductions? The Case of Potato Chips. *Journal of Agricultural and Resource Economics*, *36*(1), 78-94.

Chiang, A. (1984). *Fundamental Methods of Mathematical Economics, Third Edition.* Singapore: McGraw-Hill Book Company.

Department of Agriculture (2002) Legislation Review of Marketing of Potatoes Act 1946 and Marketing of Potatoes Regulations 1989, Discussion Paper for Industry.

Economic Regulation Authority (2013a) Inquiry into Microeconomic Reform in Western Australia, Discussion Paper.

Economic Regulation Authority (2013b) Inquiry into Microeconomic Reform in Western Australia, Discussion Paper.

Edwards, G. (2003). The story of deregulation in the dairy industry. *Australian Journal of Agricultural and Resource Economics*, *47*(1), 75-98.

Eslake, S. (2011, August). Productivity: The lost decade. In *annual policy conference of the Reserve Bank of Australia, HC Coombs Conference Centre, Kirribilli, Sydney* (Vol. 15).

Hausman, J.A. (1996) Valuation of New Goods Under Perfect and Imperfect Competition. In The Economics of New Goods (pp. 207-248). University of Chicago Press.

McCorriston, S., & MacLaren, D. (2007). Deregulation as (welfare reducing) trade reform: the case of the Australian Wheat Board. *American Journal of Agricultural Economics*, *89*(3), 637-650.

Nossal, K., & Sheng, Y. (2010). Productivity growth: Trends, drivers and opportunities for broadacre and dairy industries. *Agricultural Commodities*, *17*(1), 216.

Richards, C., Bjørkhaug, H., Lawrence, G., & Hickman, E. (2013). Retailer-driven agricultural restructuring—Australia, the UK and Norway in comparison. *Agriculture and Human Values*, *30*(2), 235-245.

Spekman, R. E., Kamauff Jr, J. W., & Myhr, N. (1998). An empirical investigation into supply chain management: a perspective on partnerships. *Supply Chain Management: An International Journal*, *3*(2), 53-67.

ACIL ALLEN CONSULTING PTY LTD
ABN 68 102 652 148

LEVEL FIFTEEN
127 CREEK STREET
BRISBANE QLD 4000
AUSTRALIA
T+61 7 3009 8700
F+61 7 3009 8799

LEVEL TWO
33 AINSLIE PLACE
CANBERRA ACT 2600
AUSTRALIA
T+61 2 6103 8200
F+61 2 6103 8233

LEVEL NINE
60 COLLINS STREET
MELBOURNE VIC 3000
AUSTRALIA
T+61 3 8650 6000
F+61 3 9654 6363

LEVEL ONE
50 PITT STREET
SYDNEY NSW 2000
AUSTRALIA
T+61 2 8272 5100
F+61 2 9247 2455

SUITE C2 CENTA BUILDING
118 RAILWAY STREET
WEST PERTH WA 6005
AUSTRALIA
T+61 8 9449 9600
F+61 8 9322 3955

ACILALLEN.COM.AU