Examining AWB's market power in the international wheat market

Hui-Shung Chang,
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Hui-Shung (Christie) Chang, William Martel and Robert Berry

School of Economics,

University of New England, Armidale NSW 2351

Tel: (02) 67732855; E-mail: hchang@pobox.une.edu.au

Abstract

The Australian wheat marketing system has been through a number of stages of deregulation in recent years. However, the AWB still maintains the monopoly selling rights of Australian wheat exports. The AWB and its supporters justify the single desk by arguing that the monopoly power enables them to gain a higher price in the export markets. Opposition to the single desk argues that Australia does not produce enough wheat to influence prices. The objective of this study is to test the market power hypothesis by examining the quantity - price relationship of Australian wheat exports and the stability of this relationship over time using annual data from 1961 to 2000.

Key words: AWB, single desk, wheat marketing, national competition policy.

Introduction

Australia is the third largest exporter of wheat in the world. Approximately 80% of Australia's total wheat production is exported, accounting for between 15% and 20% of all wheat traded in the world market. With export earnings close to 3.5 billion in 1999/00 (AWB, 2001), the importance of wheat exports to the Australian economy cannot be understated. However, Australia is a small producer by the world's standards, accounting for only 3 to 4 % of total world production. The export orientation of the Australian wheat industry means that its performance is affected by prevailing world wheat market conditions, including various forms of government intervention in the domestic and international wheat markets. On the other hand, some argue that the single desk status of the Australian Wheat Board (AWB) may, to some extent, either reduce the vulnerability to the vagaries of the market or increase its influence on the world wheat market.

The general issue that faces the Australian wheat industry is the fluctuating world demand and supply conditions that impact directly on Australian export prices. Additionally, the levels of government intervention in most countries, including Australia, and the ongoing review of the single desk status of AWB remain major concerns.

In recent years the marketing system of the Australian wheat industry has been through the first stages of deregulation. In 1989, the domestic wheat market was deregulated allowing others companies, besides AWB, to trade grain within Australia. In 1999, the AWB was privatised and became a grower owned and controlled unlisted public company. In August 2001 the AWB was listed on the Australian Stock exchange. Further to these steps in deregulation there has been continuing pressure for the AWB to be totally deregulated, this means that it is to lose the monopoly selling rights of all wheat exports that it has had for over half a century.

The AWB justifies the existence of the monopoly status by arguing that the single desk allows it to gain a higher price in the export markets and provide better returns to growers. An important note to make is that several individuals and organizations that are involved in the debate dispute all of the advantages of the monopoly selling rights that were put forward by AWB (eg Allen Consulting Group, 2000). The research objective of this study is to test the market power hypothesis by examining factors that influence the export price of Australian wheat, particularly the amount of Australian wheat exports, based on an econometric model using data from 1961 to 2000.

The paper is organized as follows. Firstly, it provides an overview of the Australian wheat industry. Changes in wheat marketing in Australia, the review of the Wheat Marketing Act

1989 and arguments for and against the single desk selling system are outlined. The empirical model is then introduced, followed by the presentation of estimated results. These results are then discussed and concluding remarks are provided.

Australian Wheat Market

The Australian wheat industry has been of key importance to the economy during the 20th century. At present it contributes $3.5 billion in exports and directly affects more than $6 billion in grain handling infrastructure and the 36,000 wheat-growing farms (Australian Financial Review, 2001). However on a world scale Australia is a small producer of wheat. Our wheat production only accounts for approximately 3% of total world production. Due to our relatively small population, not much grain is consumed within Australia therefore 80% of our wheat is exported. The current situation of world wheat market is summaries in Table 1.

Table 1. **World Wheat Production, Trade and Stocks (Millions of Tonnes).**

Country	**92/93**	**93/94**	**94/95**	**95/96**	**96/97**	**97/98**	**98/99**	**99/00**	**00/01**	**01/02**
Production										
China	100.5	106.4	101	102.2	110.6	123.3	109.7	113.9	102	98
EC [2]	84.8	81.1	85.5	87.7	100	94.7	103.8	96.9	104.4	95
CIS	88.7	82.7	59.6	59.5	63.5	79.4	55.5	64.6	62.7	74.7
India	55.7	56.8	59	65.8	62.6	69.3	65.9	70.8	75.6	68
USA	66.9	65.4	63.2	59.5	62	67.5	69.4	62.7	60.5	53.5
Canada	29.9	27.2	23.2	25	29.8	24.3	24.1	26.9	26.8	24
Australia	16.2	16.9	9	17	23.7	19.4	22.1	25	21.2	20.5
Pakistan	15.7	16.2	15.2	17	16.9	16.7	18.7	17.9	21.1	18.7
Turkey	17.3	16.8	14.7	15.5	16.2	16.2	18.5	16.5	17.5	16
Argentina	9.7	9.2	11.3	9.5	15.9	14.8	11.5	15.3	16	17.8
Others	76	79.4	82.6	82.1	81.2	84.2	87.3	73.9	73.5	81.1
World Total	561.4	558.1	524.3	540.6	582.4	609.8	586.5	584.4	581.3	567.3
Exports										
USA	37.1	32.9	32.4	33.6	26.5	28	29.8	29.8	28.5	28.5

Canada	21.6	18.2	21.3	17	17.9	21.2	14	18.4	17	17
Australia	9.5	12.8	7.9	12.1	17.9	15	16.1	17.3	16.5	16.5
EC [2]	22.7	19.1	16.1	12.6	17	13.1	13.7	16.7	14.5	12.5
Argentina	7.3	4.5	7.9	4.4	10.3	9.6	8.9	10.8	11.5	12.5
Imports										
Egypt	6.2	5.9	6.2	6.1	6.9	7.2	7.4	6.2	6	6.1
Japan	5.9	6	5.7	5.9	6	5.7	5.7	6	5.8	5.8
Brazil	--*	--	6.5	5.5	5.9	5.9	7.3	7.1	7.5	7
Iran	--	--	3.3	2.8	7.1	3.6	2.5	7.2	7	6
Pakistan	--	--	2	1.9	3.1	3.6	3.1	1.8	0.1	0.5
Indonesia	--	--	3.3	3.5	4.2	3.7	3.2	3.8	3.8	4
South Korea	--	--	4.1	2.4	3.4	3.6	5	3.8	3.5	3.7
CIS	18.5	6.2	3.8	3.6	2.5	2.2	4.5	9	5.3	4.7
China	6.7	4.5	10.1	12.6	8	1.9	0.8	1	0.4	2
Stocks										
World Total	55	47.4	34.4	34.2	36.2	41	56.6	51.5	50.9	39

* Figures not available.

Source: International Grains Council, 1998.

Australian wheat production has been on an upward trend since 1960 and has been fairly erratic, as can be seen by several large peeks and troughs in Figure 1. These changes in production are due to changes in weather conditions and prices.

In terms of prices, it can be seen from Figure 2 that wheat prices tended to fluctuate. What is more striking is that up until 1973 wheat prices were fairly stable, but since then they have become rather volatile. The structural change was the result of the oil crisis, grain embargos and the formation of the European Union in the early 1970s.

The increased volatility of world wheat prices post 1973 has meant that the Australian farmer and other wheat growers around the world face a greater price risk. The Australian wheat farmers have generally relied upon the AWB national pool to manage the price risk.

The closing stocks of Australian wheat are shown in Figure 3. The closing stocks of Australian wheat also have been very erratic over the last 40 years and are more so than the world's or the exporters' total closing stocks that are shown in Figure 4.

Despite the drastic changes in stocks from year to year, the stock to use ratio for world wheat has been on a downward trend since 1960, as can be seen in Figure 5. This means that there is no longer as much wheat stocks in the world relative to the amount being consumed, which helps contribute to price instability. Stocks of any storable commodity tend to stabilize prices (Tomek and Robinson, 1991).

Australia exports about 80% of its wheat production. Major importing countries of Australian wheat are Indonesia, Japan, Korea, Malaysia, Pakistan, Iran, Iraq and Egypt (Table 2). An interesting point to make here is that Australia has a logistical advantage over its major exporting competitors when selling wheat to Asia and the Middle East. This is a good indication that Australia has a diversified market portfolio and does not rely on any particular country for our exports.

Table 2. Importers of Australian Wheat (in kt)

	1992/93	**1993/94**	**1994/95**	**1995/96**	**1996/97**	**1997/98**	**1998/99**	**1999/00**
Africa								
Egypt	1320	1358	0	739	1665	735	1503	1124
Ethiopia	19	24	10	35	6	41	33	20
South Africa	32	0	0	412	349	161	234	239
Asia								
Bangladesh	61	96	73	174	231	254	372	343
China	583	1338	584	2229	156	204	165	107
India	1050	0	0	0	1632	2189	296	173
Indonesia	974	1187	1162	1959	2369	2424	1414	2059
Japan	1114	1179	1254	1148	1256	1108	1147	1195
Korea	975	1246	629	703	687	768	1212	1181
Malaysia	647	687	588	798	631	671	874	800
Pakistan	217	43	72	233	1308	1039	1102	1187

Singapore	144	149	149	88	59	86	107	92
Sri Lanka	9	61	5	326	263	80	189	155
Thailand	82	176	105	243	255	315	308	251
Middle East								
Bahrain	18	0	13	27	67	37	21	23
Iran	1119	2593	524	1879	3349	579	1663	1860
Iraq	105	335	102	50	815	1388	1269	2517
Kuwait	0	0	0	144	202	177	219	132
Oman	151	187	153	193	287	282	248	300
Qatar	44	44	39	40	64	36	61	22
UAE	229	232	188	226	457	289	0	462
Yemen	233	322	0	254	633	527	644	544
Oceania								
Fiji	58	89	71	55	67	66	73	88
New Zealand	194	221	173	158	146	84	94	182
PNG	116	116	125	95	119	109	131	137
Total	9534	12910	7892	12056	18348	15245	16384	17274

Source: Australian Commodity Statistics, 2000.

Another important statistic to look at when examining trading partners is the percentage of the market that Australia supplies. In 1998/99, Australia provided approximately 17% of the wheat to the world market. By comparison, USA, Canada, EU and Argentina have 31, 20, 16 and 8% of market shares, respectively (Alisauskas, 1999). Also in this period, 49.2% of the wheat traded to the Iraqi market and 48% traded to Indonesia was provided by Australia. Similarly, Australia also provided close to 25% of the wheat to South Korea and Yemen in the same year (ABARE, 2000). From this it may be derived that although Australia has an insignificant share of the world wheat market they still have a significant share of some segments of the world market. This means that these markets may be somewhat dependent on Australia to provide wheat. Consequently, the AWB's strategy may be able to take

advantage of its dominant market position in these markets by, for example, pricing to market.

Australian Wheat Marketing

Australian wheat marketing system has been evolving since the establishment of the AWB in 1939 to help stabilise wheat prices (Whitwell and Sydenham, 1991). The most significant changes have probably occurred since 1989 when the domestic wheat market was deregulated allowing private grain traders to trade within Australia. However, the AWB still is the single desk seller.

The single desk selling system in Australia means that the AWB controls the exports of all the wheat from the country. This arrangement is established through government legislation under the Wheat Marketing Act 1989. Although there are now several grower-owned and private grain companies that trade domestically and can also export wheat in containers or bags, there is not much wheat that is exported in this manner. This is due to the higher costs of exporting in containers/bags compared to bulk shipments, and the transaction costs and time delay in applying for a permit from the Wheat Exchange Authority (WEA). As a result, the AWB still has a monopoly over the majority of wheat that are exported from the country.

The single desk selling power of AWB has come under increased pressures from both domestic and international players. On the domestic front the pressure comes mainly from the National Competition Policy and on the international front, from the WTO. In 2000, the Wheat Marketing Act of 1989 was reviewed to determine whether the single desk status of AWB has resulted in net public benefits. In its submission to the Review Committee, the AWB (2000a) claimed that the single desk has allowed it the ability to price discriminate and restrict supply, and therefore obtain price premiums. Opposition to the single desk argue that the price differentials or price premiums, if exist, do not necessarily reflect market power. Instead, other factors such as seasonal advantage from Australia being located in the Southern Hemisphere, transport advantages, quality differences and customer services are more important than merely being a single desk.

With numerous submissions from parties that are for and against the single desk, the Review Committee concluded that there was insufficient credible and unambiguous evidence to suggest that the current marketing arrangements for the marketing of export wheat generated net benefit to Australian wheat growers or the Australian community (Irving et al., 2000). Despite, the recommendations from the Review Committee, a decision by the government was to retain the single desk with possibility of the second round review in 2004 (Truss, 2001). Although substantial changes to the legislation did not occur, the general view is that

public inquiries, such as the 2000 Review, have placed pressures on AWB to become more commercialised and more efficient in its operations (Irving et al., 2000).

Another source of pressures for the removal of the single desk comes from overseas. Despite the conclusion of the Uruguay Round trade talks the world supply of wheat remains heavily distorted by government subsidies as well as trade distorting single desks such as Australian and Canadian Wheat Boards. Trade negotiations under the WTO rules have important implications for market support and subsidies that are used in the USA and EU, as well as the single desk selling systems in Australia and Canada (DeVos, 1997). Further trade liberalisation and reductions in government support to US and EU growers as trade talks continue mean that the single desk selling power of the AWB would be even harder to justified.

There are many arguments both for and against the single desk selling system and they are outlined below. The main argument for single desk, put forward mainly by AWB (2000a) and its supporters is the high levels of government intervention have heavily distorted the world wheat market. The AWB claim that because of these market distortions the world wheat market is not a level playing field, nor is it truly competitive. The AWB believe that the single desk has enabled them to remain competitive in this imperfect market.

Indeed, government interventions in the world wheat market have been prolific since World War II as governments perceived a need for food security. The government regulations that are most recognized and visible are price support programs and export subsidies in the USA and EU. However, these are not the only government supports in the world. Wheat growers in the other parts of the world, including Canada and Australia, also receive government support. These supports can be measured in terms of the percentage of income that are provided by government subsidies. The percentages are 46, 58, 11 and 11 for USA, EU, Canada and Australia, respectively. This means that on average a wheat farmer in the USA receives 46% of the income from the government, compared to an Australian wheat farmer who receives 11% of income from the government.

Such figures highlight the enormity of government support in the US and EU. All of these government supports have the effect of increasing world production and therefore depressing world prices.

It is also important to note that 80% of the world wheat market is controlled by a limited numbers of multinational companies, including ADM, Andre, Bunge, Cargill, ConAgra, Glencore and Louis Dreyfus (PIBA, 2001). Given the relatively small size of the Australian market, the single desk allows more muscles to compete with these massive multinationals.

Other arguments for the single desk are:

- Price discrimination through market power that allows them to charge higher prices for grain.
- The ability to run an effective price pooling system which offers farmers a form of risk management
- Developing of new markets through investing money into research and development
- Opportunity to negotiate on a level playing field with single desk buyers
- Taking advantage of economies of scale in handling and marketing of grain.
- Preventing weak selling or undercutting by other Australian exporters.

Among all the advantages put forward, only the market power has economical validity as it is argued by the opponents that private traders could supply the other potential benefits just as easily. As such, the proof of market power has been the focal point of the Review process.

The arguments against the single desk, put forward by the Allen Consulting Group (2000) and others, can be summarised as follows:

- Single desk selling restricts competition and decreases incentives to market innovation, which result in inefficiencies and lower returns to producers and higher prices for domestic users and consumers (Ryan, 1994). Grainco Australia estimated that up to $360 million could have been saved if the AWB did not exert so much control over the system (Bolt, 2000).
- The single desk restricts grower's choice of whom they sell their grains to, who handles their grains and provides them with price risk management and other marketing services. The fact that Australia does not have a liquid futures market means that wheat prices on the Sydney futures exchange are heavily influenced by the AWB pool estimates. This means that Australia is lacking a true domestic pricing mechanism.

The major benefits of the single desk, as summarised by AWB (2000b) and Lindberg (2000) are: maximising pool returns to growers; guaranteeing access for all growers to the international markets; capturing significant economics of scale in product development, logistics, storage and handling; and obtaining a price premium for Australian wheat. The downsides are the loss of efficiency in the marketing system and re-distribution of incomes between market participants.

However, AWB is not the only single desk exists in the world wheat market. In fact, the Canadian Wheat Board (CWB) plays a similar role for Western Canadian wheat and barley growers in Canada. It too has single desk selling, pooling and government connections. The CWB has annual revenues of CDN $4 to $6 billion and is the largest exporter of wheat and barley in the world (CWB, 2001). Like the AWB, it is believed that the CWB gains additional benefit for the producer using their ability to price discriminate in international markets. And like AWB, it is under increasing pressures to be dismantled. Similar arguments are being put forward either to support or contest its single desk selling power (eg Brooks and Schmitz, 1998; DeVos, 1997; Carter and Wilson, 1999; Maginnis, 1999; Goldberg and Knetter, 1999). The US General Accounting Office (1992) investigated the AWB and CWB and found they were both non-competitive sellers due to unfair pricing, pooling and government underwriting (Carter and Wilson, 1999).

The Empirical Model

Market power in the case of the AWB is defined as the ability to price discriminate to earn more revenue. Price discrimination occurs when a single-desk seller differentiates its sales prices for comparable quality wheat between different destinations according to a country's ability to pay and price sensitivity (AWB, 2000a). This means that the AWB faces markets with different price elasticities and is able to charge more in markets that have less elastic demand. The National Competition Policy Review of the Wheat Marketing Act 1989 has been based mainly on determining whether price premiums exist in key export markets. These analyses are based on hedonic pricing models (AWB, 2000a; Gans and Hirschber, 2000), and simulations (Allen Consulting Group, 2000). Co-integration techniques have also been used to test the market power hypothesis (Berry, 2000).

Another simple definition of market power is that the supplier is facing a downward sloping demand curve. This means a firm has the ability to influence price it receives by varying quantity of supply. In this study, an attempt was made to test the market power of the AWB by determined whether it faces a downward sloping demand curve in the export market. The basic idea is that if the demand curve for Australian wheat in the international market is downward sloping, then as Australian exports increase, the export price will decrease. In this study, we examine factors that influence the price of Australian wheat exports and the linkages between export quantities and export prices of Australian wheat.

Following Gardner (1999), the empirical model is specified as follows:

(1) $P_t = \alpha + \beta_1 Qa_t + \beta_2 S_{t-1} + \beta_3 Qw_t + \beta_4 D + \beta_5 T + \beta_6 I_t + \varepsilon_t,$

where

P = the price or unit value of Australian wheat exports;

Qa = the quantity of wheat exported from Australia;

S = the quantity of stocks in the world market;

Qw = the quantity of wheat produced in the world;

D = a dummy variable that takes on value 1 for years between 1960 and 1973; 0, otherwise;

T = time trend;

I = the value of imports of all agricultural commodities in the world; and

ε = the error term that is assumed to be distributed with mean zero and constant variance.

Equation (1) states that the export price of Australian wheat in a particular year is determined by the quantity of Australian wheat exports in that year, as well as the quantity of ending stocks in the world market in the year before, the total world wheat production and the value of total world imports in the same year. The dummy variable is used to capture the structural change in wheat prices before and after 1973 as a result of changes in international trade and policy changes. The time trend is included as a proxy to capture other factors that might have caused changes in wheat prices over time but not been included in the model, such as changes in consumer preferences away from, or towards, wheat-based products.

The main interest of the study is to test the hypothesis whether changes in the Australian wheat exports have an impact on prices received. In other words, we are interested in testing whether coefficient β_1 is statistically significantly different from zero. Specifically, the null hypothesis to be stated is:

$H_0 : \beta_1 = 0,$

against the alternative hypothesis

$H_A : \beta_1 \neq 0.$

The estimated coefficient for the world ending stocks (S_{t-1}) is expected to be negative which means the higher the stock level the lower the price; similarly for world wheat production (Qw). Both estimated coefficients are expected to be negative because the Australian export price is expected to decrease as the world supply of wheat increases. The value of imports in the world (I) was added to the model to serve as a proxy for the health of the world economy. The estimated coefficient for this variable is expected to be positive as one would expect as

"incomes" or "total expenditures" for agricultural commodities increase, the demand for wheat will increase, which, in turn, leads to an increase in the price of wheat.

In addition to testing the hypothesis that changes in Australian exports may result in changes in export prices, it is further hypothesised that the impact of Australian wheat exports on prices, if exists, may have changed over time. This is of interest because Australia has gained a much larger share of the export market in recent years; therefore, it is reasonable to expect that AWB's ability to influence prices, if exists, may have increased. In this time-varying parameter framework, the β_1 coefficient in equation (1) is hypothesised to change with Australia's export share (QR) in the world market. That is,

(2) $\beta_1 = a + b\ QR,$

where QR= Qa/Qwx and Qwx = the quantity of wheat that is exported in the world.

Combining equation (1) and (2), we get

(3) $P_t = \alpha + (a + b\ QR)\ Qa_t + \beta_2\ S_{t-1} + \beta_3\ Qw_t + \beta_4\ D + \beta_5\ T + \beta_6\ I_t + \varepsilon_t.$

Rearranging equation (3), we get

(4) $P_t = \alpha + a\ Qa_t + b\ (QR*Qa)_t + \beta_2\ S_{t-1} + \beta_3\ Qw_t + \beta_4\ D + \beta_5\ T + \beta_6\ I_t + \varepsilon_t.$

In this case, we have an extra interaction term, compared to equation (1). It indicates that the price response to quantity changes is no longer constant, but varies with the export share of the Australian wheat in the world market. All the variables on the right-hand side of equation (4) are all exogenous, including Australian export quantities (Qa). As such, equation (4) is estimated using Ordinary Least Squares.

Data and Data Sources

All of the data were obtained from the Australian Commodities Statistics (ABARE, 2000), except for the value of total imports of agricultural commodities which was obtained from the Monthly International Financial Statistics published by the International Monetary Fund. A summary of the statistics for the variables used is given in Table 3 below. The quantity Australia exports (Qa), is expressed in kilo metric tonnes; the quantity of world production (Qw) and the quantity of stocks (S) in the world are expressed in mega metric tonnes; and the variable I, the quantity of international imports, is expressed in billions of US dollars.

Table 3. Summary Statistics

Variable	Mean	Minimum	Maximum	Standard Deviation

Qa	10145	4137	19189	3893.4
Qw	431.45	227	610	118.39
S	111.17	67	176	27.31
I	0.2095E+07	0.1246E+06	0.6508E+07	0.193E+07

Estimated results

Because autocorrelation was detected in the preliminary analysis based on Ordinary Least Squares, equation (4) was re-estimated using iterative Cochrane-Orcutt estimation procedure (AUTO) available in SHAZAM (White, 1996). The estimated results from AUTO are presented in Table 4.

Table 4. Estimated coefficients

	AUTO
Intercept	223.90 (3.90)
Qa_t	-0.11042E-02 (-0.23)
S_{t-1}	-0.53 (-2.215)
Qw_t	-0.58 (-2.70)
D	-43.17 (-1.94)
T	12.36 (2.88)
$(QR*Qa)_t$	0.49083E-05 (0.27)
I_t	-0.91894E05 (-0.69)
Adjusted R^2	0.90
Durbin-Watson	1.91

*Figures in parentheses are t-ratios.

The R^2 from AUTO estimation indicates that 90% of the variation in export price of Australian wheat can be explained by the variables included. The signs for the explanatory variables were as expected except for the value of imports in the world. However, not all the estimated coefficients are statistically significant at the 5% level.

The key variable for the analysis is the quantity of Australian exports, Qa. The coefficients associated with Qa, parameters a and b in equation (4), are both statistically insignificant at the 5% level. These results mean that the Australian export price is not affected by the export quantity, nor by changes in the export share. This result is different from the finding of Gardner (1999) that showed that Canada's additional exports of 0.2 % of the world supply would drive down the world price by 6%. These results may suggest that the Canadian and Australian Wheat Boards may have differing market positions in the world wheat market.

The quantity of stocks in the world and the world production are statistically significant at the 5% level, indicating that these two variables are important determinants of Australian export prices. In flexibility terms, they are estimated to be –0.43 and -1.86, respectively (Table 5). This means that a 1% increase in the stock would result in a 0.43% decrease in the price of Australian exports and that a 1% increase in the quantity of world wheat production would result in a 1.86% decrease in the price of Australian wheat export. Negative relationship between export prices and stock levels can be seen in Figure 4.

The value of commodity imports in the world also was found not to be an important determinant of Australian export prices of wheat because the estimated coefficient is not only small but also statistically insignificant at the 5% level. The impacts on prices of various quantity variables are expressed in flexibility terms, evaluated at sample means, and presented in Table 5. As can be seen, total world wheat production appears to be the most influential factor in determining export prices of Australian wheat, followed by the level of the stock.

Table 5. Estimated Flexibilities

	AUTO
S_{t-1}	-0.43
Qw_t	-1.86
I_t	-0.14

Recall that the impact of Australian export on price is assumed to vary with Australia's export share in the world market, flexibility estimates (defined as the percentage change in the price with respect to a one percent change in the quantity) are calculated based on the formula defined in equation (2) and shown in Figure 6. The signs for these flexibilities are as expected as they are all negative. A negative sign means that the more wheat Australia exports the lower the price will be for Australian wheat export. The fact that they are on an upward trend implies that the price impact is becoming smaller (in absolute terms) over time. This means that as Australia's export share increased, as it did in the past decades, the export price is less affected by changes in export quantities (the inverse demand curve is becoming flatter). This latter result can be interpreted as an increase in market power since Australia is able to export more without the need to reduce prices too much, other things being equal. As none of the coefficients used to calculate these flexibilities are statistically significant at the 5% level, these results are presented for completeness only and should be interpreted with

caution. Nevertheless, they do lend support to the conclusion that the AWB cannot influence the export price of Australian wheat by varying the quantity of exports, nor does it have any market power in the world market. By comparison, the results confirm previous observations that for storable commodities, the quantity of stock in the world has a significant negative effect on the prices. It was also shown that the quantity of wheat produced in the world had an even greater negative effect on those prices.

Conclusion

The objective of this paper was to test the market power hypothesis of AWB by estimating the relationship between the quantity of Australia wheat exports and the export prices. Proponents of the single desk argue that the AWB can price discriminate because of its size and associated market power that allows it to gain overall price premiums for wheat sold. If this is so there is still a question over whether this is beneficial to the farmer and the general public. The full premium must be returned to the grower and it cannot be at the expense of the general public, which includes consumers and other grain traders within Australia. However, rather than examining the price premium issues associated with the single desk as in Australian Wheat Board (2000a) and the Allen Consulting Group (2000), this paper examines the ability of the AWB to influence export price by varying the amount of exports.

The analysis was conducted based on an econometric model using annual data from the last 40 years relating to the Australian and world wheat markets. The results showed that there is not enough evidence to suggest that an increase in Australian exports would cause any changes to the Australian exports prices. Therefore, the conclusion was that the AWB does not have the market power or the ability to influence prices in the world wheat market.

If the AWB hopes to retain the single desk selling arrangements they must prove that they do have market power and it is in the public interest that such power is maintained if the Wheat Marketing Act 1989 is to be reviewed again in 2004. Given the political climate both at home and overseas, it is essential that concrete evidence and strongest arguments can be put forward for the retention of the single desk. Failing to do that, then there is a very good chance that the Australian wheat industry will be totally deregulated in foreseeable future.

One major limitation of the analysis is the aggregate nature of the data used in the econometric analysis. Specifically, the data do not take into consideration differences in the quality of wheat and marketing conditions in the importing countries. If data were available for different wheat grades destined for different markets, it may be possible to demonstrate more conclusively whether AWB has some market power in certain markets where Australia has significant market shares and unique products.

Another limitation to the study is that the market power, as well as associated price premium, argument is only one of several arguments relating to the viability of the single desk selling system in Australia. Other arguments in favour of deregulation are:

- The AWB's handling and administration costs would be lower in a competitive environment;
- The price to users of domestic wheat would fall;
- The flow of information would improve;
- There would be increased innovation, flexibility and development of niche markets;
- Financial risk management options would improve; and
- Social effects may be positive, if for example there were more then one marketer in town.

(Irving, Arney & Lindner, 2000).

As such, the analysis provides only a limited perspective into a very complex issue. Nevertheless, the methodology used here appears to offer some additional insights and contribute to the on-going debate on the single desk selling system.

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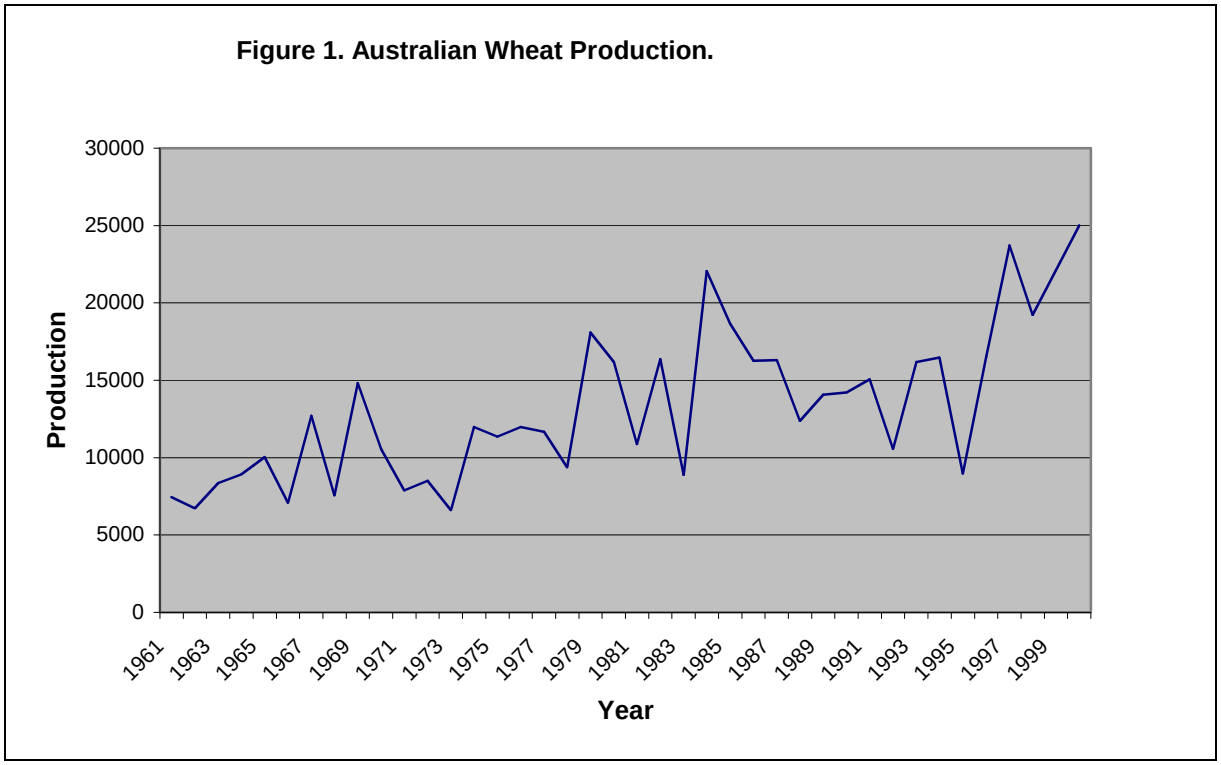

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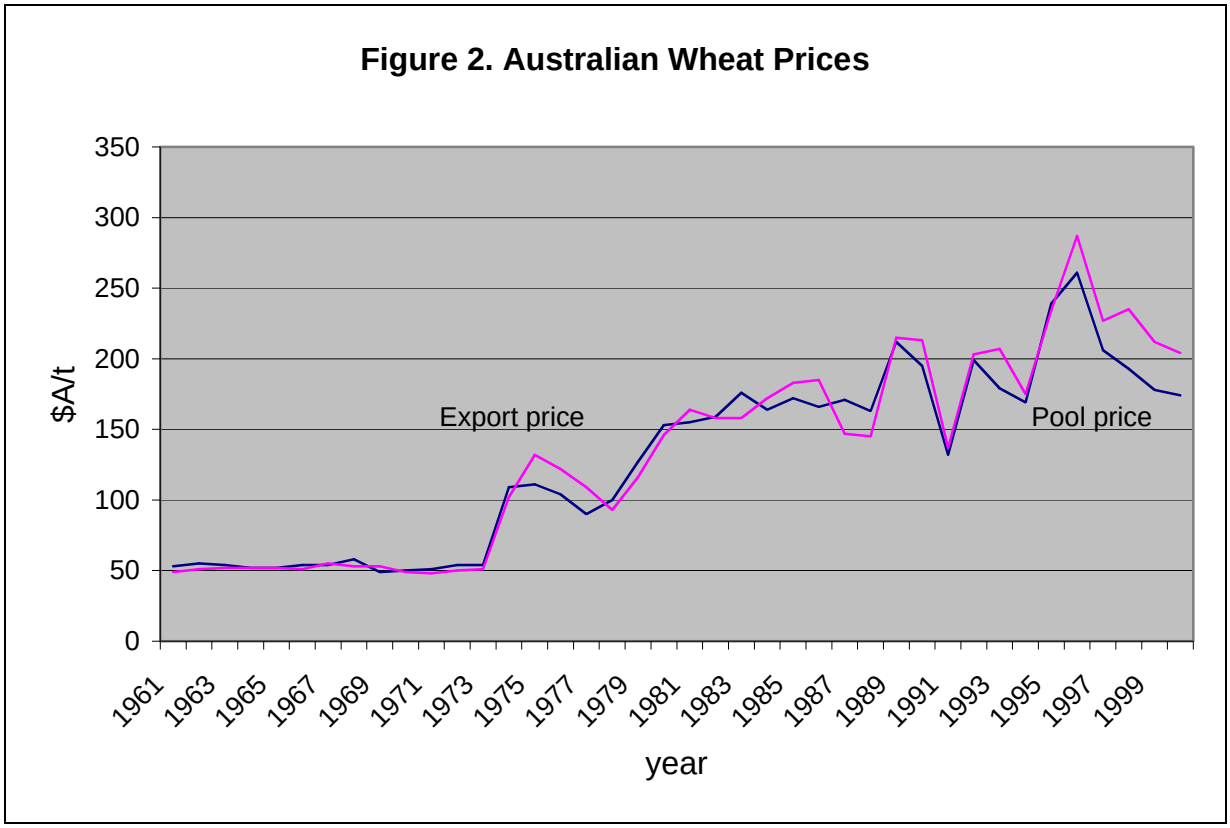

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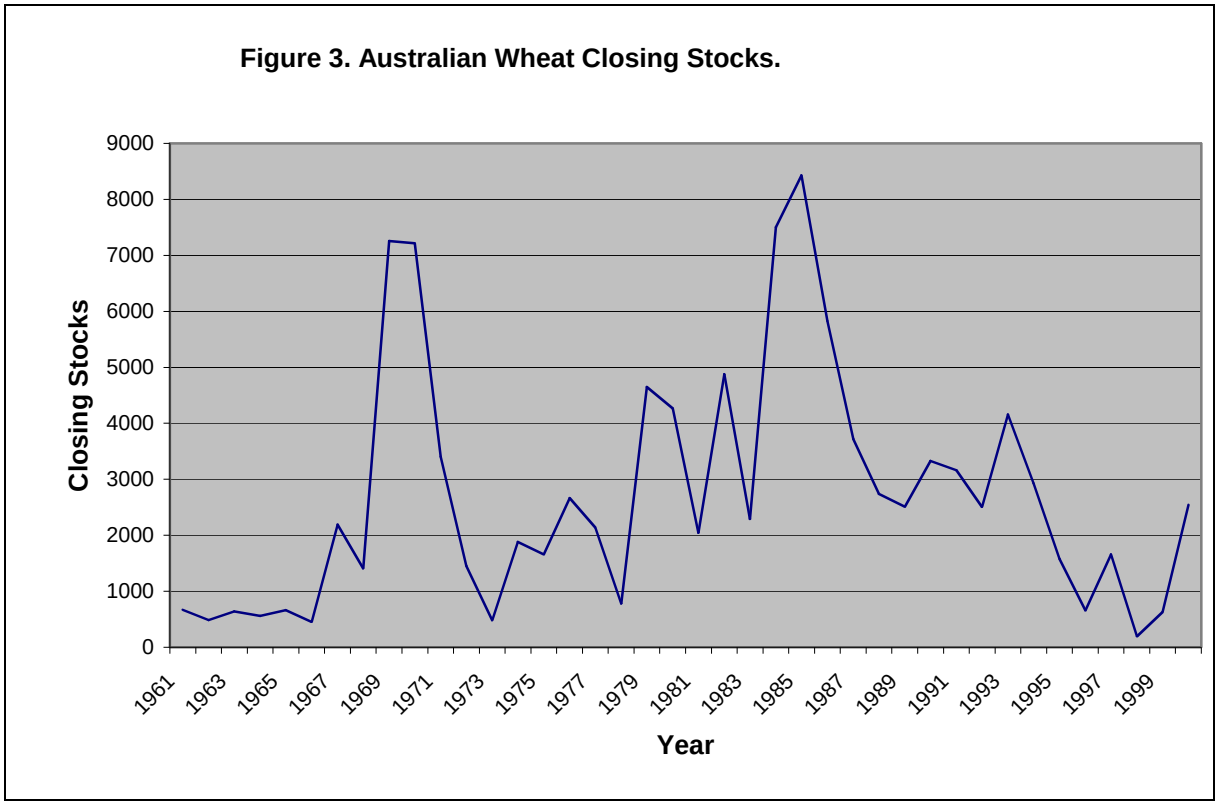

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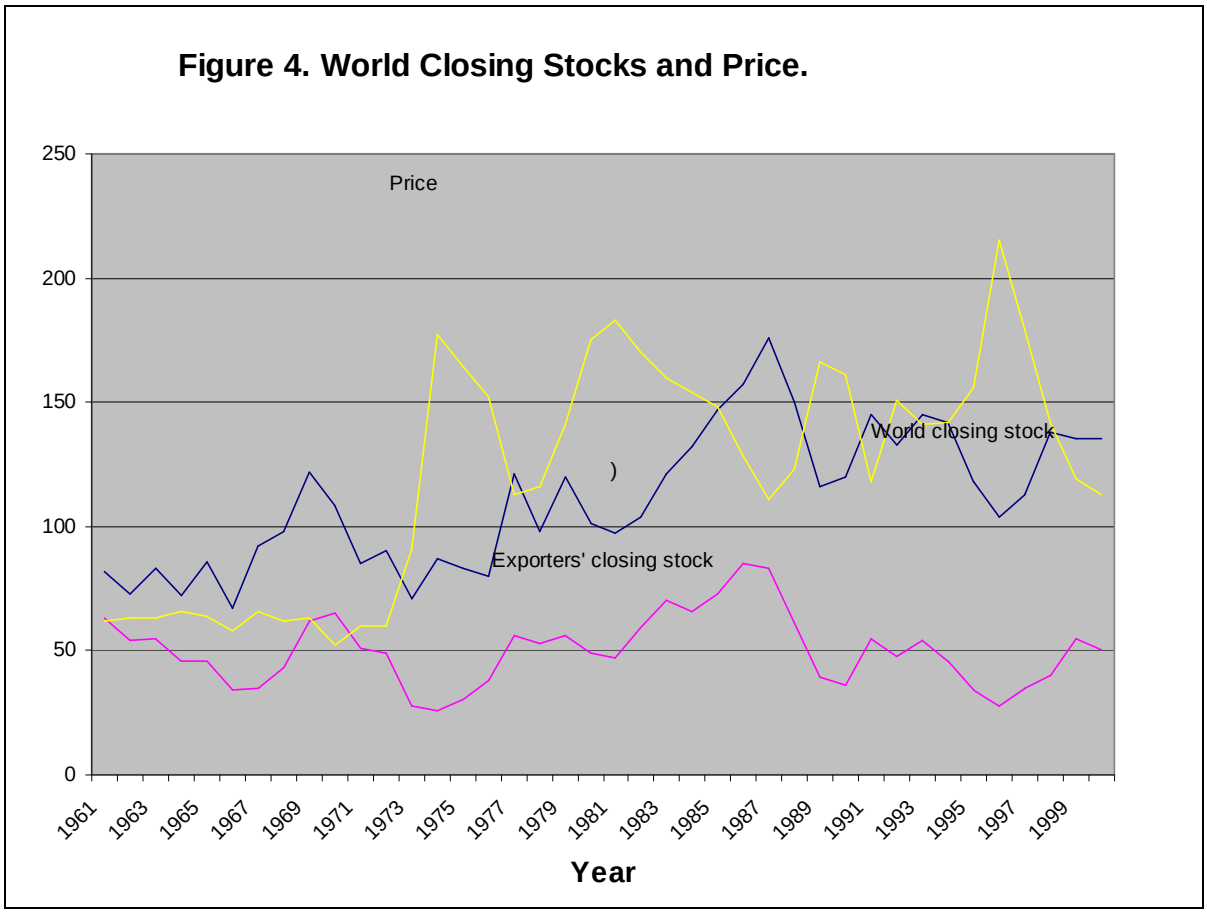

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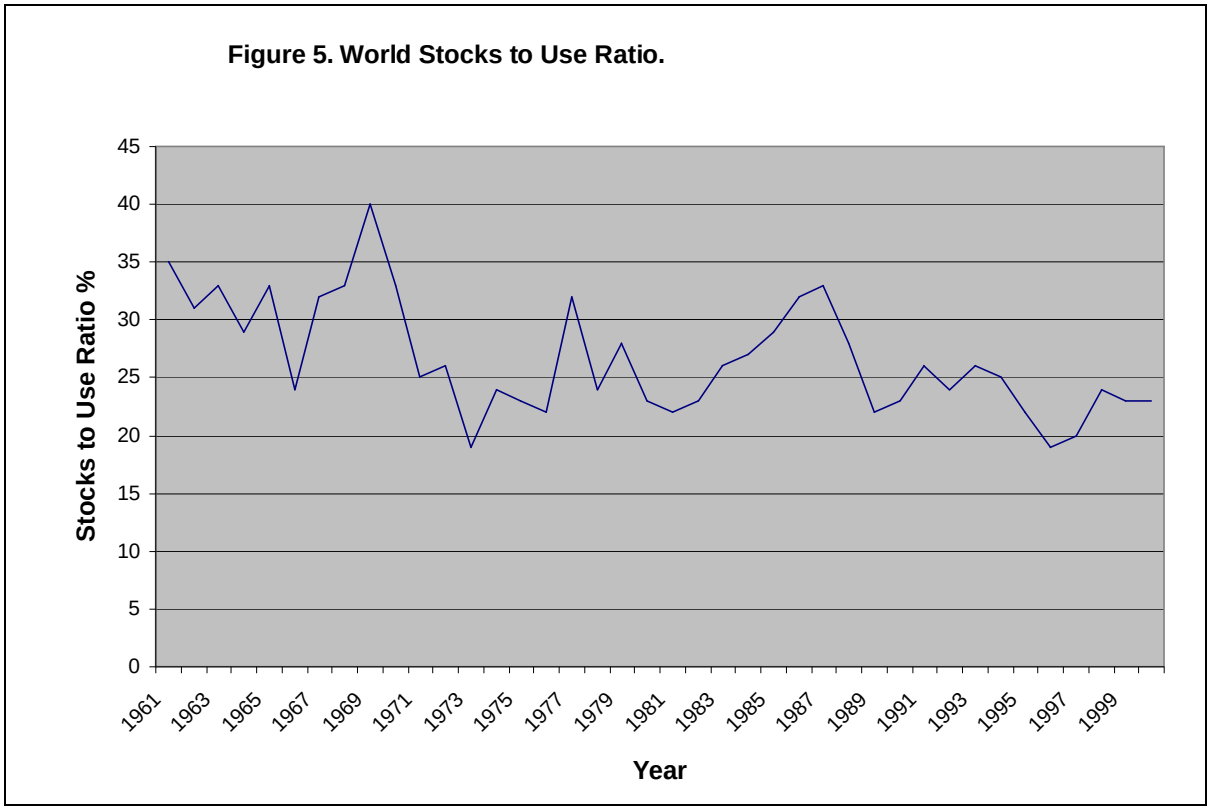

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