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Wheat Marketing and Trade: Further Issues for Research - a Comment on Ryan

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Ryan challenges agricultural economists to help overcome a number of vexed problems facing the Australian wheat industry. Previous attempts to analyse these problems have been inadequate largely because of their inability to integrate real-world market imperfections and dynamics. Accordingly, there may be considerable merit in pursuing an alternative research agenda which employs non-traditional theories, models and estimation methods. Several alternative frameworks including the sunk cost model and strategic trade policy are proposed to address the issues of single desk selling status of the Australian Wheat Board and the US Export Enhancement Program. Additional problems including product differentiation, value adding and liberalisation in importing countries are discussed prior to developing an alternative approach to estimating demand and supply elasticities.

1. Introduction

Ryan's paper provides an interesting and useful update of his 1984 address (Ryan 1984). His overview contains a number of intriguing and insightful research problems from a researcher's standpoint. It also raises several urgent policy issues facing the Australian wheat industry. Ryan challenges agricultural economists to deal with these issues and to suggest a structure which could optimally carry the industry into the 21st century. I wish to make an initial attempt to meet this challenge via re-specifying or identifying a number of more fundamental problems facing the wheat industry. I will also try to suggest pertinent analytical frameworks to address these issues.

2. Single Desk Selling

Although the Commonwealth Government has decided to maintain the AWB single desk selling status until 1999, there are still increasing pressures for deregulation of the export wheat industry. These pressures emanate from several sources:

- A major Government rationale for maintaining the AWB was to use it as the most potent

vehicle for countering the US-EC price war. However, the recent partially successful completion of the Uruguay Round of GATT negotiations is expected to result in a long-run reduction of subsidy levels which could put additional pressure on the Government to deregulate the export wheat industry.

- The Government has been in deregulation mode across all sectors of the economy including the financial, communications and airline industries as well as the domestic wheat market. Further, a change of Government would greatly enhance the chance of deregulation of the export wheat industry given the present Coalition's policy stance.
- There are quite a few national and international private grain traders, such as the Australian Grain Exporters Association, pushing for deregulation and the recent GATT agreement will provide them with additional ammunition to further their cause.
- Although there was strong grassroot support for the single desk selling status of the AWB during the 1992 debate, the States appeared to be divided. For instance, an overwhelming majority of NSW farmers were behind the AWB to stay as the sole exporter of wheat, while Queensland growers wanted to scrap the AWB as the sole export wheat marketing body (The Land 1992). These conflicting views cannot persist for a long time and will have to be settled in one way or another.

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It is against this background that the debate on the single desk selling status of the AWB continues to unfold. However, there does exist a paucity of rigorous cost-benefit analyses of the AWB single desk selling status. As noted by Ryan, the equilibrium displacement model employed by Piggott (1992) fails to make a compelling contribution to this debate because the assumptions of the model are inconsistent with the structure of the international wheat market and as such are implausible. While correct in rejecting this model, Ryan is incorrect in suggesting that the wheat market is contestable.

A contestable market is defined as a market where entry and exit are costless. Freedom of entry implies that an entrant suffers no disadvantage in terms of production technique or product quality relative to the incumbent firm (Baumol 1982). Exit is costless only when there are no sunk costs. However, Ryan's current analysis as well as his 1984 paper list a great many structural attributes of wheat marketing and trade which are all indicative of the presence of very high sunk costs. These include exporter concentration, market power, state trading and bargaining power. These structural variables are inconsistent with the underlying assumptions of the contestability theory.

Contestability was initially used as a cornerstone of support for airline deregulation. It relied heavily on the disciplining effect of potential competition. However, recent evidence suggests that, even in the case of the Australian airline industry, potential competition is no substitute for actual competition implying that sunk costs are highly significant (Ahmadi-Esfahani and Jensen 1994a). Accordingly, a more plausible model which could usefully serve as a framework for the analysis of the single desk selling status of the AWB; namely the sunk cost model is suggested.

According to this model (Sutton 1991), any marketing establishment must invest substantial resources in adapting its products to the market, in developing a marketing and distribution network, and in creating production capability especially geared to what domestic and international end users are willing to buy. These resources can be divided into two types of sunk costs: exogenous, which are

the set up costs of establishing the distribution network; and endogenous, including research and development and advertising costs. Certain advantages of economies of scale, scope, information and coordination will also be captured by this model. Brand names and reputation, loyalty-inducing market devices, price discrimination and dispersion, quality control and links to other industries (vertical integration) constitute the other key components of the model.

The existence of these two types of sunk costs supports a concentrated market structure. However, the degree of concentration depends on the level of these costs and the actual market size; the greater these costs relative to market size, the greater the degree of concentration and market power. The sunk cost model predicts that, *ceteris paribus*, stiffer competition leads to a more concentrated structure which would be consistent with the international wheat market containing a small number of participants. This prediction is the opposite of that implied by the contestability theory and would question the efficacy of deregulation in the presence of high sunk costs.

Within the context of this model, the major benefits of single desk selling are recognised as the increased market power from concentration and advantages of a wide variety of economies throughout all facets of the marketing channel (transport and storage, product promotion and quality control, research and development, reputation and long term agreements) with the end result being higher returns. On the other hand, the major costs of single desk selling include the reduced level of competition leading to inefficiencies by decreasing the incentive for market innovation. The end result of this may be lower returns from exports to producers and higher prices for the domestic purchasing firms and consumers.

Like many other economic questions, the issue of single desk selling is clearly an empirical one and requires much more solid and rigorous analysis and evidence than is provided by Ryan in his paper. Perhaps as a starting point, research into the outcome of deregulation of the domestic wheat industry should be undertaken. Although the evidence is still thin, very rewarding lessons for the future

structure of the industry, and more broadly for the optimality of deregulation, could be drawn from such an investigation. The sunk cost model may also provide a plausible framework for this research.

3. US Export Enhancement Program as a Strategic Trade Policy

Despite the pivotal importance of the US Export Enhancement Program (EEP), Ryan devotes only a small section of his analysis to this issue. His main argument is that the EEP and the US-EC price war have given rise to a constellation of prices depending on country of origin, types of wheat, preferences and political considerations. While this observation is correct, it does not stimulate further thinking on the forces underlying the introduction of export subsidies and, in particular, the EEP.

Recent research (Ahmadi-Esfahani 1993; Ahmadi-Esfahani and Jensen 1994b) measuring the impact of the US-EC price war on market shares in Egypt and China indicates that the United States has been able to improve its position in these important markets since the introduction of the EEP in 1985. However, despite its traditionally strong position in Egypt and China, Australia has been hampered by the price war in both markets. The fact that the EEP wheat sales have enabled the United States to outperform other exporters in key markets implies that targeted export subsidies may have emerged as a more important force than comparative advantage. It follows that the United States may, in fact, have gained a competitive advantage in the world wheat trade. The sale of subsidised US wheat to non-traditional markets such as Indonesia may also indicate that the EEP is simply a glorified subsidy package and not a retaliatory response as claimed by the United States. In other words, the EEP may have been used to mask the US intention to offer across-the-board subsidies in a manner similar to the European Community. In that case, the EEP may provide the United States with a special export outlet for surplus domestic production which would have otherwise depressed domestic prices and provided a burden on storage facilities (Ahmadi-Esfahani and Locke 1994). Accordingly, the

US-EC price war may be argued to constitute a by-product of domestic structural surplus problems in the United States and the European Community.

According to Krugman (1987), there are two fundamental criteria based on which export subsidies make economic sense. The first is that export subsidies may be used to secure a larger share of rent in international markets and the second is that export subsidies may be used to achieve more external economies. These criteria constitute the key components of the new trade theory or strategic trade policy. The EEP appears to be consistent with this theory.

Prior to 1985, the US farm support program was not flexible enough to respond immediately to price cutting by competitors. Increased sales by other wheat exporters including Australia came at the expense of US market share. The EEP has effectively put an end to this situation. It has intensified foreign competition in various markets and placed added pressure on the European Community and all other wheat exporting nations. As indicated earlier, the single desk selling status of the AWB is being maintained as a response to the EEP and the US-EC price war. In a more aggressive move, Canada recently introduced two multi-billion dollar income support programs - the Gross Revenue Insurance Program and the Net Income Stabilisation Account - which are effectively used as implicit export subsidies for grain farmers. In addition to losing market share, Australia has also received lower premiums for certain quality characteristics of its wheat. In a recent study of ten of Australia's major export markets (Ahmadi-Esfahani and Stanmore 1993), it was found that for the period 1984-87 there were fourteen significant quality characteristics that received a premium, while for the period 1988-91 there were only five significant quality characteristics. Also, the premiums for four of the five quality characteristics were smaller in the latter period. This implies that the AWB had to accept much lower payments for quality partly as a result of the US-EC price war. The European Community may well be able to continue to cope with increased export restitution in the future, but for Australia and Canada which rely more heavily on wheat exports, the lower prices will have an adverse effect on the structure

of wheat production and the viability of the industry.

The availability of subsidised wheat has shifted the demand for US wheat and forced wheat producers in many developing countries off the land. Several of these countries are now solely dependent on imported US wheat which has obvious benefits for the United States. Similar to an import or consumption subsidy pursued by some of these countries, the EEP has reduced internal prices resulting in expansion of domestic consumption and imports. From a strategic standpoint, the introduction of the EEP may also be considered a sunk cost to gain a foothold in non-US markets. The EEP can be justified on economic grounds if new customers are attracted who might then become regular buyers at market prices. The EEP is thus a loyalty-inducing market device which has effectively eroded the chances of competing exporters such as Australia and Canada to enter into long-term agreements with developing countries.

As postulated by Krugman (1987), export subsidies can also make economic sense if they generate valuable external economies. In the case of the EEP, obvious benefits are obtained by the input, marketing services and processing industries which rely heavily on the wheat industry. In particular, as the grain trade gets its margin on every tonne regardless of price, volume increases lead to higher profits for this sector. In fact, it might not be in the interests of this sector to increase the international price of wheat if it led to more importing nations enhancing their domestic production and marketing capacities. National food self-sufficiency policies of developing countries directly threaten the interests of the wheat trade and have been structurally undermined by the EEP.

Similarly, the US economy could potentially benefit from the trade of other products to the particular markets targeted under the EEP. The increased foreign consumer surplus in wheat will allow the importing nation to have more flexibility in purchasing other US agricultural and/or non-agricultural products. There may also be political benefits for the United States through improved trade rela-

tions as the supply of cheap wheat may encourage the importing nation to look favourably upon the United States in non-economic matters. As such, the EEP appears to be an effective foreign policy tool for the United States. The EEP has also strengthened US bargaining power in the Uruguay Round of GATT negotiations and has been used to win concessions from the European Community (Libby 1992) and other major agricultural exporters. More generally, the EEP has contributed to the United States emerging as a significant balancing force in international trade conflicts. This provides additional evidence as to how the EEP is being used as a strategic trade policy to serve political ends.

It is, therefore, reasonable to assume that the EEP may have yielded large benefits to the United States. However, citing Anania *et al.* (1992), Ryan supports the view that the EEP has failed to meet its objectives. As is common for most of agricultural trade research, Anania *et al.* used a partial equilibrium model to evaluate the EEP as a strategic trade policy. This approach lacks the capacities required by the new trade theory and is thus highly inappropriate. The most obvious failing of this approach is the assumptions of perfect competition based on which export subsidies are beggar-thyself and help-thy-neighbour policies. In addition, this approach suppresses interactions among commodities and industries that are actually linked together by substitution, complementarity and competition. Thus, external economies cannot be captured. The approach is also static and cannot consider dynamic economies of scale which are so important in the analysis of a strategic trade policy. Nor can it capture the dynamics of the supply, demand, and other competitors' response functions.

The new trade theory, on the contrary, explains why export subsidies may be rational on national welfare maximisation grounds, and why countries become trapped in a Prisoner's Dilemma when they all introduce these subsidies. To develop operational criteria for evaluating targeted export subsidies, we need to design models with adequate capacities to address the underlying concerns of the new trade theory (Krugman 1986, 1987). That is,

- In a world of continually changing comparative advantages, should a large exporting nation meet targeting with counter-targeting; or should it allow foreign governments to distort its economic structure?
- Would export subsidies help to make the targeted industry more competitive in the future?
- Are there important linkage sectors in the sense that their output is in turn used as an input by a number of other sectors?
- Are export subsidies helping to shift the structure of the national economy into high-valued industries at other countries' expense?

The task of developing such models may not be hopeless but is not simple and needs to go far beyond the naive spatial equilibrium model used by Anania *et al.* (1992). The above observations call for a general equilibrium model with supporting submodels reflecting non-cooperative and dynamic games which is yet to be built. This is one of the most challenging tasks facing the profession. In the meantime, however, the Australian wheat industry should treat the EEP as a policy which is to stay for a long time and design more aggressive countering strategies to defend export markets. The industry cannot and should not compromise its competitive position in international markets if it is to grow.

4. Demand and Supply Considerations

Regardless of the degree of distortion in wheat marketing and trade, what matters eventually is the nature of the demand for and supply of wheat. It is, therefore, important to take a closer look at a number of central components of these forces and identify additional research problems.

4.1 Product Differentiation

Ryan highlights the main attributes of Australian wheat as being clean, dry and white and argues that these attributes together with a high degree of em-

phasis on customer relationships and meeting the requirements of end users will enhance market access and price. Clearly, Australia's reputation for quality and perhaps service provides some degree of product differentiation leading to separation of Australian wheat from competing wheats. However, the extent of this separation is probably narrow. Given the continued dominance of the United States in wheat trade, it appears that the size of the US crop and the magnitude of export subsidies offered by the United States and the European Community are the main factors influencing the demand for Australian wheat. If there were only a single wheat exporter - for example, Australia - this demand curve would be the market demand curve implying that Australia's degree of monopoly power would depend completely on the elasticity of market demand. In wheat trade, however, an oligopolistic structure exists and large exports of US (and EC) wheats would virtually eliminate any perceived economic rent from Australian quality premiums and would intensify competition among sellers in markets for wheat of average quality, that is, subsidised wheat (Ahmadi-Esfahani and Stanmore 1992). The fact that a significant downward trend in the payments for quality characteristics of Australian wheat has been observed (Ahmadi-Esfahani and Stanmore 1993) supports this proposition and implies that Australia should adopt a portfolio approach to international wheat marketing in order to take advantage of both its competitive and comparative advantages. Australia's comparative advantage still lies in the production of bulk undifferentiated wheat the international demand for which is increasing. Australia may gain by concentrating on producing lower quality higher yielding wheat varieties such as red wheat. This expands the portfolio of wheats supplied by Australia and may prove to be an effective strategic move to enhance competitiveness. This suggestion invites immediate examination of varietal licensing standards and deregulation of the existing impediments to the introduction of lower quality higher yielding cultivars. Brennan *et al.* (1989) have found that there are potential gains to Australia from the production of these varieties. This finding is similar to that obtained for Canada (Carter *et al.* 1986).

4.2 Value Adding

The involvement of the AWB in joint ventures in China or possibly Iran is not what is usually meant by value adding. By definition, value adding is the value of a firm's output minus the value of inputs that the firm purchases elsewhere. Accordingly, value adding requires a careful investigation of the industrial organisation of the input and output markets. The AWB has the mandate to make strategic investment in this area of importance to the entire grains economy but has shied away from any serious commitment. Is it beneficial for the Australia wheat industry to be involved in value adding (domestic and/or overseas) or not? Preliminary research (Ahmadi-Esfahani and Jensen 1994c) indicates that there are significant barriers to the development of an efficient wheat processing industry in Australia. These barriers include high concentration in the processing market, limited access to shelf-space in retail outlets and high levels of advertising for processed wheat products such as breakfast cereals and biscuits. The wheat processing market does not seem to be contestable. There also exists a reasonable degree of two-way flows in processed wheat products which may be indicative of intra-firm trade. As a result, the growth of the Australian wheat processing sector seems to be constrained by strategic responses of rival foreign and domestic firms rather than by profit opportunities open to any potential entrants. These conditions, coupled with high labour, energy and capital costs and the small size of the Australian market, suggest that large expansions in wheat processing activities are unlikely in the near future. However, because of its dominance in the domestic market and its monopoly in the export market, the AWB may potentially succeed in this environment. It is, therefore, important for the AWB to place immediate research into value adding opportunities on its agenda and to settle it urgently. The industry cannot afford to remain confused about this issue.

4.3 Liberalisation in Importing Countries

Although the emergence of new wheat exporters such as Saudi Arabia and Turkey is acknowledged in Ryan's paper, very little is said about the significance of the move toward privatisation in an in-

creasing number of importing nations including South Korea, the Philippines, Israel, Yemen, Egypt, Morocco, Tunisia, Algeria, Mexico, Brazil, Ecuador, Russia and several Eastern European countries. This move is likely to result in stiffer competition in the 1990s. Given the significance of multinational trading firms such as Cargill and Continental in world wheat trade and their short-run profit motivations as well as their interest in price changes rather than absolute price levels, they may effectively become the main beneficiaries of this enhanced competition. Major wheat importers, such as Japan, may also be able to exert a larger degree of monopsony power in the resulting buyers' market, augmenting their benefits substantially. Given that Australia is only a fringe supplier, these developments may lead to further erosion of its share of international markets. Accordingly, these changes should be closely monitored and pertinent policies to offset their negative effects will need to be developed.

4.4 Estimation of Elasticities

None of the previous issues could presumably be addressed properly unless the underlying elasticities of demand and supply are estimated. A wide range of elasticities have been reported in the literature depending on the location on the demand or supply curve, the price series used (farmgate, fob, cif, etc), the market area covered and the time period used, the degree of product aggregation and the data sample utilised. In concentrated markets such as grains, the commercial sensitivity and confidentiality of data makes any estimation of elasticities practically impossible. Additionally, the data may not be available because of the high cost of compiling them. I have had the privilege of obtaining contract data from the AWB to estimate premiums and discounts for Australian wheat quality characteristics (Ahmadi-Esfahani and Stanmore 1993) and I thank Ryan for approving the release of such data and the publication of the results. However, no robust estimates of elasticities of demand for and supply of wheat are currently available implying that many of the thorny issues facing the industry may have to remain unresolved. This approach to economic research may not be productive and other alternatives should be developed. A

plausible alternative is to examine various policies and support programs in an ad hoc manner and to see how they have impacted on the volumes of trade. For instance, the fact that the EEP has enabled the United States to gain market share implies high elasticities of demand in the relevant import markets. There does not need to be any comprehensive econometric analysis undertaken to arrive at such a conclusion. I believe that this is a very efficient way of handling data problems and resolving policy debate in the wheat industry. The approach, however, requires clear thinking, economic theory and intuition, and should be used extensively by the researchers, practitioners and policy-makers involved in the wheat industry as well as other industries.

5. Conclusion

The overriding conclusion emerging from this analysis is that the traditional theories, models and estimation methods are incapable of providing effective approaches to the problems facing the Australian wheat industry. Accordingly, an alternative research agenda is developed in this paper; an agenda which reiterates some of Ryan's concerns but which yields a more aggressive and innovative wheat marketing and trade policy portfolio. This agenda may potentially assist the Australian wheat industry in enhancing its competitiveness and future growth.

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