Attachment 5

An Assessment of the economic value of the Export Control Act to the Australian beef and dairy industries

Report prepared for the Australian Quarantine Inspection Service

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Background

The objective in this report is to assess the economic value to the Australian beef and dairy industries under the current administrative or legislative arrangements of the *Export Control Act* by simulating the likely losses in industry revenue that might flow from a disruption to a major export market for each commodity as a result of either:

- an hypothesised easing of the ECA; or
- an hypothesised complete annulment of the ECA.

A disruption to trade with another country may arise for example because a foreign government refuses to accept any alteration to the current arrangements or because of a health or quality problem arises with a product subsequent to a change in the ECA. The analysis reported here provides an indication of the likely gross revenue effect for each commodity during the year in which the disruptions are simulated. The results are for the Committee's deliberations and review of the comparative costs and benefits of existing and alternative approaches to controlling food exports (such as industry self-regulation and government-industry co-regulation) under the ECA.

Method of analysis

A conventional *ex ante* cost-benefit analysis involving the discounting of expected future streams of economic benefits and costs over a specified planning horizon would have proven too difficult and time consuming for the purposes of this Review. Instead, it was decided a single year analysis (1999 for beef and 1998/1999 for dairy) would yield more meaningful results. It was also felt that a single year analysis would better facilitate any subsequent comparison with the likely economic benefits and costs under any specifically defined alternative control regime that the Committee might subsequently prescribe.

For the analysis, the *AGLINK* model was used to estimate the separate impacts of a disruption to a major beef and dairy export market. Of particular interest are the possible gross revenue effects for both industries.

Structure of the AGLINK model

The AGLINK model is a dynamic economic model of the world's major temperate zone agricultural commodity markets which, for obvious reasons, includes agricultural commodities of most importance to the member countries of the OECD.

AGLINK encompasses demand, supply, trade and price determination on an annual basis for as many as 27 commodities for each of 22 countries or regions, such as the European Union. The model contains detailed representations of the ten major agricultural producing and trading countries or groups of countries within the OECD (Australia, Canada, European Union, Japan, Republic of Korea, Mexico, New Zealand, United States, Poland and Hungary), as well as a complete agricultural sector module for China and Argentina. It also has a rice module that includes Asian countries as well as representations of the beef sector in Mercosur countries and countries in Asia that are important for the world beef market.

Trade flows between countries and regions provide the link between developments in each commodity market as well among the countries and regions. These trade flows are determined by price movements as well as policies like tariff rate quotas (TRQ) and production and export subsidies that are relevant to the agricultural sector in each particular country or region. As a result of the modeling approach, AGLINK contains individual price determination for beef, pork, poultry meat, cheese, butter, skim milk powder, wheat, coarse grains, oilseeds, oilseed meal, vegetable oil and rice in each of the major agricultural producing countries and regions of the world.

Another feature of the model is that the parameters affecting livestock production are explicitly time-dimensional and reflect the detailed modeling of the dynamic behavior of livestock inventories and animal production. In an effort to capture changes in Australia's livestock industries in recent years, ABARE has recently completed a major exercise to update the suite of models covering livestock production in Australia. The industries covered to date include beef, wool, sheep meat and dairy. To ensure consistency across all broadacre industries, ABARE has also updated its model of Australia's cropping sector. These updated models have been used to produce the projections reported here.

The OECD Secretariat uses the information generated from AGLINK to prepare reports presenting outlook assessments for cereals, oilseeds and livestock products. The reports are discussed at the annual meetings of the Working Group on Meat and Dairy Products and the Working Group on Cereals, Animal Feeds and Sugar of the OECD Committee for Agriculture. The model is also used by the Secretariat and member countries to assist in policy analysis.

Conditioning assumptions for the analysis

To conduct the market closure scenarios, a baseline simulation was first generated using *AGLINK* in which the projections for Australia's meat, dairy and cropping industries published in the latest edition of *Australian Commodities* (ABARE 1999) were replicated. The baseline simulation provides a reference point with which to compare the alternative simulations of market closure for beef and dairy exports.

For the beef industry the reference point chosen was calendar year 1999 while for dairy the reference year was 1998-99. The projections published in *Australian Commodities* are based on a number of assumptions about the Australian and world economies which are also reported in that publication. In the baseline it is estimated that Australia's beef exports to the US will reach

405 kt dressed weight and account for nearly 32 per cent of total export shipments. For dairy, it is projected that Japan will account for nearly 46 per cent of total cheese exports and around 7 per cent of Australia's skim milk powder exports.

To examine the impact of the loss of these markets, separate alternative simulations were generated assuming that Australia lost access to these export markets for a period of one year. Although it may be argued that closure of these markets for a year may be unlikely, the period assumed simply reflects that *AGLINK* is an annual model. In economic terms, the implication of the loss of these major export markets is a significant fall in demand for the particular products.

It should be noted that the results of the analysis must be considered as *indicative only* because of the considerable uncertainties that exist. For example, the incentive for producers to adjust to lower demand depends amongst other things, on the length of time that market access is expected to be restricted. Beef producers may actually reduce the slaughter of breeding cows if they believe the disruption is only temporary so that when the restrictions are lifted they can respond to higher prices by increasing production. This contrasts with the more typical response to reduced prices assumed in the present analysis which is to increase cow slaughter now to reduce production in future periods.

Also uncertain is the reaction of consumers in both the domestic market and other export markets. Any reaction in these markets would in part depend on the reason for the original closure. For the analysis reported here however, it is assumed that demand in all other markets is unaffected by the closure of the selected market and that no new markets are found to replace that which has withdrawn access. Rather than finding alternative export markets, it is assumed here that the fall in the price arising from the closure of a specific export market results in greater export shipments to other existing markets as well as increased domestic consumption.

Results of the loss of market access

Estimated impact of a closure of the US Beef market

The estimated impacts of the removal of access to the US beef market for one year are presented in table 1. As a consequence of the closure of the US beef market, it is estimated that the gross value of production in the beef industry could fall by around $1.1 billion dollars. The main reason for the fall is the lower price that beef producers receive for grass fed cattle, the type of beef exported to the US.

Although the number of cattle on feed and fed cattle production rise in response to the lower price of feeder calves, cattle slaughter in total falls slightly. While cow–calf producers increase slaughter in response to the lower price, more steers are retained on farm instead of being turned off. This, together with lower slaughter weights, results in beef production falling by around 130 kt.

The loss of the US market and subsequent fall in the beef price also leads to the diversion of some beef to both the domestic market and to the other export destinations. Domestic consumption increases by around 100 kt in response to the lower price of beef. Lower beef prices also result in a rise in beef shipments to other markets so that total exports are estimated to fall by around 240 kt even though the loss in beef exports to the US market exceeds 400 kt..

While the cattle herd is estimated to contract by around 600 000 as a result of the closure of the US market, the sheep flock is estimated to expand by more than 500 000 head as producers move resources into what are now relatively more profitable enterprises. Although wool production does not respond significantly in the first year, it would rise in subsequent periods. Lamb production however, does respond immediately although the increase in production is relatively small. Increased competition from lower beef prices reduces the demand for lamb and as a result, the saleyard price of lamb falls. As a result the gross value of sheep industry output falls by $50 million with lower lamb prices more than outweighing the effect of larger production.

Lower beef prices are also expected to result in some shift of resources into cropping in the year after the closure (2000-2001) if producers expected access to the US beef market to be continued to be withheld. The estimated $60 million increase in the gross value of crop production that is estimated to occur would offset the decline in the gross value of sheep industry production in the year of the assumed closure of the US beef market.

Estimated impact of a closure of the Japanese cheese and skim milk powder export markets

The estimated impacts of the removal of access to the Japanese cheese and skim milk powder markets for one year are presented in table 2. As a consequence of the closure of the Japanese dairy markets, it is estimated that the gross value of production in the dairy industry could fall by around $400 million. The most significant factor determining this is the lower price received for dairy products, particularly cheese and skim milk powder. Amongst the bulk manufactured products, both cheese and skim milk powder are currently receiving relatively high returns.

Even though dairy farmers are not expected to respond to the resulting 5 cents per litre fall in the manufacturing milk price in the first year, dairy product manufacturers are estimated to adjust their output mix to reflect the change in the relative value of the various products. In response to the fall in the price of cheese, cheese production is estimated to fall by 14 kt. With lower prices, domestic consumption rises and some product lost to the Japanese market is diverted to other export markets. As a result, cheese exports in total are projected to fall by around 50 kt, despite the loss of the 77kt Japanese market. Even though cheese is diverted to other markets, returns to the dairy industry from cheese production are estimated to fall significantly.

The reduction in cheese prices also results in milk being diverted away from cheese production into other dairy products, such as fresh dairy manufactured products like ice cream and yoghurt as well as whole milk powder and butter. The diversion of extra milk to butter production also leads to a minimal increase in the output of the joint product, skim milk powder.

With lower prices for all dairy products, domestic consumption of each rises. Whole milk powder and butter exports also rise slightly and the lower price of skim milk powder allows most of the loss in exports to japan to be diverted to other markets