

**MAJOR TRENDS AFFECTING  
AUSTRALIA'S AGRICULTURAL INDUSTRIES**

by  
**P. Riethmuller**

No. 3  
November 1998

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**MAJOR TRENDS AFFECTING AUSTRALIA'S AGRICULTURAL INDUSTRIES:  
HAVE THEY TAKEN A TURN FOR THE WORSE?**

Paul Riethmuller

Department of Economics  
The University of Queensland  
Brisbane Qld 4072  
Australia

November 1998

*Economic Issues: No 3*

ISSN 1441-2780

This paper is based upon a talk presented to the Food and Agricultural Policy Research Centre, 17 July 1998, Tokyo. The research was conducted while he was an professor/research fellow in the Department of Agricultural and Resource Economics, University of Tokyo, Japan. I am grateful to Professor T. Odagiri of Tokyo University and Mr Denis Gastin of Instate Pty Ltd for their comments on an earlier draft of this paper. Any errors are my own.

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# MAJOR TRENDS AFFECTING AUSTRALIA'S AGRICULTURAL INDUSTRIES: HAVE THEY TAKEN A TURN FOR THE WORSE?

## Abstract

As this decade draws to a close, the environment in which Australia's rural industries operate continues to change. Internationally, markets in countries such as Indonesia, Korea and Malaysia are now much more uncertain than they were a year or two ago because of the economic problems that face these countries. In Australia, markets are also changing, not because of an economic crisis, but because of consumer concerns about health. Removal of government intervention in agriculture is still underway as the government pursues the level playing field. At the same time, farm returns remain variable and poor relative to those earned in some other parts of the economy. This paper examines these and other developments that are influencing the rural sector.

## Introduction

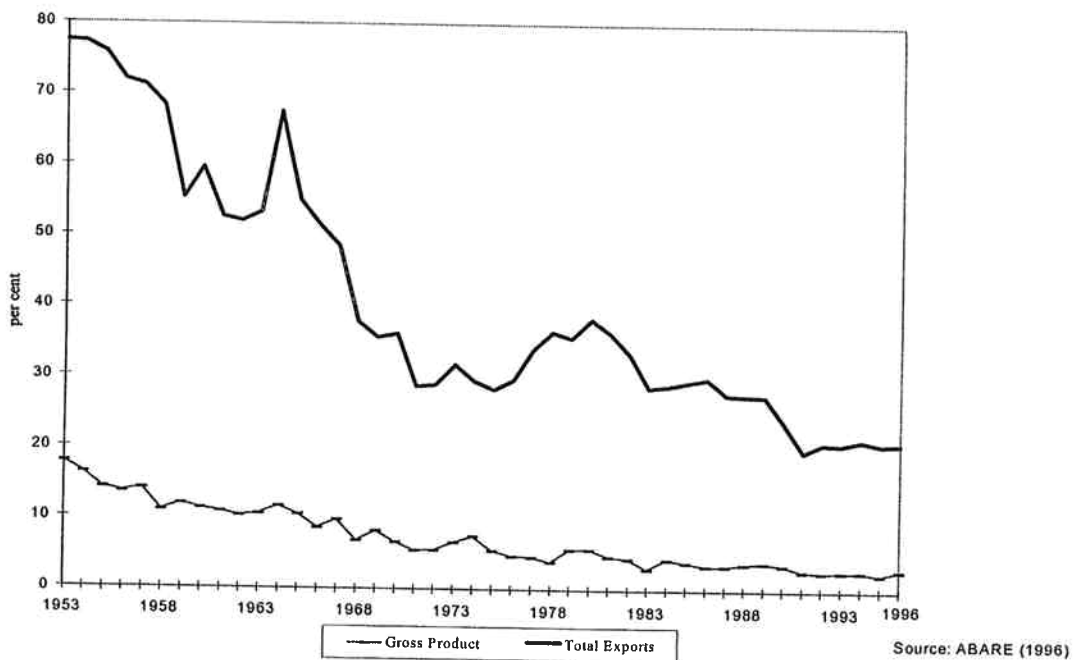
This paper discusses the main trends that have been occurring in Australia's agricultural industries. Most of these are not short term, but rather they have been emerged in recent years. Further, it is likely they will continue to influence Australia's agriculture for many years. It is useful to classify the trends into four general areas. The classification is somewhat arbitrary since a number of these trends are interrelated.

- Macro trends are those that reflect the broad industry-wide and economy-wide changes – they are not restricted to particular industries. These trends include the reduced role of agriculture in the economy, as indicated by such measures as share of gross product and contribution to export earnings.
- On farm trends are those occurring at the farm level. Low and variable returns – at least for the average farmers - and a continuing decline in farm numbers are examples of these farm level trends.
- Consumer and marketing trends are those reflecting changes in consumers' behaviour both in Australia and in other countries. New products, more value adding, changes in diets and eating habits are examples
- Environmental and technological trends include the development of new telecommunication technologies and computers, and an increased emphasis by policy makers on markets for dealing with environmental issues.

## I Macro Trends

*Agriculture's importance to the Australian economy will - superficially at least - continue to decline*

Agricultural industries represented 3% of Australia's gross product in 1995-96, and 20.9% of Australia's merchandise exports. Both of these represent substantial decreases from the early 1950s when Australia "rode on the sheep's back" Then the farm sector made up about one sixth of Australia's national product and over three quarters of Australia's merchandise exports (Figure 1).



**Figure 1 Farm sector's contribution to Australia's gross product and total exports**

The decline in relative importance of agriculture shown in Figure 1 is repeated for agriculture's share of direct employment. It too has fallen over the last 30 years, from 9.5% in 1963-64 to 4.5% in 1995-96. The reduced importance of agriculture to the economy implied by these indicators means that its representatives are finding it increasingly difficult to influence government on policy issues or to argue for special treatment from government, except in dealing with natural calamities or sudden and unexpected changes in the economic environment. However, in reality, agriculture's importance is greater than the data just presented indicate.

- It is an extremely important industry for many regions. For example, many coastal towns in north Queensland are almost entirely dependent upon the sugar industry, while the sparsely populated Northern Territory relies heavily upon the beef industry.
- Manufacturers transform a substantial part of Australia's agricultural production into goods for consumption by households or other industries, or for export. Since 1977-78, food manufacturing's share of total manufacturing production has varied from a high of 15.3% in 1977-78 to a low of 13.5% in 1988-89. Beginning in 1988-89, food manufacturing grew faster than manufacturing overall so that its share of manufacturing production in 1995-96 was 15%.
- Of all the Food, Beverage and Tobacco manufacturers, 16% of turnover and 14% of employment was in establishments that export more than half of their goods produced, while 41% of turnover and 34% of employment was in establishments that export up to half of their goods.
- In the retailing industry, food retail turnover represents nearly A\$4 500 million per month (in current prices) or about 36% of retail turnover. (This figure represents sales of imported food as well as Australian produced food.)

### *Social and demographic changes in rural Australia*

Australia's rural population has remained relatively stable at around two million people for over 50 years. Australia is a highly urbanised country, with the majority of its 18.3 million people living in the capital cities and in regional centres located on the seaboard. While it is true that some people are moving from urban areas to rural areas, for many of these the move is motivated by lower living costs in rural areas rather than better employment opportunities. Retirees or the unemployed are likely to be the main groups moving away from the cities and they usually go to coastal areas. Around the major cities, there has also been a growth in hobby farms or weekenders. The migration of young people from rural areas is quite a serious problem because it erodes the taxation base of communities from which the young have migrated and it also represents a loss of the communities' capital embodied in the young people moving away. The population loss leads to a decline in infrastructure, such as medical facilities, and recreation facilities. As a result, some rural areas have become caught in a declining spiral.

There has been some government initiatives to reverse this trend. For example, in its May 1998 budget, the Australian government introduced a program designed to retrain to Australian standards foreign-trained medical practitioners on the condition they work in rural areas. This is seen as a way of guaranteeing medical services to rural areas. Nonetheless, agencies such as the Catholic Social Welfare Commission (ABC 1998a) and the charity organisation the St Vincent de Paul Society (ABC 1988b) has criticised government for not doing enough for rural Australia. Some farmer representatives have claimed that government policies (favouring deregulation) are destroying the fabric of rural Australia (Gorrie 1998). The electoral success of the One Nation political party in the June 1998 Queensland election has been attributed by some commentators to the problems experienced by rural communities, and the perception of those living in these communities that the mainstream political parties have ignored them.

### *Agriculture can expect little assistance from government*

Government assistance to agriculture has been progressively wound back. The Industry Commission, the body responsible for the design and analysis of industry policies, uses two measures to monitor assistance to industries:

- the nominal rate of assistance on output - this is the percentage by which government assistance allows the average gross return per unit of output to increase, relative to some hypothetical situation of no assistance, and
- the effective rate of assistance - the percentage increase in returns to an activity's value added per output, relative to a hypothetical situation of no assistance.

According to the Industry Commission, the effective rate of assistance given to agriculture was 11% in 1994-95, compared with 9% for manufacturing. The average nominal rates of assistance to the two sectors were 3% in 1994-95 for agriculture and 5% for manufacturing in 1995-96. Unlike manufacturing, where around 95% of manufacturing output are assisted by tariffs<sup>1</sup>, tariffs have not been a major form of assistance for Australian agriculture. Rather, most of the government intervention has come through pricing arrangements such as the wool industry's reserve price scheme, the home consumption pricing arrangements for the wheat

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<sup>1</sup> As a result of the tariff reform program that ran from March 1991 until July 1996, generally these are no more than 5%.



industry, or the price pooling arrangements used in a number of horticultural industries and in the dairy industry. To a large degree, most of these interventions have been removed, or are in the process of being removed. This is apparent from Table 1 and Table A1 in the appendix. The first table summarises the assistance to agriculture by form while the second shows major changes in government policies for agriculture since 1970.

**Table 1 Assistance to agriculture by form, 1990-91 to 1994-95**

| Form of assistance                            | 1990-91<br>(\$ m.) | 1991-92<br>(\$m) | 1992-93<br>(\$m.) | 1993-94<br>(\$m.) | 1994-95<br>(\$m.) |
|---|--------------------|------------------|-------------------|-------------------|-------------------|
| <b>Assistance to outputs</b>                  |                    |                  |                   |                   |                   |
| Domestic pricing arrangements <sup>(a)</sup>  | 445                | 450              | 382               | 505               | 556               |
| Tariffs                                       | 29                 | 33               | 28                | 30                | 26                |
| Local content schemes                         | 21                 | 22               | 30                | 21                | -                 |
| Export incentives                             | 1                  | 1                | 3                 | 2                 | 3                 |
| Export inspection services <sup>(b)</sup>     | 37                 | 8                | 9                 | 16                | 6                 |
| Marketing support                             | 59                 | 56               | 50                | 22                | 1                 |
| Underwriting arrangements                     | 22                 |                  |                   |                   |                   |
| Government guarantees                         | 82                 | 113              | 120               | 106               | 58                |
| Wool supplementary support payments           | 300                |                  |                   |                   |                   |
| <b>Total</b>                                  | <b>996</b>         | <b>683</b>       | <b>622</b>        | <b>702</b>        | <b>650</b>        |
| <b>Assistance to value adding factors</b>     |                    |                  |                   |                   |                   |
| Adjustment assistance <sup>(c)</sup>          | 68                 | 139              | 106               | 105               | 120               |
| Agricultural research                         | 159                | 150              | 167               | 156               | 160               |
| Income taxation concessions                   | 19                 | 27               | 78                | 79                | 98                |
| Natural disaster relief                       | 9                  | 5                | 4                 | 2                 | 1                 |
| Sugar industry program                        |                    |                  |                   | 3                 | 4                 |
| <b>Total</b>                                  | <b>255</b>         | <b>321</b>       | <b>355</b>        | <b>345</b>        | <b>383</b>        |
| <b>Assistance to inputs</b>                   |                    |                  |                   |                   |                   |
| Disease control <sup>(d)</sup>                | 11                 | 8                | 5                 | 3                 | 3                 |
| Tariffs on inputs <sup>(e)</sup>              | -100               | -103             | -105              | -87               | -77               |
| Tariffs on plant and machinery <sup>(e)</sup> | -76                | -68              | -66               | -63               | -60               |
| <b>Total</b>                                  | <b>-165</b>        | <b>-163</b>      | <b>-166</b>       | <b>-147</b>       | <b>-134</b>       |

- Notes: (a) Estimates include the effects of import restrictions that enable the domestic price to exceed the landed duty free price of competing imports. For 1994-95, estimates include transitional assistance to tobacco following the removal of the local content scheme.
- (b) Based upon shortfalls of 100% cost recovery.
- (c) Figures reflect interest rate subsidies to farmers
- (d) Bovine brucellosis and tuberculosis campaign.
- (e) Additional cost incurred due to assistance given to raising the prices of inputs

Source: Industry Commission

The main thrust of government policy in agriculture - as indeed in all industries - has been to make agricultural industries more responsive to market forces. This belief in the market is based upon the view that the best outcome for the economy will occur if industries in the economy operate in as competitive an environment as possible. The main virtue of a competitive market is that it can be shown that competitive markets lead to economic

efficiency. Issues such as equity are left to the taxation and/or welfare system. This faith in the outcome provided by the competitive market is subject to a number of fairly strong assumptions. These include the existence of complete markets, perfect divisibility of goods and factors and the possession of full information by firms and consumers. Factors of production, such as labour and capital are assumed to be perfectly mobile so that when a firm shuts down, the labour and capital released through the closure of the firm finds its way into other industries. Recently the view that market forces should be allowed to operate unimpeded has been questioned by Commonwealth and state politicians from both sides of the political fence as well as by union leaders, academics and others groups in the community (see Quiggin 1996). The most significant victory of those opposed to the "market is best view" came in the latter part of 1997 when the Industry Commission recommendation for tariff removal in the Motor vehicle industry and the Textile, clothing and footwear industry was not accepted by the government. The tariff on Motor vehicles was 25% in January 1996 and it will be phased down to 15% by 2000. For Textiles, clothing and footwear, the maximum tariff was 37% in 1996, and this will fall to 25% by 2000.

A number of factors swayed the government in its decisions. These included the regional importance of the Motor vehicle and the Textile, clothing and footwear industries; the lack of alternate employment opportunities for those likely to lose their jobs due to any contraction of these industries<sup>2</sup>; uncertainty about the benefits and costs associated with tariff removal; and the view that most of the benefits from tariff reductions in these industries had already been captured, making further tariff reductions of marginal value relative to the costs imposed upon the industries facing the tariff removal. Industry leaders from agriculture were generally critical of the government decision not to remove tariff support for the Motor vehicle and the Textile, clothing and footwear industries, arguing that agricultural industries have been required to operate in a competitive environment without government assistance. It is interesting to note that representatives of the pigmeat and poultry industries, both of which are facing new pressures from imports, have complained about what they see as the preferential treatment given to the Motor vehicle and the Textile, clothing and footwear industries. In addition, the decision by the New South Wales government announced on 19 May that it would not deregulate the dairy industry at least for another five years is an

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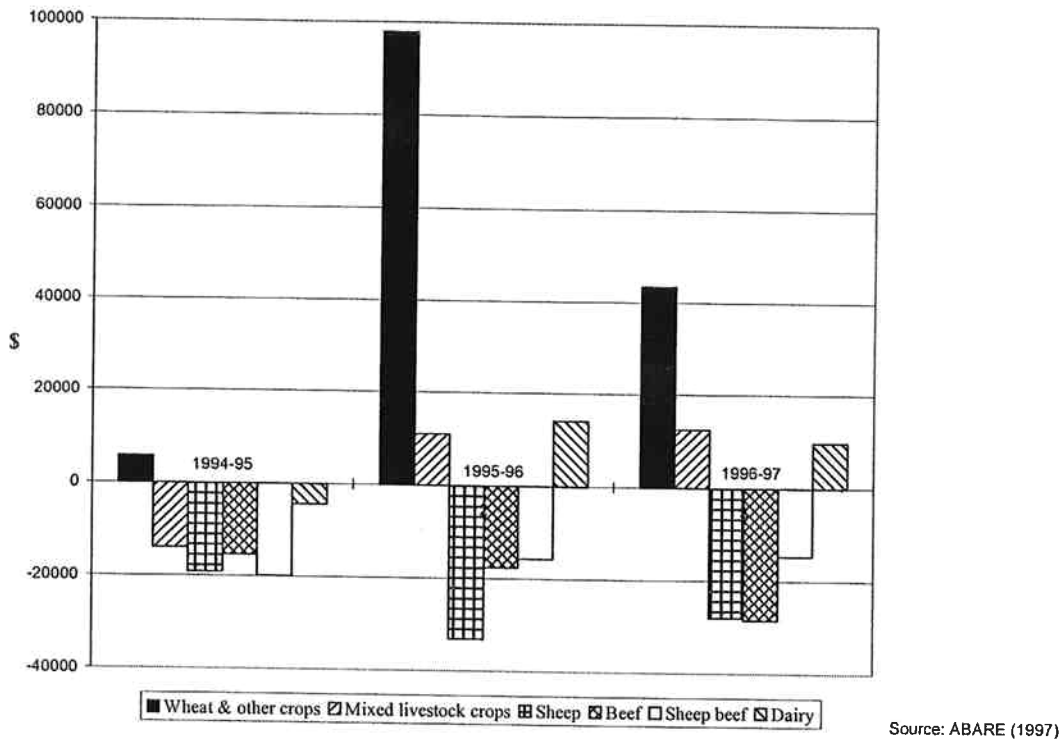
<sup>2</sup> Had the government decided to remove tariffs, it is possible that the three multinational car companies operating in Australia - Ford, General Motors and Toyota - would have closed their manufacturing operations in Australia.

important result. It came about because the New South Wales government was concerned about the effect of deregulation on regional communities and jobs and because it was not clear that milk prices would fall (ABC 20 May 1998c). One of Australia's largest milk processing companies - National Foods - while in favour of industry deregulation has reportedly called for a slow pace of deregulation over perhaps 5 to 10 years because of the social impact on farmers (ABC 1998d)

## II Farm Level Trends

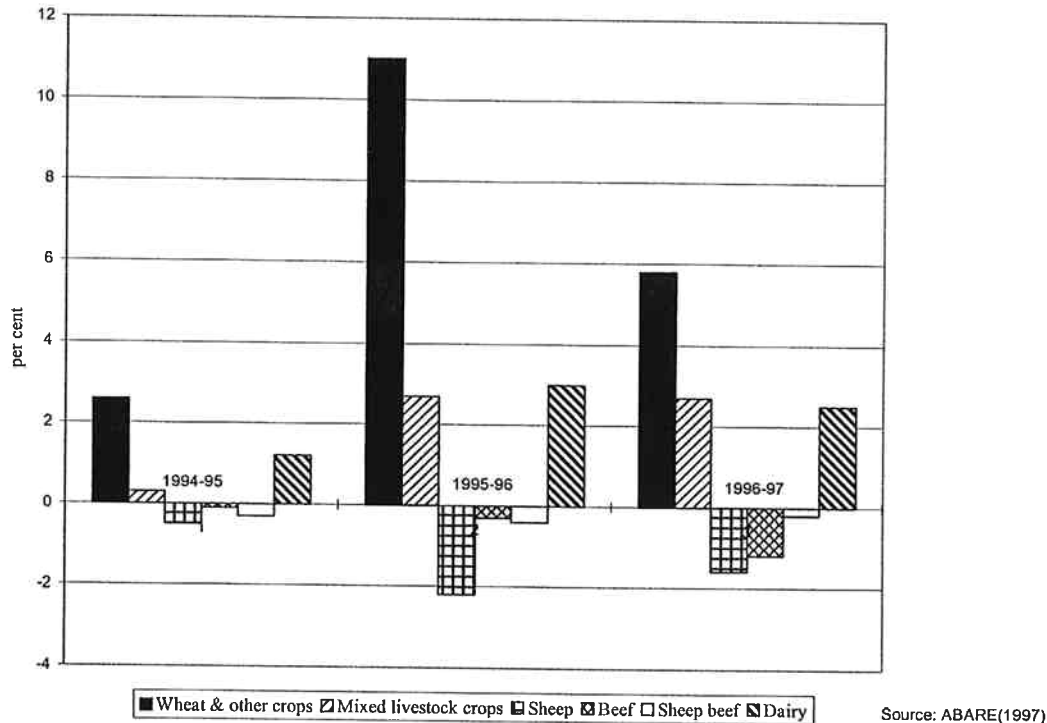
*The financial performance of major Australian agricultural industries will continue to exhibit variability*

Survey data produced by the Australian Bureau of Agricultural and Resource Economics (1997) provide insights into the performance of Australia's rural industries. Figure 2 provides information on the measure farm business profit for major Australian industries. This measure is defined as farm cash income plus build up in trading stocks, less depreciation, less the imputed value of cooperator, partner and family labour. The data shown in this figure and the following one are averages for all farms and therefore conceal how poorly the smallest farms have fared.



**Figure 2 Farm business income, major agricultural industries**

The second measure is the rate of return excluding capital appreciation. Figure 3 shows estimates for major agricultural industries for the period 1994-95 to 1996-97. It is clear that the returns to capital investment in these industries have not been high relative to the return earned in non-agricultural industries. According to King and Maddock (1996), the rates of return on assets used by private enterprise in Australia from 1990-91 to 1994-95 were over 14% in each year, with a maximum of 16.5% in 1990-91. (Rates of return were calculated as the gross operating surplus minus depreciation divided by capital stock.)



**Figure 3 Rate of return to total opening capital (excluding capital appreciation) for major agricultural industries**

The poor average returns from agriculture and the variability of the returns are the main reasons that most Australian farms continue to be family owned and operated. According to ABARE (1996), 93.5% of the gross value of production in the broadacre and dairy industry came from family owned farms. These family owned farms produced about 98% of wool in 1994-95, owned 98.4% of the sheep and were responsible for all but 0.5% of the area cropped. Corporations would not find the rates of return earned by agricultural industries and the variability of these returns attractive. Despite the highly variable returns from agriculture, very few farmers use financial instruments to try to manage this variability<sup>3</sup>. Marketing bodies such as AWB Limited and the Sugar Corporation obviously do make use of forward foreign exchange contracts and other instruments to manage risk.

<sup>3</sup> The Australian Wheat Board – renamed AWB Limited to reflect its transition from a statutory authority to a grower-owned entity on 3 June - introduced forward price contracts in April 1992. This was to provide growers with a risk management tool to enable them to lock in a fixed minimum price for part of their crop. In recent years, the volume hedged has been in the range 200 000 to 250 000 t. out of total production of over 20 000 000 t.

Not surprisingly in light of the relatively poor and variable returns just shown, farm numbers have been declining, although fairly gradually. Between 1985-96 and 1994-95, and for all industries, farm numbers fell by 1.3% per year. The dairy industry experienced the most rapid decline in farm numbers, averaging 2.2% per year. In all agricultural industries there were 115 298 farms in 1994-95 as compared with 130 206 farms. ABARE (1997) explain that farm size is an important factor in influencing whether a farm will leave agriculture. Large farms are becoming important. Large farmers – these had a turnover of \$300 000 or more - represented 21.6% of farm businesses in 1995-96. They accounted for 62.4% of the turnover in the agricultural sector, compared with 56.6% the previous year. At the other extreme, the 22.7% of farm businesses with a turnover of less than \$50 000 contributed only 2.5% of farm business turnover in 1995-96 (ABS 1998b).

### III Consumer and Marketing Trends

#### *No market is guaranteed*

The financial difficulties now being experienced by a number of countries in the Asia Pacific region were completely unexpected by Australian government and industry. As recently as October 1997, Australia's Department of Foreign Affairs and Trade discussed the possibility of the Indonesian economy overtaking the Australian economy in size by the early part of the next century. This assessment was based on the view that economic growth recorded by Indonesia through the 1980s and into the 1990s, while not necessarily maintained to 2000 and beyond, would nonetheless be higher than for most other countries. Any doubts raised about the prospects of economies such as Indonesia and others in south east Asia seem to have been overlooked by those responsible for giving advice to government. This is surprising in light of the importance of this region for Australia's industries, including its agricultural industries:

- Australia's agricultural exports to south east Asia increased from 8% of agricultural exports in 1988-89 to 17% in 1996-97, while north Asia's share fell from 26% to 21%. China's share fell from 8% to 7% over this same period.
- almost 57% of Australia's exports of skim milk powder was exported to Malaysia, the Philippines and Thailand in 1995-96
- just over half of Australia's raw cotton exports went to Indonesia, the Philippines, Thailand and South Korea in 1995-96, with Indonesia alone accounting for 31.82% of exports

- South Korea, Australia's second largest trading partner after Japan in 1995-96, took about one twelfth of Australia's beef and veal exports in 1996 and just over 15% of Australia's exports of raw sugar
- Indonesia and the Philippines have become major markets for Australian exports of live cattle. Indonesia imported around half a million feeder cattle from the Northern Territory and Queensland in 1997. It was believed by some in the industry that live cattle exports to the region could have reached 700 000 head had not the financial crisis hit the region.
- horticultural exports to the south East Asian region have been increasing, with Indonesia and Malaysia taking about 40% of Australia's exports of fresh apples in 1995-96.
- specialist newly industries, such as the deer industry, have been developed largely to cater for Asian markets.

Table 3 contains information on a range of Australian exports of agricultural commodities to the countries of the Asia Pacific region. Japan and China have both been omitted from this table despite both economies being vulnerable to developments in countries such as Indonesia and South Korea. Estimates of the effect of the Asian downturn on the Australian economy are still a matter of conjecture, although a number of commentators have suggested that Australian growth may lose one percentage point this year as a result of reduced demand from the region for Australia's agricultural and mineral exports. To some degree, the depreciation of the Australian dollar against the US dollar will increase the competitiveness of Australian exports in other markets and there is an expectation that this will blunt the impact of the Asia problem on the Australian economy. Between May 1997 and May 1998, the Australian dollar fell by about 20% against the US dollar and by about 15% in trade weighted terms. Nonetheless, agricultural exports in the first three months of 1998 fell by \$700 million compared to the same period in 1997. Korea was one of the worst affected markets. The fall in Australia's exports has contributed to a blow out in the current account deficit to \$7.5 billion for the March quarter, the largest dollar increase recorded in a quarter.

**Table 3 Australian exports<sup>(a)</sup> of selected agricultural commodities to countries in the Asia Pacific region**

|                           | Unit | 1989-90 | 1990-91 | 1991-92 | 1992-93 | 1993-94 | 1994-95 | 1995-96 |
|---------------------------|------|---------|---------|---------|---------|---------|---------|---------|
| Skim milk powder          | kt   | 85.1    | 115.3   | 105     | 118.7   | 164.6   | 173.9   | 168.5   |
|                           | \$m  | 199.3   | 205.7   | 205.1   | 303.1   | 367.4   | 398.8   | 479.3   |
| <i>Malaysia</i>           | %    | 11.40   | 15.96   | 19.24   | 21.48   | 12.15   | 20.53   | 14.66   |
| <i>Philippines</i>        | %    | 22.33   | 24.72   | 22.76   | 29.23   | 21.87   | 23.86   | 24.87   |
| <i>Thailand</i>           | %    | 16.92   | 12.40   | 10.29   | 15.33   | 11.54   | 11.21   | 17.33   |
| Wholemilk powder          | kt   | 32.9    | 38.5    | 44.5    | 50.4    | 57.3    | 74.2    | 81.1    |
|                           | \$m  | 93.7    | 84.5    | 108.3   | 147.2   | 149.3   | 183.5   | 254.7   |
| <i>Malaysia</i>           | %    | 5.78    | 11.69   | 17.75   | 15.28   | 19.02   | 17.39   | 18.25   |
| <i>Philippines</i>        | %    | 3.65    | 2.86    | 2.70    | 4.76    | 12.04   | 11.99   | 20.35   |
| Raw cotton                | kt   | 306     | 339.7   | 458.1   | 396     | 360.5   | 296.4   | 311.4   |
| <i>Indonesia</i>          | %    | 13.69   | 20.02   | 22.20   | 26.19   | 21.55   | 23.48   | 31.82   |
| <i>Philippines</i>        | %    | 5.03    | 4.53    | 3.36    | 3.89    | 4.27    | 5.20    | 4.95    |
| <i>South Korea</i>        | %    | 15.00   | 15.72   | 14.82   | 11.24   | 9.40    | 6.68    | 9.02    |
| <i>Thailand</i>           | %    | 2.12    | 5.03    | 4.39    | 3.91    | 5.33    | 6.58    | 6.45    |
| Fresh apples              | t    | 24424   | 24748   | 31892   | 30889   | 36258   | 33670   | 28851   |
| <i>Indonesia</i>          | %    | 1.09    | 1.45    | 2.67    | 10.29   | 5.00    | 3.72    | 8.78    |
| <i>Malaysia</i>           | %    | 21.08   | 20.97   | 19.09   | 28.50   | 28.93   | 18.60   | 30.84   |
| Beef and veal(a)          | kt   | 591.4   | 730.8   | 746.3   | 822.5   | 790.4   | 792.4   | 748.9   |
| <i>Malaysia-Singapore</i> | %    | 0.66    | 0.55    | 0.51    | 0.60    | 0.89    | 1.19    | 1.46    |
| <i>Philippines</i>        | %    | 0.17    | 0.07    | 0.07    | 0.13    | 1.00    | 0.81    | 1.99    |
| <i>South Korea</i>        | %    | 9.96    | 9.66    | 12.66   | 11.83   | 6.72    | 7.24    | 8.49    |
| Raw sugar                 | kt   | 2845    | 2606    | 2254    | 3109    | 3443    | 3951    | 3747    |
| <i>South Korea</i>        | %    | 14.02   | 12.08   | 14.86   | 18.76   | 19.08   | 17.04   | 15.22   |
| <i>Malaysia</i>           | %    | 15.67   | 18.98   | 19.44   | 19.05   | 17.10   | 13.54   | 15.56   |
| Wheat and flour           | kt   | 11116   | 11989   | 8153    | 9534    | 12910   | 7892    | 12057   |
| <i>Indonesia</i>          | %    | 6.87    | 6.55    | 10.43   | 10.22   | 9.19    | 14.72   | 16.25   |
| <i>Malaysia</i>           | %    | 5.07    | 5.13    | 5.05    | 6.79    | 5.32    | 7.45    | 6.03    |
| <i>South Korea</i>        | %    | 2.07    | 10.01   | 6.10    | 10.23   | 9.65    | 7.97    | 5.83    |
| <i>Thailand</i>           | %    | 0.53    | 0.48    | 0.93    | 0.86    | 1.36    | 0.90    | 2.01    |

Notes: <sup>(a)</sup> Australian exports to all countries are shown in the table in value and/or volume terms. The data presented for each country refers to that country's share of world exports.

Source: ABARE (1997).

The reason for the optimistic views held about the Asia Pacific region can be traced to the belief that in countries such as Indonesia, Thailand and Malaysia, a large middle class was emerging that would have an increasing demand for Australian agricultural exports. The view was that with their increased incomes, this new middle class would be able to buy Australian products, particularly those with high-income elasticities of demand. Examples of these are beef, dairy products and horticultural products. Australia's geographic proximity and efficient agricultural industries were thought to be factors that would help Australia take advantage of the opportunities available in these countries.



*Continued faith in the outcome of trade negotiations*

Australia was one of the 23 countries that signed the General Agreement on Tariffs and Trade into existence on 30 October 1947 at the Palais des Nations in Geneva. With a new round of trade negotiations conducted under the auspices of the World Trade Organisation scheduled for 2000, expectations will be raised in Australia that these negotiations will result in improved foreign market access for Australian agriculture. Agricultural economists can be expected to come up with numerical estimates of the benefits of reform. According to Howard (1998), the Centre for International Economics has put the potential gain to the world trading system from trade reform in agriculture at US\$260 billion. Despite the rhetoric and apparent good intentions that accompany these negotiations, countries can be expected to act in their own interests. The United States is a major competitor with Australia in a number of product markets, including dairy, wheat and beef. Its May 1998 announcement that it would be reactivating its program of export subsidies on skim milk powder to counter the use of subsidies by the European Union has been criticised by the Australian government and by the dairy industry. It follows complaints by the beef industry in late 1997 about the approach the US was taking in marketing beef to Korea. The growth of regional trading blocks, the use of non tariff barriers and the increased importance of environmental issues in the negotiations (and their potential for delaying agreement on agriculture) must raise doubts about the extent to which Australia's agriculture should rely on the negotiations.

While improved market access is important, in high income countries such as Japan, consumers decisions as to the quantity of beef purchased, for example, are more likely to revolve around issues such as quality and safety<sup>4</sup> rather than price. In most high-income countries, food accounts for only a fairly small part of the household budget. Most of the food bill is made up of the services that are embodied in the food. These services include packaging, processing and advertising. Government officials in France, Japan and Korea are also concerned about maintaining rural communities and they see agriculture as being an integral part of achieving this objective. While it is clear that the existing set of policies have not kept rural areas vital, it is hard to see how removal of these policies would do other than hasten the decline.

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<sup>4</sup> The possibility of *e coli* contamination and BSE are issues that concern consumers.

### *More value adding and developing customer allegiance*

The value added in farm businesses in 1995-96 was \$11 185.3 million<sup>5</sup> – or about \$32 100 per person employed (ABS 1998c). This type of statistic has led to the government and farm leaders encouraging agriculture to engage in more value adding activities. Traditionally Australian exports that have originated in the rural sector have been unprocessed or only lightly processed commodities. These include wheat, raw sugar, skim milk powder and wool. Most of the value adding activity has occurred in the wool mills of Korea, the flourmills of China and the dairy factories of Indonesia. The prices of bulk commodities have been trending downwards for years and this has been perhaps the main factor behind the move to do more value adding in Australia. The grape industry has probably been the most successful judging by what it has achieved on export markets with wine. The wine industry has been extremely successful in recent years and its main constraint - at least in the short term - appears to be its ability to meet demand on both the domestic market and the international market.

A number of industries such as the dairy industry, the horticultural industry and the beef industry have taken steps to develop customer allegiance and to differentiate their products on international markets from those of their competitors. Programs to have been used include the Aussie beef logo in Japan, the Clean and Green campaign of the early 1990s, the use of the Australian Dairy Mark logo and the Australia Fresh logo used on horticultural exports. Firms making use of these logos have to meet quality criteria set by the industry. In effect, the purchaser of these labelled products is being given a warranty that the products are of high quality.

Food and agricultural industries in Australia are likely to tie in increasingly with foreign firms or organisations. The establishment in 1997 of a joint venture company between the Australian Wheat Board and Zennoh - AWB Zennoh Ltd. - to market feedgrains in Japan is an example of the type of development that is likely to become increasingly common. On a much smaller scale, but with the potential for growth, are the linkages that are being established between producers in Australia and Japanese consumer cooperatives to market horticultural products and livestock products in Japan. Such linkages are important for

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<sup>5</sup> This includes an estimate for the increase (or decrease) in the value of livestock. It is also less an estimate for rates and taxes, insurance payments and expenses.

Australian agriculture because they provide a ready made distribution network as well as the means of gaining information on the product attributes that consumers in export markets are looking for.

There is a high degree of foreign ownership in Australia's food industries – of the order of 70% of food processing capacity. Recent examples of foreign acquisitions include the purchase by Mitsubishi Corporation, through Kirin Brewing Co., of 45% of the New Zealand Lion Nathan Group. Lion Nathan is the second largest brewer operating in Australia behind Foster's, with 41.5% of the market through its Swan, Toohey's, West End, Fourex and Hahn brands. Market analysts say the move is designed to give Kirin access to China's beer market through Lion's brewery in Suzhou. Asahi Breweries, a competitor with Kirin in Japan, sold its 15% share of Foster's in 1997. A second example is the 1998 takeover of the Queensland based dairy processor Pauls Limited by the Italian owned Parmalat Group. Parmalat is one of the world's largest dairy groups, and operates in 25 countries. It already has an Australian operation at Albury.

As a capital poor country, the government officially welcomes the injection of foreign capital into Australia. However, the "problem" may be that marketing and product development strategy is set elsewhere and the local operation is left to follow orders from the foreign-based head office. The experience with tariff removal in the motor vehicle industry discussed earlier shows that foreign owned companies can influence policies made by government.

### *Changing diets in Australia*

Australian diets are changing as a result of changes in the relative prices of foods, concerns about health, demographic change (such as increased female participation in the workforce), technical changes (in food processing and in the diffusion of appliances such as microwave ovens), social changes (increased overseas travel by Australians and an increase in ethnic diversity in the population) and changes in the food retailing industry (retailers now operate in a less regulated environment and food retailing is dominated by supermarkets). Features of the Australian diet include the following<sup>6</sup>:

- Beef and veal consumption has declined from almost 70 kg per person in 1977 to a 1997 level of 30 kg per person. Lamb and mutton consumption fell over this period from 18.9

kg to around 15 kg. On the other hand, poultry meat consumption rose from 15.6 kg to 27 kg (in 1995) and pig meat consumption increased from 13 kg to 19.4 kg (in 1995). Retailers have not had a grading system for beef and as a result consumers have never been sure as to the quality of the beef that they purchase. This places the industry at a significant disadvantage to the poultry industry. According to meat industry representatives, quality uncertainty is perhaps the main reason for the fall in red meat consumption. The Meat and Livestock Corporation is currently trialing a grading system (based upon four quality categories) in Queensland and so far the results are said to be promising.

- Per person consumption of vegetables increases from 136.3kg in 1985-86 to 162.8 kg in 1995-96. Vegetable consumption in 1995-96 was approximately 39% greater than in the late 1950s when it was about 117 kg per person. Potatoes were the most popular vegetable consumed, with per person consumption of 70.1 kg per person. The fast food industry is partly behind the high consumption of potatoes. The “traditional” vegetables beans and peas both declined in importance over this period while the consumption of mushrooms and capsicums, among others, has increased
- Fruit consumption (including fruit for fruit juice) was 122.7 kg per person in 1995-96. This was about 41% above the level in the late 1960s and 55% over the consumption of the late 1930s. Oranges were the most important fruit, with 37 kg being consumed per person
- Cheese consumption increased from 9.2 kg per person in 1988-89 to 10.6 kg per person in 1995-96. Most of the cheese consumed is Australian. Market milk consumption per person was 104.2 l. per person in 1995-96, and dairy product consumption averaged 24.4 kg per person. Per person consumption of dairy products has increased by about 37% since the 1930s
- Rice consumption has increased from 4.2 kg per person in 1988-89 to 6.5 kg per person during 1995-96, according to Australian Bureau of Statistics data. However, according to the industry, consumption is now close to 9 kg per person. The rice industry runs imaginative advertisements stressing the health qualities of rice and its low price. Part of the increase in consumption has been captured by imports of fragrant rice from Thailand, India, Italy, Brazil and the USA. Per person consumption of bread in 1995-96 was 49.4 kg, well below the 69.1 kg per person of the late 1950s

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<sup>6</sup> The consumption data come from the ABS (1998).

- Seafood consumption was 10.2 kg per person in 1995-96. The consumption of seafood is more than twice its level in the late 1930s when average consumption was 4.9 kg per person
- From a sample of 13 800 people aged two years and older conducted by the National Nutrition Survey, 45% of men and 29% of women were overweight on the basis of the Body Mass Index, and a further 18% of men and women were obese. For people aged 45 years and older, only about 25% of men and 35% of women were in an acceptable weight range for their height.

Supermarkets dominate the food retailing industry in Australia and there are three major companies: Woolworths, Coles (operated by the Coles Myer company) and Franklins (operated by the Hong Kong based company Asia Dairies). The first two control in aggregate about 90% of the retail food market although the share varies between years and across states. Australia's supermarket industry is becoming increasingly concentrated as smaller operators are either forced out of the industry or are taken over by the major chains. The major players have moved into the sale of ready to eat foods, a trend also obvious in Japan. In their advertising they stress the freshness and quality of food. For Australian farmers and for firms involved in food distribution, these changes are of considerable importance. Supermarket operators such as Woolworths generally bypass wholesale markets and deal directly with producers. This has meant that fruit and vegetable wholesalers have seen their profits fall. Smaller farmers do not have the capacity to supply the large retailers and so are forced to deal with the wholesalers and sell their product through the wholesale markets. Alternatively, they can become involved in the production of low volume specialty lines such as rambutans, lychees and Asian style vegetables including water chestnuts, bokchoy and udo. For consumers, the dominance of large supermarket chains has probably introduced more product uniformity as they set quality standards for their suppliers. Woolworths, for example, has been experimenting with video imaging as a way of improving quality standards for beef and horticultural products. The large supermarkets are also likely to be better able to deal in high quality, expensive products such as hydroponically grown vegetables or lettuce since selling such specialised products involves a level of risk that may not be acceptable to smaller operators. The supermarket chains make use of their own brands for some foods, and in some cases source these from overseas suppliers if domestic food processors with a national brand are unwilling to supply foods branded with the supermarket label.

The growth of fast food restaurants such as McDonalds has not been all good news for Australian farmers. It will almost always be the case that large multinational corporations like McDonalds will source their supplies so as to maximise their profits. This has led to the company sourcing its orange juice from Brazil in preference to Australian produced juice. Not surprisingly, Australian orange producers, who have only recently lost their import protection, have been very critical of this strategy.

### *New products and industries will be developed*

Australian agriculture has a great capacity to adjust and to develop new industries. In the beef industry, the lot feeding industry developed to supply the Japanese market. The capacity of Australian beef feedlots was about 820 000 cattle<sup>7</sup> in mid 1998. The beef industry was also quick to develop a trade in live cattle with countries of southeast Asia. It is likely to try to repeat its success in China and to some degree in the countries of the Middle East where Australia exported over six million live sheep in 1995-96. New horticultural industries such as olives, tropical fruits and Asian vegetables, and specialty industries such as ostrich farming, kangaroo production and camel farming are also being promoted. It remains to be seen whether any of these new industries are successful in the longer run.

The main motivation for the development of these new industries is to gain export markets. Australia has been loosing market share in the key Japanese market because the commodities Australia has traditionally relied upon - sugar, dairy products, grains and beef - have faced strong competition from the other suppliers and/or stagnant or slow growth in demand. As pointed out by Heilbron and Larkin (1997), this has forced Australia to turn to smaller and riskier markets especially in southeast Asia.

## **IV Technology and the Environment**

### *New telecommunication technologies*

As a result of new telecommunication technologies, banks and other providers of financial and other services to farmers now have the opportunity to concentrate their activities and they

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<sup>7</sup> Currently between 50% and 60% of this capacity is being utilised

no longer find it necessary to maintain shopfronts/offices in the areas they are servicing. In the past, most rural towns of any size would have had at least one bank and a stock and station agent. Stock and station agents are businesses that provide farmers with their farming requirements such as animal medicines, herbicides and fencing. They generally also provided insurance services, helped organise the sale of the farmer's products and were a source of information to farmers. In recent years, many of these businesses have closed and farmers now have to deal with larger regional offices. The closure of businesses such as banks and stock and station agents in small towns has a significant effect on the community. These businesses helped maintain the economic viability of the community during periods when agricultural industries were facing difficult economic conditions. They also provided employment to people in the community and helped maintain community groups such as Rotary.

The case for regional concentration is based upon the cost savings associated with the closure of small offices and also the improvement in the quality of services provided to farmers. By achieving economies of scale in their operations, the banks and other provider of services would no doubt claim that their clients are the ones who benefit through paying reduced charges. They may also claim that the old system based upon small offices resulted in cross subsidisation of services in small towns by users in large centres.

In terms of the quality of services provided to agriculture, it may be that there would be some improvement with regional concentration. This could occur because staff in larger centres may be better informed about the range of options that might be considered by farmer clients. In the mid 1980s when there was a significant interest rate differential between Australia and Switzerland, bank managers at small bank branches in rural areas encouraged their clients to take out bank loans at rates of interest that were lower than those available in Australia but with the loans denominated in Swiss francs. In 1985, the Australian dollar experienced a rapid and substantial depreciation. As a result, farmers who had taken out Swiss franc loans - without fully understanding the risks associated with such action - found that they were not able to service their loans. It is unlikely that such a situation could have arisen in a large regional branch.

The regional concentration of services almost certainly will not be reversed. Larger farmers are likely to be the ones to benefit most from the changes since they would be the ones who would experience the greatest cost savings. They are also more likely to be able to find use for the range of financial products than would the small farmers. In addition, it is more likely that they would have the technology to facilitate communication with the large regional offices than would the small farm operator. Illustrating the importance rural communities attach to the local bank, in May of this year, two rural communities in Victoria pooled resources to establish a community funded banking service run jointly with a small regional bank, the Bendigo Bank.

The Internet is a potentially important resource for farmers and for people living in rural areas. It provides them with source of information on financial markets, production conditions in Australia and in other countries and information on weather conditions. It is also a useful educational aid and a source of entertainment. However, survey data obtained by the Australian Bureau of Statistics shows that the majority of people with access to the Internet are in metropolitan areas. Only 13% of people outside of the metropolitan areas had access compared with 26% in metropolitan areas (ABS 1998a). Very few users were aged over 50 years. This is significant because most farmers are over 50 years. According to the farmer information group, the Kondinin Group – 72% of primary producers have a computer, but only 21% are on the Internet or the World Wide Web. Poor quality phone lines – resulting in the slow transfer of information<sup>8</sup> - and cost are the main deterrent for farmers (Kondinin 1998).

### *Greater emphasis on environmental issues*

No one would disagree with the view that the long term viability of agriculture requires the use of environmentally sound policies<sup>9</sup>. Australia is the driest inhabited continent and water is

<sup>8</sup> Telephone speeds are as low as 2 400 bytes per second, while fax modems run at speeds of 28 Kbytes or 56 Kbytes per second.

<sup>9</sup> According to a survey conducted by the Australian Bureau of Statistics, 31.6% of Australians had no concerns about the environment. This is a 25% increase on the proportion with no concerns in 1992. The main environmental issues were air pollution (30.9% of respondents), ocean pollution (23.8%), freshwater pollution (23.7%) and destruction of trees/ecosystem/deforestation (23.6%). Soil erosion/salinity/land degradation – issues of concern to farmers – was only mentioned by 7.7% of respondents. Multiple responses were possible in the survey.



a limiting resource to agricultural development. The government is moving towards a market in water with a system of tradeable entitlements as a way of transferring the use of water from low value to high value users. Rights over water are to be separated from land title and pricing is to be based upon full cost recovery. Farmer organisations have questioned whether the use of full cost recovery pricing will benefit the environment. They argue that farmers purchasing water entitlements will have less money to spend for environmental purposes (such as water saving new technologies) and that the pricing of water will lead to "sleeper" water (water for which a licence has been allocated but not used) being brought onto the market.

Farmer groups have also questioned the notion of full cost recovery on the grounds that many irrigation schemes are politically motivated, or are designed to bring about regional development. Farmers have been successful in lobbying for the adoption of "beneficiary" pays rather than user pays on the grounds that there are public benefits associated with the development of dams and irrigation infrastructure. The water reform program is on going and the State and Territory governments are to have their reform programs finalised by 2001. In New South Wales, a community-based program is being developed. In this program, each river valley will have a community committee that will help in determining how river and groundwater is managed. The committees will prepare river flow and water quality action plans for their area as well as reviewing the rules used to manage the rivers in each valley (Lovett 1997).

Much of Australia's land area is very dry and is only really suitable for extensive grazing of sheep or cattle. In arid regions, these industries make only a relatively small contribution to agricultural output and export earnings. Hence, it is likely that the benefits of continuing with these industries in remote areas will be increasingly questioned. Environmental groups may argue that the land should not be used for agriculture at all, but allowed to return to its natural condition. The lack of lifestyle appeal of Australia's low rainfall areas and the cost of providing services to people in these areas are also factors that may see agriculture's disappearance from the low rainfall parts of the country.

## V Concluding comments

The list of trends that have been discussed in this paper is not exhaustive. Changes in the taxation system including a move to introduce a goods and services tax, resolving aboriginal claims over land ownership, the future development of APEC, the changed and role of statutory marketing agencies, the use of genetically modified plant and animal products and the El Nino effect are important issues that have not been included in this paper. Nonetheless, even with those that have been included, it is difficult to predict what the net outcome might be for Australian agriculture. Because Australia's resource endowment strongly favours agriculture, it is easy to be positive about the industry's long term prospects. However, Australia is a net agricultural exporter and so it needs to be concerned about competition from the countries of South America and from traditional competitors such as the United States and Canada. Markets such as the Japanese market and those of Europe are likely to contract because of lower populations and improved technologies that will make these countries more able to meet their food requirements from domestic industries. Offsetting this, the limited agricultural resources of countries that until recently were showing high rates of growth (these include Indonesia, Korea and the Philippines) means that once these economies finally recover, Australia's agriculture should be in a position to benefit. These benefits will mainly flow to the operators of large farms or to the more entrepreneurial operators who are able to identify market opportunities and exploit them. It is unclear how the small rural communities and the families living on small farms will fare. In Japan and in many of the countries of Europe, agricultural policy development is very much influenced by these groups. It may well be that in the future, greater attention will also be paid to them in Australia.

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**Table A1 Major government changes affecting Australian agriculture, 1970 to 1998**

| Year | Measure  | Comments  |
|------|--|---|
| 1970 | Marginal Dairy Farm Agreement Act 1970 passed through the Commonwealth parliament  | The Commonwealth government provided assistance for the more efficient farmers to buy out small uneconomic dairy farms. Compensation was given for assets that were redundant (eg milking sheds and yards).   |
| 1971 | The Commonwealth government introduced the Rural Reconstruction Scheme   | The scheme was available to all rural industries and was designed to assist uneconomic farmers to exit rural industries.  |
| 1973 | A number of support measures such as the superphosphate bounty, were abolished<br>Tax concessions that allowed farmers to deduct expenditure on capital improvements from income for taxation purposes were abolished. | The Australian Labour Party was elected to office in December 1972 after 23 years in opposition. The government set about introducing reforms into the economy.   |
|      | Export inspection fees introduced as a way of cost recovery for government provided services.<br>Concessional credit no longer had to be provided to the rural sector by trading banks.                                | The first industry required to pay for the services was the meat industry. From January 1991, the meat industry has had to meet all costs.<br>The provision of concessional credit had been a requirement of the Reserve Bank.  |
| 1974 | The guaranteed price offered under the Sixth Wheat Stabilisation Plan was based upon international prices rather than costs of production.   | The idea was to make the industry respond to international market developments. The Commonwealth funding commitment was also capped. Since 1974, the industry has been further deregulated.   |
| 1977 | Rural Adjustment Scheme introduced.  | The scheme replaced a number of ad hoc industry based measures. It was intended to introduce uniformity to the criteria applied to different industries. Since then, the RAS has experienced a number of changes, such as an increased emphasis on improving farm management skills. In May 1997, the Commonwealth government announced the scheme would cease after September 1997 to be replaced by a new program following consultation with the State and Territory Governments and farmer organisations.   |
| 1980 | Price stabilisation arrangements for the dried vine fruits industry ceased at the end of the 1980 season   | A number of other changes followed this one. In 1982, underwriting payments for sultanas ceased; in 1991 price equalisation arrangements were removed, with the exception of exports; and underwriting arrangements for sultanas were removed at the end of the 1993 season.  |
| 1986 | Statutory Marketing Arrangements reformed. The reforms included greater autonomy; the loosening of borrowing controls; a "right to fail"; and establishment of performance indicators.                                 | The general direction of reforms has been towards greater reliance on market forces.  |
| 1986 | The Kerin Plan was introduced for the dairy industry. Domestic price support was progressively reduced for manufactured dairy products to the level of import parity for competing products from New Zealand.          | As part of the Kerin Plan, a tariff quota on certain subsidised cheese was introduced in 1986. Under Australia's Uruguay Round commitments, this cheese quota was converted into a tariff quota. The Kerin Plan expired in June 1992 and was replaced by the Crean Plan in July 1992. Under the Crean Plan, the Commonwealth continued with phased reductions in market support payments for exports of dairy products. Again, because of Australia's UR commitments, export subsidies were replaced by rebates. The Commonwealth government support for the dairy industry will be phased out by 2000. |

- By 1989, all states except for Queensland and New South Wales had removed controls on most aspects of milk pricing and distribution beyond the farm gate. New South Wales was scheduled to deregulate the industry in July 1998. Queensland is scheduled to deregulate the industry beyond the farm gate in 1999.
- 1988 Commodity assistance converted to tariffs. Assistance to dried vine fruits, sugar, tobacco and citrus converted to tariffs and subject to tariff phase down. The tariffs were needed for industries where there were domestic pricing arrangements. Domestic prices of export oriented industries (such as sugar) could rise above import parity prices.
- Tariff and border protection for barley, cotton, fresh horticultural products, grain legumes, maize, tobacco, meat, oats, oilseeds, rice, sorghum, wheat and wool removed by 1995. Quarantine restrictions and a lack of import facilities at ports meant that these changes had little or no impact on the grains industries.
- Assistance to the citrus industry converted to a tariff and followed by a phase down from 30% to 5% in 1996.
- In 1988-89, Victorian and New South Wales Marketing Boards merged, reducing geographical barriers to competition.
- Local content rules for fruit juice removed in January 1995.
- Phase down in tariffs from 10% for wine and 8% for brandy to 5% from July 1996.
- South Australia and Victoria deregulated their markets for wine grapes.
- 1989 Domestic pricing arrangements and export controls for sugar terminated by the Commonwealth government. The embargo was replaced with a specific tariff of A\$115 per tonne, which was reduced to A\$55 in July 1992. The tariff was frozen at A\$55 per tonne until June 1997.
- In the wheat/grains industries, and from 1989, deregulation of the domestic marketing and removal of administered pricing and compulsory acquisition powers has been occurring except in Queensland.
- The Australian Wheat Board will become a private stock exchange listed company on 1 July 1998.
- 1991 Abolition of the Minimum Reserve Price Scheme for wool.
- 1992 Export underwriting for apples abolished national Drought Policy agreed to by State, Territory and Commonwealth governments
- 1994 Tobacco Industry Restructuring Package
- The Australian Wheat Board became a commercial trader on the domestic market backed by a levy based Wheat Industry Fund. The Commonwealth backing of A\$100 million for borrowings by the Wheat Industry Funds expired in 1994. Since 1988-89, the states have undertaken a number of measures such as privatisation of bulk handling authorities; changes to waterfront services and charges; and changes to rail services that relate to the wheat and grains industries.
- The rural sector was encouraged to adopt a self-reliant approach to climatic variability. Drought was considered part of the farmer's normal operating environment. Tariffs, local content schemes and statutory marketing arrangements phased out between 1994 and 1996

|      |   |  |
|------|---|--|
| 1997 | Rural Adjustment Scheme terminated  | The scheme was found not to be effective in promoting farm adjustment  |
|      | Sugar tariff removed  |  |
|      | The Commonwealth approved the establishment of Meat and Livestock Australia Ltd., and the winding up of the Meat Industry Council, the Australian Meat and Livestock Corporation and the Meat Research Corporation. | The new company is responsible for research and development, food safety and quality. The reforms are designed to reduce government involvement and to give growers more say in decision making. |

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Source: Industry Commission (1998).

**Table A2 Financial performance of Australian farms, 1994-95 to 1996-97**

| Item                                   | Unit | 1994-95 | 1995-96 | 1996-97 |
|--|------|---------|---------|---------|
| (a) Wheat and other crops industry     |      |         |         |         |
| Total cash receipts                    | \$   | 299355  | 414530  | 372200  |
| Total cash costs                       | \$   | 216914  | 260400  | 260300  |
| Farm cash income                       | \$   | 82441   | 154130  | 111900  |
| <i>plus build up in trading stocks</i> | \$   | -15039  | 10560   | 200     |
| <i>less depreciation</i>               | \$   | 25627   | 26760   | 27300   |
| <i>less operator and family labour</i> | \$   | 35985   | 40050   | 41500   |
| Farm business profit                   | \$   | 5789    | 97880   | 43400   |
| Rate of return                         |      |         |         |         |
| <i>Excluding capital appreciation</i>  | %    | 2.6     | 11      | 5.8     |
| <i>Including capital appreciation</i>  | %    | 5.3     | 16.2    | na      |
| (b) Mixed livestock - crops industry   |      |         |         |         |
| Total cash receipts                    | \$   | 199816  | 196950  | 212600  |
| Total cash costs                       | \$   | 150988  | 147220  | 149700  |
| Farm cash income                       | \$   | 48827   | 49730   | 62900   |
| <i>plus buildup in trading stocks</i>  | \$   | -11606  | 12100   | 2600    |
| <i>less depreciation</i>               | \$   | 18662   | 16920   | 17600   |
| <i>less operator and family labour</i> | \$   | 32432   | 33810   | 35300   |
| Farm business profit                   | \$   | -13873  | 11100   | 12600   |
| Rate of return                         |      |         |         |         |
| <i>Excluding capital appreciation</i>  | %    | 0.3     | 2.7     | 2.7     |
| <i>Including capital appreciation</i>  | %    | 4.1     | 6.1     | na      |
| (c) Sheep industry                     |      |         |         |         |
| Total cash receipts                    | \$   | 131904  | 89760   | 90300   |
| Total cash costs                       | \$   | 106170  | 86790   | 79600   |
| Farm cash income                       | \$   | 25733   | 2970    | 10700   |
| <i>plus build up in trading stocks</i> | \$   | -6234   | 2270    | 0       |
| <i>less depreciation</i>               | \$   | 11660   | 11270   | 11200   |
| <i>less operator and family labour</i> | \$   | 26940   | 26990   | 27400   |
| Farm business profit                   | \$   | -19101  | -33010  | -28000  |
| Rate of return                         |      |         |         |         |
| <i>Excluding capital appreciation</i>  | %    | -0.5    | -2.2    | -1.6    |
| <i>Including capital appreciation</i>  | %    | 2.5     | 0.8     | na      |



Table A2 Financial performance of Australian farms, 1994-95 to 1996-97 (continued)

|  | Unit | 1994-95 | 1995-96 | 1996-97 |
|--|------|---------|---------|---------|
| (d) Beef industry                      |      |         |         |         |
| Total cash receipts                    | \$   | 164790  | 136150  | 117800  |
| Total cash costs                       | \$   | 136923  | 120540  | 107100  |
| Farm cash income                       | \$   | 27868   | 156110  | 10800   |
| <i>plus build up in trading stocks</i> | \$   | -1098   | 11510   | 6700    |
| <i>less depreciation</i>               | \$   | 13895   | 14340   | 14700   |
| <i>less operator and family labour</i> | \$   | 27919   | 30390   | 31100   |
| Farm business profit                   | \$   | -15440  | -17620  | -28400  |
| Rate of return                         |      |         |         |         |
| <i>Excluding capital appreciation</i>  | %    | -0.1    | -0.3    | -1.2    |
| <i>Including capital appreciation</i>  | %    | 0.2     | -2.5    | na      |
| (e) Sheep beef industry                |      |         |         |         |
| Total cash receipts                    | \$   | 152485  | 123990  | 132500  |
| Total cash costs                       | \$   | 122215  | 106360  | 103300  |
| Farm cash income                       | \$   | 30270   | 17630   | 29200   |
| <i>plus build up in trading stocks</i> | \$   | -9135   | 11280   | 2800    |
| <i>less depreciation</i>               | \$   | 12415   | 13010   | 13300   |
| <i>less operator and family labour</i> | \$   | 28516   | 31470   | 33300   |
| Farm business profit                   | \$   | -19796  | -15570  | -14600  |
| Rate of return                         |      |         |         |         |
| <i>excluding capital appreciation</i>  | %    | -0.3    | -0.4    | -0.2    |
| <i>including capital appreciation</i>  | %    | 2.2     | 0.2     | na      |
| (f) Dairy industry                     |      |         |         |         |
| Total cash receipts                    | \$   | 200819  | 230710  | 215100  |
| Total cash costs                       | \$   | 151242  | 166770  | 153100  |
| Farm cash income                       | \$   | 49577   | 63940   | 62100   |
| <i>plus build up in trading stocks</i> | \$   | 2700    | 9990    | 10000   |
| <i>less depreciation</i>               | \$   | 18461   | 18720   | 19100   |
| <i>less operator and family labour</i> | \$   | 38094   | 41000   | 43100   |
| Farm business profit                   | \$   | -4278   | 14220   | 9900    |
| Rate of return                         |      |         |         |         |
| <i>excluding capital appreciation</i>  | %    | 1.2     | 3       | 2.5     |
| <i>including capital appreciation</i>  | %    | 2.7     | 4.7     | na      |

Source: ABARE (1997)

**ECONOMIC ISSUES PUBLISHED IN 1998**

(A complete list of papers is available upon request.)

1. **Tisdell, C.**, *Migration to Australia with Particular Reference to Asian Migration*, September 1998.
2. **Jackson, S. and Sleight, A.**, *Resettlement Issues of China's Three Gorges Dam*, September 1998.