

**INDUSTRY
COMMISSION**

THE AUSTRALIAN SUGAR INDUSTRY

**REPORT NO. 19
6 MARCH 1992**

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INDUSTRY COMMISSION

6 March 1992

Honourable J Dawkins, MP
Treasurer
Parliament House
CANBERRA ACT 2600

Dear Treasurer

In accordance with Section 7 of the *Industry Commission Act 1989*, we have the pleasure in submitting to you the report on *The Australian Sugar Industry*.

Yours sincerely

Roger Mauldon

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Acknowledgment

The Commission wishes to thank those staff members who contributed to this report.

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GLOSSARY

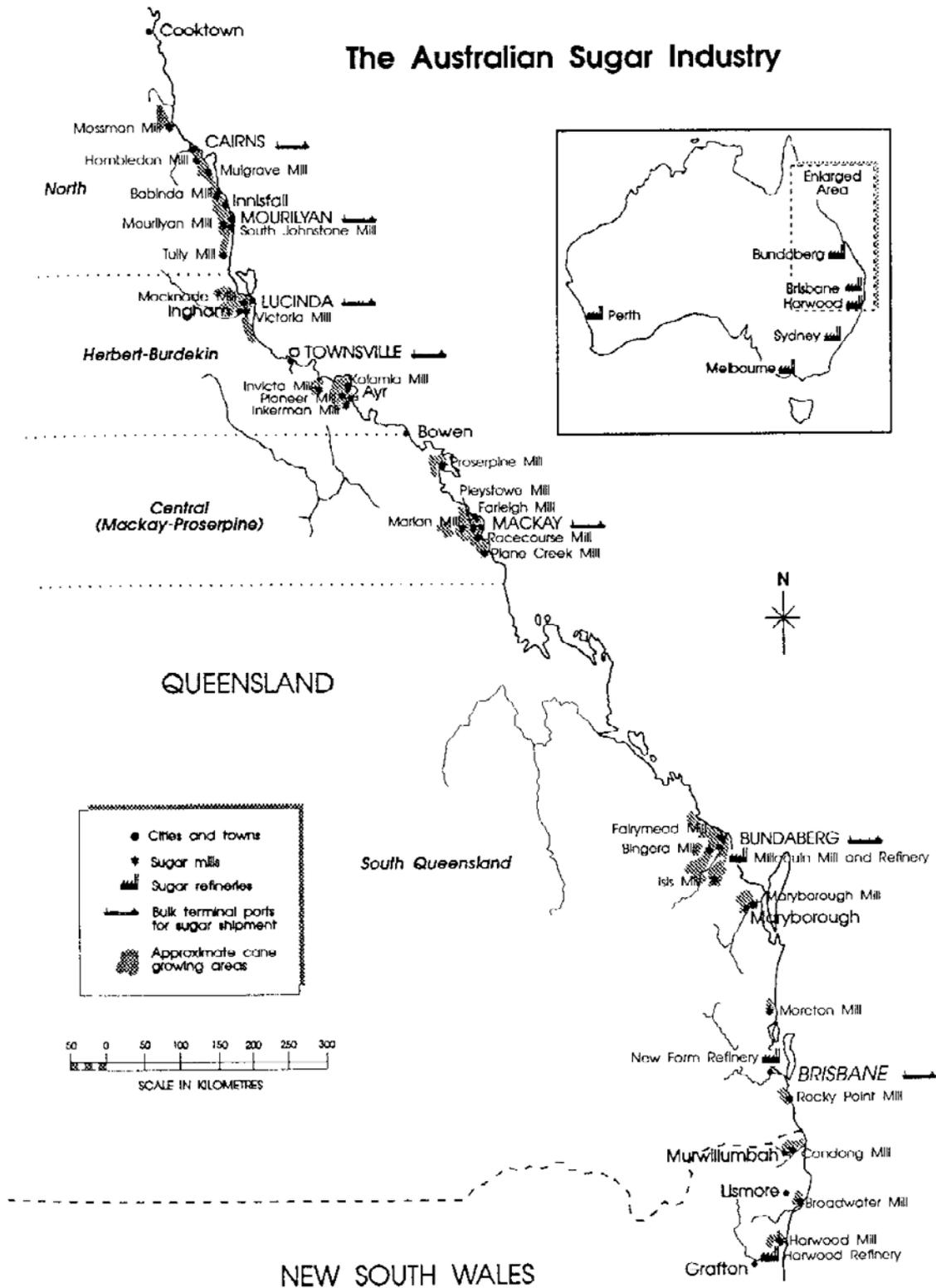
Advances	Interim payments made to mill owners before the declaration of a season's final prices.
Aspartame	A high intensity sweetener which is about 180 to 200 times sweeter than sugar. Aspartame is made by NutraSweet, a subsidiary of Monsanto. NutraSweet holds the US patent until 1992 but its patent has expires in Canada and the EC.
Assignment	Land on which sugar cane may be grown. It is not illegal to grow sugar cane on unassigned land, but raw sugar produced from such cane is acquired by the Sugar Corporation at a penal price of \$1 per tonne. The mill to which cane grown on the assignment must be supplied is also specified.
Bagasse	Bagasse is the plant fibre remaining after sugar has been extracted from cane. It is generally burnt to provide power for the sugar mill.
Billets	The common name for the chopped lengths (approximately 300mm) of cane produced by mechanical cane harvesters during the harvesting operation.
Bulk Terminal	A port facility for storage and handling of raw sugar in bulk. The Australian industry converted from transporting raw sugar in bags to bulk through the 1950s and 1960s.
Cane payments	A formula based on price of raw sugar, ccs and sugar recovery used formula by the Queensland industry to allocate net income from sugar sales between growers and millers.
Cane sugar	Chemical name sucrose. A carbohydrate. Sucrose can also be obtained from sugar beet and is present in fruits and other vegetables.
c&f	Cost and freight. When sugar is sold on a c&f basis the seller is responsible for arranging and paying for cargo loading and freight to the port of discharge.
cif	Cost, insurance and freight. When sugar is sold on a cif basis the seller is responsible for arranging and paying for cargo loading, freight and insurance to the port of discharge.
cow	Coefficient of work. A measure of the efficiency of operation of a sugar mill. It represents recovery of raw sugar (tonnes 94 nt.) per 100 tonnes ccs in cane.

ccs	Commercial cane sugar. An estimate of the weight of raw sugar that could be obtained from cane, expressed as a percentage of a tonne of cane.
Continuous	Mills crushing cane seven days a week during the crushing season in crushing lieu of five days a week.
Excess cane	Cane delivered in excess of farm peak.
Excess sugar	Sugar produced by a mill above its peak (see mill peaks).
Farm peak	A delivery quota which represents a right to supply cane to a mill to produce a given quantity of sugar, for which a 12 per cent higher (Pool 1) price is paid.
fob	Free on board. The buyer arranges shipping, pays freight and insurance and takes immediate responsibility for the sugar once it is loaded on board the ship by the seller.
Futures price	The price of a particular futures contract. Futures contracts are agreement to buy or sell a fixed amount of a commodity at a fixed price at a fixed date in the future. The futures market may be used for hedging or for speculative purposes. On the London and New York sugar markets, futures prices are usually quoted up to about 18 months ahead.
GATT	General Agreement on Tariffs and Trade.
HFCS	High Fructose Corn Syrup. This is the most common name for the starch based fructose/glucose syrups. Corn is the starch base of these syrups. Other suitable, but not widely used, starch sources include rice, wheat and tapioca. In Europe, HFCS is referred to as isoglucose. HFCS is a direct and significant competitor with sugar particularly in the USA Canada, Japan and Korea. HFCS is used almost exclusively in industrial applications, particularly in beverages
ldp	Landed Duty Paid. The value of imports in the receiving country landed on the wharf and including import duty.
Local award	The award made each year by the Local Board is taken by the <i>Sugar Industry Act 1991</i> to be a contract between the mill owner and each assignment holder in a particular mill area. It covers all matters relating to the harvesting and delivery of cane by the grower, and the transport, payment, handling and crushing of the cane by the mill owner.

Local board	A local board consists of five members appointed for three-year terms by the Governor-in-Council on the recommendation of the Minister. The Minister is to consult with the Queensland Sugar Corporation before recommending the appointment of an independent chairperson. Two cane grower members are nominated by the Mill Suppliers' Committee concerned and two miller members are nominated by the mill owner. The Board's powers are set out in the Sugar Industry Act 1991, with its main function being the framing of a Local Board Award each year.
Mill peaks	Production quotas specified in tonnes of raw sugar allocated to Queensland mills for which the 12 per cent higher Pool 1 price is paid. It is the sum of farm peaks in that mill area. Raw sugar produced in excess of peak receives the lower Pool 2 price. Mill peaks have been effectively frozen since 1982.
New York No.11 spot price	The price established at the end of a day's trading on the New York sugar futures market (New York Coffee, Sugar and Cocoa Exchange). It is the price at which committee representatives estimate that willing buyers and sellers would trade bulk raw sugar for prompt shipment. The price is determined on the basis of 96 pol fobs.
nt.	Net titre. A measure of the commercial value, for refining purposes, of raw sugar. Net titre provides a method for expressing different sugar at a standard value and is used for statistical and payment purposes.
NutraSweet	See Aspartame.
pol	Polarisation. The sucrose content of sugar. A sugar of 98 degrees pol would contain 98 per cent sucrose.
Ratoon cane	Cane is harvested by cutting the plant off at ground level. The stubble remaining puts out new shoots, and grows into what is known as a ratoon crop. One plant is usually allowed to grow two to four ratoon crops. After a final ratoon crop has been harvested the ground is usually ploughed and fallowed (rested) for a year. Legumes are often grown on the fallow ground.
Raw sugar	The sugar crystals separated in a centrifuge in a raw sugar mill. Australian raw sugar is usually in two grades either about 98.8 per cent or 97.6 per cent polarisation (pol). Pol is varied to satisfy the requirements of customers.
Raw value	A term used internationally to express raw and refined sugar on a common basis (96 pol equivalent). International sugar statistics are expressed in terms of metric tons raw value (mtrv).
Reasonable	Markets where there is a record of sales over a number of years and assured where there is every likelihood of continuing sales. It is common for markets contracts to be written (sometimes more than a year ahead) to supply these markets.

Season	A cane harvesting and crushing season in Queensland typically runs for 20 to 22 weeks from June to November. For accounting purposes a season corresponds to the period ending 30 June of the following year. For example, 1989 season corresponds to the year ended 30 June 1990.
Spot price	The notional price for raw sugar for prompt shipment. It is fixed each market day on international sugar markets. In theory, it is a price at which the buyers wishing to buy sugar for immediate delivery would be prepared to buy, and a price at which sellers wishing to sell sugar for immediate shipment would be prepared to sell. (See New York No. 11 spot price)
Spot sales	Sales made on an 'opportunist' basis to both traditional customers and to new markets.
Toll refining	Toll refining refers to the use of refining assets, for a fee, to process raw sugar into refined sugar. The refined product remains the property of the raw sugar supplier.
World price	The spot prices determined for raw sugar on the two main markets, London and New York, are considered to be indicators of the world price.

The Australian Sugar Industry



Source: Australian Sugar Year Book 1991

TERMS OF REFERENCE

AUSTRALIAN SUGAR INDUSTRY

Industry Commission Act 1989

I, PAUL JOHN KEATING, in pursuance of Section 7 of the Industry Commission Act 1989 hereby:

1. refer the Australian sugar industry (at the Commonwealth, State and Territory level) for inquiry and report within twelve months of the date of receipt of this reference;
2. specify that, the Commission review production, institutional, regulatory or other arrangements subject to influence by Governments in Australia, including changes made since the 1983 IAC inquiry, and identify any further initiatives which will raise overall economic efficiency;
3. without limiting the scope of the reference, request that the Commission evaluate:
 - (a) marketing arrangements in Queensland and New South Wales including consideration of the national and international marketing environment for sugar cane and sugars; and
 - (b) the appropriate form and level of tariffs on imported sugar to apply from 1 July 1992; and
4. specify that the Commission is to have regard to the established economic, social and environmental objectives of governments.

P.J. KEATING
20 March 1991

1 OVERVIEW AND RECOMMENDATIONS

The raw sugar industry is one of Australia's largest export industries. Exports represented approximately 75 per cent of the industry's sales of \$1.2 billion in 1990-91. Queensland accounts for around 95 per cent of production and all of Australia's raw sugar exports. The remainder is produced in New South Wales.

The industry competes very successfully on world markets, but its growth and performance are being impeded by one of the most restrictive regulatory regimes of any Australian industry. Reform of these regulatory controls is the major focus of this report.

The industry's performance is also influenced by other factors.

Climatic variability is particularly important. As a result of droughts and cyclones, the latest season has been one of the worst in recent years. However, Australian production takes place along 2100 km of coastline which is subject to a range of weather systems in any one season. As a consequence, Australia is better placed in most years to maintain supplies than are competitors whose industries are more regionally concentrated. There is little that governments in Australia can do to reduce the incidence of adverse climatic conditions on production levels.

Conditions in international markets are another important determinant of performance. At present, international markets are significantly influenced by protection policies pursued by many major consuming and producing countries. However, the Commission's analysis suggests that the actions of developed countries in reducing world sugar prices are broadly offset by those of some developing nations. In particular, prices would be depressed if Brazil were to remove barriers that prevent the export of sugar produced from cane currently being used domestically to manufacture ethanol. Consequently, it is not clear whether price levels for sugar in a 'free' world market would be higher or lower than those currently existing. Nevertheless, a 'freer' world market would benefit Australia to the extent that it reduces price variability and creates a more open world trading environment.

It is appropriate that Australian governments engage in negotiations aimed at persuading other governments to dismantle trade barriers, but there can be no guarantee that they will influence outcomes significantly in Australia's favour. One factor which is clearly subject to the influence of governments in Australia is the regulatory controls imposed on the Queensland industry. This is the most significant factor impeding the achievement of higher levels of efficiency. In contrast, the smaller New South Wales industry operates without State Government legislative backing, although it benefits significantly from the regulations that apply in Queensland.

Why is the Queensland industry so highly regulated?

The answer is largely historical. The regulation has evolved from war-time measures introduced in 1915. Domestic sugar prices were fixed and acquisition and marketing powers were established in Queensland. Under the Sugar Acquisition Act, all raw sugar produced in Queensland was compulsorily acquired by the Queensland Government and sold on its behalf by the Sugar Board, the predecessor of the Queensland Sugar Corporation. Subsequently, a system of land assignment was introduced to control the level and location of sugar cane production. Under this system, cane could only be grown on assigned land. Growers were required to deliver cane to designated mills, and mills were required to accept all cane grown on assigned land in their mill area. Most other facets of the delivery and pricing arrangements were specified in accompanying regulation.

In retrospect, it is easy to understand why many in the industry supported regulation. Growers feared the regional economic power of millers and, as the industry expanded, both growers and millers feared that the industry could be exploited by overseas buyers. Regulations were also seen as a means of reducing risk and stabilising producer incomes, and as a way of maintaining for established growers the higher prices attainable from domestic sales.

However, the world is very different today. Producers in most industries now have access to considerable market information on which to base production and marketing decisions. Sophisticated financial tools have become available to manage price and income variability. General trade practices legislation now deals with domestic anti-competitive behaviour throughout the economy. The chances of overseas sellers exploiting Australian producers have diminished as the volume of international trade has increased and as market intelligence and information systems have developed.

The nature of the Australian sugar industry has also changed significantly. With three quarters or more of its production exported, the sugar industry - in keeping with our economy generally - is now far more closely integrated with the global economy. With the demise of the International Sugar Agreement, there is no longer an externally imposed requirement to restrict sugar production.

Despite these developments, the Queensland sugar industry remains highly regulated. In contrast, regulations which constrain the activity of many other rural industries (eg eggs in New South Wales and wheat nationally) have been relaxed or removed. Regulations applying to a number of other Queensland industries (eg grains, cotton and peanuts) have also been relaxed or removed.

Some changes were introduced in 1991 with the passing of the new Sugar Industry Act. This resulted in all matters relating to the promotion and regulation of the sugar industry in Queensland being encompassed in the one Act. Marketing and some administrative functions were absorbed by the newly formed Queensland Sugar Corporation. Other changes included provisions to allow for annual increases in the area of assignment and for greater flexibility in the administration of the Act.

Many in the industry appear to consider that the changes introduced in 1991 have effectively deregulated the industry. However, although many significant changes have been introduced in the 1991 Act, the two mainstays of the regulatory package - the assignment system which controls production and the compulsory acquisition powers which underpin the marketing arrangements - remain.

Some of the costs imposed by regulation could be reduced under the 1991 Act. Indeed, the new Act could be employed as a transitional mechanism to assist the industry to become more responsive to market forces. However, to date it has not been implemented in a manner which allows these benefits to be fully realised. In particular, most new assignment continue to be allocated in very small increments, and transfer of assignment between mill areas, although permitted under the new Act, is in practice possible only in very limited cases.

How effective is the regulatory package?

The regulations have provided a degree of stability for both growers and millers. Each group has been insulated from competitive pressures from the other. Neither has had to take responsibility for most marketing and some production decisions - matters which in most other industries are considered to be best determined by producers themselves. Output has generally increased and the industry has been able to sell all sugar it produces without the need to provide credit. Compulsory acquisition has increased returns by permitting domestic prices to be held well above export prices.

However, these benefits have not been without cost to the industry, Queensland and to the Australian economy in general.

- The size of one of Australia's more internationally competitive industries has been administratively constrained. As a result, export opportunities for raw sugar, and possibly refined sugar, have been lost. Estimates of the potential for expansion range up to 50 per cent. The failure to make use of this potential represents a significant loss to the nation as a whole.
- New production and exports are discouraged by the application of a fixed 12 per cent payment differential in favour of established growers. This is tantamount to a tax on new growers and industry expansion. However, the benefits that accrue to established growers from the differential are small, representing about a 1 per cent increase in returns.
- Pro rata allocation of increases in assignment has encouraged the use of marginal land at the expense of land in other areas better suited to cane growing. Around 5 per cent of assigned land has been assessed as marginal or unsuitable for cane-growing.
- The restraints on expansion and the taxing effect on new production of the 12 per cent differential between Pool 1 and Pool 2 sugar prices have limited the interest and constrained offer prices for new irrigation farms associated with the Burdekin River Irrigation project. At present, the Queensland Government recoups only about one-third of land development costs in the Burdekin area.

-
- Restrictions on the transfer of assignment have helped perpetuate a scale of cane growing which is below that required to realise the available economies of size and to produce at least cost.
 - The regulations have impeded producers from responding to changes in market conditions - such as the harsh conditions recently experienced. Growers and millers are locked into prescribed practices. Individually they cannot significantly expand or contract production. They cannot market their own sugar - even if it is to their financial advantage to do so. They cannot use some of the financial instruments employed by other rural producers to manage their own risk. As a result, innovation has been stifled.
 - The lack of competition in the marketing of Australian sugar reduces the discipline on the Queensland Sugar Corporation to seek the highest market returns and to minimise costs.
 - Constraints on land use have discouraged growers from pursuing best agronomic practices. They have also encouraged practices which may have adverse environmental consequences (eg greater usage of fertilisers and pesticides per hectare, and reduced fallowing).
 - Controls on marketing, coupled with tariff assistance, have increased domestic sugar prices and reduced the competitiveness of user industries. In 1990-91, domestic prices of refined sugar were estimated to be about 40 per cent higher than export prices. This imposed a cost on user industries and final consumers of about \$100 million in that year.

The output of our economy has been suppressed because the efficiency of the sugar industry has not been as great as it could have been, and because higher domestic sugar prices have retarded the growth of user industries. Significant employment opportunities have also been foregone. One study estimated that economy-wide employment would increase by at least 3000 if the size of the industry was not constrained by regulation.

Quantitative analysis undertaken by the Commission could not forecast the extent to which cane growing would expand if the present controls were removed, or how long any expansion would take. However, it suggested that if the area of land under cane were to expand by 30 per cent (which appears to be well within the available supply of land suitable for cane growing), the value

of output (and exports) of the Queensland raw sugar industry would increase by around \$375 million annually. The increase in gross domestic product would be in the order of \$200-\$400 million annually. These increases would result not simply from the expansion of land committed to cane, but also from productivity improvements that could be achieved if the present production controls were lifted.

What changes should be made?

The staged removal of all production and marketing controls specifically targeted at the sugar industry would benefit both the industry and the Queensland and Australian economies. It would represent a major departure from the current arrangements. In particular:

- the area and location of cane growing would no longer be administratively constrained;
- delivery terms and conditions would be negotiated between growers and millers having regard to the particular characteristics of each region and the needs of each party;
- millers, and perhaps some growers, would choose how they market their sugar and how they handle their exposure to marketing risks;
- the returns from any pooling arrangements undertaken by the Sugar Corporation or any other sugar marketer would reflect actual prices and costs associated with the marketing of raw sugar. It would not be possible to sustain a system of differential payments which are unrelated to actual market returns as presently occurs; and
- competition between multiple sellers of sugar on the domestic market would eliminate the higher prices paid by domestic users which stem from the compulsory acquisition of all raw sugar produced in Queensland.

The changes would enable growers, millers and marketers to evaluate alternative strategies and enter into those arrangements which best suit their individual needs. Competitive pressures would provide a strong incentive to ensure that production and marketing activities are undertaken as efficiently as possible.

The staged removal of the regulations would not necessarily lead to the abandonment of many current practices. Experience in New South Wales demonstrates that millers and groups of growers can voluntarily maintain many features of the regulated system. Queensland growers and millers could, for instance, choose to continue many of the present harvesting and delivery arrangements, particularly in those areas where mills are co-operatively owned. The Sugar Corporation could remain as a marketer of sugar and continue to perform many of its current functions (eg operate a seasonal pool) in competition with other sellers.

In most respects, the changes proposed would lead to arrangements that already exist in other rural industries, particularly those producing perishable products. Consequently, arguments that such changes will not work in practice or will cause irreparable damage to the industry are hard to sustain. In particular:

- Cane production and milling capacity would be matched through conditions specified in contracts and the pricing mechanism. As in other rural industries, contracts could provide growers with security of access to milling capacity, and mills with a guarantee of future throughput. They would also provide both mills and growers with security upon which to base future investment decisions.
- The mutual dependence between growers and millers would limit the extent to which millers could use market power to the detriment of growers. Trade practices legislation, the potential for growers to negotiate collectively with mills and to seek equity interests in established or new mills, and the potential for growers in some regions to choose between mills also militate against misuse of market power.
- Empirical studies show that additional Australian sugar production would have only a minor effect on international prices.
- There is no empirical evidence to suggest that Australian sugar can be exported at a price premium (considerations of quality and conditions of sale aside) other than into quota protected markets. The removal of the single seller arrangements would not therefore undermine export returns. Special arrangements could, and should, be made to ensure that the benefits from sales to quota protected markets are retained.
- Any benefits stemming from the Corporation's marketing services package would be preserved. To the extent that the package allows the Corporation to differentiate its product and achieve higher returns, the Corporation's reputation as a marketer of sugar would be enhanced, as would its ability to continue as the major marketer of Queensland sugar.

The higher price obtained from domestic sales would be largely removed once the single seller arrangement for Queensland sugar ceased. However, even if the current regulations were maintained, the maintenance of much of the margin would depend on the continuing provision of Commonwealth Government assistance.

Should assistance to the industry be retained?

The sugar industry benefits from significant tariff assistance. No other export oriented rural industry benefits from such significant Commonwealth assistance.

The Australian sugar industry has proved that it is internationally competitive. Consequently, the case for assistance for the small and declining proportion of Australian sugar sold on the domestic market (currently about 25 per cent) is weak. While all of the output of the New South Wales industry benefits from the present tariff assistance, it is well located to supply the domestic market. The overall competitive position of the New South Wales industry in the absence of tariffs may not be significantly different from that of the Queensland industry. On the other hand, the costs imposed on user industries by the tariffs on raw and refined sugar are considerable. These costs also constitute a barrier to the establishment of new value-adding activities.

The Commonwealth Government is committed to generally reducing assistance to industry. Indeed, most tariffs are being reduced to 5 per cent by 1996. Given these circumstances, the Commission has been unable to identify any factors which would warrant special treatment being afforded the Australian sugar industry. It recommends that assistance to raw and refined sugar be ultimately removed.

Should the changes be introduced immediately?

Deferring change that will allow the industry to be more responsive to market forces will delay the expected benefits. However, the immediate removal of all production and marketing regulations could pose some difficulties. It could cause short term uncertainty, and some initial difficulties in coordinating some transport and milling activities if market circumstances change and there were an immediate and large increase in plantings. A problem could also arise in meeting existing contractual obligations with overseas buyers if a significant proportion of mills were to elect to sell directly to users rather than through the Corporation.

For these reasons, the Commission recommends that the existing regulations which control production and marketing in Queensland be phased out. Most of the transitional arrangements relating to production can be implemented under the provisions of Queensland's new Sugar Industry Act.

The Commission's recommendations involve annual increases in assignment of at least 5 per cent until 1996, after which time all production controls would be removed. Until 1996, 50 per cent of new assignment would be allocated to established growers. The remaining 50 per cent would be allocated to new growers. While a number of different mechanisms could be employed to allocate assignment to new growers (eg allocation could be made by using a tender system or, as at present, by local boards), the method used should guarantee that all available new assignment is allocated as soon as possible. All new assignment allocated to both existing and new growers would be freely transferable between growers, both within and between mill areas.

The Queensland Sugar Corporation would retain the right to compulsorily acquire sufficient sugar to fulfil long-term contracts existing at the time of the commencement of the transition period. Producers would be free to market all remaining sugar as they wished. This would include the option of continuing to deliver to the Corporation. However, the Corporation would no longer be obliged to purchase all, or even any, raw sugar not compulsorily acquired during the transitional period. Once all existing contractual obligations are satisfied, compulsory acquisition would cease.

In its draft report, the Commission proposed that tariff assistance also be phased out. There is, however, a complication arising from the ending of compulsory acquisition. Once acquisition of

all raw sugar in Queensland ceases, competition between sellers would reduce returns from raw sugar sold domestically to around export parity, even if tariff assistance were to remain. This would eliminate the cushioning effect that phased tariff reductions would otherwise have provided, and because refiners would continue to benefit from a tariff on refined sugar, it would provide a windfall gain to domestic refiners over the phasing period.

To overcome these difficulties, the Commission recommends that the tariff be removed and a one-off transitional payment be made in lieu of tariff assistance. The payment would be equivalent to the present value (at the time compulsory acquisition ceases) of the remaining assistance which would otherwise be afforded against imports from developing countries if the general rate was progressively reduced to Free by 1998. A single payment, rather than a series of payments as assistance is phased down, would reduce administrative costs and provide producers with the benefits of the transitional assistance sooner. The payment would be made as soon as practicable after the ending of compulsory acquisition (other than that required to fulfil long term contracts existing at the time at which the transitional arrangements are introduced) ceased. Until that time, the tariffs on raw and refined sugar would remain, although both would be subject to phased reductions.

Transitional payments to Queensland and New South Wales would be based on the average annual tonnage of raw sugar sold for domestic consumption by each state in 1989-90, 1990-91 and 1991-92, and a rate of payment per tonne based on the tariff assistance that would otherwise have been provided. The payment would initially be made to the Queensland Sugar Corporation and the New South Wales Sugar Milling Co-operative. Payments to mills would be on the basis of assignment in Queensland and production area entitlements in New South Wales. The payment would be distributed between millers and growers in each mill area in the same proportion as was revenue from all sales of raw sugar produced in the 1989-90, 1990-91 and 1991-92 seasons. Payments would be distributed between individual growers within each mill area on the basis of registered holdings of assignment and production area entitlements as at 6 March 1992.

If compulsory acquisition in Queensland were to cease for raw sugar (other than that required to satisfy the long term contracts identified above) at the end of June 1993, then, assuming an 8 per cent discount rate and a duty-free import price for raw sugar of \$A300 per tonne, the transitional payment would amount to approximately \$47 million. Producers in Queensland and New South Wales would be entitled to about \$37 million and \$10 million respectively.

A single payment in the form outlined would have no bearing on producers' decisions concerning future levels of output. Such a payment would therefore be purely a mechanism for supporting producers' incomes. The transitional payment would largely remove the incentive which a tariff provides to maintain compulsory acquisition in order to retain the benefit of higher prices on domestic sales. It would also allow domestic sugar users earlier access to raw and refined sugar at international prices. Provided compulsory acquisition ceases, the transitional payment would be of significantly greater advantage to raw sugar producers than the tariff assistance, proposed in the draft report, which would have been competed away by multiple suppliers.

Would any grower or miller be worse off?

While producers as a whole would be better off as a result of the removal of the statutory production and marketing controls, some would be worse off. Higher cost growers, who would face competitive pressures from existing or new growers, may elect to sell out to more efficient growers. While mills may not be subject to the same pressures as growers, some mills would, in the longer term, stand to lose throughput or face the risk of takeover.

The profitability of sugar production would generally not be diminished (and could be increased) by the removal of the existing controls in Queensland. Thus, land and other assets devoted to sugar production should retain their value. About 5 per cent of land currently in production has been assessed as marginal or unsuitable for cane growing. The value of this land could be reduced. On the other hand, unassigned land owned by existing growers and those currently outside the industry should increase in value if it is suitable for growing cane. Thus, the abolition of assignment would not cause a general reduction in Queensland growers' asset values.

The return to growers in New South Wales would be reduced by around \$3600 annually as a result of the removal of the compulsory acquisition powers in Queensland. This is because the margin above export prices currently obtained in the domestic market - the only market supplied by the New South Wales industry - would be largely removed. As a consequence, the value of sugar land in New South Wales would be lower following implementation of the Commission's recommendations than it would be if the present policies were retained.

Under the present Queensland pooling arrangements, producers receive 12 per cent higher payments for peak entitlements of raw sugar than for sugar in excess of peak. Even if the Corporation were to maintain a seasonal pool, the absence of acquisition powers would make it financially impossible for the Corporation to continue to pay higher returns to holders of peak. However, holders of peak entitlements would be only marginally disadvantaged - their returns would fall by only a little over 1 per cent. In contrast, returns to growers contributing to Pool 2 would increase by a little more than 10 per cent.

Producers in Queensland, and more particularly New South Wales, would be disadvantaged by the removal of compulsory acquisition and the tariff. By the end of the phasing period, domestic prices would be reduced to broadly similar levels to those achieved for exports. However, as tariff assistance has not been available to other rural producers in export oriented industries, the eventual removal of assistance would place sugar producers on a similar footing to these other rural producers.

Many growers and millers in Queensland and New South Wales would, however, benefit from the Commission's proposals to separate the operations of the bulk terminals in Queensland from that State's payments system. The Commission proposes that the bulk terminals be established as seven separate companies and operated on a commercial basis. Equity in the companies, which could be determined by an industry committee composed of representatives of major stakeholders, would be held in the form of freely tradeable shares. Each shareholder would initially have shares in each of the companies. Based on the historical cost of terminal assets and the traditional two thirds - one third division of funds between growers and millers, the value of share entitlements for growers would be, on average, approximately \$25 000. Mills' entitlements would range in value from around \$1 million to \$5 million.

There would be an incentive for the producers in each region to become major shareholders in the local terminal company. This would allow them to influence the way in which the terminal they supply is operated. Over time, share trading could produce this outcome. In these circumstances, there would be little likelihood that terminal companies would exploit their market power by

charging ‘monopoly’ prices. Nonetheless, to guard against this outcome, and the possibility that access would not be provided on a non-discriminatory basis, the operation of the new terminal companies could be subject to scrutiny by the Trade Practices Commission and the Prices Surveillance Authority.

Existing growers would also be advantaged if they were to receive all or part of the proceeds from the sale of the right to supply quota protected markets. Alternatively, the money could be used to fund projects which benefit the industry generally (eg some research projects).

Adjustment pressures that some producers would face would also be moderated by the transitional arrangements proposed by the Commission.

The Commission has concluded that any detrimental effects which might arise from removal of the statutory production and marketing arrangements would be substantially out weighted by the gains that would result. The recommended changes would benefit the sugar industry, users and the nation as a whole.

FINDINGS AND RECOMMENDATIONS

1. The major factor reducing the efficiency of the Australian sugar industry which is subject to influence by governments in Australia is the regulatory controls applying to the production and marketing of raw sugar in Queensland. Any detrimental effect on the Australian industry caused by the effect of assistance policies in other countries on the international marketing environment is of less importance and is not subject to Australian Government control.
2. To raise overall economic efficiency, the Industry Commission recommends that the Commonwealth Government approach the Queensland Government with a view to:
 - (i) amending the *Sugar Industry Act 1991* such that:
 - no raw sugar manufactured in Queensland, other than that required until the end of the 1997 season to satisfy long term contracts as specified in section 2(iii) below, be vested in the Queensland Sugar Corporation; and
 - immediately following the 1995 season, the assignment system be abolished so that no constraints are placed on land that may be used for growing sugar cane or the mill to which cane is delivered, and mills are no longer required to accept sugar cane.
 - (ii) as soon as possible, modifying the existing arrangements applying to bulk sugar terminals in Queensland such that:
 - bulk sugar terminals are privately owned and operated on a commercial basis;
 - each bulk terminal is incorporated as a separate company;
 - each terminal provides non-discriminatory access to all parties; and
 - equity in each company initially recognises all contributions made to infrastructure by growers and millers. Equity allocations could be determined by a committee composed of representatives of major stakeholders.

-
- Equity holders be allocated freely tradeable shares in each of the seven companies.
- (iii) introducing transitional arrangements to apply from 1993 until implementation of the changes proposed in 2(i) above such that:
- the total area of assigned land be expanded at a minimum annual rate of 5 per cent;
 - 50 per cent of new assignment be allocated to new growers. All new assignment be freely transferable;
 - access to mills and the price paid for cane grown on new assignment be subject to negotiation between growers and mills. The outcome of such negotiations not prejudice the terms and conditions afforded existing growers;
 - assignment existing prior to the 1993 season be transferable freely within a mill area and not be subject to approval by local boards. Transfer of assignment existing prior to the 1993 season between mill areas be subject only to the successful negotiation of mill access conditions with the receiving mill;
 - compulsory acquisition by the Queensland Sugar Corporation be restricted to only that quantity of raw sugar required to satisfy long term contracts with overseas buyers existing at the time at which the transitional arrangements are introduced. Such sugar be deemed to be acquired from all mills in Queensland in proportion to their raw sugar production; and
 - the Queensland Sugar Corporation's pooling arrangements be modified to remove any differential payments to producers which are unrelated to the actual returns received and the actual costs of marketing such sugar.
3. The Commission recommends that the specific tariffs on imports of raw and refined sugar be terminated, and that a single transitional payment be made to producers of raw sugar in lieu of tariff assistance. The payment would apply to the period from the cessation of compulsory acquisition (other than that required to fulfil long term contracts existing when the transitional arrangements are introduced) to 30 June 1998. The transitional payment would be determined as follows:
- an eligible tonnage be determined for Queensland and New South Wales on the basis of each state's average annual production of raw sugar sold for domestic consumption in 1989-90, 1990-91 and 1991-92;

-
- the rate of payment per tonne be:
 - based upon the assistance which would otherwise have been provided against raw sugar imported from developing countries by a general rate of tariff which progressively reduces from \$55 per tonne at 1 July 1992 to Free by 30 June 1998 in accordance with the schedule below;
 - reduced by an amount equivalent to the average proportion that the annual export rebates paid by the Queensland Sugar Board/Corporation was of the assistance available against imports in 1989-90, 1990-91 and 1991-92; and
 - discounted to reflect the present value of tariff assistance that would otherwise have been afforded in future years;
 - the payment, which would be based on the eligible tonnage and the rate as determined above, be made in the first instance to the Queensland Sugar Corporation and to the New South Wales Milling Co-operative for distribution to mills and eligible growers as follows:
 - distributed to mills in Queensland and New South Wales according to each mill area's share of registered assignments and registered production area entitlements as at 6 March 1992;
 - distributed between the mill and growers in each mill area in accordance with their respective shares of revenue from all sales of raw sugar produced in the 1989-90, 1990-91 and 1991-92 seasons; and
 - distributed between individual growers in each mill area in Queensland and New South Wales according to each grower's share of registered assignments and registered production area entitlements as at 6 March 1992.

When compulsory acquisition ceases, all tariff assistance for raw and refined sugar would be removed. Until compulsory acquisition ceases, tariff assistance to raw and refined sugar would continue, but would be reduced annually in accordance with the schedule below. Further details about the application of the transitional payment are outlined in Section 7.3.

General tariff rate to apply to imports of raw and refined sugar
(\$ per tonne)

<i>Year</i>	<i>General rate</i>
1992-93	55
1993-94	45
1994-95	35
1995-96	25
1996-97	15
1997-98	5
1998-99	0

4. The Commission considers that the principal social consequences of implementing its recommendations would be an expansion of economic activity in cane growing areas of Queensland, particularly in the Burdekin, Herbert River, Proserpine and Tully regions. Greater responsibilities would be placed on individual mills and growers, and on groups of growers, to manage their own production and marketing arrangements. The Commission considers that the Rural Adjustment Scheme and the Income Equalisation Deposits Scheme are appropriate government policies to deal with problems encountered by any individuals disadvantaged by these changes.
5. The Commission considers that the implementation of its recommendations would reduce the rates of use of non-land inputs (eg irrigation water, fertilisers and pesticides) relative to the use of land, and this would have some favourable environmental consequences. Although there could be some environmental implications associated with the expansion of the industry, the Commission has not identified any significant adverse environmental consequences that may be associated with implementing its recommendations. Environmental issues brought to the attention of the Commission are discussed in Appendix F.

The Commission draws attention to its comments and suggestions on:

- the allocation of assignment to new growers (Section 5.6.2);
- options for maintaining premiums available from quota protected export markets (Section 6.7.1);
- the future role of the Queensland Sugar Corporation (Section 6.7.1);
- the present pooling arrangements (Section 6.7.3);
- the need to review transport allowances (Section 6.7.3);
- anti-dumping arrangements (Section 7.3.2);
- the Queensland Sugar Corporation facilitating producers' ability to use futures markets or other financial instruments to help manage risk (Section 9.6);
- further value-adding activities (Chapter 10); and
- the international marketing environment and its effects on the Australian sugar industry (Section 11.2 and 11.3).

2 INTRODUCTION

The Commonwealth Government referred the Australian sugar industry to the Commission for inquiry and report by 20 March 1992. The terms of reference are set out on page xiv.

2.1 Origins of the inquiry

In the May 1988 Economic Statement, the Government announced its intention to replace the import embargo on sugar and certain sugar products with an ad valorem tariff from 1 July 1989. This was part of a decision to reduce industry protection across-the-board. In addition, the administered domestic price for raw and refined sugar was to be abolished. In December 1988, the Minister foreshadowed that there would be an inquiry by the Commission into the long term assistance arrangements to apply from 1992. Prior to implementation, the tariff proposal was reviewed and, in May 1989, the Minister for Primary Industries and Energy announced a specific rate tariff structure to apply to both raw and refined sugar imports after the removal of the import embargo.

The Government's Statements of 12 March 1991 announced reductions in tariffs on agricultural products, including sugar, in line with reductions in tariff protection for all industries.¹ The Government also announced that the Commission had been asked to inquire and report on the sugar industry, including the appropriate form and level of tariffs on imported sugar to apply from 1 July 1992.

2.2 Scope of the inquiry

The inquiry covers all aspects of the Australian sugar industry including the growing of sugar cane, the production and marketing of raw sugar, and the production and marketing of refined sugar and sugar products.

The inquiry is primarily concerned with the effects of institutional, regulatory and other arrangements subject to the influence of governments in Australia on the efficiency of the sugar industry, on industries which use sugar, and on the economy generally. In addressing these matters, the Commission has focused on industry-specific factors and on those general economic factors which bear particularly strongly on the sugar industry.

The Commission was also asked to consider the national and international marketing environment for sugar cane and sugars. Of particular importance are the sugar industry policies of major

¹ Building a Competitive Australia, 12 March 1991, Statements by: the Prime Minister, Bob Hawke; the Treasurer, Paul Keating; the Minister for Industry Technology and Commerce, John Button; AGPS.

consuming countries such as the EC, the USA and Japan and other major producers, notably Brazil. In keeping with the Commission's policy guidelines, options for change have been developed having regard to their implications for the economy as a whole rather than simply from the perspective of the sugar industry. The policy guidelines require the Commission to have regard to the desire of the Commonwealth Government to: encourage the development of efficient industries; facilitate structural adjustment; reduce unnecessary industry regulation; and recognise the interests of other industries and consumers generally. The Commission is also required to report on the social and environmental consequences of any recommendations it makes.

2.3 Inquiry procedures

Shortly after receiving the reference, the Commission held preliminary discussions with representatives of growers, millers and sugar users. An issues paper to assist participants in the preparation of submissions to the inquiry was subsequently released in April 1991. Further industry visits in Queensland and northern New South Wales were undertaken in late June 1991.

Written submissions were received and an initial public hearing was conducted in Brisbane on 27 and 28 June 1991. On 17 September 1991, the Commission held a one-day modelling workshop to explore the scope for productivity improvements through reform of the institutional framework applying to the Australian sugar industry. The workshop also looked at measuring the effects on Australia of liberalising world sugar trade, and at the Commission's approach to the measurement of assistance.

On the basis of information and comment presented at the public hearing and in written submissions, a draft report was prepared and released on 16 October 1991. The Commission called for submissions on the content of the draft report and on the draft findings and recommendations.

A second public hearing to discuss the matters raised in the draft report was conducted on 26 and 27 November 1991 in Brisbane. Further visits were made in Queensland following the second public hearing to discuss the content of the draft report. A list of those appearing at both rounds of hearings, along with other written submissions received, is included as Appendix A.

2.4 Structure of the report

Chapter 3 provides a brief description of the Australian sugar industry and its markets. This is followed by an outline of how the regulatory framework of the industry has evolved, including changes made since the 1983 Industries Assistance Commission (IAC) inquiry. Chapters 5 and 6

examine production controls and statutory marketing arrangements respectively, in Queensland. These chapters review the major production, institutional, regulatory and other arrangements subject to influence by governments in Australia, and identify further initiatives which will raise overall economic efficiency. Chapter 7 focuses on domestic market protection and the levels of assistance available to the Australian sugar industry. It includes the Commission's assessment of the appropriate form and level of tariffs to apply from 1 July 1992. Chapter 8 describes the New South Wales industry. Chapter 9 explores income and price instability and risk management issues. Chapter 10 looks at factors which influence the development of further value-adding activities based on the sugar industry in Australia. Chapter 11 presents estimates of the effects of overseas sugar industry policies on the international marketing environment, and of the effects of potential changes within the Australian industry.

3 INDUSTRY STRUCTURE

In recent years sugar cane production has contributed between 4 and 8 per cent of the gross value of Australian rural output. In 1990-91, raw sugar contributed about 1.7 per cent of the value of all Australian exports.¹ The sugar industry consists of three major sectors: cane growing, milling and refining.

3.1 Cane growing

Sugar cane is grown along 2100 kilometres of north eastern coast between Mossman in Queensland and Grafton in New South Wales. Most farms are within 50 kilometres of the coast. About 95 per cent of sugar cane is grown in Queensland and the remainder in northern New South Wales. However, there is potential for sugar cane to be grown in other parts of Australia. For example, there are proposals to develop a sugar industry in the Ord River irrigation area in the Kimberley region of Western Australia.

The total area of land devoted to cane growing in Australia in 1990 was approximately 403 000 hectares, comprising 372 000 in Queensland and 31 000 in New South Wales. Approximately 117 thousand hectares are irrigated.²

Most Australian sugar cane is grown on highly mechanised farms, owned and operated by farmers themselves. In 1991, sugar cane was grown on about 6500 farms in Queensland and New South Wales. Most cane farms in Queensland grow between 30 and 90 hectares of cane, with the average area being some 65 hectares (see Table 3.1).

Table 3.1: **Distribution of area of assignment per farm unit by region in Queensland**
(per cent)

<i>Region</i>	<i>0 to 30 ha</i>	<i>30 to 60 ha</i>	<i>60 to 90 ha</i>	<i>greater than 90 ha</i>
North	10.5	45.4	22.5	21.7
Burdekin	14.3	43.8	19.1	22.9
Central	5.0	39.6	29.3	26.1
South	18.8	51.0	15.9	14.3
Queensland	11.6	45.0	22.3	21.2

Source: Queensland Department of Primary Industries, *Report of the Sugar Industry Working Party*, 5 June 1990, Appendix 12.

¹ Derived from Australian Bureau of Statistics, *Foreign Trade Statistics, Microfiche Table MX04C*, June 1991.

² Canegrowers, *Cane Growers' Information Handbook*, Brisbane 1991, pp. 8-9.

A hectare of land yields, on average, about 84 tonnes of cane, from which about 11 tonnes of raw sugar are produced. However, there is considerable yield variation between seasons and regions depending, among other things, on weather conditions and the extent of irrigation.

Sugar cane normally grows for 12 to 16 months before being harvested. However, in the cooler districts of northern New South Wales and southern Queensland, a major proportion of the crop is allowed to grow for 18 to 24 months. The cane is usually harvested between June and December when the sugar content of cane is high.

After the cane is harvested, the stubble remaining puts out new shoots and grows into what is known as a ratoon crop. One planting is usually allowed to grow two ratoon crops but, in some areas, as many as four are grown before being ploughed out and replanted. Land is usually fallowed for one year before the replanting of a new cane crop.

Burning of cane prior to harvesting remains the norm in the southern regions. However, green cane harvesting is becoming common, particularly in the far north of Queensland. Because cane farms in Australia are small, most growers have their cane cut by contractors. However, in some cases, individual growers own machines and harvest their own cane. Once cut into billets, sugar cane is perishable and must be processed within a short period (normally about 16 hours) before deterioration commences.

3.2 Sugar milling

3.2.1 Background

The growing and milling sectors are closely interdependent due to the perishability of cane and transport costs. Cane is delivered to mills, located in the cane growing areas, by a rail and/or road transport system designed to ensure that delays between harvesting and crushing are kept to a minimum. The milling process involves crushing cane to extract the raw sugar. Queensland sugar mills own, operate and maintain about 3900 kilometres of narrow gauge tramways. In New South Wales, deliveries are by road.

There are 28 raw sugar mills in Australia, 25 of which are located in Queensland and three in New South Wales. The number of mills has declined in recent years, with five mills closing in the last five years. The Hambledon mill near Cairns closed at the end of the 1991 season.³ Seven mills are owned by CSR Ltd (CSR), six by Bundaberg Sugar and four by the Mackay Co-operative, all within Queensland. Six of the eight remaining mills in Queensland are owned by local growers,

³ The other four mills already closed are Goondi, North Eton, Qunaba and Cattle Creek.

one by a private company and one by a public company (Maryborough mill). The three mills in New South Wales are owned by a single cane grower co-operative. Table 3.2 shows the ownership of milling capacity in Australia.

Sugar milling is usually confined to the period from June to December to take advantage of the higher sugar content of cane and to avoid the wet season which extends from late December through to March. Mills operate on a 24 hour a day basis. Weekend closures have been typical in the past, but in recent years 7 day a week operations (continuous crushing) have become more common.

Table 3.2: Ownership of milling capacity, 1991 season

<i>Ownership</i>	<i>No of mills</i>	<i>Tonnes of raw sugar produced (94nt)</i>	<i>Percentage of Australian production</i>
	No.	000	%
Mackay Sugar Co-op.	4	524.9	17
Bundaberg Sugar Co.	6	609.1	20
CSR Ltd.a	7	1 071.2	34
NSW Sugar Milling Co-op.	3	180.2	6
Others	8	725.3	23
Australian Total	28	3 110.7	100

a CSR's output includes that processed by Hambledon mill before its closure.

Source: Derived from data supplied by the Australian Sugar Milling Council.

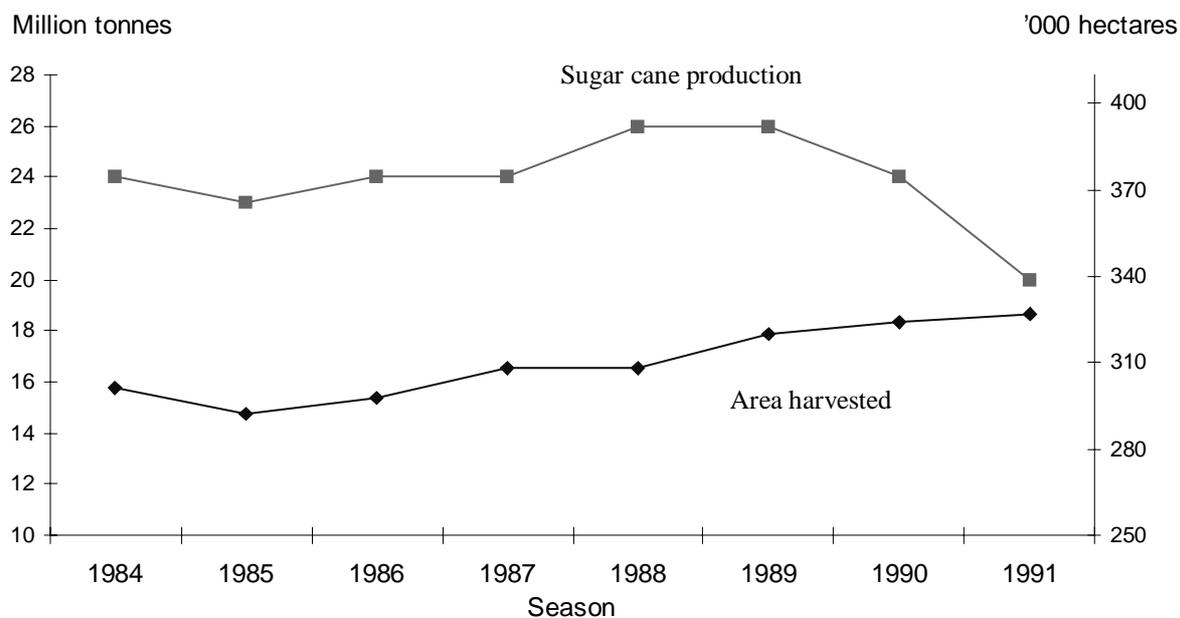
3.2.2 Raw sugar production

In the 1991 season, Queensland mills processed 20 million tonnes of sugar cane into 2.9 million tonnes of raw sugar, while New South Wales produced 180 000 tonnes of raw sugar from 1.4 million tonnes of cane.

Major by-products of the milling process are bagasse (fibre), molasses and filter mud. Bagasse provides nearly all the fuel required for steam and electricity generation at the mills. Molasses is used for stock feed and as a raw material for distilleries. Ash and filter mud are used as a fertiliser on cane farms and gardens.

Figure 3.1 shows the variability of Queensland sugar cane production. It indicates a large decline in sugar cane milled in Queensland in the 1991 season compared with previous seasons. This was the result of severe weather conditions in the form of floods and drought which affected most of Queensland during this period. The effect of drought has varied significantly between regions. The Mackay-Proserpine region has been the hardest hit with a decline of slightly over 40 per cent in cane production compared with the 1990 season (see Table 3.3).

Figure 3.1: **Queensland sugar cane production and area harvested for milling, 1984 to 1991**
(Production in million tonnes and area in hectares)



Source: Australian Sugar Year Book, 1991, and information supplied by the Australian Sugar Milling Council.

Table 3.3: **Sugar cane production by region**

Region	1990	1991	Percentage
	Tonnes	Tonnes	decline / increase %
North	5 180 435	4 830 351	-6.8
Herbert-Burdekin	7 871 790	6 187 946	-21.4
Mackay-Proserpine	7 843 293	4 645 266	-40.8
South	5 297 487	4 254 550	-19.7
Queensland	26 193 005	19 918 111	-24.0
NSW	1 430 078	1 448 900	+1.3

Source: Australian Sugar Year Book, 1991 and The Canegrower, 13 January 1992.

The 1991 harvesting season was shortened as a result of the drought. In some areas it was less than 12 weeks, compared with the usual crushing season of around 21 to 22 weeks. However, because of the short season the sugar content of cane was 1.5 to 2 units of ccs above that of the 1990 season, and if good rain falls.

3.3 Sugar refining

Raw sugar is an intermediate product which requires further refining before it can be used in the manufacture of food and beverage products or as a final consumption food product. Refineries process raw sugar into white (refined) sugar and liquid sugar products. Other speciality products, such as golden syrup, treacle, coffee sugar and cube sugar are produced as part of the refining process.

For many years around 95 per cent of domestic demand for refined sugar was supplied by CSR. However, in 1989, the New South Wales industry established, in a joint venture with the Manildra Group of Companies, a refinery at Harwood (near Grafton). This has captured around 25 per cent of the domestic market, reducing CSR's share to about 69 per cent. The Millaquin Sugar Company Pty Ltd at Bundaberg supplies around 5 per cent. Imports of refined sugar represent about one per cent of the market.

The refining sector is considered in some detail in Chapter 10.

3.4 Employment

In addition to the 6500 canegrowers in both New South Wales and Queensland and their working family members, approximately 900 persons are employed full-time on cane farms. Some 4000 persons are employed for periods of up to six weeks each year to undertake seasonal tasks such as land preparation and planting. Also, during the harvesting season, usually about 21 to 22 weeks in the second half of the year, 4000 persons are employed in contract harvesting, some of whom are also engaged in plant maintenance in the off-season.

During the crushing season, mills employ up to 6000 people. This falls by about 20 per cent during the off-season (January to June) when most of the upgrading, servicing and maintenance of mill plant, equipment and tramways is carried out.⁴

As sugar production is the principle activity in most sugar producing regions, employment in local goods and service industries also depends on activity in the sugar industry.

⁴ Canegrowers, *Cane Growers' Information Handbook*, Brisbane 1991, p. 19.

Compared with most other agricultural industries, labour costs in cane growing are high relative to total costs. Based on 1986-87 ABS input-output data, labour costs for the sugar industry are 46 per cent of total costs, while for other rural industries, labour costs range from 31 to 41 per cent of total costs.

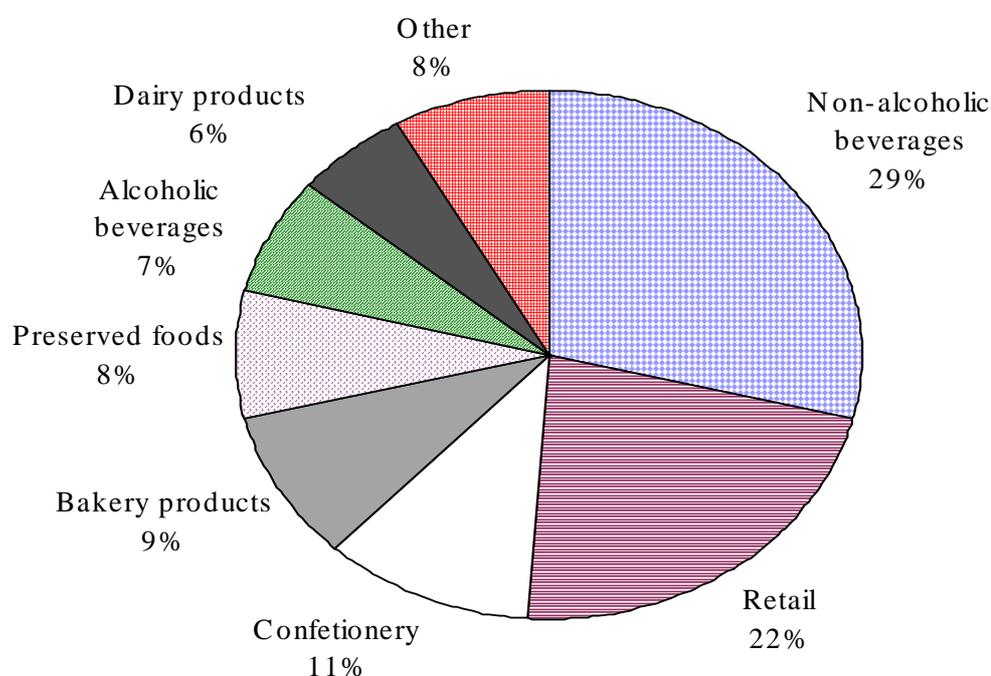
3.5 The domestic market

In 1990-91, almost 25 per cent of Australia's raw sugar production was sold domestically to refiners, with the remainder being exported. Because of the poor seasons in 1990 and 1991, the share of production sold to the domestic market increased. In earlier years, the domestic market was typically closer to 20 per cent of domestic production.

The principal users of refined sugar are the manufacturers of non-alcoholic beverages, retail industry and the confectionery industry. The remainder is used by a variety of food processing industries (see Figure 3.2).

Refined sugar faces its strongest competition in Australia from fermentables such as glucose syrup, starch and some grain products which can be used in the production of beer.

Figure 3.2: Sales of refined sugar, 1987-88



Source: Processed Food Industry Council's submission to the Industry Commission Inquiry into Statutory Marketing Arrangements, July 1990, p. 34.

Refined sugar has faced only limited competition on the domestic market as a sweetener. In 1990, alternative sweeteners accounted for 17 per cent of the total sweetener market in Australia, compared with 14 per cent in 1987.⁵ This is a lower percentage than in the USA, the EC and Japan, where high sugar prices have resulted in considerable loss of market share to alternative sweeteners. The use of artificial sweeteners in Australia is strongly influenced by food regulations as well as price. The patent on aspartame, one of the major artificial sweeteners, ends in April 1993 and many in the industry expect a significant fall in the price to result.

Prior to the lifting of the import embargo, domestic refined sugar prices were set by formula. This resulted in domestic prices being more stable than those in the world market. Since the abolition of the embargo, domestic prices for both raw and refined sugar have been determined by international prices and the tariff. The Queensland Sugar Corporation, which dominates the domestic market with 75 per cent of sales, generally aims to sell raw sugar to refiners at prices equivalent to import parity (including the tariff). CSR sells refined sugar on the domestic market on a similar basis. The other refiners tend to follow the pricing structure set by CSR.

3.6 Export markets

All raw sugar exported by Australia is produced in Queensland. In 1990-91, Queensland exported 80 per cent of the volume of its raw sugar output - a total of some 2.6 million tonnes. Figure 3.3 shows the export destinations of Queensland's raw sugar.

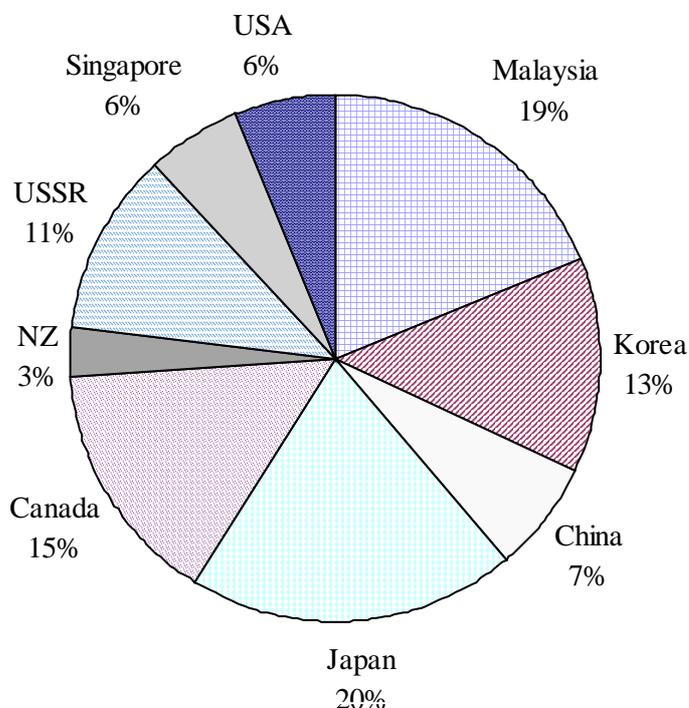
Most exported sugar is sold in bulk as raw sugar on a cost, insurance and freight (cif) or cost and freight (c&f) basis. There are seven bulk sugar terminals in Queensland designed to receive, store and load raw sugar for both the domestic and export markets. CSR is contracted by the Sugar Corporation to act as the sole marketing agent in relation to all exports of Queensland sugar, except those to New Zealand. CSR carries out this function within guidelines established in consultation with the Sugar Corporation.

Although Australia produces only 3 to 3.5 per cent of the world sugar output, it is the third largest exporter (with 10 per cent of world trade), after Cuba (24 per cent) and the EC (20 per cent). The share of refined sugar in world trade has increased from 25 per cent of total sugar trade in the early 1970s to 40 per cent by the late 1980s.

Only small quantities of refined sugar are exported by Australia, amounting to up to 30 000 tonnes a year.

⁵ Derived from Landell Mills Commodities Studies, *Alternative Sweeteners and Bulking Agents - Opportunities and Challenges into the 1990s, 1989*, Table AUS. 18.

Figure 3.3: Exports of raw sugar by destination, 1990-1991

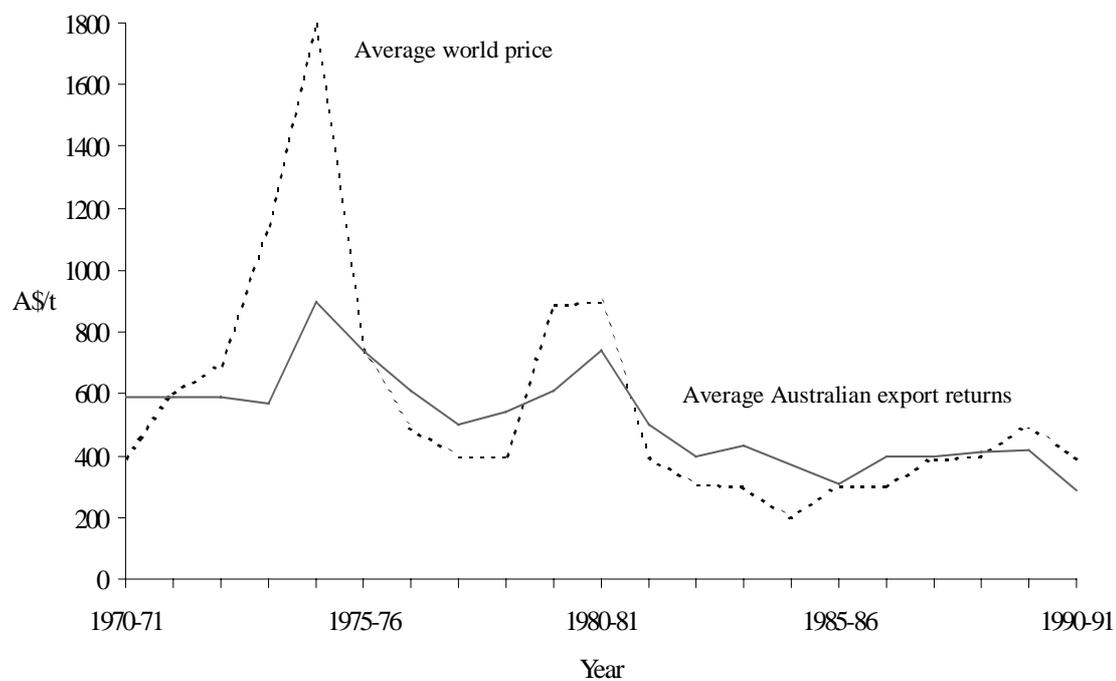


Source: The Sugar Board, *Annual Report*, 1990-91.

The world sugar market experiences extreme price variability. During the 1980s, the world 'spot' price varied from a low of US 2.8 cents per pound (raw value) in 1985 to a high of US 25 cents in 1980. For most of 1991, prices have been around US 9 cents per pound. Movements in the world 'spot' sugar price are shown in Figure 3.4. However as, first, a significant proportion of Australian exports are sold under long term contracts and, second, the Sugar Corporation engages in hedging operations, the returns received by Australian producers are less variable than observed 'spot' prices.

The international market is distorted by the protection of domestic producers by some of the major sugar producing and consuming countries, notably the EC, Japan and the USA. These countries' policies reduce the world price and increase its variability. However, the policies of some other countries serve to increase the world price. For example Brazil, the fourth largest sugar producer, directs some two-thirds of its cane to the production of ethanol. This reduces the volume of sugar traded internationally and tends to increase world prices. Action by other countries which distort world sugar trade include guaranteed minimum price schemes, import restrictions, import levies and export subsidies (see Appendix B).

Figure 3.4: **Annual average world sugar prices (New York spot) and annual average Australian export returns**
A\$ per tonne (1989-90 dollars)



Source: Derived from data supplied by ABARE and the Queensland Sugar Corporation.

4 BACKGROUND TO THE PRESENT INSTITUTIONAL AND REGULATORY FRAMEWORK

The Queensland sugar industry dominates production in Australia, supplying about 95 per cent of Australia's raw sugar output. The sugar industry in that State has been subject to extensive regulation by the Queensland Government since the early years of this century. Although there has been considerable change, the essential features of the initial regulations have been retained. In contrast, the activities of the smaller New South Wales industry are virtually devoid of regulation but, until recently, its operation has been closely tied to the Queensland system. Commonwealth Government involvement has mainly been through barriers to imports and through past agreements relating to domestic sugar prices.

This chapter sketches the background to the regulations which currently apply. A more detailed review of the marketing and production regime operating in Queensland is outlined in later chapters.

4.1 The Queensland industry

4.1.1 Historical background

In Queensland, regulations govern almost every aspect of cane growing, milling and the marketing of raw sugar. The regulations control the land on which cane can be grown, specify the mill to which cane must be delivered, and provide the framework for determining the distribution of revenue between millers and growers. Compulsory acquisition powers centralise control of raw sugar marketing, including payments to mills for sugar sold.

The basis of most existing controls evolved over the period 1901 to 1939, largely supported by Commonwealth Government protection of the industry. At the time of federation, Australia was a net importer of sugar. Import protection was granted in 1901 as a condition of Queensland joining the Commonwealth.

Protective arrangements were changed and regulation increased in 1915 as a war-time measure. At that time, domestic sugar prices were fixed and, under the Sugar Acquisition Act of 1915, monopoly acquisition and marketing powers were established in Queensland. The fixing of sugar prices led to the fixing of cane prices to resolve the debate about growers' and millers' shares of revenues from sugar sales. With cane prices fixed, it was also necessary to fix the terms of delivery. Cane assignments were introduced to enforce the rights and obligations of growers and

millers. Under the assignment system, cane could only be grown on assigned land and growers were required to deliver to a specified mill. Mills were obliged to accept all cane grown on land assigned to that mill.

By 1923, Australia had become an exporter of raw sugar. From then on, formal Commonwealth/Queensland Sugar Agreements were negotiated at five year intervals. Under these Agreements, the Queensland Government, through the Sugar Board, acquired all raw sugar produced in Queensland and agreed to purchase all raw sugar produced in New South Wales. The Board also agreed to make sugar available for domestic use at an administered price. In return, the Commonwealth Government agreed to underpin the domestic price by placing an embargo on imports of sugar, golden syrup and treacle. The pricing arrangement continued until 1970, when a formula to establish annual adjustments to domestic sugar prices was introduced to replace irregular adjustments emanating from joint Commonwealth and Queensland Government negotiations.

Further attempts to control production were instigated when exports assumed increased significance. In most years, sugar exported attracted lower returns than that sold on the protected domestic market. Consequently, exports lowered average returns to the industry. A two pool pricing system incorporating mill peaks (which were effectively entitlements to the higher returns attained from domestic sales and reasonably assured export markets) was introduced to protect the returns of established growing and milling interests. However, not until Australia acceded to the first International Sugar Agreement (ISA) in 1937 were strict production controls introduced. These controls were required to restrict exports to volumes specified under the ISA. Production was controlled by setting a low 'penalty' price for sugar produced from cane grown on unassigned land. The ISA effectively lapsed in 1984 when the signatories failed to negotiate a new agreement.

4.1.2 Major changes between 1983 and 1990

There were a number of government initiated reviews of the Australian sugar industry following the Industries Assistance Commission's review in 1983. These were:

- 1985 - Sugar Industry Working Party Report;
- 1989 - Report by the Senate Standing Committee on Industry Science and Technology; and
- 1989 - Pooling System Report of the Committee of Inquiry into the Queensland Sugar Industry.

As a result of these reviews and inquiries there have been several changes to the regulation of the industry. The major changes are outlined below.

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- In 1985, a joint Commonwealth/Queensland price support scheme commenced. It provided support for up-to-peak returns whereby returns would be guaranteed at \$230 per tonne in the 1985 season, \$225 in the 1986 season and \$220 in the 1987 season. No assistance was provided for the 1986 and 1987 seasons as average up-to-peak returns exceeded the guaranteed price.
 - In 1986, amendments were made to the Regulations of Sugar Cane Prices Act in Queensland which increased growers flexibility in their use of assigned land.
 - In 1987, agreement was reached on a joint Commonwealth/State adjustment package to operate for three years to 30 June 1989. Total funding of \$100 million was made available for grants, loans and interest rate subsidies for millers and growers.¹
 - In 1988, the Commonwealth Government announced that from 1 July 1989 the embargo on sugar imports would be replaced by an ad valorem tariff. Following the Senate Report of 1989 a specific rate tariff was introduced.
 - In 1989, the Queensland Government introduced changes to the pooling arrangements for sugar revenue. While maintaining two pools, the new arrangements provided for No 1 Pool returns (mill peak sugar) to be a constant 12 per cent higher than No 2 Pool returns (excess sugar) - irrespective of the price paid for that sugar in the marketplace.

4.1.3 The 1991 Queensland Sugar Industry Act

In 1991, following the report by the 1990 Sugar Industry Working Party (1990), the Queensland Government introduced a major reorganisation of the legislation and associated administrative arrangements regulating the sugar industry in that State. This reorganisation was embodied in the *Sugar Industry Act 1991*.

A new organisation, the Queensland Sugar Corporation, was formed to develop and implement policy relating to the management of the Queensland industry. The new Corporation encompasses the functions of the Sugar Board, which had been responsible for the marketing of raw sugar produced in Queensland, and most of the functions of the Central Sugar Cane Prices Board which had been responsible for the regulation of the production of sugar cane in Queensland. Appendix C provides a summary of key elements of the new legislation.

The new legislation disposed with much of the detailed specification of aspects of cane growing and sale to mills which characterised the old Acts. In its place, the new Corporation, and local boards which administer each mill area, have been provided with greater discretionary powers. The regulatory changes provide the potential for greater flexibility in the land assignment system

¹ As interest subsidies were to apply for up to seven years, there is still some commitment under the scheme. This amounted to \$0.53 million in 1989-90 and \$0.34 million in 1990-91.

and for annual increases in the total area of assigned land over the period 1991 to 1996. However, the core elements of the pre-existing legislation remain, notably the assignment system regulating the land on which cane can be grown and the mill to which cane can be delivered, and the compulsory acquisition of all raw sugar. Indeed, the *Sugar Industry Act 1991* encompasses provisions which, depending on how the discretionary powers provided to the Corporation and local boards are exercised, could result in the Queensland sugar industry continuing to be one of the most highly regulated industries in Australia. These provisions, and their effects on the industry and other sectors of the economy, are discussed in some detail in Chapters 5 and 6 of this report.

4.2 The New South Wales industry

Although not bound by Queensland legislation, the New South Wales industry for many years voluntarily replicated the practices imposed by regulation on the Queensland industry. Output was constrained in a similar manner to that in Queensland. Sugar produced in New South Wales was sold by the Sugar Board on behalf of the New South Wales industry, and revenues and associated costs were pooled with those of the Queensland industry.

In 1989, following the lapsing of the Commonwealth/Queensland Sugar Agreement, the New South Wales industry withdrew from its association with the Queensland industry. The growers co-operative assumed responsibility for production and marketing of sugar produced in the State and, in conjunction with the Manildra group of companies, established a joint venture refinery in northern New South Wales.

While the New South Wales industry continues to be relatively free of government regulation, the organisation of the industry by the grower co-operative mirrors many of the production and harvesting controls which operated prior to 1989, and the industry's marketing strategies and returns (entirely from domestic sales) depend heavily on policies adopted by the much larger Queensland sugar industry. The operations of the New South Wales industry are outlined more fully in Chapter 8.

5 PRODUCTION CONTROLS IN QUEENSLAND

Sugar production in Queensland continues to be subject to extensive regulation under *the Sugar Industry Act 1991*. This regulation is administered by the Queensland Sugar Corporation at the state level, and by 25 Local Boards operating at the mill area level. The key features of the regulation are the control of the area of land under cane through the land assignment system, and regulation of the relationship between growers and millers.

5.1 Land assignment

The land assignment system is the principle means of controlling the level and location of sugar production in Queensland. Growers possess an assignment, specified in hectares, on which they can grow cane. Cane produced from that land must be delivered to a designated mill which is obliged to accept cane from land assigned to it. Growing of cane on unassigned land is not prohibited, but sugar produced from cane grown on unassigned land generally receives a penalty price of \$1 per tonne.¹

The Corporation has the power to make a pro-rata reduction in the area of assignment that can be harvested in a particular season. Any adjustment is to apply equally to all assignments in Queensland. This is called the 'adjusted area of assignment'. The area can also be adjusted to greater than 100 per cent of assignment, but this requires the approval of the Minister after consultation with the Sugar Industry Policy Council.²

Before 1987, the transfer of assignments between growers was very restricted. Assignments were originally specified in terms of particular plots of land on a designated farm, and growers could not easily get permission to change assignments, even within existing farm boundaries. Restrictions on transfers were relaxed somewhat in 1986 with the introduction of 'roaming'. This permitted a grower to use up to 15 per cent of assignment on any land within a mill area.

Under the 1991 legislation, assignments may be used anywhere on the grower's farm, and provision has been made for transfers (sales) both within and between mill areas. Approval for transfer within a mill area requires a majority decision by the local board, while transfers between mill

¹ In 1990, to facilitate an 8 per cent expansion in assignment, the Minister for Primary Industries determined that either the Pool 1 or Pool 2 price could be paid for sugar produced from cane grown on unassigned land. Provision for penalty payments for sugar grown on unassigned land is provided for in *the Sugar Industry Act 1991*, and the \$1 per tonne penal price was reinstated for the 1991 season, even though production was at its lowest for many years.

² The Sugar Industry Policy Council was established under the 1991 legislation to advise the Queensland Government on sugar industry policy.

areas require the unanimous approval of members of local boards of both mill areas. This means that transfers of assignment are more restricted between mill areas than within a mill area.

Under the new legislation, the Corporation may approve the transfer of a grower's assignment from one mill area to another to enable the grower to improve his viability in a new area. The grower must relinquish assignment in the original mill area in exchange for the assignment in the new area. The assignment relinquished in the original mill area is available for re-assignment as part of the 2.5 per cent expansion in that mill area. Approval of local boards is not required for this transfer.

The area of assignment has increased over the years, from 333 000 hectares in 1979 to 397 000 hectares at the beginning of 1992, an increase of 19 per cent.

Increases in assignment have, in the past, been granted principally on a pro-rata basis, free of charge, to existing assignment holders. The most recent expansions were 5 per cent in 1988, 8 per cent in 1990, 2.5 per cent in 1991 and 5.5 per cent in 1992. Not all growers were in a position to accept the expansion offered, either because of the limited land available to them, or because expansion was uneconomic. Increased assignment that was not taken up was re-offered to the industry, again on a pro-rata basis, until all assignment was taken up. This process can take a number of years and, as a consequence, some 34 800 hectares from expansions prior to 1991 have not been made effective.³ This represents around 10 per cent of the total area of assignment.

The introduction of 'roaming' also allowed an expansion in production by increasing the proportion of assignment that could be cultivated in each year. Growers could move assignment, that is, they could 'roam' assignment, effectively following unassigned land rather than using a proportion of their assignment. The new legislation does not include provisions for roaming as it has, in principle, been superseded by the new transfer provisions.

The 1991 Act requires assignment be expanded by a minimum of 2.5 per cent (around 10 000 ha) per year commencing in 1991 and ending in 1995. The method of allocating additional assignment is not specified, although some of the expansion must be offered on a pro-rata basis to existing assignment holders. The Minister has announced a 5.5 per cent expansion in 1992, made up of 2.5 per cent for the 1992 season, as specified in the Act, 2.5 per cent because of the delay in implementing the 1991 expansion, and 0.5 per cent to cover assignment that had been cancelled by the CSCPB. The Minister stated that half the expansion would be available for new growers.⁴ After 1995, expansion is to be determined by the Queensland Sugar Corporation.

³ *Australian Canegrower*, 13 January 1992, p. 9.

⁴ News Release from the Office of Edmund Casey MLA, Minister for Primary Industries, *New Year Present for Queensland's Sugar Industry*, 30 December 1991.

5.2 Farm peaks

Payment for cane grown on assigned land is based on two prices. These pricing arrangements are discussed in Chapter 6, but the essential feature that impacts on production controls is that some production receives prices based on a Pool 1 price which is 12 per cent higher than the Pool 2 price. In addition to their assignment specifying the area of land that can be put to cane, most growers possess a farm peak, usually specified in tonnes of raw sugar. Cane grown on assigned land and used to produce sugar up to the farm peak receives prices based on the higher Pool 1 sugar price. Cane grown on assigned land in excess of that required to produce the farm peak receives the lower Pool 2 price. The proportion of cane production which receives the higher price varies between growers. Some, particularly older small farms, have peak entitlements equivalent to 100 per cent of production, while others, notably new cane farms, have considerably less. In recent years, 80 per cent of production received the Pool 1 price. This proportion increased in 1991 due to the large decline in production in that year.

Farm peak may be transferred (sold) between growers independently of assignment, but the receiving grower must have assigned land on which to grow cane to supply the farm peak. The conditions and approvals governing the transferability of peak are essentially the same as those applying to the transfer of assignment.

Farm peaks have been effectively frozen since 1982, although the area under assignment has continued to expand. Consequently, unless peak has been purchased, new cane farms rely entirely on the lower Pool 2 returns.

5.3 Regulation of the grower/mill relationship

The legislation specifies the broad parameters which shape the relationship between growers and mills. The institutional mechanism for this is the local board, comprising grower and miller representatives in each mill area. Each local board negotiates annually an agreement called a local award. The award is subject to appeal to the Sugar Industry Tribunal. Local awards cover all matters relating to:

- the harvesting and delivery of cane to the mill;
- the transport, handling and crushing of cane by the mill; and
- the payment for cane.

All growers are bound by the conditions in the award negotiated on their behalf by the local board. Although the *Sugar Industry Act 1991* provides for the negotiation of agreements between growers and the mill outside of the award, it also includes a provision making an agreement binding on all growers if it has the support of 85 per cent of assignment holders.

Revenue from the sale of raw sugar is distributed between the mill and growers under a formula contained in local awards. While local boards have the power to determine the distribution, all local boards use the industry-wide formula, which has operated largely unchanged since 1915. When introduced, the formula distributed returns from the sale of raw sugar between growers and millers in the ratio of 2:1. However, the capacity of mills to extract sugar has, over time, increased at a greater rate than the sucrose content in cane. Consequently, the mills' share of returns has increased to nearly 40 per cent. The formula used to determine the distribution of revenues between mills and growers is outlined in Appendix D.

Local awards determine the price payable for cane, subject to requirements stipulated in the Act that the basis for determining the price is the same for every assignment holder within each mill area. Cane prices are based on the average level of ccs in cane over the season for the whole mill area. Broadly speaking, all growers within a mill area receive the same price for cane of the same quality. This is outlined in more detail later in this chapter.

Concepts of fairness are a strong theme running through the collective decision making processes in the sugar industry. In large part this stems from the democratic basis of grower representation on the various boards and organisations governing aspects of the industry. Collective decision making with compulsory compliance backed by legislation, (which has replaced the individual economic choices that operate in most other markets), shows up in such things as: the pro-rata allocation of increases in assignment to existing growers; allocating assignment to new growers in areas which are broadly comparable in size to the small holdings already existing in the industry (even if these small areas are uneconomic); a strong defence of the uniform price paid to growers irrespective of distance from the mill; and harvesting schedules designed to give each grower similar access to the mill. Regulation of production, prices and marketing, which insulates much of the industry from competitive pressures among growers, among millers, and between growers and millers, facilitates such outcomes.

5.4 Reasons for regulation

Regulation of sugar production has a long history in Queensland, dating back to the early years of this century when small-scale canegrowers were seen to be 'exploited' by milling interests. Over the years, regulations were expanded and extended in response to a variety of circumstances, often to overcome the adverse incentives and 'loopholes' created by the original controls. In time, a large number of major economic decisions in the industry have been usurped by regulation, or have become subject to approval from some regulatory body or another.

These regulations have become an integral part of how the industry is organised and operates, and a large section of the grower community is strongly attached to them. Indeed, many find it difficult to envisage how the industry would operate in the absence of the rules and guidelines for behaviour provided by the existing regulations.

The reasons that regulations are seen to be necessary include:

- to protect growers from the buying power of the mill. Conversely, mills are concerned about the power of organised grower groups;
- to ensure orderly expansion that is within the capacity of industry infrastructure and does not threaten the position of those already in the industry;
- to provide a means of co-ordinating the scheduling of the harvesting and delivery operations in a manner which is equitable between growers;
- to protect growers, potential growers, and millers from investment decisions that may not be viable;
- to protect mills against the threat of closure through significant volumes of assignment being transferred out of a mill area; and
- to preserve and increase industry per unit returns.

5.4.1 Offsetting the economic power of mills

The economic power of mills has been a long-term concern of growers. They see themselves as being in a potentially weak bargaining position because the perishability of cane limits their ability to deliver to another mill, and because of the large number of growers in each area. Similar concern about the economic power of processors of perishable products has been one of the fundamental rationales for the regulation of many rural activities in Australia.

The regional power of individual mills is accentuated by the tendency for most, if not all, of the mills in particular regions to be owned by the one company. For example, CSR owns all the mills in the Burdekin and Herbert River areas, Mackay Co-operative owns all mills except one in the Mackay region, Bundaberg Sugar Company owns all the mills except one around Bundaberg, and the New South Wales Co-operative owns the three mills in New South Wales. These are largely isolated sugar growing regions with little opportunity for growers to supply other mills. Competition within these regions would only emerge if there were new entrants to milling. In two of these regions, however, the use of market power by mills is minimised by co-operative ownership.

The regional economic power of mills exists because of the significance of transport costs and the perishability of cane. Cane cannot be either stored or shipped long distances, nor offered direct to consumers as a 'fresh' product. This economic power has been exacerbated by the introduction of mechanical harvesting and the practice of cutting cane into billets which significantly increases the perishability of cane compared with past practices of full-stick cutting. The Australian system also

includes many tram line systems dedicated to supplying particular mills. While these features of harvesting and transport have been adopted for sound economic reasons, and are unlikely to be reversed, they nevertheless serve to increase the mill's regional power. The power of mills is also enhanced by the high capital cost of setting up new mills and the limited scope for the alternative use of that capital if a new venture fails. These factors, coupled with significant size economies associated with milling operations, create a significant barrier to competition from new mills.

The extent to which mills can exercise market power is currently limited by regulation. This has made it unnecessary for growers to investigate or develop alternative ways of handling such power. In its draft report, the Commission proposed that the current regulatory arrangements no longer be obligatory, allowing individual growers, or groups of growers, and the mill to enter into mutually agreeable contractual arrangements. This proposal resulted in considerable comment at the draft report hearing and in submissions. Growers fear that, in the absence of regulation, mills will dictate prices and delivery terms to the detriment of growers.

In the past, there may have been some potential for mills to exploit market power. However, growers have now formed strong organisations to negotiate on a collective basis. In some regions, growers have purchased their local mill. Growers also have far greater access to information to allow them to assess whether terms offered by a mill are reasonable. The development of trade practices legislation also provides some protection for growers against the misuse of market power by mills. While the Act limits collusive agreements to reduce competition between suppliers, an exemption may be provided if 50 or more parties are involved.

These developments, coupled with millers' dependence on growers to supply sufficient cane to allow the mill to operate at satisfactory levels of capacity, raise the possibility that it is growers rather than millers who possess the greater market power. For example, at the draft report hearing, the representative of the South Johnstone Canegrowers commented:

... I think I would be far more fearful in a deregulated industry of being a mill owner than a grower, because a mill owner can do one thing with his mill and that is crush cane and nothing else.

Similarly, CSR stated:

Millers have to ensure cane supplies over many years, not year to year. They cannot afford to alienate growers in the short, medium or the long term.

The regulations have provided a degree of stability and certainty by assuring growers of access to milling capacity and mills of a supply of cane. However, in the absence of regulation, these matters could be handled by a system of contracts. Contracts are currently employed in a number of other rural industries which produce perishable products. For example, contracts are currently

used in Victoria to formalise voluntary agreements for the supply and processing of tomatoes, broilers and wine grapes.

In the short term, it is likely that contracts would largely reflect existing local awards. However, over time, growers and millers would have greater flexibility than previously existed to tailor delivery terms and conditions to accommodate the particular needs of specific regions, groups of growers, or even individual growers.

It is difficult to predict the form that contracts might take: the form would be determined by growers and millers in each area. However, to provide a degree of stability it is likely that they would extend over a minimum period of about 3 to 5 years and could include annual roll-over provisions. The price paid for cane could be subject to regular review or, as is more likely, could be linked to world prices. To facilitate mill operations, the price could vary according to the time of the season. Mills could, for example, pay higher prices to attract supplies of cane at either end of a season. Some variability in price over the season already exists in the form of harvesting allowances paid in some mill areas. Transport costs could continue to be borne by mills or, alternatively, an arrangement could be negotiated whereby growers bear the cost in return for higher cane prices. In the case of disputes, contracts could be subject to arbitration under the provisions of existing Queensland legislation. In this regard CSR stated:

We believe that an arbitration process should be, and would be, included in the contract for the determination of any matters which are unable to be settled by agreement. By this, we mean local arbitration, not the perpetuation of a central arbitration authority.

Contracts and other aspects of the grower/miller relationship are discussed in more detail in Appendix I.

5.4.2 Matching mill capacity and cane production

Many in the industry see regulation as necessary to ensure the matching of cane production and milling capacity and for the orderly co-ordination of harvesting, transport and milling over the season. In the short term, this involves determining season length, harvesting schedules and transport. In the longer term, it involves the control of the rate of expansion in the industry so that production is within the capacity of the industry's milling and transport infrastructure, and so that expansion does not penalise those already in the industry.

Co-ordinating production, harvesting and milling activity

Production controls facilitate the co-ordination of cane production and raw sugar milling activities. However, the need to match processing capacity with crop production and to organise the co-ordinated scheduling of harvesting over the season is not unique to the sugar industry. Many other industries require close co-ordination of harvesting and processing operations, especially those

involving perishable crops. Government regulation is not essential for this to be organised effectively. In other industries co-ordination is handled by contractual arrangements between farmers and processors, often of a long term nature. Such arrangements can guarantee both supply to the processor and a market for the producer.

In the absence of the land assignment system and associated regulation, the interdependence between growers and millers would create strong incentives to organise the scheduling and transport of cane efficiently. This has been done successfully in New South Wales. Similar arrangements could be introduced without undue disruption in Queensland, particularly where mills are owned by growers.

Orderly expansion

The need to control the level of cane production by regulation to match expectations of milling capacity reflects the lack of price signals under the regulated system operating in Queensland. In a more conventional market environment, these price signals would indicate the economic constraints on cane production and milling, and would establish the longer-term optimum level of activity. Moreover, in a deregulated market, it would be unlikely that growers would expand production without first ensuring that they can sell the cane to a mill.

The need for growers to secure access to processing facilities, and for processors to have security of supply is a characteristic of many industries and can be normally handled by negotiation between prospective sellers and buyers. If the current regulations did not apply, new cane supply would either encourage additional milling capacity or would displace existing suppliers. Displacement of existing suppliers by new entrants is a normal feature of a competitive market economy. It is difficult to identify any characteristics of the sugar industry which would warrant the protection of existing suppliers from new entrants, or warrant other regulation of the grower/mill relationship which locks all parties into a prescribed set of operating procedures, irrespective of differences in economic circumstances.

5.4.3 Protecting asset values

Although many participants said that assignment is currently worth little as a result of the drought and low sugar prices, production controls have traditionally been seen by many in the industry as protecting the asset value of established cane farms. Indeed, canegrowers were reported to be opposed to the latest expansion of assignment because:

...it would decrease the value of cane assignment and the asset value of all existing cane farms and their collateral and borrowing ability.⁵

⁵ *Australian Canegrower*, 13 January 1992, p. 9.

However, whether the value of existing cane farms would decline with the removal of production constraints is unclear. The value of land is determined by the expected returns that can be obtained from its use. The value of cane land currently encompasses two components, the value of assignment and the residual value of the land. The value of assignment is the capitalised value of the additional expected return from producing cane as opposed to undertaking an alternative activity. The residual value of the land (that is, its value without assignment) would be expected to reflect returns which can be obtained from the alternative activity.

The value of land with assignment is higher than the value of land without. The higher value reflects the higher returns that can be obtained from that land by using it for cane production rather than alternative (lower return) activities. If the assignment system were to be removed, the value of unassigned land that could be used for cane-growing would increase to that of 'assigned' land. The value of existing cane farms would be largely unchanged. While the value of assignment would be eliminated, the residual, or 'unassigned' value of the land would be expected to increase so as to approximate the current value of land with assignment. Only if the removal of production controls were to reduce the price of sugar, and thus the returns from growing cane, would the value of existing cane land decline.

A major benefit of the assignment system for established canegrowers has been the restriction it places on the entitlement to participate in industry expansion. The practice of allocating the bulk of increased assignment to existing growers allows them to purchase land at unassigned values and then appropriate the benefit of conversion to cane. This return would normally accrue to the original landholder.

5.4.4 Guaranteeing mill throughput

Constraints on the transfer of assignment to other mill areas, as well as constraints on the freedom of growers to choose the mill to which they deliver, are a means of guaranteeing mill throughput. This is seen as being of particular importance in the northern region where cane land is under threat from other land-use activities, and two mills have closed in recent years. In the face of declining supply, mills have an incentive to resist any request by growers to sell or transfer assignment to another mill. The current regulations provide a mechanism for the mill to override individual growers' decisions to relocate production.

In principle, growers should be free to choose where they operate and which mill they wish to supply. In these circumstances, there would be greater pressure on mills to provide efficient and effective milling services to growers. However, the freedom of growers to choose a mill would need to be balanced by the freedom of the receiving mill to accept or reject offers of cane from growers who wish to transfer supply.

If a mill cannot attract sufficient throughput then, as in other business activities, it would be appropriate for it to scale down, or cease activity. Experience with mill closures in the past is that arrangements to supply alternative mills have been made in an effective and orderly fashion. The decision on whether to close a mill would clearly depend on the remaining economic life of the mill, the proximity of other mills and on negotiations between mills and growers. It is undesirable for government to guarantee any business investment by guaranteeing, by regulation, either markets or supplies.

5.4.5 Maintenance of prices

Support for the continuation of production control is also based on fears that increased production would dilute average returns in the industry. In the past, this concern was to some degree overcome by the two pool pricing system which isolated the returns of premium and assured markets from more 'opportunistic' sales. However, the current arrangements, with a fixed 12 per cent difference between the two pools, means that all growers will be affected by increased production being sold on lower priced markets. This is a problem, however, with the method of pooling returns to growers, rather than a problem of 'uneconomic' or excess production. If there is a large discrepancy between returns achieved in different markets, it is feasible to reflect this in prices paid for marginal production without eroding other growers' returns. Thus, marginal production could be profitably sold in its own right without the need for output to be constrained.

5.4.6 Increasing export returns

There would be some economic case for limiting cane production if Australia was in a position to influence the world price for raw sugar. In that case, limiting production could benefit Australia by increasing sugar prices. However, Australia's share of the world sugar trade is small and, as a consequence, Australia is commonly regarded as a price taker on international markets. This is considered in some detail in the following chapter.

5.5 Costs of production controls

The assignment system and associated regulation of sugar cane production provide stability and protect incomes for some growers and millers. However, they disadvantage others in the industry and impose wider costs on Australia in the form of foregone production and income. Adverse consequences include:

- Some land is precluded from being used for its most profitable use - that is, cane production. This constrains the quantity of cane that can be profitably produced and reduces Australia's export earning capability.

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- The pro-rata allocation of increases in assignment to existing growers, together with impediments to the transfer of assignment, mean that marginal or unsuitable land is brought into cane production in established areas at the expense of more suitable land in new areas.
 - To the extent that a grower's right to deliver to a mill is guaranteed, and the price of cane is fixed by regulation, less efficient growers are protected from competition from more efficient existing or potential growers.
 - Assigning land to particular mills removes competition between the mills and significantly reduces the potential for competition from new mills.
 - Limits on the quantity of land that can be used to grow cane encourage the over-use of non-land inputs such as fertilisers, herbicides and water. As well as increasing costs, such practices have adverse environmental effects.
 - Restrictions on land expansion, and the prospect of penalties for failure to grow cane, limit the industry's ability to respond to price signals and changes in demand. This is compounded by the current two pool pricing system which has the potential to mute price signals at the margin for growers.

These matters, along with other aspects of the present production controls which impair efficiency, are discussed below.

5.5.1 Limitations on sugar production

Extent of potential expansion

Estimates of the extent to which production is constrained by the assignment system vary. The 1990 Report of the Sugar Industry Working Party estimated that land was available to sustain a 50 per cent expansion in cane-growing. In 1986, ABARE modelled a potential expansion of 30 per cent. The Centre for International Economics (CIE) estimated an expansion potential of 46 per cent.⁶ The new Queensland legislation provides for a minimum expansion in assignment of some 13 per cent over 5 years, commencing in 1991. This is in addition to an 8 per cent expansion in assignment in 1990.

While grower organisations generally supported most of the current production controls, views differed on the appropriate rate of expansion. In general, this reflected differences in the potential for expansion in different mill regions. The regions generally accepted as having the greatest potential for expansion are Tully, the Burdekin, Herbert River and Proserpine. Although the Proserpine Canegrowers believe that production controls are good for the industry, they said that:

⁶ Centre for International Economics (CIE), *Sugar: Winning in a corrupt world market*, Canberra, 1991, p. 33.

It is our view that for the continued well being of the industry, opportunities for improved economies of scale must be taken up.(sub.6 p.2)

The 1990 Report of the Sugar Industry Working Party identified potential land ranging from well over 100 per cent of existing assignments in some mill areas to zero in a number of the northern mill areas. The CIE estimated that land under cane could double in the Burdekin, with increases of 46 and 36 per cent in the Central and Northern regions respectively. Since breaking with the Queensland arrangements, the New South Wales industry is actively pursuing an expansion in canegrowing of up to 40 per cent.

At the first round of hearings, a representative of the Queensland Raw Sugar Industry (QSI)⁷ denied that the present system constrains production, saying:

I think the important issue at the moment is that assignment is not a constraint on expansion. It has been a constraint in the past. We have a situation where the industry between 1989 - that is, going back about two seasons - and 1996 will have had the opportunity to expand by something of the order of 30 to 35 per cent.

This was subsequently denied by some participants (eg Davco and CSR). Davco said (p172 Transcript) that:

...the assignment system does severely restrict production. We are living proof of these constraints. I think Mr. Desmachelier [QSI] did concede that one individual or two may be restrained. In his address yesterday Mr. Noble [CSR] said that he must be one of the individuals. We obviously must be the second.

Not all of the recently offered expansion in assignment has been taken up. However, this does not indicate that the assignment system is not limiting production. It largely reflects the limitations of the current system of allocation. Not all existing growers can use the marginal pro-rata increases offered. Indeed, the 8 per cent expansion allowed for in 1990 was heavily over-subscribed in terms of the area of additional assignment sought. The 1991 Australian Sugar Yearbook reported that, in the Proserpine and Herbert River areas, growers applied for over five times the amount of land made available. In the Burdekin, some 200 farmers who presently do not grow cane applied for assignment, in addition to over-subscription by existing growers. In the Mackay area, where more than 25 per cent of Queensland's cane is currently grown, growers applied for twice as much assignment as that set aside for 1990. Even in the Mossman area, where most growers are land-locked, the applications from existing and potential new growers were well above the area of extra land available.

The 2.5 per cent expansion allowed in 1991 was also heavily over-subscribed. The area applied for was nearly 40 000 hectares, or 10 per cent of the existing area of assignment and four times the

⁷ The raw sugar industry submission was a joint submission to the initial round of public hearings by the Queensland Sugar Board (now the Sugar Corporation), Canegrowers and the Australian Sugar Milling Council.

area made available.⁸ Some regions sought considerably more. The Pioneer mill area in the Burdekin sought a 40 per cent expansion; the Victoria mill area in the Herbert region and the Mossman mill in the north each sought over 30 per cent; while the Proserpine mill area sought 29 per cent.

Value of assignment

In the Commission's view, production has been constrained. It is constrained by an absolute ceiling on assignment increases; by pro-rata allocations limiting differential regional expansion; and by restrictions on the transfer of assignment. In addition to the over-subscription to recent offerings of assignment, an indicator that assignment has restricted expansion in some areas is provided by the value that is placed on assignment.

In some areas, such as Proserpine and the Herbert River, canegrowers in recent seasons have offered 15 per cent of gross cane revenue, at the lower Pool 2 price, for the right to use assignment allocated to another grower. On the basis that a hectare of land produces 85 tonnes of cane with a ccs of 14, and the average 1990-91 returns on raw sugar sales of US12.8 cents per pound, this leasing cost implied a value per hectare for assignment in that year of \$2700. The existence of extensive leasing of assignment indicates that land was available which could be more profitably used to grow cane.

Davco in its initial submission said that, in the Burdekin region in early 1991, typical land prepared for growing cane has been sold for about \$5000 a hectare, while the same land sold with assignment and peak was selling for \$8000 a hectare. The difference of \$3000 per hectare reflects the 'scarcity value' of the right to grow cane, together with the capitalised value of the margin between Pool 1 and Pool 2 prices.

The value of additional assignment varies between regions because of limitations on transferability between mill areas. The Commission received anecdotal information of the value of additional assignment in other regions in which land is available. However, in landlocked mill areas in the northern region, the value of additional assignment may be virtually nil. Tully Sugar Industry said that, in the Tully mill area, assignment can be purchased for only \$10 per hectare compared with \$28 per hectare four years ago. The South Johnstone Canegrowers said that assignment had virtually no value in their mill area.(transcript p.222)

From discussions with industry participants, the Commission understands that, since early 1991, the value of assignment without peak has been declining, and in September 1991 it had declined to around \$1000 per hectare in the Burdekin region. Since the announcement of the 5.5 per cent increase in assignment for 1992, and with expectations of further expansions and of continuing low prices, the value of assignment without peak in early 1992 in the Burdekin is said to have declined to between \$100 and \$400 per hectare.

⁸ Australian Canegrower, 23 September 1991, p. 15. The area reported understates the likely area requested as information was not available for the Invicta, Babinda and Mulgrave mill areas.

Method of allocating expansion

Expansions of assignment in the past have been basically determined by the sugar industry. Established growers have a strong voice in such decisions. Many, even most, existing growers faced, until recently, strong incentives to limit expansion. This is because the majority of established growers have no suitable unassigned land within or adjacent to their farm. As a consequence, there has been a large constituency in the sugar industry with incentives to resist any expansion in which they could not participate. The Working Party reported that some 63 per cent of cane growers are landlocked and that a 10 per cent increase in assignments would leave 12 out of the 26 mill areas without land for future expansion.(page 37)

The problem of landlocked growers being unable to use the pro-rata expansions offered has been partially overcome under the new legislation by allowing the transfer or sale of assignment. Growers who would otherwise be unable to expand can transfer or sell assignment to other growers and thus are able to accept the additional assignment offered. However, even under the new Act, conditions are attached to transfer or sale, particularly to transfer outside a grower's mill area. Also, given the incremental nature of expansions offered, most of the additional assignments are too small an area to be economically viable as a unit separate from the grower's established farm. For example, with average size of assignment being about 60 hectares, the 2.5 per cent expansion currently being offered would represent only 1.5 hectares.

The method of allocation assignment by local boards to new growers came under criticism by some participants. Davco said that, as a result of recent decisions on the allocation of new assignment, it had approached the local board for the criteria used and was told that such information was not necessary and would not be forthcoming.

Davco further commented that:

By vesting all the decision making responsibilities with respect to production with the local boards, the Corporation has effectively abrogated its position and returned the industry to the rule operating before the 1991 Act. Many of the good intentions of the new Act are in practice not achievable and there have been no changes to enhance flexibility, competitiveness or efficiency within the industry.(transcript p.271)

The guidelines for the allocation of new assignment in 1991 were provided by the Corporation. They are so broad that they provide little effective guidance for local boards. They effectively allow local boards to allocate assignment on any basis that they see fit.

CSR said that in one of its mill areas, the local board had allocated new assignment equally to new applicants. This resulted in 17 hectares of assignment being allocated to each. A simple division of new assignment between new growers is perhaps understandable given the lack of useful

guidelines and the inevitable criticisms that choosing between applicants will bring. However, the creation of unviable new cane farms is not desirable. CSR said that some successful applicants will not proceed with cane farming because the small size of assignment would make it uneconomic.(transcript p 335)

Expansion in irrigated areas

Much of the additional land that can be opened up to cane-growing is in new areas made available by irrigation. Some participants contended that irrigated land in the Burdekin River Irrigation Area (BRIA) was subsidised by government and questioned whether it is economical to expand cane production into these areas. In addition, they commented that 11 of the 13 farms, with assignment and access to irrigation, offered for sale in the BRIA in October 1991 were passed in.(Sub 52, p12)

New investments in infrastructure, such as irrigation schemes, should generally be made only if there is a reasonable expectation that the returns will enable the full recovery of the costs of the scheme, including the capital investment. However, while many past investments in irrigation schemes may not fully recover costs, the facilities available should be used efficiently once a scheme is in place. That is, it is sensible to continue to use irrigation investments so long as returns at least cover operating and maintenance costs.

The limited sales achieved at the BRIA auctions could well reflect the current low prices for sugar and the poor season in 1991. Both factors limit existing growers' capacity to expand, while the former is likely to have deterred new entrants. However, the limited interest may also reflect the characteristics of the farms offered. The farms on offer are small, generally around 100 hectares. There is limited scope for this land to be used for cane growing as assignment is either not available or is limited to 50 hectares.(Tully Sugar Industry sub 50 p 5) In addition, any cane grown on this land would only attract the lower Pool 2 cane price. Some participants commented that new growers have little hope of establishing a viable cane farm under these conditions, and that such blocks could only operate in conjunction with an existing farm. The Sugar Corporation said that the two farms purchased in the October auction were by neighbouring canegrowers seeking to extend their holdings.

If restrictions on the area under cane were removed, and the two pool price system was abolished, the increased profitability is likely to be reflected in greater interest in land offered and consequently in higher prices paid. An estimate of the possible impact on land prices can be gauged from the margin between Pool 1 and Pool 2 prices and the cost of lease or purchase of assignment at the time that auctions were held.

If new growers were able to obtain the average price for cane rather than the lower Pool 2 price, it would reasonable to expect that this margin would be reflected in bids for land. Based on a long term average price for raw sugar of US10 cents per pound and discount rates of 15 and 10 per cent, this margin would represent an additional \$1500 to \$2300 per hectare. In addition, the value of assignment (without peak) in the second half of 1991 in the Burdekin was some \$1000 per hectare.

On the basis of these figures, the distortion to offer prices for land in 1991 resulting from regulation of the sugar industry is estimated to be about \$2500 to \$3300 per hectare. On the assumption that 35 000 hectares of the 50 000 available in the BRIA could be used for cane-growing under a deregulated system, the revenue implications for the project would \$85 to \$115 million.

An appraisal of the BRIA scheme, and in particular the viability of further investment by the Queensland Water Resources Commission for land development was dealt with in the Commission's draft report - *Water Resources and Waste Water Disposal*.

The loss to Australia from constrained expansion has been considerable. CSR commented that:

Farmers in the seven CSR mill areas applied for 26 000 hectares of land and have finally been granted 4 200 hectares. We calculate that the value to the industry and the Queensland economy of refusing to assign the other land will result in an overall revenue loss of about \$68 million each year.(transcript p.334)

The Commission has estimated that, if the industry were allowed to expand by removing the restraints inherent in the assignment system, this expansion, together with increases in productivity possible from moving to a more market based system, would result in raw sugar output (and exports) increasing by around \$375 million annually (see Chapter 11).

To the extent that the sugar industry is more labour intensive than other alternative agricultural activities, particularly the cattle industry, the expansion of sugar growing would increase employment. The CIE estimated that employment could expand by between 3000 and 140 000 for the economy as a whole, depending on the degree of sugar industry expansion and the extent to which unemployment is a longer term phenomenon. The CIE also concluded that the current value of income foregone over the next 15 years by limiting the rate of industry expansion was \$1.1 billion.

5.5.2 Controls limit rationalisation

As a consequence of past production controls, Australia has retained a structure of cane growing characterised by relatively small holdings. In part, this is an intentional outcome based on political and social pressures to maintain regional communities, and the influence that existing communities have on the regulatory process. In the process, gains from economies of size have been largely precluded. There is, however, considerable resistance in the industry to any move towards large scale cane-growing.

The potential gains from larger scale cane-growing could be significant. Davco provided data, based on a study by Sedgwick⁹, which indicate that cost savings of one-third are possible from

⁹ Sedgwick, K.N., *Sugar: Outlook and Issues*, National Agricultural and Resources Outlook Conference, Canberra, 1987.

increasing cane farm size from 50 to 600 hectares. These estimates are consistent with those of O'Sullivan¹⁰, who calculated that cost savings of around 30 per cent are possible by increasing farm size from 100 to 300 hectares.

The opportunity to establish new farms exploiting economies of size is limited under the current regulations. Assignments offered to those outside the industry are of a size that is seen to be 'equitable' compared with those of existing farms. The Commission received comment that some new growers were discouraged from applying for more than 40 hectares of assignment because this would be seen as being 'greedy'. [Doug McTagget, supplementary Davco data - he said he could provide proof, ask for this] At the draft report hearings, CSR said that:

In one of our mill areas there were applicants for relatively large tracts of land. The local board options seem to be; one that they could select a small number of these applicants and give them a sizeable assignment or they could give small allocations to all the applicants. They chose the latter course and as a result about 20 new assignment of 17 hectares were approved. (Transcript p335)

The data available to the Commission indicate that the benefits of increasing farm size are most significant for farms with less than 100 hectares under cane. It is highly unlikely that new farms based on 17 or even 40 hectares of assignment could be viable; they certainly are in no position to exploit cost savings available from larger scale cane-growing.

Even in the new irrigation areas, the opportunities to set up large scale cane-growing are limited. Farms offered by the Water Resources Commission in Queensland are small, generally some 100 hectares for cane-growing, for which only 50 hectares of assignment is available. [Tully sub 50 p5] Indeed, the WRC compulsorily resumes larger farms for break up into smaller properties. While there are no restrictions on bidding for a number of farms, the auctions are often of non-adjacent plots, making amalgamation difficult. The views of the existing farming community in the area - dominated by existing small-scale cane-growing - appear to influence the policy for developing irrigated land.

While, in more recent years, the transferability of assignments has been less rigid, the gains from subsequent rationalisation will take time. One of the remaining problems is that, while assignments and peaks are 'owned' by growers and can be transferred or sold, mills have an interest in maintaining assignment, and particularly peak within their mill area. This is because, under the current pricing formula, the mill retains some 40 per cent of that higher price for peak sugar. As a consequence, mills are reluctant to agree to the sale of assignment, and particularly peak, outside their areas. The new legislation gives the mill the power to stop such transfers.

Some participants said that the requirement for unanimous approval effectively precludes the transfer of assignment between mill areas, as the 'losing' mill, through its representation on one local board, will always veto the transfer.

¹⁰ O'Sullivan, M.H., *Sugar Cane: Biological and Environmental Considerations, Alternative Uses and Economies of Scale*, Agricultural Economics Society Conference, Brisbane, 12-15 February, 1990.

Davco said that:

The new system, which does allow the full transfer of assignment from [a grower's] existing farm out to the new area, is a possibility but in reality in Queensland it just does not happen.

There is less resistance to the transfer of assignment between mills under common ownership. CSR commented that such transfers are occurring.

The regulation of harvesting schedules and harvest groups can also constrain growers from rationalising their operations. For example, a grower may be prevented from leaving a harvest group because the viability of the remainder of the group may be threatened, even though the grower is forced to bear extra costs, or forgo significant savings, by staying in the group.

The pro-rata expansion of assignment to existing assignment holders, together with past restrictions on the transfer of assignment, have also encouraged the use of marginal land in existing cane growing regions. The 1990 Report of the Sugar Industry Working Party estimated that 5 per cent of assigned land was marginal or unsuitable for cane-growing.

5.5.3 Restrictions on competition between growers

Harvesting and delivery schedules, and prices for cane are determined under local awards negotiated on a collective basis between growers and the mill through local boards. All growers are guaranteed access to the mill at a common price. Millers and growers cannot easily negotiate individually on price, quantity or terms of delivery for cane. Consequently, competition between growers to supply cane is effectively eliminated. This reduces the incentive to innovate and improve efficiency. More efficient growers are constrained from competing directly with the less efficient. ABARE said (sub.33, pp. 21 & 23) that:

Regulations prevent competitive offers between individual growers, millers and end users to sell and buy sugar cane and sugar ... The regulations and controls have constrained producers' abilities to respond to profitable production opportunities and, over time, have led to inefficiencies in the industry.

More generally, the current institutional arrangements controlling the harvesting, delivery and price of cane provide a mechanism for established suppliers to restrict, harass and prohibit the entry of new suppliers, particularly those with production practices that differ from the established egalitarian ethos of the industry. If the principle that established participants in an industry could 'self regulate' to preclude new entrants were to be accepted as a legitimate part of the wider business environment, Australian industry would be far more exposed to dominance by cartels and monopolies, to the detriment of consumers and at the expense of innovation and competitiveness in industry. As a general principle, such practices are illegal.

5.5.4 Limits on land use encourages the over-use of other inputs

Land assignments impose an administered scarcity of land that can be used for sugar cane production. Consequently, to increase production, growers have an incentive to use additional non-land inputs, such as fertilizer, pesticides and water.

Davco said at the hearing:

Because we are restrained in how much area we may use, we tend to plough out our ratoon crops earlier than they necessarily have to be, so we can plant a new crop and get our average tonnes per acre up. We may have easily ploughed out a fourth ratoon where it could have provided an economical yield.

While such practices may be appropriate responses given the existence of land controls, they result in cane not being produced in the most efficient fashion. Unit production costs are higher than they should be. In addition, limitations on land provide an incentive to concentrate research on more intensive cane growing practices, even though research into lower yielding broad-acre practices and varieties may be more economically efficient.

5.5.5 Inefficient response to price signals

Restrictions on land expansion and potential penalties for failure to grow cane limit the industry's ability to respond to price signals, and to adapt to changing market circumstances and to changes in the economic environment generally. This is compounded by the new two pool pricing system which has the potential to provide growers with misleading price signals.

ABARE commented in its submission to the 1990 Working Party that:

The net effect of regulations and controls has been to constrain producers' ability to respond to profitable opportunities. Increases in peaks and assignments have occurred only following periods of very high world prices. Increases in production have therefore been intermittent and poorly timed. Invariably, increases in production have come on stream during the depressed phase of the world price cycle.

Expansions in assignment have been implemented slowly. Even in a situation where much more additional assignment is sought than is offered, considerable assignment from previous increases has still not been used. The Australian Canegrower reported comment by Canegrower representatives that 34 800 hectares of assignment from the 5 and 8 per cent expansions in 1988 and 1990, equivalent to 10 per cent of existing assignment, have still not been taken up.¹¹ Pro-rata allocations had to be offered to existing growers and, if these were not all taken up (as invariably happened because many growers were landlocked), allocations had to be re-offered until eventually the expansion was accommodated in the industry. As a consequence, the time between an announced expansion and the actual expansion in assignments could be as long as two years.

¹¹ *Australian Canegrower*, 13 January 1992, p. 9.

The Commission has been told that the enforcement of any requirement to produce (on threat of loss of assignment) has been relaxed. However, under the new legislation, the Corporation can cancel assignment 'upon the wilful failure of the holder to grow sugar cane'. While the Corporation need not exercise this power, its very existence will influence growers' decisions. The Commission received an example of a request for transfer of assignment in 1991 that was refused by the local board on the grounds, among other things, that the assignment was not being used to grow cane.

This is not to say that the requirement to grow cane does not have some merit within the context of the current system of regulation. If the requirement was significantly relaxed (a desirable situation in principle) it could have some perverse effects. For example, landlocked growers and those with land essentially unsuitable for cane expansion could accept any pro-rata assignment offered without being required to use it. This would reduce the eventual flow-on of assignment to those areas with greater potential to expand. This further highlights the interrelated nature of much of the regulations governing the industry. Many regulations exist essentially to control the adverse consequences of incentives established by other elements of the regulatory package.

5.5.6 Incentives to reduce season length

The average sugar content of cane (measured as ccs) ranges from around 10 at the beginning and end of the season to about 16 in the middle. Under a system where prices per unit of ccs do not vary over the season, all growers would like to deliver their cane at the time of maximum sugar content. This would, however, require significant investment in milling capacity which would be idle for most of the year. The economic season length is thus a trade-off between the benefits of spreading the cost of milling capital over a longer season and the reduction in sugar yield as the season is extended.

The problem of 'rationing' access to the mill over the crushing season has been overcome by a formula which pays growers according to the season average ccs for their mill area, irrespective of the time in the season that cane is delivered. In addition, in some mill areas, harvesting is scheduled by local boards so that cane is harvested from individual farms in small sections over an extended part of the harvesting season.

Individual growers have an incentive to increase their ccs in comparison with other growers delivering at the same time in the season, but as a result of the existing arrangements, individual growers are indifferent (from the viewpoint of the prices they receive) as to the time in the season when they deliver. Growers as a group, however, have an incentive to increase average ccs by shortening the harvesting season, even if it is still profitable to grow and crush the lower ccs cane at the ends of the season. Thus, there is continuous pressure on mills to make capital investments to

increase capacity to allow higher crushing rates. In addition, existing growers have an interest in limiting new supply if this threatens to extend the crushing season, even if the growing and crushing of that cane is profitable in its own right.

Under a more market-based system, mills would be prepared to pay a higher price for ccs in cane harvested at the beginning and end of the season in order to spread their fixed costs. The current requirement in the *Sugar Industry Act 1991* that one price be paid to all growers makes such payments difficult. The Commission has been told, however, that a system of allowances has developed outside the formulated pricing system to overcome some of the shortcomings of the official system. For example, in some mill areas a 'ccs underwriting' allowance is paid to compensate growers for lower ccs at the beginning and end of the season (basically to counteract pressure to reduce the length of the crushing season).

5.5.7 Cross-subsidisation of transport costs

Mills receive cane at delivery points at the farm end of the rail network. Where cane is delivered by road, the mill takes delivery of cane at designated pick up points at the farm end of the transport network. Most transport costs are thus borne by the mill. Growers are paid a uniform price, resulting in more distant growers being subsidised by those closer to the mill. The arrangement could result in growers being indifferent as to whether they locate adjacent to a mill or at a more distant site with higher transport costs.

The Bureau of Agricultural Economics¹² (the predecessor to ABARE) in its study of the Mackay sugar region in 1986 said:

Cane prices do not reflect transport costs and so do not affect growers' decisions about where to grow cane. Further, given the way in which land is assigned and peaks are allocated, many growers have little option but to grow cane at great distances from the mills. And millers are forced to transport cane great distances by road, while land close to mills and tramways remains unassigned.

It estimated a saving in transport costs of some 10 per cent from the relocation of distant cane-growing land to suitable land closer to the mill.

This does not imply, however, that under a more market-based system all transport costs would be necessarily borne by the grower, or that such costs would be delineated solely by distance from the mill. Mills have an incentive to maintain throughput, and there would be circumstances in which the mill would be prepared to bear the cost of transport from more distant growing regions to maintain throughput. However, under the current system these choices are not made on assessed costs and benefits, but are applied on the basis of a single price for cane being 'fair'. This problem

¹² Bureau of Agricultural Economics, Occasional Paper No. 96, *Efficiency of Transport, Milling and Handling in the Sugar Industry*, AGPS, Canberra, 1986, p. 22.

would be more significant if assignments were to become more readily transferable. Growers could transfer assignment from areas close to the mill to areas further away, with the additional transport costs being borne by the mill.

In some mill areas, these problems have been recognised. Arrangements have been made outside awards for transport costs to be shared between growers and mills. Nonetheless, the belief that one cane price is 'fair' is deeply entrenched in the industry and changes to the established arrangements must be made in the face of some resistance.

5.5.8 Inflexible incentives for cane growing and milling expansion

The current distribution of revenue between mills and growers has been largely unchanged for 70 years. Despite constant complaint, the industry has been unable to agree on any fundamental changes to the traditional formula. The inherent inflexibility of the regulated distribution of revenue has not, however, been a major problem for the industry because restrictions on the expansion of cane-growing have meant that any major mismatch of cane production and milling capacity has not arisen.

Recent expansions in assignment have contributed to the introduction of continuous crushing to enable better utilisation of existing mill capacity, but as assignment continues to expand, the industry will face the question of limits to existing milling capacity.

If cane production were to increase significantly under the current regulated system, it is not clear that other elements of the regulatory system, particularly the revenue sharing arrangements, would be sufficiently flexible to handle the pressures generated. Mills may be reluctant to expand milling capacity under the current system once the gains from continuous crushing have been fully realised. The most likely outcome is that the expansion will be halted rather than changes made to long established practices. Indeed, the availability of milling capacity is one of the criteria in the new Act under which judgements on expansion by the Corporation are to be made. If the situation were to arise where growers were prepared to seek additional assignment while mills were reluctant to invest in additional milling capacity, this would indicate that the current revenue sharing arrangements are inappropriate.

The Commission has not reviewed the revenue sharing arrangements between millers and growers. It is unlikely that any regulated pricing or revenue sharing system would be other than arbitrary or would be sufficiently flexible to deal with changing market conditions. In the Commission's view, only a system in which growers and millers could freely negotiate prices would provide efficient incentives for both cane-growing and milling expansion.

5.5.9 Conclusion

Costs would be involved in any system of private arrangements between mills and growers. However, the regulations themselves are far from costless. A cost is associated with their administration and, more importantly, costs stem from inefficiencies they impose on the operation and size of the industry. The regulations needlessly constrain the size and structure of the industry, preventing least cost input mixes, and reducing the ability of the industry to adapt to changed circumstances. Indeed, the industry has been locked into a structure of small scale agriculture during a period in which growing and harvesting technologies have changed considerably. Small scale cane-growing is perpetuated by the practice of granting assignment to new growers in sizes which preclude the realisation of size economies. This runs the risk of requiring government assistance in the future to survive.

The regulations governing the industry have recently been changed, providing more scope for the flexible management of the industry. However, the Commission received many comments that, because of the manner in which the new legislation is being administered, industry practices are little different from those prior to 1991.

Following the release of the draft report, the Commission was criticised for not taking into account the clearly expressed wishes of the industry for the retention of the current regulations. However, the fact that a clear majority of those in the industry support regulation is not a justification for its continuation. In most industries, a majority would support regulation that limited competition between members and severely limited the potential competition from new entrants. However, elsewhere in the economy, action to limit such competition is illegal. The Commission sees no special features in the sugar industry that would justify restrictions on competition.

5.6 Proposals for change

5.6.1 Long term objective

The Commission considers that, in the longer term, no constraints should be placed on the area or location of land used for growing sugar cane, or on the mill to which cane is delivered. Entry into, and exit from, cane-growing and milling should depend solely on the commercial judgment of the individuals and organisations concerned. Prices for cane would be negotiated between mills and individual growers or groups of growers.

Where suitable land is close to an existing mill, the rate at which that land would be utilized for sugar cane production would be subject to the capacity of the mill to crush the cane. Expansion would entail negotiation of supply contracts between individual mills and growers. If the mill did not have sufficient capacity to crush additional cane, it would be difficult for new entrants to negotiate a contract to supply. Thus, they would be unlikely to expand production unless they were sufficiently efficient to displace traditional suppliers.

If there were prospects of a large expansion in cane production, there would be an incentive for the mill to expand capacity. This could mean that the mill would actively seek contracts with farmers to grow cane to supply the additional mill capacity. Something similar to this currently operates in New South Wales where the milling co-operative is seeking new cane growers. There might also be an incentive to establish new mills. New and established growers would be free to co-operate to set up a new mill. A degree of stability, if desired, could be provided by medium or long-term contracts, as in other industries. The Commission has looked at the question of contracts between the mill and growers in more detail in Appendix I.

A necessary adjunct to the removal of the assignment system is the freeing up of the pricing mechanism to enable the price for cane, the time and scheduling of delivery, and the cost of transport, to be negotiated between the mill and either individual growers or groups of growers. The extent to which groups of growers could negotiate with a mill would, however, be subject to the Trade Practices Act. This limits collusive arrangements to reduce competition between suppliers, but provides for the exemption of pricing agreements if 50 or more parties are involved, provided that the arrangement is judged to be in the national interest and that participation is voluntary.

Even if the assignment system and associated regulations were removed, it is possible that the essential features of the current organisation of harvesting and delivery would be retained by means of voluntary agreements, as has occurred in New South Wales. This would, however, imply that the current regulations are redundant, locking in traditional practices and precluding different arrangements in those cases where such arrangements could be profitably undertaken by some growers and millers.

In its draft report, the Commission proposed a set of interim arrangements aimed at the phasing out of the assignment system.

At the draft report hearings, CSR commented:

While we can understand why the Commission has suggested that the assignment system be dismantled over a period of years, this will have some disadvantages. The main problem likely to arise is that, during the interim period, a lot of industry energy and effort will inevitably be directed to convincing the legislators that change should either not occur or be substantially modified. There is some merit in removing the system quickly.

A number of factors influence any decision on whether interim arrangements are necessary.

Factors suggesting the need for transitional arrangements include the possibility that the current regulations have significantly distorted economic signals to the industry so that the removal of

assignment could result in a large increase in planting over a relatively short period of time. Any rapid expansion could lead to problems with both milling capacity and the capacity of the harvesting and transport system in some mill areas.

The legislation in Queensland has recently been amended in a way that allows for greater flexibility in the regulations governing the industry. This allows for change to occur over the transition period, but within a framework that those in the industry understand. The review of key aspects of the new legislation scheduled for 1996 provides a useful time for the introduction of more substantial change.

The major factor mitigating against transitional arrangements is the delay in realising the benefits that change will bring. Moreover, some factors suggest that change may not be rapid. The acquisition of land and preparation for cane-growing takes some years. Sugar prices are not high at present, and assignment values are low in many mill areas. This would indicate that the immediate removal of controls may not result in major change.

It is difficult to assess the relative significance of these considerations. However, the Commission judges that it would be preferable if the assignment system were dismantled over a number of years rather than abolished immediately. Most elements of the transitional arrangements proposed by the Commission could be accommodated within the new arrangements introduced by the Queensland Government under its *Sugar Industry Act 1991*.

5.6.2 Transitional arrangements

Interim expansion of assignment

The new Queensland legislation requires a minimum expansion of 2.5 per cent per annum in assignments between 1991 and 1995, after which decisions on expansion revert to the Corporation. The Commission considers that this minimum is too conservative. It proposes that the existing minimum 2.5 per cent expansion in assignment be increased to 5 per cent for the remaining years of the expansion program. As any implementation of transitional arrangements is unlikely to be practicable until the 1993 season, this would mean a minimum 5 per cent expansion in 1993, 1994, and 1995. The assignment system would be abolished in 1996. The Commission believes that this additional expansion could be comfortably handled by the existing industry infrastructure. Indeed, at the draft report hearings, the Australian Sugar Milling Council advocated a minimum increase of 5 per cent annually in the remaining transition period, 1992 to 1995 inclusive.

Allocation of transitional expansion of assignment to new growers

The Commission considers that the practice of reserving half the additional assignment for new growers should be continued over the transition period.

In its draft report, the Commission proposed that the additional assignment be put out to tender. Under a tendering system, those seeking assignment would submit a tender specifying the area of assignment sought and the amount per hectare the bidder was prepared to pay. Bids would be ranked from highest to lowest and allocations would be made until the sum of the areas allocated totalled the total area available. Lower bids would be discarded and all those with successful bids would be provided assignment at the price set by the lowest successful bid.

Revenue gained from the sale of assignment over the transition period could be used in a number of ways: it could be used to assist any canegrowers who might face financial difficulties as a result of the changes introduced; it could be distributed to established growers in the industry on the basis of their peak or assignment; it could be used to finance research in the sugar industry; or it could be retained by the Queensland Government.

There was some criticism of the tendering proposal. The Australian Sugar Milling Council said that the tender process would be administratively cumbersome.(transcript p 215) CSR said:

The proposed tender system would effectively impose a tax on people wishing to enter the industry; it would increase the risk of any investment and potentially act as a disincentive. Further, a tender system would seem to be too complicated a measure to be introduced for only a three year life span. (sub 56 p3)

The Commission recognises that the cost of acquiring assignment would make the entry of new growers more difficult. However, in suggesting the tender system, the Commission was seeking to achieve two things: firstly, to enable new farms to be established that are of a sufficient size to reap some of the available economies of size and to be viable in the long term; and secondly, to allocate new assignment to those growers and those regions which can use it most effectively. A tender system would also provide an indication of the extent to which the planned expansion is meeting demand for assignment.

In practice, the question of how assignment is allocated and whether there is a price attached to it is essentially one of equity (as long as the price is not set so high as to preclude the use of the assignment and there are no restrictions on transfer). In this situation, the Commission does not propose to recommend a particular method of allocating assignment. However, if assignment is to continue to be allocated to new growers at the discretion of local boards, the Commission recommends that assignment not be allocated in lots that are clearly uneconomic or are likely to be marginal in the longer term. Rather than allocating a single large area of assignment to an individual new grower, which may be seen to be inequitable, allocation could involve parcels of assignment being progressively allocated to the new grower over the recommended transition period. This would allow the build up of viable new farms incorporating established crop rotation patterns. This would overcome the problem of new growers being classified as established growers once they have been allocated their initial assignment, thus restricting them to the small pro-rata

expansions or requiring them to purchase assignment to expand beyond the small initial allocation. In view of the extent of the increase in assignment, and the limited period beyond which the assignment system would cease, this arrangement would not significantly disadvantage other potential new growers.

Pressures on administering bodies to distribute new assignment as widely as possible lead to the proliferation of small and potentially uneconomic cane farms. However, while it may be difficult to get the initial allocation of assignment 'right', so long as assignment can be freely bought and sold, and the transaction costs are not too high, the final distribution between growers and between regions will eventually reflect the relevant costs and benefits of cane-farming. Greater freedom to transfer assignment is thus an important factor in ensuring that expansion is efficiently utilised.

Transferability of assignment

The current system of approving transfers appears to be seriously hampering the movement of assignment and the gains that this would generate. The Commission proposes that the transfer of all new assignment (that is, new assignment allocated to both existing and new growers) be significantly liberalised by removing the need for unanimous approval by the relevant local boards. The transfer of new assignment would only require the agreement of the receiving mill.

Associated changes

As assignment is expanded, other regulatory changes would be necessary. For example, it would be undesirable to expand assignments indefinitely, while retaining the requirement on the mill to accept all cane grown on assigned land. Nor would it always be desirable to retain the system of one cane price, irrespective of distance from the mill or the time in the season in which cane is harvested and delivered.

One way of overcoming this problem could be, in the interim, to retain the requirement for mills to accept cane, and retain the existing cane formula, but apply it only to cane from assignments issued prior to the 1993 season. The acceptance of cane from any additional assignment would be subject to negotiation between mills and the holders of the additional assignment.

Just as mills would not be obliged to process cane in excess of that from 1992 assignments, growers would not be required to fully utilise their additional assignments.

These would be transitional arrangements and, in time, all arrangements between mills and growers would be subject to negotiation and the normal obligations associated with contractual or other arrangements.

6 STATUTORY MARKETING OF QUEENSLAND SUGAR

6.1 Introduction

The marketing of all raw sugar produced in Queensland is the responsibility of the Queensland Sugar Corporation which was established under State legislation in 1991. It absorbed all of the functions of the Sugar Board (which had been responsible for the marketing of Queensland's raw sugar) and most of the functions of the Central Sugar Cane Prices Board (which oversaw production controls).

The capacity of the Corporation to act as a sole marketer is underpinned by legislation giving it the power to compulsorily acquire all raw sugar produced in Queensland. On acquisition, ownership is vested in the Corporation. For mills, ownership of raw sugar is replaced by a right to receive payment from the Corporation. Prior to 1991, raw sugar was acquired by the Queensland Government and sold on its behalf by the Sugar Board.

Raw sugar produced in Queensland is marketed solely by the Corporation within Australia and in New Zealand, and exported to other countries by CSR as marketing agent for the Corporation. CSR operates seven bulk sugar terminals along the Queensland coast on behalf of the Corporation. Sugar is shipped from bulk terminals either to refineries in Australia or to overseas destinations.

6.2 Domestic marketing

Until 1989, the Sugar Board was the sole seller of raw sugar produced in both Queensland and New South Wales, as well as the sole seller of refined sugar. Raw sugar was refined (principally by CSR) on a contract (toll) basis, with the sugar remaining the property of the State.

In 1989, following the removal of the embargo on sugar imports and the lapsing of the Commonwealth-Queensland Sugar Agreement, the New South Wales industry established a refinery enabling it to sell directly onto the domestic market. However, the capacity of the New South Wales industry is limited and some 75 per cent of the domestic market requirements for raw sugar is supplied by the Queensland Sugar Corporation.

The Board's tolling arrangement with refiners lapsed in 1989. Since then, the Sugar Board/Corporation has sold raw sugar to CSR, to the relatively small refining operations of Bundaberg Sugar at Millaquin (now owned by Tate and Lyle), and a small amount to the Manildra

Harwood refinery in New South Wales. The cessation of toll refining significantly changed the Corporation's cash flow. It now sells on a cash basis to the refiners, resulting in a much earlier receipt of revenue. This has reduced the Corporation's requirements for borrowings to provide advance payments to millers.

The Queensland Sugar Corporation has adopted a landed duty paid import parity pricing policy in pricing raw sugar on the domestic market.

The dominance of the Sugar Corporation in the raw sugar market is broadly matched by the dominance of CSR in the refined sugar market. The company supplies nearly 70 per cent of the domestic market.

6.2.1 Export rebates

Prior to July 1989, an Export Sugar Rebate Scheme operated within the context of the Commonwealth-Queensland Sugar Agreement. The rebate applied to sugar used by exporters of certain products containing sugar when the administered domestic price of sugar exceeded the world sugar price. The world price was calculated as the landed duty free price of imported sugar if the import embargo had not applied. When the domestic price was lower than this landed world price, domestic manufacturers retained the benefit of the lower domestic price.

Since the lifting of the embargo, the Sugar Board/Corporation has maintained rebates for exported products incorporating significant quantities of sugar. The Corporation gives the rebate on raw sugar sold to the two Queensland refiners, CSR and Bundaberg Sugar. The refiners may subsequently offer export rebates to relevant customers. The rebates are intended to offset the adverse effects that tariffs incorporated in the Corporation's import parity pricing policy have on the competitiveness of exported products containing sugar.¹

The Commission understands that the rebate offered is equal to the developing country tariff applying to raw sugar imports, thereby equating sugar costs to the duty free import price. This price is still higher than the price at which raw sugar is exported from Australia. In 1990-91, export rebates provided by the Sugar Board amounted to slightly over \$5 million.

6.3 Export marketing

Australia generally exports around 80 per cent of its raw sugar production. As the output of the New South Wales industry is directed only to the domestic market, all exports are from Queensland and are subject to the control of the Queensland Sugar Corporation.

¹ The Manildra Harwood sugar refinery has not offered export rebates to its customers.

As the sole export marketing agent, CSR is responsible for the negotiation of export sales and the organisation of shipping of raw sugar to all destinations other than New Zealand. The company is employed, under a contract negotiated annually, on a fee for service basis. Negotiations between CSR and overseas buyers are undertaken in consultation with the Corporation.

The Corporation negotiates a significant share of its sugar exports on a long term contract basis and sells all sugar on a cif or c&f basis. In the 1990 season, long term contracts accounted for almost 40 per cent of sales. The Corporation has long term contracts with China, Malaysia, Singapore, and South Korea, and did have one with the former USSR. Payments for all export sales are received at the time of shipment.

6.4 Payments to mills

In accordance with the legislation, total revenue from domestic and export sales of raw sugar is divided into two pools and distributed to mills in Queensland. Prior to this distribution, deductions are made for all costs associated with the sale of sugar, all costs of the Corporation in discharge of its functions (including marketing and promotion, transport, bulk handling and storage, waterfront and shipping, and some costs associated with the operation of local boards), and any reserves necessary to fund its operation.

The two pool pricing system has a long history in Queensland. A mill's entitlement to receive the Pool 1 price is called the 'mill peak' and is specified in tonnes of raw sugar. Raw sugar produced in excess of the mill peak receives the Pool 2 price. Mill peaks have been frozen since 1982 and, as a consequence, any increases in production have received the Pool 2 price. Sugar produced from cane grown on unassigned land is classified as 'penalty sugar' and, if delivered, would generally receive the penalty price of \$1 per tonne. However, as noted in the previous chapter, such sugar was paid the Pool 2 price in 1990.

Prior to 1990, Pool 1 consisted of returns from the domestic market and sugar sold on long term contracts (including sugar sold under the US quota), together with any proceeds of other sales which may have been necessary to increase the quantity of sugar sold in Pool 1 to the aggregate of mill peaks. Pool 2 was sugar produced on assigned land in excess of mill peaks. Because of the volatility of the spot market price, the Pool 2 price could be higher than the Pool 1 price, as occurred in the 1989 season, but generally the Pool 1 price was higher than that for Pool 2.

Since the beginning of the 1990 season, the legislation has required that the Pool 1 price be 12 per cent higher than the Pool 2 price. This differential was established in response to recommendations made in 1989 by a Committee of Inquiry into The Queensland Sugar Industry Pooling System and Related Matters.

The Committee recommended that peak entitlements be preserved because it perceived a need to provide added incentive to maintain throughput in mills operating in landlocked areas and because of the contribution established producers had made to infrastructure. However, to provide greater certainty in its application, the Committee proposed that a fixed differential exist between the two pools. The Committee found that, during the ten years between 1978 and 1987, the price paid for Pool 1 sugar was, on average, 12 per cent higher than that paid for Pool 2 sugar. Consequently, a fixed differential of 12 per cent was recommended and subsequently implemented. This means that there is really only the one pool, but there are two prices paid for sugar delivered to the pool.

Over the last 20 years, the quantity of sugar receiving Pool 1 price (peak sugar) has been some 85 to 95 per cent of the total quantity of sugar produced. In the 1990 season, Pool 2 represented a relatively small proportion (about 8 per cent) of all raw sugar produced. Consequently, the application of the 12 per cent differential resulted in the Pool 2 price being nearly 10 per cent below the average price achieved for sales to all markets. Conversely, the gain for Pool 1 producers was small: they received less than 1 per cent more than they would have received if all producers contributing to the pool had received the same return (ie the average for all sales). As the industry expands, the gain to Pool 1 producers would increase relative to the average of all returns.

Under the new Queensland legislation, the Queensland Sugar Corporation is, after 5 years, required to report on the two-pool pricing system and to assess alternatives.

The Sugar Board's sales revenue for raw sugar for the 1990 season totalled some \$1280 million, about 15 per cent less than 1989 revenue. As all sugar is sold c&f or cif, sales revenue includes a freight component. Expenses incurred by the Sugar Board represented approximately 10.2 per cent of revenue from the 1990 season.

Payments to mills from the two pools have been made according to different schedules (see Appendix D). Prior to 1990, millers received considerably higher initial advances and earlier progress payments for Pool 1 sugar than for Pool 2 sugar. However, following the acceptance of recommendations made by the 1989 Committee of Inquiry, the differences are now less pronounced, but still significant. The initial advance to mills for Pool 2 sugar was set at 70 per cent of the initial advance paid to mills for Pool 1 sugar. Subsequent payments for both Pool 1 and Pool 2 are at the discretion of the Corporation. The slower payment schedule for Pool 2 returns in 1990 and 1991 meant that the differential between the two pools was, in effect, somewhat greater than 12 per cent. The timing of progressive payments to producers for the 1989 and 1990 seasons is shown in Appendix D. The Corporation has decided that, for the 1992 season, the timing of interim and subsequent advance payments will be the same for all producers and that the 12 per cent differential will apply to all payments.

6.5 Bulk sugar terminals

Most raw sugar produced in Queensland is delivered to a bulk terminal for shipment to export markets or to domestic refineries. There are seven bulk sugar terminals in Queensland.²

Bulk sugar terminals fulfil two functions: the bulk storage of raw sugar and the loading of raw sugar on to ships for delivery to local refineries and export markets. Limited storage capacity is available at the mills themselves.

6.5.1 Ownership and administration

The sugar export terminals are nominally owned by the Harbour Boards. The Queensland Sugar Corporation holds a lease over the land on which the terminals are built, and is responsible for the management of the terminals.

Under the agency agreement with the Corporation, CSR is responsible for the overall management and co-ordination of the day-to-day activities of the bulk sugar terminals. Each terminal has a local organisation to handle operations. A central administration co-ordinates the functions of the local organisations.

In submissions to the 1990 Sugar Industry Working Party, the Sugar Board expressed concern about the ownership structure of bulk sugar terminals. It said that this had caused difficulties with respect to maintenance, insurance and structural alterations. The Commission understands that consideration was given to transferring the ownership of bulk sugar terminals from the Harbour Boards to the new Corporation, but that the matter was not resolved before the new Sugar Industry Act was finalised.

6.5.2 Terminal costs and payments

In 1989-90, the operating cost (net of capital charges) of bulk terminals varied considerably, with most ranging from \$2.60 per tonne to \$4.51 a tonne.³ Operating costs were significantly higher in Brisbane, at \$8.57 per tonne. This cost was, in part, the result of a major loss in throughput previously obtained from New South Wales. The total operating cost of the bulk sugar terminals in 1989-90 was \$11.7 million.

² Bulk sugar terminals are located at Cairns, Mourilyan, Lucinda, Townsville, Mackay, Bundaberg and Brisbane.

³ Bulk Sugar Terminal Organisations, Annual Report, 1989-90, p. 12.

The utilisation of terminals varies considerably. The South Johnstone Mill stated that the storage capacity to throughput ratio at its regional terminal - Mourilyan - is relatively low at 0.47.⁴ At the other extreme, the corresponding rate for the Brisbane terminal is around 0.9. The average is 0.65.

Expenditure on maintenance and new capital items is financed by the Sugar Corporation out of sugar sale proceeds. Since 1974, major items of capital expenditure have included the construction of the jetty at the Lucinda terminal, which was built at a cost of \$56.8 million, and the Brisbane bulk sugar terminal.

Considerable capital investment is tied up in the bulk sugar terminals. The book value of the terminals is some \$213 million, ranging from \$64 million for the Lucinda terminal to \$6 million for the Mourilyan terminal.⁵ The total value of all the terminals would be considerably greater if it was based on current replacement cost.

6.5.3 Transport allowances

The Corporation requires mills to deliver to specified terminals as part of its acquisition arrangements. Most mills pay the total transport cost to the terminal. However, a system of transport allowances operates for some mills. This was introduced when the bulk terminals were constructed over the period 1956 to 1964. Allowances were designed to compensate for higher delivery costs following a decision to deliver to a terminal other than the one the mill previously used. The Sugar Industry Working Party Report of 1985 recommended that these allowances be phased out, with mills bearing the full cost of raw sugar transport to terminals. This recommendation was not adopted. The Report of the 1990 Sugar Industry Working Party stated that 'any attempt to change the allowances is contrary to the goodwill that was intended'.

The Queensland Sugar Corporation said that the distribution of costs and benefits resulting from the conversion to bulk handling are likely to be different now than when the bulk terminals were constructed. The Sugar Corporation has not attempted to measure the impacts of these charges and levies. However, the Corporation acknowledges that they may impact on the overall economic efficiency of the industry. Under the *Sugar Industry Act 1991*, the Queensland Sugar Corporation is required, within two years, to review the rules and procedures relating to the calculation and the distribution of returns to mill owners and cane growers. The Commission understands that the review will include an assessment of transport allowances.

⁴ This indicates that the volume shipped is slightly more than twice the storage capacity.

⁵ The Sugar Board, *Annual Report*, 1989-90, p. 27, states that the value applied to bulk terminal leases is equivalent to the historical cost of assets currently leased from port authorities.

6.6 The Commission's assessment

As there is only one marketer of raw sugar produced in Queensland, it is difficult to assess the efficiency of the existing statutory marketing arrangements. However, while little empirical evidence was presented, most industry participants considered that the arrangements provide substantial benefits for the industry. In support of this view, participants identified a variety of advantages said to result from the present arrangements. The following section examines these matters: firstly in relation to issues identified by the QSI and, subsequently, in relation to other aspects of the marketing arrangements raised by other participants.

6.6.1 The Corporation's marketing services package

In its submission to the draft report hearing, the Queensland Sugar Corporation agreed that it has little influence over world prices:

The Queensland Sugar Corporation accepts the notion put by the Industry Commission, ABARE and others that it has limited influence over the world price for sugar.

However, the Corporation, CSR and some other participants contend that the sole seller arrangement has permitted the development of a comprehensive 'marketing services package' for Queensland sugar. In its submission to the initial hearings, the QSI stated that the major elements of the marketing services package are:

- management and control of raw sugar quality;
- long term sales contract arrangements, often with government supported central buying agencies;
- management and control of logistics, particularly through the bulk sugar terminal facilities operated under the auspices of the Sugar Board/Corporation;
- economies of size; and
- product promotion and market development programmes for Queensland sugar.

It is claimed that the package results in Queensland sugar being of a consistently high quality and being accompanied by similarly high service levels (eg sugar is delivered in a timely and reliable fashion). High product quality and service levels are said to rely to a significant extent on the Corporation's ability to co-ordinate the activity of the industry throughout Queensland: for example, to source sugar from a range of regions so as to guarantee supply even if some areas are affected by bad weather, and to elect to ship from one of a number of ports so as to minimise loading and shipping costs.

According to the Corporation, these features - high product quality and service levels - provide 'a high level of product differentiation for Queensland raw sugar'. As a result, the Corporation stated that:

... Queensland is the preferred supplier of raw sugar in all of its markets. This has enabled the Corporation to attract significant premiums to the world price on its sales of raw sugar.

Following the draft report hearing, the Commission met with representatives of the Corporation and CSR to consider a confidential paper which seeks to evaluate the value (ie the premium) attributable to the marketing services package. Such assessments necessarily involve comparing returns achieved for Queensland raw sugar with those attained by other exporting nations. However, given that there is only limited information available about other countries' exporting activities, it is virtually impossible to obtain and validate information to ensure that the comparisons are valid. For example, to meaningfully compare returns for Queensland sugar with shipments by other exporting countries, information is required about differences in: the quality of sugar (eg the polarisation levels and the fine grain and starch content); the volume of sales; the timing of sales; the freight and delivery arrangements; the financial arrangements (eg terms and timing of payments); and the level of support services provided (eg technical assistance and advice). In the absence of information of this nature, it is not possible to demonstrate whether Queensland sugar is, or is not, sold at a premium on world markets.

Even if it could be shown that Queensland sugar is sold at a premium, that in itself would not support the maintenance of the present statutory marketing arrangements. To justify such arrangements, it is necessary to demonstrate that advantages stemming from the current arrangements are dependent on there being only one seller of Queensland sugar. In other words, the net return achieved by the Corporation is higher than that which would be achieved if there were multiple sellers of Queensland sugar. The likelihood that the elements of the Corporation's marketing service package would lead to this outcome are considered below.

Management and control of raw sugar quality

Queensland sugar is recognised as being of high quality relative to sugar produced in many other countries. However, there is a cost associated with producing sugar of a high standard. Consequently, a strategy of marketing sugar of a high quality must attain commensurately higher prices to compensate for the additional costs incurred. If, as it is claimed, returns to growers are maximised by selling sugar of a high quality, there would seem to be no reason why the same technical standards could not be observed, and similar quality levels attained, if there were more than one seller of Queensland sugar.

The present arrangements permit the Corporation to manage sugar stocks from all regions so as to compensate for any deficiencies that may be associated with sugar produced in any single region or to meet particular customers' requirements. The same flexibility could obviously not exist if sugar were sold by some millers, as well as the Corporation. However, as milling activity is mainly

conducted by a small number of companies that each own a number of mills, there would still be considerable flexibility to accommodate variations in quality. On the other hand, commercial traders in sugar may have greater flexibility than the Sugar Corporation. They would be able to utilise sugar sourced from other countries to help match sugar characteristics with customers' requirements.

Long term contract and government-to-government sales

The QSI stated that:

The Sugar Corporation has been able to arrange a number of long term sales contracts for Queensland raw sugar. A significant number of these arrangements are with government buying agencies. Even where they are not, the standing of the seller as a Queensland Government statutory authority is an important factor in facilitating the arrangement.

The size and status of the Queensland Sugar Corporation may facilitate the negotiation of long term contracts. However, there is no reason to believe that such activity is the sole preserve of statutory marketing arrangements, or that such sales require compulsory acquisition powers. A number of Australian mills are significant suppliers in their own right. Mills owned by CSR supply 34 per cent of Queensland's raw sugar and have well established international marketing links. Bundaberg, which supplies 20 per cent of Queensland's raw sugar, also has international links through its new parent company - Tate and Lyle. Mackay sugar produces 17 per cent of Queensland sugar. All would be sufficiently large to supply any of the contracts currently supplied by the Corporation, and two are well known to overseas buyers.

Some buyers - including overseas government purchasing agencies - may prefer to conduct business with a government body rather than a private trader. However, this would only be a problem if the Sugar Corporation ceased to trade in sugar. If it continued to trade, in competition with private traders, any perceived advantage associated in government-to-government dealings would be maintained.

This is not to deny that the nature of long term contracts, and the willingness of a statutory authority to enter into them, would change if compulsory acquisition were abolished. If long term contracts were entered into in the absence of compulsory acquisition, the Corporation (or any other trader) may need to negotiate long term supply contracts with local mills. The mills in turn may need to negotiate supply and price agreements with growers reflecting the more stable prices and assured sales inherent in long term contracts. However, if long term contracts offer benefits that suppliers desire, growers and millers would presumably be willing to enter into such agreements.

Logistical control of bulk shipping terminals

The Corporation contended that the bulk sugar terminals operated under its auspices are 'universally accepted as the most efficient in the world'. It stated that the resultant benefits that accrue to the industry include: lower storage and handling costs; shorter loading times; an enhanced reputation with customers; and the ability to sell on either a c&f or a cif basis.

The Commission can see no reason why there would be any decrease in the efficiency of bulk sugar terminals or in the options available for the export of sugar if the sole seller arrangement were terminated. It considers that these benefits would be preserved, irrespective of the number of sellers. Indeed, the Commission considers that the implementation of its recommendations on the future ownership of the bulk terminals (see section 6.7.3) would increase the efficiency of terminal operations.

Economies of size

Some economies of size (and scope) are likely to be available in the marketing of raw sugar. In addition, there are likely to be some economies of size in bulk handling and shipping. However, it is not clear that these economies are only available at a Queensland-wide level. Indeed, it is likely that economies of bulk handling and shipping are available at a regional level. This is reflected in the distribution of seven bulk sugar terminals along the Queensland coast.

Substantial economies of size in storage and marketing would normally lead to the development of larger commercial structures, which would offer lower prices or better services to attract customers, in order to benefit from the economies available. Acquisition is not necessary to generate such gains. Statutory marketing arrangements encompassing powers of acquisition inhibit the development of these commercial structures. Indeed, they force the industry into 'large scale' marketing where smaller organisations may be more effective. Under the present arrangements, the industry is not in a position to assess whether an alternative structure would be superior.

Although it considers that there could be some significant adjustment costs in the short term, this outcome was acknowledged by the QSI:

Theoretically, allowing competition in exporting raw sugar would not prevent the achievement of economies of size. In the long term, as the export segment of the market adjusted to its most efficient structure, the smaller firms would not survive with the lowest cost service being provided by the remaining operators.

Given the changed ownership arrangements proposed for bulk shipping terminals (see section 6.7.3), and sufficient notice of change, the Commission can see no reason why significant adjustment cost would be incurred in the short term.

It is also claimed that economies of size enable the Corporation to employ risk management mechanisms (ie futures, options and swaps) which 'would not be commercially justified by smaller marketing firms'. If this is the case, it should provide the Corporation with a competitive edge over potential rivals. However, given the size of Australian production and the likelihood of alternative traders in Queensland sugar being involved in trade of other commodities, and possibly sugar of

other origins, the likelihood of alternative marketers of Australian sugar not being able to exercise a range of risk management options is small. Moreover, the abolition of compulsory acquisition would allow individual producers the opportunity to employ financial market instruments to manage their own risks. Participants stated that the present marketing arrangements allow little scope for this to occur.

Promotion and market development

The Commission agrees with the QSI that promotion and market development is most appropriately undertaken as a co-ordinated industry activity. If this does not occur there is always the possibility of 'free-riding' with a generic commodity like sugar. This can arise because of the homogeneous nature of sugar: it is difficult to promote (say) Mackay sugar without simultaneously promoting sugar grown in neighbouring regions. In these circumstances, individual producers may be reluctant to engage in promotion and market development activities unless they receive compensation for the benefits received by producers who do not contribute to promotion activities. At the industry level, this can result in less being expended on promotion and market development than is efficient.

At present, the sole seller arrangements eliminate the possibility of free-rider problems. However, it is not essential to have such arrangements to ensure that appropriate levels of promotion and market development are undertaken. Such expenditure can be financed by compulsory levies on all producers. This is currently the case in a number of other rural industries (eg wool and beef). Although there would be a need for the funds to be expended or distributed by a statutory body, the collection of the levy would not require the maintenance of the present statutory marketing arrangement or compulsory acquisition.

Summary

The Commission does not believe it is possible to establish empirically whether or not the Queensland Sugar Corporation's marketing services package compensates the industry for the extra costs it imposes and enables the Corporation to 'attract significant premiums to the world price on its sales of raw sugar'. However, even if this is the case, the Commission considers that the advantages bestowed by the marketing services package would remain if there were no longer compulsory acquisition and the Corporation was no longer the sole seller of Queensland raw sugar. If this were to occur, those producers who value the Corporation's marketing strategies could continue to have their sugar marketed by the Corporation and continue to enjoy the benefits that might entail. At the same time, those producers who believe they can increase their returns by marketing their sugar themselves, or by selling to other marketing bodies, would be free to do so.

6.6.2 Other reasons for statutory marketing

Participants identified a range of other benefits not directly associated with the Corporation's marketing services package which they claimed are associated with the existing statutory marketing arrangements. These relate to:

- price premiums;
- countervailing market power;
- maintenance of minimum quality standards;
- stabilisation of returns; and
- the provision of assistance.

Price premiums

A number of participants (eg the Herbert River District Growers) claimed that the centralised control of exports made possible by the present marketing arrangements permits the Corporation to extract 'price premiums' from some export markets.

If Australia were in a position to influence world sugar prices, it might be possible to extract a price premium by limiting supplies, or the number of suppliers of sugar, to some export markets. The benefits, in the form of higher world sugar prices would, of course, be available also to suppliers from other countries. However, Australia's share of the world sugar trade is small and, as a consequence, Australia is commonly regarded as a price taker on international markets. In this regard, an ABARE study by Sturgiss et al⁶ stated that:

... the long term reaction of world price to changes in Australian sugar production would be small ... In the long run, a 1 per cent rise in Australia's exports is estimated to lead to a decline in the world price of between 0.13 and 0.27 per cent ... Australia should be regarded as unable to influence world prices to its advantage.

In its submission to this current inquiry, ABARE commented:

For all practical purposes, Australia cannot control supply onto world markets to its advantage. It therefore seems unlikely that premiums could be extracted from overseas buyers on a sustainable basis ...

Some industry participants shared this view. For example, Bundaberg Sugar Company noted that:

There is no evidence that the industry, despite the single seller arrangements, is anything other than a price taker on world markets. Nor is any substantial price premium evident. The benefits that accrue seem to be in the area of securing outlets through service and operating efficiency, and the ability to contract long term supply in some instances.

⁶ Sturgiss R., Connell P., and Tobler P., 'Australia's influence on world sugar prices', *Agriculture and Resources Quarterly* 2(1), 47-55, 1990.

As noted above, the Queensland Sugar Corporation agrees that it has little ability to influence world prices. However, this is not to say that the Corporation would be unable to obtain a price commensurate with the quality of sugar it sells, the services it delivers and guarantees which may be associated with export sales. If the quality, services and guarantees are superior to those of competitors, this would presumably be reflected in higher prices. But such higher prices cannot be attributed to the Corporation's single seller status - they are a reflection of product quality and/or sale conditions.

In certain cases, Australia has been provided with restricted access to particular overseas markets in which prices are supported by the protection policies of the countries concerned. A current example is the US quota market which recently has accounted for about 4½ per cent of Australia's raw sugar exports. The US quota is allocated by the US embassy each year. As the sole export agent of the Queensland Sugar Corporation, CSR has been the only company to receive the certificates of eligibility allocated by the embassy. However, any actual or potential Australian exporter of sugar is free to apply for part or all of this quota. Whoever receives the quota, or a share of the quota, is in a position to gain any premium available. Premiums which may be available in such markets are not a consequence of Queensland's statutory marketing arrangements. They simply reflect the fact that the quota must be supplied from Australian sources.

In the domestic market the situation is different. A single domestic seller is able to extract a price margin above the export price because of the freight costs of importing raw sugar and the tariff. The difference between export and duty paid import prices is significant. The Commission has estimated the domestic price to be some 38 to 46 per cent higher than average export returns - equivalent to \$110 to \$125 million in 1989-90. However, this benefit is extracted from other sectors of the Australian community and is a transfer rather than a creation of wealth.

Countervailing market power

Many participants consider that the statutory marketing arrangements allow the Corporation to counter the market power of traders (including sugar producers themselves) and other buyers of Queensland sugar. According to the QSI:

The world sugar market is dominated by a few large and powerful trade houses. Furthermore the domestic market for raw sugar is heavily concentrated on the buying side. The existence of compulsory acquisition and statutory marketing arrangements ensures that the single seller structure is effective.

Similarly, CSR said that:

The single seller arrangement is demonstrably effective in raw sugar export markets. The merits of a single seller in negotiating international commodity trade arrangements are becoming recognisable especially when there are relatively few buyers, as in the case of raw sugar (sub. No. 9 attach. p. 9).

However, the international sugar market is highly developed, with traders well informed on ruling prices throughout the world. In addition, there is a well developed futures market operating for sugar. In this situation, there would seem to be little scope for Australian suppliers to be 'manipulated' by large international concerns in relation to price. Also, Australian supplies are unlikely to be marketed by a large number of small 'vulnerable' companies. Over 70 per cent of Queensland's raw sugar production is undertaken by three organisations, two of which (CSR and Tate and Lyle) are directly involved in the international marketing of sugar.

The situation on the domestic market is more complex. Participants' concerns centred on the buying power of CSR - the country's major refiner. For example, the Proserpine Cooperative Sugar Milling Association Ltd believes that, if a single body were not in control of sales on the domestic market, then the 'big players' in the industry would take all of the higher priced sales and leave the smaller and independent sugar manufacturers with the lower priced export sales. (sub. No. 5 p. 3)

The scope for a large refiner or other large domestic buyer to use market power to the detriment of sellers of raw sugar is, however, limited. If compulsory acquisition was removed to allow multiple sellers of raw sugar on the domestic market, the present price margin would be competed down until returns from domestic and export sales were broadly similar. In these circumstances, there would be little scope for refiners to force prices down since domestic mills would always be prepared to divert sugar from the domestic to the export market.

Maintenance of minimum quality standards

In an environment characterised by multiple sellers, shipments of poor quality sugar could diminish the international reputation that Australia has established as a supplier. The underlying premise is that raw sugar is seen in the world market as generically Australian, rather than as the supply of individual mills or traders. However, as such action would jeopardise the seller's prospects of negotiating further sales, there would be a strong incentive to avoid this and other forms of 'opportunistic' behaviour. If damage to Australia's reputation were to occur because of the actions of a few sellers, more direct means of regulating minimum quality standards would be preferable to compulsory acquisition.

Stabilisation of returns

The Sugar Corporation noted that price stabilisation is not a primary objective of its marketing strategy. Nevertheless, a degree of stabilisation of returns to individual producers is achieved as a result of the Corporation's pattern of sales, its long term contract arrangements, its commodity and currency hedging operations, and the pooling system.

Many producers prefer the stability and security which they consider are provided by a statutory marketing organisation. In these circumstances, if use of a statutory marketing agency were voluntary, it would continue to attract a significant share of sales. There seems to be no reason why it would be necessary to maintain compulsory acquisition so that all industry output has to be marketed by the statutory authority and those who do not seek such stability and security are forced to join those who do.

Provision of assistance

Because the Australian sugar industry is predominantly export oriented, domestic prices would, in the absence of compulsory acquisition or some other statutory support of domestic prices, tend towards export prices, irrespective of the level of tariff. Thus, the current statutory marketing arrangements enable the industry to maximise the benefits provided by tariff assistance. However, if assistance were considered justified, there are other ways of providing it (eg by means of a bounty) which would provide the same level of benefits to the industry, but which do not require compulsory acquisition and sole seller arrangements.

6.6.3 Major shortcomings with present marketing arrangements

Major shortcomings of the existing statutory marketing arrangement include:

- the pooling mechanism;
- the lack of flexibility inherent in the arrangements; and
- import parity pricing.

Pooling arrangements

Prior to the introduction of the current 12 per cent fixed margin between Pool 1 and Pool 2 sugar, prices in the two pools reflected the actual average prices received in different classes of markets. In most years, the Pool 1 price was higher than the Pool 2 price.

One objective of separately identifying the returns was to prevent marginal (or additional) production decisions being influenced by higher returns from other markets. Efficient decisions on whether to produce in excess of peak should be based on the return received from sales of the additional output.

The present arrangements 'lock in' a fixed difference between pool returns, even though the actual difference in returns is constantly changing. For example, the additional margin on the domestic market is declining as tariffs are reduced. Consequently, in periods of high 'spot' prices, returns at the margin may well be higher than those under long term contracts. But, under the new

arrangements, the Pool 2 price will always be lower. Thus, output would not expand appropriately, even if world prices are high. In periods of low 'spot' prices, the reverse could apply. The Pool 2 price could overstate actual returns, encouraging more production at a time when output would normally fall. Consequently, the current fixed differential between the pools can lead to perverse outcomes.

To the extent that the pooling of revenue disguises quality or other differences between growers or mills (other than differences in ccs which are currently accounted for), inappropriate decisions about location and the quality of sugar produced may result. For example, regions which produce the highest quality of sugar are not appropriately rewarded, nor are initiatives by any individual mill to improve quality. Indeed, under the pooling arrangement there is no incentive for a mill to differentiate or improve its product, even if this would increase actual market returns.

Under the current system, millers meet all costs from the farm gate up to and including delivery to the bulk terminal (apart from some transport allowances discussed in section 6.5.3). Costs within and beyond the bulk terminal are pooled across all raw sugar acquired by the Corporation, irrespective of different costs for the storage, handling and marketing of sugar from different locations in Queensland. The biggest cost item is freight and insurance.

Costs of transport to markets vary between the different milling regions in Queensland. For example, Cairns has a freight advantage to South East Asia and Japan. Bundaberg has a freight advantage in supplying the domestic market. Freight differences to more distant markets, such as the USA and Europe, are probably less significant. In addition, bulk terminal operating costs vary between ports.

The pooling of these costs disadvantages regions which are best placed to service the markets in which Australian sugar is, or could be, sold. It encourages over-production in areas less well suited for servicing sugar markets although, to date, such effects have been to some extent offset by the constraint imposed on output levels by the assignment system. In a less regulated system, the pooling of costs could have a significant adverse effect on industry efficiency.

Lack of flexibility

The statutory marketing arrangements lock all participants into a prescribed set of practices. There is little or no incentive or opportunity to conduct business in more innovative ways. Millers are prevented from selling raw sugar or from negotiating with buyers. Growers and millers cannot take advantage of futures contracts and other financial instruments.

The present arrangements mean that competitive pressures are constrained. There is no competitor against which the Corporation has to compete. In the absence of competition, the pressure to ensure that returns are maximised and costs minimised is reduced.

Import parity pricing

Domestic prices of products which are predominantly exported usually reflect export prices. However, the compulsory acquisition arrangements applying in Queensland result in there being only one seller of sugar produced in Queensland. In these circumstances, the raw sugar industry is able to price domestic sales of raw sugar at import parity plus the available tariff protection. While this is of benefit to the raw sugar industry, it is at the expense of users - in particular, refining activity.

Import parity pricing has the effect of making Australia less attractive as a location for sugar refining. The Corporation makes rebates available for export products using significant quantities of sugar. Presumably, such rebates could also apply to exports of refined sugar. However, under the Corporation's current rebate policy, the rebates would compensate only for the price increase attributable to the tariff (ie they would not compensate for freight costs). Under this arrangement, potential refiners pay higher prices than they would under a competitive domestic market. As discussed in Chapter 10, some consider that Australia could forego significant growth opportunities if it does not develop an export oriented refining sector.

Domestic prices of refined sugar also correspond broadly to duty paid import parity prices. This disadvantages consumers and other Australian industries which must purchase sugar at higher prices. The Sugar Users Group Australia (SUGA)⁷ stated that:

Because of a combination of Queensland and Commonwealth Government policies, members of SUGA have paid at least \$100 per tonne above free trade prices for their refined sugar over the last two years.

6.6.4 Summary

Many features of the sugar marketing arrangements in Queensland shield growers and millers from market forces. The compulsory acquisition and control of domestic and export sales of Queensland raw sugar by the Corporation limit the ability of growers and millers to seek out new markets and to ensure that the most appropriate range of commercial marketing services is provided. They force domestic prices towards import parity and penalise users. By removing the potential for competition, they also reduce the incentive to ensure that marketing costs are minimised. There is not the same pressure for change and innovation as exists in most other industries.

⁷ The Sugar Users Group - Australia, comprises the Australian Soft Drink Association Ltd and the Confectionery Manufacturers of Australasia Ltd.

Pooling of revenues and costs is not based on competitive commercial considerations. It distorts the incentives to produce what the market requires, and to minimise the costs of sugar production and distribution. The fixed 12 per cent differential between pools provides minimal benefit (in the order of a 1 per cent increase in returns) to contributors to Pool 1, but significantly penalises Pool 2 contributors. In effect, it is a tax on new producers and on exports.

In the Commission's view, few of the benefits attributable to compulsory acquisition and the other statutory marketing arrangements depend on the existence of such regulatory mechanisms. In their absence, the Sugar Corporation could continue to be a major marketer of Queensland sugar. Those elements which are collectively represented as its 'marketing services package' could be maintained. Those benefits attributed to the package would be little affected by the presence of other sellers. As Australia does not appear to be able to influence the world sugar price to its advantage, additional sellers would not adversely affect export returns. Australia's regional milling groups would be capable of independently marketing sugar without being at the mercy of large buyers. Indeed, given the wide knowledge of international sugar prices, it is difficult to see how any seller could be seriously exploited by buyers.

Queensland benefits from compulsory acquisition and statutory marketing arrangements to the extent that it can extract higher prices on the tariff protected domestic market. However, the practice of pricing raw sugar at import parity may have discouraged the development of refining capacity and other value-added activities in Queensland and elsewhere in Australia. The production controls and the 12 per cent payment differential associated with the statutory marketing arrangements have undoubtedly limited the size of the industry and impaired the efficiency of one of the State's largest industries. The Commission considers that these factors outweigh by a considerable margin the benefits (principally higher domestic prices) which the present marketing arrangements bestow on the State of Queensland. From a national perspective, the additional margin on domestic sales penalises all domestic users.

6.7 Proposals for change

Under the current regulated marketing arrangements, Australia has been successful in selling all of its raw sugar. Sales are for cash and, in some years, supplies have had to be rationed because of raw sugar shortages.

However, it is pertinent to ask whether Australia could have done better if there had been no acquisition or mandatory single seller of Queensland's sugar. In other words, could raw sugar have been marketed at a lower cost? Could higher returns have been attained, especially in periods when supplies have had to be rationed? Would multiple sellers find new markets for Australian sugar? Are opportunities missed by restricting marketing activity to the high quality end of the

market and by applying the 12 per cent pool differential so as to effectively tax new production? Are there opportunities to increase returns by offering sales on credit terms and by selling on an fob basis, rather than selling exclusively for cash on a cif or c&f basis?

The Commission considers that Australia would benefit if the sugar marketing arrangements were modified so as to provide producers with a range of different marketing options. This would involve removing the sole seller status of the Sugar Corporation and permitting competition in marketing. In turn, this would facilitate the use of a greater range of marketing strategies; allow and encourage innovation; and promote the development of an industry in which Australia has a clear natural advantage. To this end, the Commission has considered what might be an appropriate long term objective and the need, if any, for short to medium term strategies to facilitate adjustment to a less regulated set of marketing arrangements.

6.7.1 Long term objective

In the longer term, there appear to be no compelling reasons to retain the Sugar Corporation's compulsory acquisition powers. Their removal would require changes to State legislation. As there is no Commonwealth Government impediment which restricts trade in sugar, this would allow any organisation (or individual) to participate in sugar marketing activities.

Terminating the present arrangements could still leave a role for the Corporation. Its retention would capitalise on its established marketing expertise and the goodwill that it has developed as the sole marketer of Queensland raw sugar. The need to fulfil existing contractual obligations may also provide grounds for retaining the Corporation, at least in the short term. In the longer term, the Corporation could remain as a trader and continue to operate a seasonal pool and/or sell sugar on commission. Those who value the security and/or services provided by the Corporation could continue to deal with it. Its powers would, however, differ markedly from those currently existing. Marketing through the Corporation would be voluntary and the Corporation would compete on an equal footing with private traders on both domestic and export markets.

While the Corporation could continue to oversee industry promotional campaigns, facilitate the dissemination of information and assist in co-ordinating industry-wide activities (eg the collection of industry levies for research), this could lead to conflicts of interest. Consequently, it would be preferable for these tasks to be undertaken by an independent body with no direct interest in the trading of raw or refined sugar.

The termination of the existing marketing arrangements would introduce significantly greater competition into the domestic market. Consequently, even if the tariff on raw sugar remained, any higher prices extracted from domestic sales which depend upon centralised selling would be competed away.

As sugar could be purchased or sold by any miller, trading organisation (including those representing grower interests) or user, millers would have a considerably wider array of marketing options than currently exists. Millers would be able to negotiate with a number of potential buyers and consider a range of selling options. For example, they could sell directly to traders or large users and receive cash on delivery; they could elect to store sugar and sell later in the season if they judged prices would be more favourable; they could pursue forward selling options, such as entering into contracts to supply sugar to users at specified times in the future; and they could 'hedge' using futures contracts. Some mills could elect to expand into refinery activities as has occurred in the New South Wales industry.

If growers were prepared to manage their own risk in marketing raw sugar, they could seek to have cane milled on a 'toll' basis - retaining ownership of the raw sugar. Similar arrangements for contract ginning operate in the cotton industry. In this way, growers would be able to undertake their own hedging operations.

There would need to be agreements between growers, or groups of growers, and mills about supplies, the scheduling of deliveries, and the price of cane. The high level of mutual dependence between growers and millers could be reflected in the emergence of new co-operative ventures.

Private traders in sugar would obviously seek to generate profits. However, this does not necessarily imply that growers would be worse off. Traders could make profits and, at the same time, growers could also achieve higher returns. This could reflect traders' ability to profit from arbitrating and through their involvement in freight and currency markets, and/or an ability to market sugar at lower cost than the Corporation. Moreover, mills would only sell to private traders if they offered higher returns than those expected from selling to the Corporation, or higher returns than those available from direct sales by mills to users.

The increased competition would ultimately allow growers and millers to choose between an increased range of marketing options. Competition in the supply of services to growers would increase the incentive for suppliers to contain costs. This would not only advantage growers, but would also benefit users and consumers.

One consequence of a more market based selling regime would be the emergence of opportunities to sell without pooling. While some pooling of revenue and costs could continue to be practised by the Corporation or by private traders and mills, increased competitive pressures would mean that pool returns would have to reflect more closely actual market returns. As a result, greater variations in per unit returns to mills would emerge, reflecting differences in transport costs and sugar quality. Premiums or discounts would reflect quality differentials. This would provide an incentive for individual mills to vary quality so as to best meet market requirements. While some mills may be disadvantaged compared with the current system, prices would more accurately reflect variations in costs between regions and would provide more accurate signals for production and investment decisions.

If compulsory acquisition and the single seller arrangements were to be terminated, the 'ownership' of the premium US quota would need to be resolved. Currently the US embassy issues certificates of eligibility to CSR as the sole Australian exporter. However, under a deregulated marketing system, any mill or sugar trader could apply to the US embassy for all or part of the quota allocated to Australia, and it may be necessary to consider formal arrangements to allocate this quota amongst Australian suppliers. The mechanism for this would be through the Commonwealth issuing export licenses for all or part of the quota each year. The allocation of export licences could take a number of forms. These include:

- granting the sole right to supply such markets to particular Australian suppliers;
- reserving such markets for the Corporation; and
- auctioning the right to supply such markets.

The first two options would result in the premiums from the US quota being appropriated by particular suppliers, either the Corporation or other suppliers who had been granted the right to supply. However, the benefits of the quota should be available to the whole sugar industry. This would lead to the consideration of the third option, where the premiums would be clearly identified under an auctioning or tender system, and the gains would be available for distribution to the whole sugar industry. The revenue raised could be used to fund projects expected to benefit the industry as a whole (eg some research projects), or could be distributed among all industry participants. Alternatively, the revenue could be retained by the Commonwealth Government.

6.7.2 Transitional arrangements

Two matters lead to a consideration of transitional arrangements. The first is the existence of long term contracts. The second is the time it may take for some mills (particularly some of the smaller independent mills) to investigate independent marketing options and to establish marketing networks for their own sugar. To address these matters, the Commission recommends that the Corporation be given only limited powers of compulsory acquisition over the transition period.

The Commission proposes that the Corporation retain the right to acquire sufficient raw sugar (on a pro-rata basis from all mills in Queensland⁸) to enable it to fulfil long term contracts existing at the time that the transition period commences. As the Commission's proposals could not be implemented until the 1993 season, and given that most long term contracts run for 3 to 4 years,

⁸ In practice, this would probably involve an arrangement whereby all mills are compensated on a pro-rata basis for the returns achieved on contract sales, but sugar is physically sourced from only some mills so as to minimise transport costs or to achieve the specified mix of quality characteristics.

the transition period for acquisition would remain until the end of the 1997 season. Any new or renegotiated long term contracts entered into by the Corporation during the transitional period would be on the basis of raw sugar supply agreements with mills. Acquisition would not be an option in relation to such contracts.

Mills would be free to market independently all raw sugar in excess of that acquired for existing long term contracts. As some mills may not be confident about their ability to market significant quantities of raw sugar in the short term, they would retain the option of continuing to deliver sugar to the Corporation for sale. As mills became more confident and developed their marketing networks, the amount of sugar delivered to the Corporation would decline, unless the Corporation could offer better terms than could be obtained from private traders or direct mill sales.

It is likely that the first market entered by mills on an independent basis would be the domestic market. Returns might initially be higher than those available on the export market, and it is likely that marketing would be easier. However, competition between independent sellers on the domestic market would mean that, in time, returns from domestic sales would be driven towards those obtainable from exports, irrespective of any tariff on raw sugar, except for such premiums that could be obtained from marketing services and locational advantages. On the other hand, if assistance were provided by alternative means (eg a bounty), higher returns to producers could be maintained on domestic sales, even though domestic prices would decline to around export levels. The level and form of assistance afforded the sugar industry is discussed in Chapter 7.

6.7.3 Changes to pooling arrangements and the ownership of infrastructure

The Commission considers that the pooling arrangements and the ownership and administration of infrastructure need to be modified, even if there are no changes to the present acquisition powers or production controls.

Pooling arrangements

The pooling of sugar revenues and associated costs and the 12½ per cent margin in favour of peak entitlements can distort production and investment decisions and reduce incentives to innovate and provide services at minimum cost.

These deleterious effects arise largely because of the level of aggregation at which revenues and costs are pooled. Disaggregating revenues and costs further would ensure that growers' returns reflect more accurately the market value of sugar delivered to the Corporation. The Commission does not have sufficient information on which to make a judgement about how the Corporation's costs should best be aggregated or disaggregated between mills. However, it is possible to make some judgement about the pooling of revenue.

It would be only a coincidence if the current fixed 12 per cent margin reflected the difference between the returns from marginal exports and all other sales. Consequently, it is a poor indicator on which to base production decisions. The Commission considers that, to the extent that significantly different prices continue to be received from premium and reasonably assured markets compared with marginal sales, these differences should be reflected in the returns to mills and growers. In this respect, the pricing system operating before the introduction of the fixed 12 per cent margin was more efficient than the current system. Maintaining the 12 per cent margin would represent a significant tax on new entrants and on expanded production.

As assistance is reduced, the administrative costs of operating two prices may exceed any benefit from reflecting small price differences back to producers. On this basis, the Commission considers that one pool and one price would be appropriate.

Bulk sugar terminals

The main items of infrastructure shared across the industry are the bulk sugar terminals along the Queensland coast. Currently, these terminals are owned by Harbour Boards and operated by the Sugar Corporation.

The existing 12 per cent price differential between the two sugar pools, which was instigated following a 1989 Inquiry, is in part justified within the industry as a means of providing a return to the established growers who have mainly financed the construction of the terminals. However, the link between the pool price margin and contributions to infrastructure is tenuous. The 12 per cent margin is based on an historical average of the previous Pool 1 and Pool 2 prices. These pool prices were based on actual prices received for sugar sold in different markets, and did not contain any component to allow for the relative contribution to the industry's infrastructure from the two pools.

The Commission considers that it is undesirable to link returns for sugar to past contributions to infrastructure. It would be better to separate ownership and payments for infrastructure from the pooling operations of the Corporation. This would clearly separate both equity in the bulk terminals, and returns on that equity, from the payment for sugar to mills and cane to growers.

The Commission considers that the bulk terminals should be operated on a commercial basis, at arms' length from the growing and milling sectors of the industry. The use of infrastructure would be on a user pays basis, with any profit from the sale of infrastructure services being paid as a dividend to equity holders. As sugar producers, both past and present, have paid for the construction of the terminals, ownership could reside with them. As both users and shareholders, producers should have a strong interest in ensuring that the terminals are operated efficiently.

A single terminal company to operate all seven terminals may be administratively simple. However, this would encourage the maintenance of 'network' pricing, whereby users in each region

pay charges based on the average cost incurred by all terminals. It would be more efficient if port charges reflected the actual cost incurred in shipping from each regional port. The formation of separate terminal companies would allow this to occur. It would also mean that investment decisions would be based on the financial viability of individual ports, and would not be influenced by cross-subsidies between ports. The prospect of direct competition developing between ports, albeit small, to attract supplies from adjacent regions, would also be stifled if a single terminal company were formed. Nonetheless, to the extent that terminal costs influence producers' ability to market sugar, there will be pressure for each port to minimise its costs. For these reasons, the Commission considers that terminals should be established as seven separate companies.

In its draft report, the Commission suggested that equity in the terminals could be allocated on the basis of peak entitlements. This would be administratively simple but, as CSR pointed out, the terminals have also been funded by Pool 2 contributors. This clearly needs to be recognised when determining ownership. As the determination of ownership shares will require detailed industry information, the Commission considers that this issue would best be determined by an industry committee under the auspices of the Sugar Corporation. In recognition of their contribution to terminal infrastructure, the committee should include representatives of holders of peak entitlements, other growers (including representatives of the New South Wales industry) and millers.

The capital value of terminals varies considerably, and growers from all regions have contributed to all terminals. Consequently, the Commission considers that those entitled to shares should initially be allocated shares in each of the seven terminal companies. Shareholders would be able to trade freely in the shares of the terminals, with their value set by the marketplace on the basis of the capital assets of the terminal company and its profitability. It is possible that share trading would result in each bulk terminal ultimately being predominantly owned by producers served by the port. Closer identification of individual ports with the regions they serve would increase the discipline on terminal authorities to manage efficiently and critically appraise new investment decisions.

The value of shares allocated to individual growers would vary but, on the basis of the historical cost of terminal assets, the average value per grower would be about \$25 000, assuming that the assets are divided between growers and millers on a two thirds - one third basis. On the same basis, the value to mills would range from around \$1 million for the smallest mill up to approximately \$5 million for the largest.

As direct competition between bulk sugar terminals is likely to be small, each terminal would have significant market power. To the extent that ownership of terminals resides with local producers, the likelihood that market power would be used to raise prices and/or restrict access may be reduced. Nevertheless, the Commission considers that, to guard against anti-competitive practices

and monopoly pricing, the operations of the terminals would need to be subject to scrutiny by the Trade Practices Commission and the Prices Surveillance Authority. Consideration could also be given to imposing a 'common user' requirement on terminals. This would require each terminal to provide access to all users on a non-discriminatory basis.

The issue of transport allowances referred to in section 6.5.3 would be resolved if compulsory acquisition were abolished. Mills would be free to use the terminal or alternative transport of their choice, at their own cost. If compulsory acquisition were to remain, it is not clear whether the current allowances are justified. The allowances may have compensated for real cost increases for mills when they were introduced. However, it is unlikely that the industry would revert to the previous transport arrangements now that raw sugar is transported in bulk. The Commission supports proposals that the transport allowances be reviewed by the Sugar Corporation. The review should be undertaken as soon as possible.

7 COMMONWEALTH GOVERNMENT ASSISTANCE

When the embargo on imports of sugar was abolished in 1989, assistance was provided by the Commonwealth Government in the form of tariffs on imports of raw and refined sugar. Tariff protection is being phased down under a program announced in 1989 and modified in 1991. The terms of reference for this inquiry ask the Commission to inquire into, and report on, "the appropriate form and level of tariffs on imported sugar to apply from 1 July 1992." A related matter, which participants see as linked to the question of tariff assistance, concerns the anti-dumping measures which are available to the industry. This chapter discusses both of these issues.

7.1 Tariffs

7.1.1 Recent changes in the tariff

In the May 1988 Economic Statement, the Government announced its intention to replace the long standing sugar import embargo with ad valorem tariffs on raw and refined sugar¹. This was part of a decision to reduce industry protection across-the-board. The Government proposed ad valorem tariffs of 35 per cent on raw sugar and 25 per cent on refined sugar, both phasing to 15 per cent by mid-1992.

The sugar industry objected to the Government's proposal arguing that ad valorem tariffs were unsuitable because the world price of sugar was volatile, and ad valorem tariffs would provide least protection for the industry when the price is lowest and when the industry is most vulnerable to import competition. Following industry requests and a report by a Senate Select Committee², the Government modified its tariff proposal and implemented a specific tariff on imports of both raw and refined sugar of \$115 per tonne for two years reducing to \$95 per tonne from 1 July 1991; and to \$70 per tonne from 1 July 1992 less, in all instances, 5 per cent ad valorem for imports from developing countries³.

In the March 1991 Economic Statement, the Government announced a reduction in tariffs, from the scheduled \$95 per tonne at 1 July 1991 to \$76 per tonne, and from \$70 per tonne at 1 July 1992 to \$55 per tonne. At the then current world sugar prices and exchange rates, the proposed specific

¹ Economic Statement (May 1988) delivered by the (then) Treasurer P.J. Keating.

² *Assistance for the Sugar Industry*, report by the Senate Standing Committee on Industry, Science and Technology, May 1989, p 60.

³ The Minister of Primary Industries and Energy, Media Release, May 1989.

rates would equate to ad valorem tariffs of about 28 and 21 per cent respectively. This is a greater level of assistance than is given to most other agricultural industries.

7.1.2 Assistance provided by the tariff

The Commission uses two summary measures of assistance to estimate the effects of Government intervention on industry. These are the nominal rate of assistance and the effective rate of assistance.

The nominal rate measures the level of assistance provided to an industry's products. It is the percentage by which producer returns are increased by assistance, relative to the situation of no assistance. The effective rate is a measure of the net level of assistance provided to an industry. It takes account of the taxing effect of assistance on inputs as well as the beneficial effects of assistance to outputs. More precisely, it is the percentage by which returns to value-adding factors (land, labour and capital) are increased relative to the situation of no assistance.

The Commission usually uses estimates of effective rates as an indicator of the incentives for resources to be drawn into an industry compared with other industries in Australia. However, because the production of cane, and thus the level of resources in the Queensland industry, is directly controlled by the assignment system, measured effective rates of assistance are of limited use for this purpose. Consequently, the impact of both tariffs and the regulatory system has been investigated using a general equilibrium model of the Australian economy. The results of the general equilibrium work are presented in Chapter 11.

Details of the Commission's estimates of nominal and effective rates of assistance for the sugar industry are included in 'Assistance to the Australian Sugar Industry', a background paper prepared for the Commission's workshop on modelling held in Brisbane on 17 September 1991.⁴ Copies of this paper are available on request. The following section provides a summary of the Commission's estimates of domestic price distortions and nominal rates resulting from tariffs and the sugar marketing arrangements in Australia.

Raw Sugar

As a result of the statutory marketing arrangements for Queensland sugar and tariff protection, substantially higher unit returns are achieved from domestic sales of raw sugar than are obtained from export sales. In the absence of the statutory marketing arrangements, and with competition between domestic millers, arbitrage between the domestic and export markets would normally result in domestic unit returns being similar to export unit returns, other things being equal.

⁴ Industry Commission, Australian Sugar Industry Inquiry, *Assistance to the Australian Sugar Industry*, Background Paper No. 3, prepared for the Workshop on Modelling, 17 September 1991.

Based on the tariffs applying to imports from developing countries, the Commission has estimated the difference between the domestic price and the export price - the 'domestic price distortion' - to be about 38 per cent in 1989-90. Based on the currently announced reductions in tariffs and constant sugar prices, the domestic price distortion is estimated to fall to around 23 per cent by 1 July 1992 .

The 38 per cent higher prices received from the domestic market increased returns overall by some 9 per cent in 1989-90. This nominal rate of assistance of 9 per cent in 1989-90 is estimated to fall to about 5 per cent by 1 July 1992.

Refined Sugar

The domestic market for refined sugars has been supplied almost exclusively from local production with only minimal quantities being either imported or exported. Because of this, the Commission has assumed that the refined sugar industry is an import competing industry. On this basis, estimates of domestic price distortions are based solely on the level of the protective tariff - a comparison with import prices - rather than by comparison with export prices as was the case for raw sugar.

Estimates of domestic price distortions for refined sugar based on the levels of duties on developing country imports are 13 per cent from 1 July 1989 and 4 per cent from 1 July 1992.

7.2 Participants' views

7.2.1 Tariffs

Most participants from the sugar industry argued for the continuation of tariffs on imported sugar. Some requested temporary assistance to support the industry in the face of drought and low world prices. On the other hand, sugar users were critical of the tariff and the costs it imposes on domestic sugar using industries.

The Queensland raw sugar industry (QSI) said that the tariff on raw sugar helps overcome several 'market failures', particularly the lack of micro-economic reform elsewhere in the Australian economy, and counteracts 'corrupt' world prices. As a result, it contended that the costs of the tariff to the economy as a whole are very low compared with the benefits it provides, particularly to regional economies. The QSI pointed to inefficiencies in domestic input markets which impose major costs on the sugar industry. One example given was inefficient coastal shipping practices which, according to the QSI, reduce the competitiveness of the Australian industry compared with Thailand, the most likely competitor on the Australian market.

In a similar vein, the Australian Cane Farmers Association (ACFA) suggested that tariffs be adjusted only after the EC and USA make and complete substantial changes in their tariff policies, and after such changes have an impact on world sugar prices.

The QSI also argued that tariffs should be retained to compensate for perceived shortcomings in the existing anti-dumping provisions. It sees the tariff as an interim arrangement to reduce the potential for the dumping of sugar onto the Australian market until Australia's anti-dumping laws are streamlined and made more effective for rural industries.

The QSI said ad valorem tariffs do not provide the type of assistance required, in that they provide assistance which is inverse to the industry's needs. The QSI proposed a sliding scale tariff so that, as world prices improve, the level of tariff protection would fall. It suggested that a tariff of \$95 per tonne be applied if world prices fell to US8 cents a pound or lower, reducing to zero if prices are US12 cents a pound or higher.

Following the publication of the draft report, the Queensland Sugar Corporation said that an alternative to the tariff proposal could be assistance by way of bounty. It suggested a bounty at the rate of \$22 per tonne on the production of raw sugar, and that the bounty be reduced if the pace of microeconomic reform accelerates or there are further reductions in distortions in the world sugar market. The Commission estimates that this bounty would cost some \$80 million per annum.

In contrast to the QSI, Bundaberg Sugar, which has interests in cane growing, milling and refining, did not see tariff assistance as particularly important. It said that, as domestic consumption represents only about 20 per cent of Australian sugar production, domestic tariff protection is of minor significance and should be maintained only at a level consistent with that generally applying within the nation.

CSR made the following comments:

The Queensland raw sugar industry claims to be, and is, one of the most efficient in the world. On that basis it is difficult to justify automatic tariff protection for all sales of raw sugar to the domestic market. In the same light, it is difficult to agree with the proposition that because most, or all, other industries [sugar industries overseas] have some form of protection for their domestic market, Australia should too. (sub 9, p28)

Both Bundaberg Sugar and CSR said that there is a need for temporary/emergency assistance for parts of the industry to remain viable at times of very low world prices. In these circumstances, CSR believes assistance should be provided in a way that does not penalise refiners. CSR proposed 5 years of government support that was repayable in times of higher prices.

Users of sugar opposed tariff assistance. The Sugar Users Group Australia (SUGA), was critical of the impact that tariffs on imported sugar have on the competitiveness of major users of sugar in Australia. It said that:

...because of a combination of Queensland and Commonwealth Government policies, members of SUGA have paid at least \$100 per tonne above free trade prices for their refined sugar over the last two years.

SUGA further stated that:

In the absence of a raw sugar statutory marketing monopolist in Queensland, and given the existence of Trade Practices provisions outlawing price rigging amongst rival mills, it is unlikely that any of the margins above export parity currently enjoyed on Queensland raw sugar would be commercially obtainable.

and that:

Commonwealth imposed duties help to uphold the Queensland legislation by 'raising the stakes' for the statutory sugar monopoly enjoyed by the Sugar Corporation.

SUGA also said that, because the sugar tariffs are specific in nature rather than ad valorem, their proportionate burden is greatest at times when relatively low world sugar prices are encouraging the expansion of world trade in competitive sugar-based products. SUGA requested the immediate and complete removal of import duties on raw and refined sugar. It suggested that, if the Commonwealth is to assist the sugar industry, whether for income support or some other reason, it should employ direct subsidies or other means which do not increase the costs of sugar users.

ABARE commented that tariff policy is not the appropriate policy instrument for supporting or stabilising industry income or assisting industry adjustment. It said that, if government assistance for income support or industry adjustment can be justified, then the policy instruments would need to allow for targeted assistance to be provided on an individual farm, mill or regional basis. ABARE noted that, at the farm level, the Rural Adjustment Scheme is available for this policy objective.

7.2.2 Anti-dumping procedures

Many participants referred to anti-dumping measures in the context of protecting Australian sugar producers from imports of sugar at low or 'corrupt' prices. Most expressed concern about the complexity of Australia's anti-dumping arrangements, the procedural delays before dumping duties or securities could be imposed, and the difficulty in proving 'material injury'.

Australia's anti-dumping legislation is based on the General Agreement on Tariffs and Trade (GATT) Anti-Dumping Code. Essentially, if imported goods are sold on the Australian market below their 'normal value' in the country of export, they can be assessed as being dumped.⁵ If dumping is found to cause or threaten 'material injury' to an Australian industry, anti-dumping action may be taken. Though the GATT Code sets out the criteria which must be met before anti-dumping action can be taken, there is nothing in the GATT rules which requires action to be taken. CSR said that it has voiced its concerns over the anti-dumping procedures to a range of Senate inquiries. Its main concerns are that:

- the domestic industry is ill-equipped to counter dumping action because it does not have speedy access to import data;
- the procedures discriminate in favour of the importer against the local manufacturer in regard to privacy and onus of proof; and
- the procedures are too lengthy (up to 12 months) to be of any real value.

CSR considers that cash securities should be placed on imports as soon as a prima facie case of dumping is established.

The QSI said that Australia's anti-dumping legislation and its current administration provides little protection to an export oriented industry such as sugar. It also said that the existing legislation does not allow the initiation of dumping action by suppliers of inputs to a product competing with a dumped product. However, this has been reviewed and the legislation has now been amended to permit such action. The QSI stated that long delays between presenting arguments against dumping and the decision being made reduces the effectiveness of anti-dumping action. It also claimed that it is almost impossible to establish a causal link between dumping and material injury in an export oriented industry.

7.3 The Commission's assessment

7.3.1 Tariffs

The provision of tariff assistance to an export oriented industry would normally provide little assistance as competition between sellers would force domestic prices towards export parity. However, this is not the case in the sugar industry. As the Sugar Corporation is the dominant supplier of raw sugar, it is able to set the domestic price of raw sugar at duty paid import parity prices. In a more competitive environment, this would not be possible.

⁵ The 'normal value' is generally defined as the price of like goods on the exporter's home market.

The benefit to growers and millers from higher prices on the domestic market resulting from compulsory acquisition by the Queensland Sugar Corporation and the tariff is estimated to have totalled about \$103 million per annum in 1989-90 and 1990-91, reducing to \$51 million by 1992-93 with the Commonwealth Government's planned reduction in tariff assistance. This benefit is made up of two components. The first component (which is the same throughout the years 1989-90 to 1992-93) is an estimated \$16 million derived from the ability to base domestic prices on import rather than export prices. The remaining \$87 million per annum in 1989-90 and 1990-91 represents the increase over duty free import prices made possible by the tariff. This tariff component will phase down to \$35 million by 1992-93. To the extent that not all raw sugar is sold domestically at import parity prices which include the tariff, the estimates overstate the assistance received. For example, in 1989-90 the Sugar Board provided rebates equivalent to \$2.7 million, and in 1990-91 rebates totalled \$5.1 million.⁶

The benefit from Queensland's statutory marketing arrangements and the tariff has a significantly different impact on growers in Queensland and New South Wales. This is because all sales of New South Wales sugar are to the domestic market compared with about 20 per cent of Queensland's sugar sales. The difference between the export parity price and the duty free import parity price is estimated to represent about \$1 300 per grower per year in Queensland, and \$3 600 per grower per year in New South Wales (under the assumption that growers receive 60 per cent of the assistance available) in 1989-90.

The \$55 per tonne tariff that will be introduced on 1 July 1992 is estimated to provide about \$28 million of assistance for the Queensland industry, equivalent to about \$2 900 annually per grower. For New South Wales, assistance equivalent to around \$7 million per annum would be provided. This represents approximately \$8 000 per grower. These estimates are based on the Developing Country tariff which the industry maintains is the relevant level of protection given the likely and actual source of sugar imports.

As some 80 per cent of Australia's output is exported, the assistance provided by the tariff has little impact on average per unit returns for the industry as a whole. At the \$115 per tonne tariff, assistance provided in the 1990 season was equivalent to about 6.5 per cent of total revenue from sales of Australian raw sugar. This will decline to some 2 per cent of sales revenue when the tariff is reduced to the planned \$55 per tonne on 1 July 1992 (assuming prices and production remain at 1990 levels).

The arguments advanced by participants for the retention of tariffs on imports of sugar are not, in the Commission's view, sustainable. Tariffs are inappropriate as a means of overcoming market failures or the assistance policies adopted by other sugar producing countries, or to compensate for inefficiencies in domestic input markets.

⁶ Under the export rebate scheme, a rebate equivalent to the developing country tariff is given to refiners of raw sugar to pass on to exporters of products incorporating sugar.

As a small country operating independently in the world market, Australia must operate within the prices that currently exist, and adapt to those prices. In terms of the range of alternative opportunities for Australian investment, it is largely immaterial why prices in the world market are the way they are unless Australia has the opportunity to influence them. If they are low because of natural factors and/or market characteristics, or low because of massive subsidies, it makes little difference to the choices facing Australia. Australia is better off to adjust to these prices rather than attempt to deny them. Only if there is a likelihood that the observed prices are temporary, or that Australian policies could influence them, would there be a case for action. Even in this situation, if the prospects of long term viability exist once prices return to 'normal', the question arises as to whether the industry itself should not bear the costs associated with temporary downturns.

This is not to suggest that Australia should not continue to be vigorous in attempting to dismantle subsidies in international trade. However, in doing so, it needs to be recognised that there is no certainty that reform of sugar policies in other countries would benefit Australia. While the policies of other OECD countries clearly depress world prices, the policies of some developing countries serve to increase world prices. For example, if Brazil were to abandon its heavily subsidised ethanol program, the potentially large increase in sugar on world markets could negate the favourable effects of change initiated by OECD countries (see Chapter 11).

The Commission accepts the view put forward by participants that the Australian sugar industry is internationally competitive by world standards. It also has important linkages with domestic regional economies. However, in this respect, the sugar industry is not unique. Other export oriented rural industries such as wool, wheat, beef and rice are also internationally competitive, and also have important regional linkages. Significantly, none of these industries is a recipient of tariff assistance.

When evaluating the impact of tariffs, account must be taken of their effect on other industries, final consumers and the performance of the economy generally. This includes both the cost of the tariff to users and the higher cost resulting from the regulation of marketing. The Commission has estimated that, in 1990-91, the tariff and marketing arrangements increased the domestic price of raw sugar by about 40 per cent, equivalent to \$100 million in that year. As a result of the already announced reductions in tariffs, this is estimated to decrease to 23 per cent on 1 July 1992, equivalent to \$51 million per year.

According to some sugar users, tariffs have reduced their competitiveness on the domestic market and inhibited their ability to compete on international markets. In addition to the tariff, users have criticised the market dominance of CSR in the refining industry and the high refining cost structure resulting from the Queensland Sugar Corporation's acquisition powers which allow it, as the dominant domestic supplier, to price raw sugar at import parity prices (including the tariff).

In the absence of the Sugar Corporation's acquisition powers, the price of raw sugar on the domestic market would probably be close to export parity. If the tariff on refined sugar remained, this would, at least in the short term, significantly increase the margin for domestic refining as the dominance of CSR in refining would allow the continuation of refined sugar pricing at import parity prices (inclusive of the tariff). However, the increase in domestic refining margins could encourage new entrants into refining for the domestic market. If this occurred, there would be increased competition in the refining sector and downward pressure on refined sugar prices. The domestic refining industry is discussed in more detail in Chapter 10.

The sliding scale form of specific duties proposed by the QSI has the advantage of not penalising refiners when the international price of raw sugar is high. On the other hand, because the magnitude of the duty increases as prices fall, and because the duty is specific in value terms, it can provide high assistance when prices are low. For example, at international prices of US8 cents per pound, the QSI estimates suggest that domestic prices would be 40 per cent higher than international prices. This is a higher level of assistance than that afforded most other Australian industry. Even if low prices persist for only a limited period, the cost imposed on sugar using industries could be substantial.

SUGA requested that, if assistance is provided, it should be in a form that does not increase the cost to domestic users, some of whom are exporters or who compete against imports using sugar obtained at prices significantly lower than those available to local industry. Assistance which would not increase the cost to domestic users would involve the replacement of tariff assistance with a subsidy on domestic market sales. On the basis of domestic sales of 900 000 tonnes and the \$95 a tonne tariff suggested by the QSI, the cost of equivalent assistance provided by a subsidy would be about \$85 million per annum. While this option would not penalise users, it would have to be financed by taxpayers generally. As a consequence, other sectors of the community would be worse off. However, if providing assistance to the sugar industry is seen as being in the national interest, assistance by way of subsidy could be viewed as a more equitable means of funding that assistance.

The QSI said that assistance to the sugar industry should be provided to compensate for other inefficiencies in the economy, and should only be reduced as microeconomic reform proceeds. However, if every sector of the economy were successful in deferring reform pending action elsewhere, there is a danger the whole process of microeconomic reform would grind to a halt. In the Commission's view, the most appropriate approach is to address the problems concurrently and directly. In this context, the Commission notes that governments have initiated some measures to improve efficiency in other industries upon which the sugar industry relies, for example the waterfront and rail transport. Nonetheless, progress in implementing reforms in some areas has been slow, and there is a pressing need to increase the pace of change. This will assist the sugar industry and encourage growth in the economy generally.

Because of recent changes in the Queensland sugar industry's regulatory environment, some participants argued that the industry needs more time to adjust, and more time to improve efficiency before reducing tariff assistance further. Equally, however, it can be argued that the industry has been continually adjusting to new circumstances. If tariff changes were postponed, the advent of further new circumstances could mean that change may never eventuate. Moreover, while tariffs remain on sugar, producers continue to receive inappropriate price signals on which to base decisions on adjustment. This is frustrating the capacity of users to take advantage of the improved competitiveness on both domestic and world markets which would result if tariffs were removed.

Protection against import competition has survived from a time when the industry was predominantly selling domestically. However, the Australian sugar industry is now overwhelmingly export-oriented, with more than three-quarters of production being exported. Any expansion in output resulting from the increases in assignment required by the recent changes in Queensland legislation would further increase the industry's dependence on export markets. While the available assistance increases returns to growers, it is certainly not central to the survival of the industry as a whole. The continuation of tariff assistance, however, provides an incentive to maintain acquisition and statutory marketing in order to gain the domestic premium made available by the tariff.

The Commission has been unable to identify any special characteristics of the Australian sugar industry that would warrant a higher level of assistance than is provided to other industries generally, and to other export oriented agricultural industries. The Government has clearly stated an objective of reducing assistance to all activities in Australia. Assistance for other industries is being progressively reduced to a ceiling of 5 per cent by 1996. In a statement to the Canegrowers Convention, the then Minister for Primary Industries and Energy, Mr. Kerin, announced that the Government is disposed to achieve reductions in assistance to the sugar industry over the longer term in line with those for other industries.⁷

The Commission considers that, as with other export oriented rural industries, the sugar industry should ultimately not be provided with any tariff protection or other form of assistance against import competition.

Phased reduction in the tariff

In the draft report, the Commission proposed that the specific tariff rate be phased down on the basis of the schedule outlined in Table 7.1 below. The proposed specific rate for 1996-97, equivalent to 5 per cent ad valorem, was based on a sugar price of US10 to 11 cents per pound, or about A\$300 per tonne.

⁷ Speech by the (then) Minister for Primary Industries and Energy, John Kerin, Canegrowers Convention, Brisbane, 1 May 1991.

Table 7.1: **Tariff rates proposed in the draft report to apply from 1 July of each year**

Year	General Rate (\$/tonne)	Indicative DC Rate (\$/tonne) ^a
1992	55	40
1993	45	30
1994	35	20
1995	25	10
1996	15	0
1997	5	0
1998	0	0

a The developing country preference would remain at the present level of 5 per cent of the customs value of imports over the phasing period. While the general tariff rate would remain constant within each 12 month period, the tariff applying to imports from DC sources would change from shipment to shipment depending on the value for duty of imports.

The tariff proposal, however, presents some problems when considered in conjunction with the Commission's recommendation to remove compulsory acquisition. Once mills were free to market raw sugar individually, there would be multiple sellers of raw sugar from Queensland. Competition between mills to supply the domestic market would then mean that raw sugar is unlikely to be sold domestically at prices significantly higher than export returns. While this is otherwise a desirable outcome, it would eliminate the cushioning effect that the progressive reduction in the raw sugar tariff was intended to have. The effect of moving in one step to export pricing in the domestic market could be especially unsettling for the New South Wales industry. In addition, the removal of compulsory acquisition while the tariff on refined sugar remains, would result in a windfall gain to refiners. This gain would reflect refiners' ability to purchase raw sugar at export parity prices while, because of limited competition in the domestic refining industry in the short term, continuing to sell refined sugar at import parity prices, inclusive of any tariff.

At the draft report hearing, CSR suggested that the problem of windfall gains for domestic refiners could be overcome by the Queensland Sugar Corporation retaining compulsory acquisition powers over raw sugar destined for the domestic market during the period over which tariff assistance is phased out.

The Commission does not support the retention of compulsory acquisition for this purpose, primarily because it would continue to allow an efficient export oriented activity to use market power to maintain domestic prices at artificially high levels to the detriment of sugar users.

Alternative transitional payment

To avoid the loss of transitional assistance and to avoid any windfall gain to refiners, the Commission considered replacing the tariff with a bounty. However, a traditional bounty based on actual sales of raw sugar to the domestic market over the years in which the bounty is paid, could be bid away by domestic suppliers as they sought market share in the higherreturn domestic market. This would present similar problems to those raised by the transitional tariff.

The Commission therefore recommends that the tariffs on raw and refined sugar be removed and replaced by a one-off transitional payment. The transitional payment would be based on:

- an eligible tonnage based on past domestic production of raw sugar for the local market; and
- a payment per tonne based on an estimate of the capitalised value of the assistance that would have been provided by the phased tariff outlined in Table 7.1.

No transitional payment or tariff would be provided to the production of refined sugar as the current refined sugar tariff exists essentially to compensate for the higher costs imposed by tariffs on the raw sugar input. These costs would be removed if assistance to raw sugar were provided by direct payment instead of tariff.

The Commission recommends that the payment arrangements become operative as soon as compulsory acquisition in Queensland is removed (other than that required to fulfil long term contracts existing at the time that the transitional arrangements commence). In the interim, the tariff would continue, and be phased down on the basis of the schedule outlined in Table 7.1.

Calculation of the eligible tonnage for Queensland and New South Wales, the rate of payment per tonne, and the distribution of payment within each state are as follows.

Eligible tonnage for Queensland and New South Wales

The Commission recommends that the tonnage on which the payment be made be the average annual tonnage of raw sugar supplied to domestic refiners from domestic production in Queensland and New South Wales in the years 1989-90, 1990-91 and 1991-92. For New South Wales, this would represent about 180 000 tonnes, equivalent to total average production in New South Wales. For Queensland, the base tonnage would be about 690 000 tonnes, equivalent to about 20 per cent of Queensland's average annual production in the period.

Rate of payment per tonne

Representatives of the Australian sugar industry have consistently maintained that the relevant level of assistance provided by the tariff is the developing country rate because of the actual and potential source of imports into the Australian market. Indeed, the sugar rebate offered by the Sugar Corporation is based on the expected developing country tariff, rather than the higher general tariff rate.

The Commission recommends that the rate of payment per tonne be set equivalent to the capitalised value of the assistance per tonne that would have been provided by the phased tariff (outlined in Table 7.1) against imports from developing countries. The relevant tariff assistance would be that remaining from the phased tariff at the time that compulsory acquisition ceases (other than that required to fulfil long-term contracts). That is, if acquisition ceased on 1 July 1993, the relevant tariff assistance would be that which would have been provided by the tariff in the years 1993-94, 1994-95 and 1995-96. If acquisition ceased on 1 July 1994, the relevant tariff assistance would be that which would have been provided by the tariff in the years 1994-95 and 1995-96.

The rate of payment per tonne would be reduced by an amount equivalent to the average proportion that the value of export rebates, paid by the Queensland Sugar Board/Corporation, was of assistance available in the years 1989-90, 1990-91 and 1991-92.

The following example of the calculation of the rate of payment is based on the cessation of compulsory acquisition on 1 July 1993. On the basis of an import price for raw sugar of \$A300 per tonne, the tariff assistance against imports from developing countries would be \$30 per tonne in 1993-94, \$20 in 1994-95 and \$10 in 1995-96. When adjusted for the extent of export rebates, equivalent to, on average, \$4 per tonne or 4.2 per cent of the assistance at the time, the assistance per year is estimated to be \$27.8 per tonne in 1993-94, \$19.2 in 1994-95, and \$9.6 in 1995-96. The present value of this assistance, using a discount rate of 8 per cent, is estimated to be \$53.8 per tonne of raw sugar. On the basis of the eligible tonnage in each state estimated earlier, this amounts to a payment of \$37.1 million to Queensland and \$9.7 million to New South Wales - a total cost to the Commonwealth of \$46.8 million.

Payment of the transitional amount would be made initially to the Queensland Sugar Corporation and the New South Wales Milling Co-operative for distribution within each state on the following basis.

Distribution between mills

The distribution of payment between mills within Queensland would be on the basis of the share that the land assigned to each mill was of the total area of assignment in Queensland as at 6 March 1992. Within New South Wales, the distribution between mills would be on the basis of the share of production area entitlements associated with each mill as at 6 March 1992. However, as all mills in New South Wales are owned by the New South Wales Sugar Milling Co-operative, the distribution of payment between mills in that state is not essential.

Within Queensland, payment would be split between mills and growers in each mill area on the basis of the average distribution of raw sugar revenues in the years 1989-90, 1990-91 and 1991-92. In New South Wales, the distribution would be on the basis of the New South Wales average distribution of revenue between the Co-operative and growers in the base years.

The distribution of the growers' share of the payment between individual growers in each mill area in Queensland would be on the basis of each grower's share of assignment in that mill area as at 6 March 1992. The distribution of payments between growers in New South Wales would be on the basis of each grower's share of production area entitlements in New South Wales as at 6 March 1992.

Cost of payments

The cost of providing assistance to the production of raw sugar for the domestic market by way of direct transitional payments is estimated to be \$46.8 million if acquisition were to cease on 1 July 1993. This cost would be born by the community generally through the tax system.

As well as continuing phased assistance to the industry, and reducing the potential windfall to refiners, direct payments would immediately reduce the cost that the tariff assistance available to the sugar industry imposes on domestic users of sugar, including the food processing industry. The availability of direct payments would also remove the incentive to maintain compulsory acquisition which is otherwise created by the availability of tariff assistance.

In summary, the Commission sees no compelling efficiency reasons for providing special long-term assistance arrangements for the sugar industry - an industry which is efficient and well suited to Australia. The industry has demonstrated for nearly 70 years that it is competitive on world markets. It is thus well placed to compete on the domestic market against imports. Furthermore, protection against import competition is an inappropriate instrument to address other industry concerns, such as price instability and income fluctuations. The case for Government assistance to meet stability objectives by other methods is discussed in Chapter 9.

7.3.2 Anti-dumping procedures

Since 1989, when the import embargo was lifted and tariffs were introduced on imported sugar, less than 1 per cent of domestic sugar needs has been imported. Consequently, the issue of anti-dumping has not arisen in the past. However, many participants stated that there is the potential for imports at dumped prices.

About 25 per cent of world sugar consumption is internationally traded. In almost all major producing and exporting countries, including Australia, sugar is sold on the domestic market at prices which exceed export prices. This is a result of domestic prices being supported by tariffs, quotas, or other support mechanisms. Internationally, more than one-fifth of all trade is under preferential or special arrangements. The rest is traded on the world market at prices which are often as little as 30 per cent of the average price for sugar traded under preferential agreements.⁸ As such, in a technical sense, almost all sugar traded on international market can be, under the GATT code⁹, regarded as "dumped".

In June 1991, the Government amended Part XVB of the Customs Act 1901 relating to anti-dumping provisions. The amendments provide for the calculation of a full dumping margin at the preliminary finding stage of a dumping inquiry; anti-dumping remedies for primary producers in agricultural industries affected by dumping of imports of processed agricultural products; and dumping measures to apply for three years from the date on which each notice or undertaking is published. These amendments should address some of the participants' criticisms of the anti-dumping arrangements, particularly procedural delays and flexibility.

In November 1990, the Senate referred certain aspects of the operations of the anti-dumping system to the Senate Standing Committee on Industry, Science and Technology. In its report¹⁰, the Committee recommended changes designed to result in 'quicker, cheaper and easier anti-dumping action while still complying with the GATT'.

The Committee recommended that:

- the Government continue its efforts in the GATT negotiations to broaden the definition of 'domestic industry' to provide for the producers of raw agricultural products to be considered part of the domestic industry for the purposes of anti-dumping actions involving processed products;
- to help with the assessment of material injury, the Australian Customs Service together with the Australian Bureau of Agricultural and Resource Economics develop computer-based industry models which incorporate those economic factors unique to the relevant industry;

⁸ Hawaiian Sugar Planters' Association, *Hawaiian Sugar Manual 1990*. The manual (page 23) states that:

For sugar traded under preferential or other type of trade agreements, the average price has been around 23 cents per pound. In contrast, sugar traded on the world market averaged just 6.8 cents per pound from 1983 to 1988.

⁹ Dumping is defined in Article 2, Paragraph 1 of the Gatt Anti-Dumping Code as the introduction of a product of one country "into the commerce of another country at less than its normal value, if the export price of the product exported from one country to another, is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country".

¹⁰ *Inquiry into Australia's Anti-Dumping and Countervailing Legislation*, report by the Senate Standing Committee on Industry, Science and Technology, June 1991.

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- legislation be amended to extend the sunset period from three to five years; and
 - rather than requiring a complete re-testing of a case once the sunset provision takes effect, a review be conducted before the automatic termination of action, with the review limited to the issue of injury or the threat of injury.

The Committee noted that the change announced in the March 1991 Statement to broaden the definition of 'industry' had yet to be clarified in regard to its consistency with GATT rules. The GATT has typically adopted a narrow interpretation of the term 'industry'. The Committee regarded the amendment to Australia's legislation as ensuring that, to the maximum extent possible under the current GATT Codes, injury to Australian primary production caused by imports of dumped or subsidised goods will be considered.

The Committee made a number of other recommendations aimed at streamlining the anti-dumping process, reducing the cost to industry of pursuing an application, and requiring Customs to provide more direct assistance to industry in mounting a case.

In response to the Senate Standing Committee review, and a review conducted by the Department of Industry, Technology and Commerce and the Anti-Dumping Authority, a ministerial statement was released on 5 December 1991¹¹. Major features of the ministerial statement included:

- the extension of the life of the Anti-Dumping Authority for eight years;
- a reduction in the time for the consideration of applications; and
- an extension in the life of anti-dumping and countervailing duties from three to five years.

The changes in the recent amendments to the Customs Act and those proposed by the Senate Standing Committee run counter to the recommendations contained in the Garnaut Report¹² that 'by the beginning of the twenty-first century, Australia should aim to join the small, high wage, international-oriented industrial economies of Europe by avoiding all "anti-dumping" measures and courses of action'.

The Commission is unable see any grounds for the introduction of any special anti-dumping arrangements for sugar and sugar products which are not available to any other industry.

¹¹ The Minister for Industry, Technology and Commerce, Ministerial Statement, Senate, Daily Hansard, 5 December 1991, pp. 4283-9.

¹² Garnaut, R 1989, *Australia and the Northeast Asian Ascendancy*, AGPS, Canberra.

8 THE NEW SOUTH WALES INDUSTRY

Until 1989, the Queensland Government, through the Queensland Sugar Board, purchased all raw sugar produced in New South Wales and marketed that sugar with that of the Queensland industry. Following the expiry of the Commonwealth/Queensland Sugar Agreement, the New South Wales sugar industry decided to discontinue the arrangements it had with Queensland and make its own marketing arrangements.

All sugar cane grown in New South Wales is now milled by the New South Wales Sugar Milling Co-operative (NSWSMC) to which all New South Wales sugar cane growers belong. The Co-operative was formed in 1978 to purchase the three local sugar mills from CSR. In 1989, the NSWSMC entered into a 50-50 partnership (Manildra Harwood Sugars) with the Manildra group of companies to build and operate a refinery at Harwood, near Grafton. Raw sugar produced by the NSWSMC is now sold to Manildra Harwood Sugars. All refined sugar produced by the joint venture is currently sold on the domestic market. In contrast to Queensland, production and marketing arrangements are not underpinned by State government legislation. In fact, the major form of government intervention occurs at the Commonwealth rather than the State level, in the form of tariff protection against imported sugar.

8.1 Production

Cane is grown in New South Wales by about 550 growers in three mill areas, Condong, Broadwater and Harwood, located on three major rivers on the north New South Wales coast. Until 1989, production of sugar cane was controlled by land assignments which, by agreement, were administered by the QCSPB. Expansion of assignments were allocated on the same pro rata basis as in Queensland.

Since the termination of the agreement with Queensland, much of the previous system of organising the industry in New South Wales has been retained under a co-operative arrangement. Production of sugar cane is managed by a system of Production Area Entitlements (PAEs) which are similar to the assignment areas operating in Queensland. However, expansion in New South Wales is no longer constrained. As the capacity of the refinery exceeds current New South Wales raw sugar production, the New South Wales industry is encouraging growers, both existing and new, to expand cane production over the next ten years by about 40 per cent. Prior to expansion, the agreement of the NSWSMC is required, as is a contribution to the nominal share capital in the Co-operative (\$130 per hectare). This is based on the contribution by growers to finance the

original purchase of the sugar mills from CSR in the late 1970s. The money is refundable over a number years if a grower leaves the industry. Additional PAEs are available to both new and established growers and are transferable within the industry.

PAEs totalled about 30 000 hectares in 1991, from which 15 500 hectares of cane were harvested. Some 1.45 million tonnes of sugar cane and about 175 500 tonnes of raw sugar were produced. This represented nearly 7 per cent of Australian production of raw sugar in 1991.

All cane in New South Wales is grown without irrigation. In fact, flood mitigation and drainage is a significant production cost. Because cane growth is slower in New South Wales compared with Queensland due to the cooler climate, approximately 65 per cent of the area of cane harvested in 1991 was two-year cane (ie cane which has been allowed to grow for two years before being harvested). The remainder of the cane harvested is one-year cane. Within New South Wales, two-year cane yields average about 110 tonnes per hectare, while the yield of one-year cane averages 60 tonnes per hectare. By comparison, yields of one-year cane in non-irrigated areas in Queensland usually average above 75 tonnes per hectare.

The area on which sugar cane can be economically grown in New South Wales is limited by topography, distance from the closest mill, and the availability of frost-free land. Frost does not kill the cane, but burns the top shoots. This tends to cause the cane to stool and branch, making it difficult to harvest. A significant amount of the existing land used for cane is on the flood plains of the northern rivers which are subject to frequent severe floods. Consequently, alternative uses for this land is limited. Some land suitable for further expansion tends to be limited by the competitive pressure from other agricultural pursuits, such as dairying.

8.2 Harvesting

Cane in New South Wales is harvested after the cane is burnt to remove the trash. Green cane harvesting is not currently practised because of the relative low temperatures. The trash blanket resulting from green harvesting does not allow sufficient warming of the soil by the sun for optimum ratoon regrowth.

Cane harvesting groups are mainly farmer co-operatives which jointly own harvesting equipment and, in some situations, other specialised equipment infrequently used by individual growers. In the 1989 season (the latest year for which figures are available), a total of 36 harvesters operated. The average tonnage harvested per machine varied between each of the three mill areas – about 49 000 tonnes per harvester for the Harwood mill area, 42 000 for Broadwater and 31 000 for the Condong mill area. This compares with an average of slightly less than 20 000 tonnes per harvester in Queensland although, in some mill districts, the figure is much higher.

Unlike Queensland, there is no tramway system in New South Wales. Cane is delivered to mills by road transport. The cost of transport to nearby pick-up points is met by individual growers. Transport costs from those points to the mills is met by the milling co-operative, that is, it is shared among growers. Provision exists for the milling co-operative to charge a transport fee for more distant growers, but this has not been done to date and is not expected to be introduced in the foreseeable future as the Co-operative is actively encouraging the expansion of production. Where the cane is transported to mills by growers, the Co-operative provides transport rebates.

8.3 Grower payments and raw sugar returns

The NSWSMC enters into a 5 year contract (which is known as a Memorandum of Agreement) with cane growers. The price growers receive for sugar cane is largely determined by a formula similar to that used by local boards in Queensland.

Grower receipts for 1989 cane averaged about \$29 per tonne. The potential for disputes over the distribution of money between mills and growers, as occur in Queensland, is minimised by the growers' co-operative ownership of mills. Timing of payments for sugar cane is largely determined by the timing of receipts of sugar revenue. Also, as the raw sugar produced in New South Wales by the Co-operative is sold to the joint venture refinery, there are some savings in selling expenses, which are no doubt shared between the Co-operative and the joint venture. The price at which raw sugar produced by the NSWSMC is sold to the joint venture is determined through commercial negotiation.

Growers share in the profits or losses incurred by the NSWSMC and profits or losses from the Co-operative's share in the joint venture refinery.

Bundaberg and some grower organisations in Queensland expressed concern about the distribution of the benefits of tariff assistance between the Queensland raw sugar industry and the New South Wales industry. For example, Bundaberg said:

Within the domestic market the Queensland single seller arrangement has allowed a 'domestic premium' above world raw prices to be obtained. This situation is the result of the quite inappropriate circumstances which have arisen since the 1989 removal of the embargo on imports, application of a tariff and the decision by the New South Wales industry to refine for the domestic market.

The net result is that New South Wales producers have been receiving 100% of the 'benefits of tariff protection' on their output while Queensland producers receive effectively only 15% on output. Clearly this situation is grossly improper and inefficient.

The New South Wales industry is clearly in a position to benefit from the existing tariff by directing all its raw sugar production onto the domestic market. The Queensland raw sugar industry, because it is a major exporter, receives the benefit of tariff protection for only a small share of its raw sugar output. However, this is an inevitable result of the acquisition and single

seller arrangements in Queensland and the substantial differences in the size of the industry in the two states. In the absence of acquisition in Queensland, it is likely that the domestic price would fall to something approaching export parity. Ultimately, this would mean that neither industry would benefit by being able to sell sugar domestically at prices significantly higher than import parity.

8.4 Refining

The Manildra Harwood Sugars refinery has a capacity to refine 250 000 tonnes of sugar per year. It refines all of New South Wales' raw sugar output and has purchased additional raw sugar from the Sugar Board. In 1990, purchases from the Sugar Board/Corporation amounted to approximately 40 000 tonnes.

All refined sugar from the Harwood refinery is sold on the domestic market in competition with other domestic refiners and with any imported refined sugar. Manildra Harwood Sugars supplies about 25 per cent of the domestic market, the other domestic refiners have about 74 per cent of the market, with imports supplying about 1 per cent. Manildra Harwood Sugars' profits (losses) from refining and selling on the domestic market are shared between the joint venture partners.

CSR stated that, because the New South Wales industry is now vertically integrated, the New South Wales refiner does not have to bear the costs of the tariff on locally produced raw sugar and can undercut its competitors on the domestic market. However this is not clear. Even if there were no joint venture in New South Wales, the NSWSMC would be in a position to sell all of its raw sugar production to other domestic refiners (namely CSR) or potential refiners at close to the duty paid import parity price set by the Queensland Sugar Corporation. If the prices at which sugar is sold (transferred) to the joint venture refinery by NSWSMC is less than duty paid import parity, the co-operative would expect to receive compensation in the form of its share in the profits (losses) in the joint venture over the long term.

In Queensland the situation is different as there are competing interests - the Corporation and the refiners. In these circumstances, it is not unexpected that the Sugar Corporation would charge duty paid import parity prices for raw sugar. Indeed, it is obliged by legislation to maximise returns to growers from raw sugar sales. The only "inequity" would appear to arise as a result of the Queensland legislation which prevents CSR from integrating backwards so as to emulate the arrangements adopted in New South Wales.

8.5 Adjustment

The reductions in tariffs on raw and refined sugar which have previously been announced will have a greater impact on returns to the industry in New South Wales than in Queensland. This is because the industry in New South Wales sells all of its output on the domestic market, whereas only 20 per cent of Queensland's output is sold domestically. The Commission estimates that the

already announced reductions in tariffs will reduce average assistance per grower in New South Wales from \$19 000 in 1989-90 to \$8 000 per grower in 1992-93. This compares with a reduction from \$7 000 to \$2 900 per grower in Queensland over the same period.

The Commission has recommended the replacement of tariff assistance with a one-off payment to the Australian sugar industry. This recommendation is, among other things, based on a recognition that competition on the domestic market following the removal of compulsory acquisition could have significantly undermined the phased tariff assistance proposed in the draft report, with a potentially greater impact on the New South Wales Industry (see Chapter 7). The recommended direct payment system is aimed at overcoming this problem.

9 INCOME AND PRICE INSTABILITY AND RISK MANAGEMENT

9.1 Introduction

Income instability results from fluctuations in both yield and prices. Also, because few growers have alternative production options, there is little opportunity to reduce income fluctuations by altering the activity mix on sugar cane farms. Sugar cane growing is a protracted biological process (1 to 2 years from planting to first harvest), dependent on the weather and subject to many natural hazards such as floods, droughts, cyclones, frosts and the impacts of pests and diseases. Production in other major sugar producing countries can be similarly affected by seasonal conditions. Abrupt changes can therefore occur in the supply of sugar to world markets.

World sugar prices are very sensitive to small changes in supplies. The price volatility is normally reflected in the freely traded sector of the world market which represents less than 20 per cent of that market. Thus, when world shortages and surpluses occur, they have a large impact on prices. In either case, there is little supply response within any single season. At the international level, some attempts have been made by both sugar suppliers and users to overcome supply and price variability by holding sugar stocks.

As about 80 per cent of Australia's raw sugar production is exported, export prices for sugar are the dominant factor determining the gross returns Australian producers receive. Two important factors influence export prices. First, international trade in sugar is only a small proportion of total world production and consumption. Second, protection policies in major trading countries such as the EC, Japan and the US insulate both domestic consumers and producers in these countries from changes in world prices. Consequently, responses in these countries to changes in international prices are limited. This assigns most of the adjustment burden to the relatively small international market and causes the volume of world trade, and the prices at which it occurs, to fluctuate markedly. Self-sufficiency policies and production instability in other major countries, along with cycles in world economic activity, further amplify price fluctuations. Because of these factors, prices for sugar, levels of production and producer gross returns and incomes are volatile.

9.2 Price variations

About 30 per cent of Australia's recent sugar exports have been sold on long term contracts (3 to 5 years forward) where the prices have been more or less fixed for the term of the contracts. The prices received under such contracts have tended to reflect long term trends in world sugar prices.

A significant proportion of the remaining sugar exported has been sold to what are referred to by the Sugar Corporation as 'assured' markets. The prices received for sugar sold on these markets are normally negotiated on the basis of futures contracts. A futures price is not the market's assessment of what the price will be at the future time, but is the current valuation for sugar to be delivered at that future time. This enables the pricing of sugar to be separated from physical selling. Any remaining sugar is sold at prices negotiated on a shorter term outlook which reflect 'spot' prices.

It is understood that the Sugar Board/Corporation has not sold sugar on the 'spot' market¹, but 'spot' prices ultimately affect negotiated prices in long term contracts and the prices negotiated for other sugar export sales. Almost all sales have been negotiated in United States currency. Thus, the prevailing exchange rate is also an important determinant of export returns.

The year to year volatility in world raw sugar prices (New York No 11 Spot) is evident from the yearly average 'spot' price series presented in Figure 9.1. There also has been significant variation in 'spot' prices within years. For example, in the calendar year 1990, the 'spot' price over a four month period rose from US12c/lb (about A\$355/tonne²) to US17c/lb (A\$500/tonne), and then fell to US10c/lb (A\$295/tonne).

The Sugar Corporation stated that the aim of its marketing strategy is to maximise long term returns rather than to stabilise them. But, although price stabilisation may not be a primary objective of its marketing strategy, a degree of stabilisation of returns to producers is achieved as a result of its pattern of sales, the range of its markets serviced, its long term contract arrangements, its commodity and currency hedging operations, and its pooling arrangements.

Until 1989, the price of sugar on the domestic market was determined by formula and, accordingly, domestic sales receipts were predictable. Since then, however, the price received for sugar on the domestic market has been determined largely by duty paid import parity prices. These reflect the prevailing world price of sugar, the tariff, the exchange rate and the cost of transporting sugar to Australia. Consequently, the prices received for domestic sales are now more variable than they have been in the past.

In summary, the practice of selling a significant proportion of raw sugar exports at prices determined well in advance of shipment, coupled with - until recently - a stable domestic pricing regime, has meant that prices received by millers and growers have been considerably less variable than futures or 'spot' market prices.

Further, individual sugar producers have been insulated from price variability because a significant proportion of production has been sold under long term contracts and because all sugar receipts for

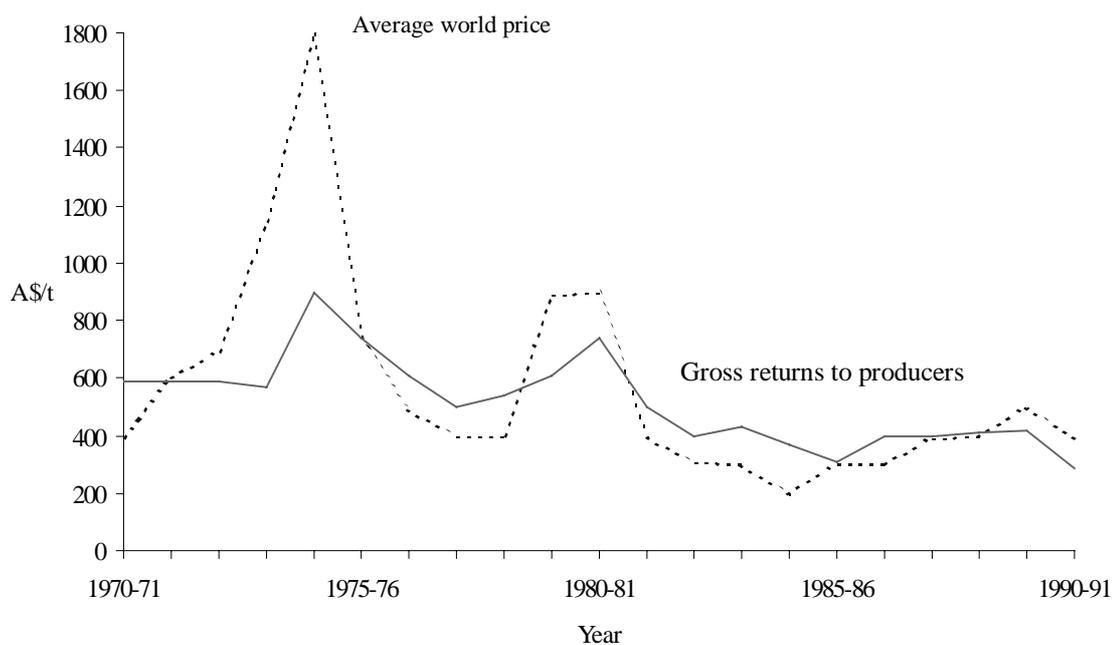
¹ The 'spot' market is defined as the market for sugar ready for immediate shipment and delivery.

² Based on A\$1=US75 cents.

each season's sales have been pooled. Returns to mills and to growers have reflected average prices received, less average selling costs over the season, rather than the price on the particular day that an individual's output happens to be sold or priced. This has smoothed the effect of short term price fluctuations on individual returns. The price signal has still been present, but the short term volatility in prices is not evident.

One consequence of the pricing practices and pooling arrangements has been that, in some years, prices received by sugar producers have been less than the average 'spot' prices receivable on world markets and, in other years, greater. Average real prices (in 1989-90 dollars) available on 'spot' markets and the gross returns to Australian sugar producers between 1970-71 and 1990-91 are presented in Figure 9.1.

Figure 9.1: **Average world price (New York spot) and gross returns to Australian producers^a**
A\$ per tonne (1989-90 dollars)

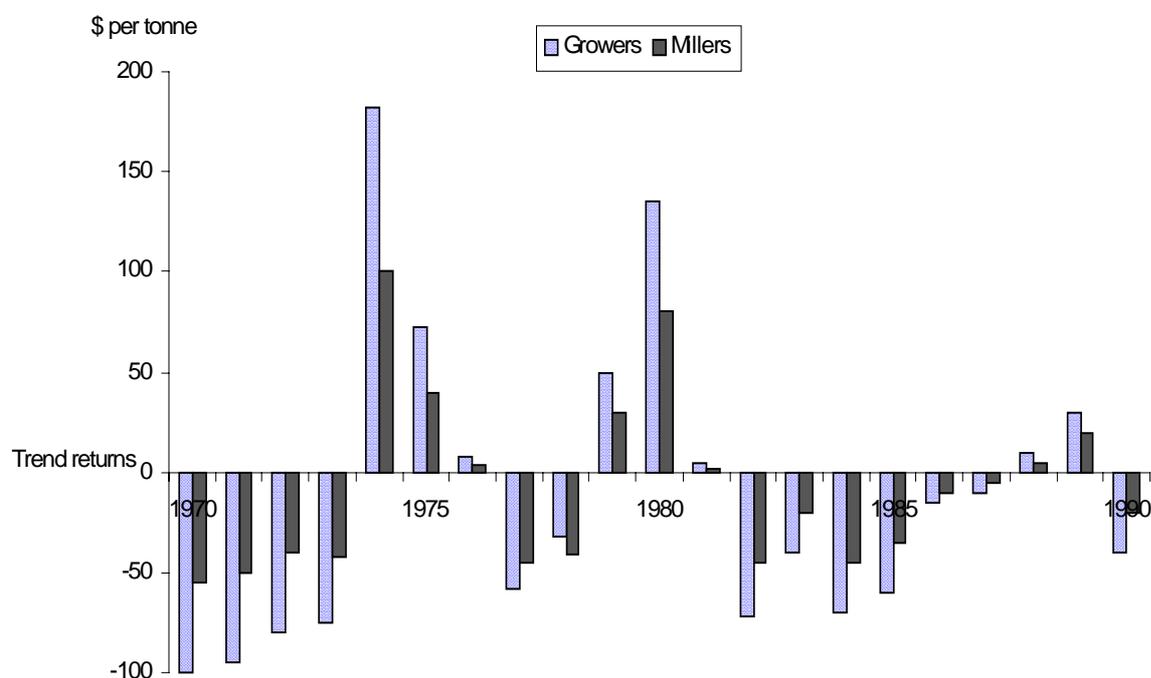


a Gross returns are shared between growers and mills according to the cane price formula.
Source: Based on data from Queensland Sugar Board Annual Reports and data supplied by the Queensland Sugar Corporation.

As can be seen from the figure, returns to producers over the last two decades have trended downwards, and even with the smoothing effect resulting from the marketing and pooling

arrangements, there has been significant year-to-year variation in the returns. This is illustrated in Figure 9.2 which shows the difference in the real gross returns received by millers and growers for sugar and the trend in gross returns since 1970 (in 1989-90 dollars per tonne). As costs of production represent a high percentage of the expected gross returns³, variations in gross returns result in much higher variability in profitability and income.

Figure 9.2: **Growers' and millers' share of payments for raw sugar above and below the trend**
(in 1989-90 dollars)



Source: Commission estimates

9.3 Production variations

As with other agricultural activities, sugar cane growing is dependent on the weather and subject to many natural hazards such as floods, droughts, cyclones and frosts. Yield may also be affected by sugar cane diseases or pests. Accordingly, yield per hectare of sugar cane can vary considerably

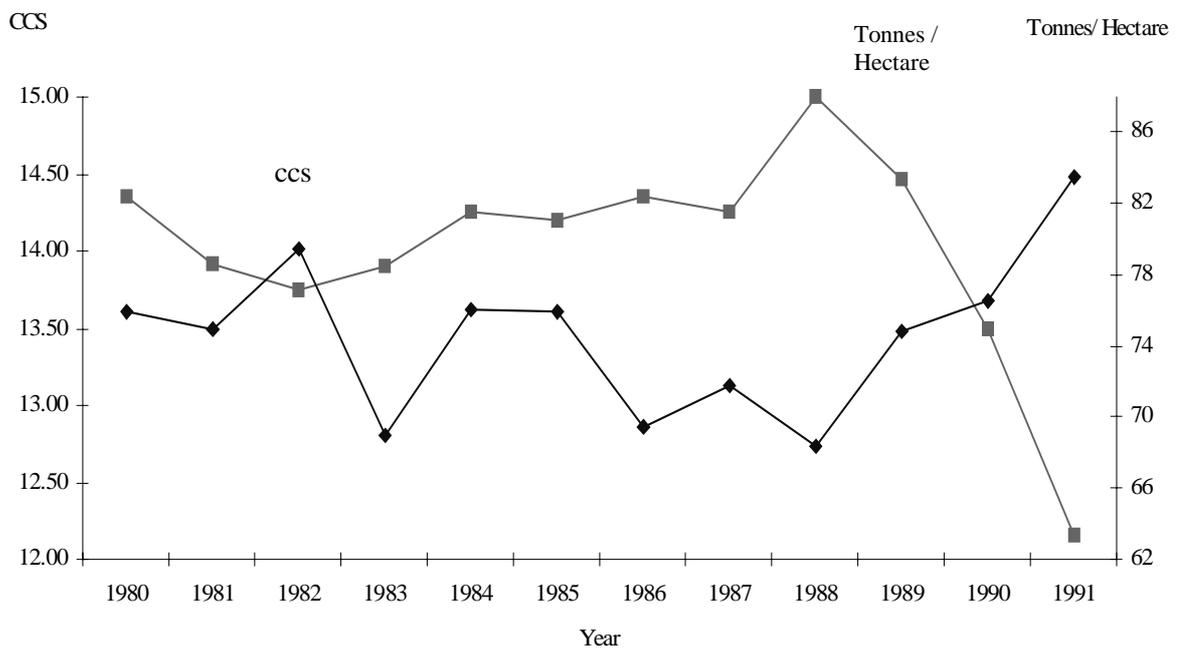
³ The latest available data show that the materials-output ratio for cane growing is 0.6 compared with 0.46 for wool growing and 0.45 for beef cattle production.

from year to year. Apart from the variation in yield, there are also considerable variations in the sugar content of cane. This is influenced by seasonal agronomic conditions. An indication of variations in yields and sugar content over the last 10 years can be gauged from Figure 9.3. Sugar cane yields and sugar content tend to be inversely related. Sugar content rises in dry seasons, but this rise is insufficient to compensate for the effects of yield reduction. The sharp reduction in yield in the 1991 season compared with earlier seasons was due to the wide spread drought and the effects of cyclone 'Joy'.

Yield reducing factors can be specific to farms or can apply to whole areas. In many cases there is little that individual cane growers can do about variations in yields caused by natural hazards beyond pursuing good management practices (both agronomic and financial) and taking the available precautionary measures.

Yields and sugar content may vary because of deliberate action by growers. In response to an expected fall in price for cane, a grower may decide to reduce input costs. For example, a grower may choose to forgo the application of fertiliser when a net benefit is not apparent.

Figure 9.3: Average ccs and tonnes of cane per hectare: Queensland, 1980-1991



Source: Australian Sugar Yearbook, various issues and data supplied by the Australian Sugar Milling Council

Variations in sugar production can also arise from variations in the area of land under cane. However, in the case of sugar, the assignment system ensures that there is relatively little year to year variation in the area of land under cane.

The significance of variations in raw sugar production due to yield fluctuations differs from mill area to mill area. For example, in the Plane Creek mill area in the Mackay region, variations in raw sugar production from one year to the next over the last 10 years have been as much as 35 per cent. In other areas, such as the Invicta mill area in the Burdekin region, year to year variations in production have been less significant (about 10 per cent).

9.4 Variations in gross returns

The Commission has undertaken an analysis of variations in growers' and millers' gross returns per hectare - a proxy for income - from their trend values in the period 1980 to 1990. These variations in gross returns reflect variations about trends in prices received for raw sugar, cane yields and sugar content.

The analysis revealed that, on a regional basis, when prices for sugar were high in 1980, gross returns per hectare to growers were between \$1450 and nearly \$2000 (or nearly 45 per cent higher in 1989-90 dollars) above the trend value. In 1981, gross returns per hectare were around trend levels. This was followed by six seasons where gross returns were less than the trend. Gross returns in the 1988 and 1989 seasons were above the trend, but fell below the trend again in the 1990 season. The gross returns to millers showed similar variations.

This instability of miller and grower incomes arose principally from the variability of sugar prices received. Prior to 1989, these prices were stabilised to some extent by the administered domestic pricing arrangements. Variations of yields and sugar content appear to have been of lesser importance, particularly at a regional level. This is not to deny that they may have been important to some individual growers and to some particular mills. The low income expected by producers in Queensland for the 1991 season is largely a result of a sharp drop in yields caused by the adverse effects of drought, followed by cyclone 'Joy', then severe drought again.

The Commission also carried out an analysis of the variability of average gross unit values of sugar and other Australian rural commodities for the period 1970-71 to 1989-90. The results⁴ revealed

⁴ The analysis involved calculating the conditional co-efficient of variation of the average gross unit returns for the years 1970 to 1989 for a number of agricultural products. This parameter, which is defined as the standard error of the estimates about a linear trend fitted by least squares, expressed as a percentage of the mean, is an accepted measure of variation around a mean. The results were (in per cent): sugar - 22.4; barley - 18.4; wheat - 13.9; dried vine fruits - 16.8; apples - 7.6; pears - 9.5; wool - 24.8; milk - 13.99; and cattle and calves - 27.8.

that, while the unit gross returns for sugar were volatile, average unit gross returns for wool and for cattle and calves were even more so. However, as the ratio of farm costs to value of output for sugar cane is higher than for wool and beef cattle, the variability of net returns for sugar cane relative to those for wool and beef cattle resulting from variations in gross returns would be more significant.

9.5 Mechanisms for achieving stability

9.5.1 Revenue

Price risk management

The Sugar Board/Corporation, acting on behalf of growers and millers, has used sugar futures and exchange rate contracts for hedging and long term contracts in an attempt to maximise returns from sugar sales and to 'lock into' what are regarded as acceptable returns. To some extent, this has also insulated sugar returns from the highly volatile world 'spot' prices and provided a degree of stability in producer prices.

The use of futures and other financial instruments to hedge and manage risk is fraught with dangers unless the instruments are used strictly in accordance with pricing of physical stocks or managing actual financial exposure. Even then, movements in the markets may result in fluctuations in the margins between physical commodity prices and futures prices. In such a situation, it is possible that a loss could be incurred or, on the other hand, a windfall profit could be made.

The Sugar Corporation acquires all raw sugar produced in Queensland. As a consequence, the ability of individual growers and millers to separately manage their own price risk is removed. This is particularly so when sugar is sold one year, and in some cases, two years after the decision to grow cane and produce sugar. Producers are unable to determine the price they will ultimately receive for their output because they are not aware of the Corporation's marketing contracts, on-going arrangements or hedging positions, although the Corporation does provide producers with indicative pool prices for a season, regularly throughout the season, and for the forthcoming season. The operations of the Corporation in its futures trading and hedging activity are not underwritten by government.

When committing themselves to produce sugar cane, growers have access to information on past payments for sugar and information provided by the Corporation and other agencies (eg ABARE) on prospective prices. However, the Queensland regulations have constrained growers' capacity to react to the available market information. For example, if a grower's view about future price levels is pessimistic, he may judge it prudent to reduce sugar cane production. However, under the assignment system, this could result in the forfeiture of assignment. Accordingly, cutting back on production in order to minimise losses is not an option for growers who foresee a longer term future in cane.

If growers/millers had equity in raw sugar produced and directly faced prevailing prices without compulsory acquisition, they would be in a stronger position to manage their own risk. There are a number of ways they could go about this.

First, growers could decide whether, based on the prevailing price and their judgement about future prices, they wished to produce cane or not. For growers, this decision would also depend on the alternative uses of the resources used. Some growers may choose to leave resources idle rather than risk making losses. Others might choose to diversify into other agricultural pursuits. Even under the current regulatory regime, some growers have chosen this latter route.

Second, if prices appear attractive for sugar production, growers and millers could elect to enter into a contract to supply at a fixed price, or 'forward sell' sugar. In this way they would be assured of the price they would receive for their output.

Third, growers and millers could use futures contracts in order to 'lock into' a particular price. For example, if the current futures price was US15c/lb, then producers could hedge against receiving a price lower than this by selling sugar futures. In this way, they could lock themselves into the futures price and minimise downside risk. However, in doing so, they would forgo any possible gain if prices rose and would incur the normal transaction costs of buying and selling futures contracts. There are variations to this simplified hedging position where producers could engage in profit maximising activity as future prices fluctuate.

At the initial public hearing, the Sugar Corporation stated that there is scope for individual industry participants to hedge their own production, though it is not possible at the moment. It added that arrangements could be developed to enable producers to hedge, if the industry so wished. The Corporation has said it will prepare a discussion paper on developing an optional hedging facility for producers. However, the Commission expects that it would not be feasible to provide, in the present regulated regime, the same opportunities for producers to benefit by using futures markets that would exist in a less regulated environment.

Pooling

A pooling mechanism, whereby all revenue from a season's sales and associated marketing costs are aggregated to yield an average price to all contributors to the pool, can smooth out fluctuations which might normally be encountered by individual producers. In the case of the sugar industry, there is some differentiation in payments depending on pool entitlements, but this adjustment is not now directly related to the prices actually received in the different markets in which sugar is sold.

As is evident from support for the present arrangements, many producers value the risk-sharing provided by the pooling arrangements. These arrangements, however, impose certain costs on others. The potential for pooling, especially the form existing in the sugar industry, to cause inefficient production decisions and prevent innovations in marketing was discussed in Chapters 5 and 6. Compulsory pooling also makes it difficult or impossible for growers and millers to use certain other methods of reducing their price risks - such as futures contracts and other financial instruments. That is, pooling in the sugar industry works against voluntary use of markets to tailor risk reduction to the situation of individual growers and millers.

Buffer stocks

With a buffer stock scheme, an authority acting on behalf of an industry aims to buy stocks when the market price is low and sell stocks when the market price is high. If a country possesses power in the world market, and if the buffer stock scheme is operated successfully, price instability is reduced. A buffer stock scheme operated for the Australian wool industry from 1970 until February 1991. Over most of that period, fluctuations in wool prices were reduced as a result of the buying and selling of wool by the Australian Wool Corporation. However, because Australia has little influence on world prices for sugar, it would not be feasible for it to stabilise sugar prices using a buffer stock scheme.

A system of buffer stocks and production quotas operated under the now lapsed International Sugar Agreement. Under this agreement, a group of producing and consuming nations sought to stabilise sugar prices in international trade.⁵

Stabilisation funds

Buffer fund price stabilisation schemes operated for several Australian rural industries from the late 1940s to the late 1970s. Under these schemes, producers paid a levy in years when prices were high. The proceeds of the levy were paid into a stabilisation fund and used to supplement producers' prices in years when the market price was low. Levies were exempt from taxation, and payments received by farmers from the stabilisation fund were taxable. Participation was compulsory, and the levy was mandated by government legislation. The Government played an underwriting role, contributing to prices if this was necessary when stabilisation was exhausted.

⁵ Industries Assistance Commission, *The Sugar Industry*, Report No. 332, Australian Government Publishing Service, Canberra, 11 November 1983, pp 67, 71.

Buffer funds had major disadvantages. They discouraged production when market prices were high and encouraged it when prices were low. They denied producers the use, for other purposes, of sums paid as stabilisation levies. This was so regardless of the relative importance attached to price stabilisation and other objectives, such as farm development, by individual farmers. Buffer funds destabilised incomes of individual farmers in some situations, such as when high prices coincided with low levels of production.

Underwriting

Minimum guaranteed prices were features of many of the post-war stabilisation schemes. However during the 1980s the prices for a number of rural industries (wheat, apples and pears, dairy products and dried sultanas) were underwritten at a percentage of a moving average of recent and expected returns. The sugar industry has never had its prices underwritten this way, but in 1985, a joint Commonwealth/Queensland/New South Wales Government price support scheme commenced for the sugar industry. The scheme was to provide price support for up-to-peak returns whereby returns would be guaranteed at \$230 per tonne for the 1985 season, \$225 for the 1986 season and \$220 for the 1987 season. For the 1985 season, up-to-peak returns were augmented by a \$6.94 million payment by the Queensland Government. Additional price support payments of \$14.65 million and \$0.38 million were made by the Commonwealth and New South Wales Governments respectively. However, as prices for the 1986 and 1987 seasons were above the price support levels, no further payments were made.

If the Commonwealth or a state government were not to provide government-financed underwriting, the sugar industry has the option of itself funding an underwriting scheme. In May 1988, the Commonwealth Government stated:

should **individual industries** [original emphasis] wish to continue with the policy of underwriting and be prepared to establish their own industry-funded underwriting schemes, the Government would be prepared to work in consultation with the industries concerned to develop appropriate arrangements.⁶

The Government added that, while it recognised that specific industry arrangements may need to vary to reflect industry characteristics, several principles should be applied. These principles are:

- the underwritten price should be set at a level which ensures that price underwriting is triggered only by extraordinary downward price movements;
- industry should assume increasing responsibility for meeting the costs of reducing price uncertainty;
- the reference price for underwriting should be closely aligned to world prices;
- as far as practicable, the underwritten price should be announced in time to be taken into account in determining the current season's production; and
- there should be transparency in the calculation of reference prices and estimates of relevant reference prices should be regularly updated and publicly announced.

⁶ Department Primary Industries and Resources - *Policies for Growth, A Government Policy Statement*, 1988, p. 37.

A major potential inefficiency associated with price underwriting is that, by raising producers' price expectations, it encourages production to be higher than it would otherwise be. This can defer rationalisation. It also has implications for other sectors of the community. It can, for example, result in resources being drawn out of other rural activities and, if funded by government, can impose significant cost on taxpayers in years in which it is 'triggered'.

If the sugar industry wished to introduce a self-financing industry-funded scheme, it could be made mandatory for all participants or, alternatively, producers could elect whether or not they wished to participate. If the scheme were to be compulsory, it would require government legislative backing but, in Queensland, with compulsory acquisition, a mechanism already exists for its implementation.

A drawback to compulsory schemes is that they deter some producers from pursuing other cost effective options for dealing with risk. This problem would be avoided if price underwriting were introduced on a voluntary basis, although other problems could emerge (eg difficulties associated with producers opting in and out of the scheme). Moreover, if a voluntary scheme were introduced, it is questionable whether it would be of greater benefit than the current voluntary Income Equalisation Deposits (IED) scheme. The IED scheme, being income based, covers more than just price risks. An additional advantage is that the IED scheme, being generally available to rural producers, is neutral across eligible activities.

9.5.2 Other measures

Apart from the industry specific measures, primary producers can avail themselves of some special features of the tax law to help manage the consequences of fluctuating incomes. They can use IEDs to help stabilise year-to-year incomes without incurring tax disadvantages, and they can average their incomes over time to establish a rate of taxation which will not result in them paying more tax than others who have more stable income flows.

One of the consequences of having a progressive income tax schedule based on an annual income assessment is that, where two individuals have the same taxable income over a number of years, the one whose tax fluctuates more widely from year to year pays more tax. The additional tax has two main effects. First, there is an equity effect as different taxpayers earning the same income over a period of years are not treated equally. Second, there is an efficiency effect as the tax system is not neutral between resource uses yielding stable and unstable income flows. This tends to discourage investments which result in fluctuating incomes.

In addition, primary producers can carry forward losses indefinitely for taxation purposes. In contrast, other businesses are limited to seven years of loss carry forward. Primary producers may also make use of measures designed to meet the general welfare goals of the community.

The Income Equalisation Deposits scheme

The IED scheme, for which all primary producers are eligible, provides a mechanism for offsetting the effects of fluctuations in producers' incomes so that they are not disadvantaged by the progressive nature of personal income tax rates. The scheme enables producers to deposit funds with the Commonwealth Government in high income years and to withdraw them in years when their income falls. The amount of a deposit is allowable as a deduction from taxable income in the year of deposit. Withdrawals are added to taxable income in the year they are withdrawn.

Under the current scheme, which was introduced in July 1989, primary producers receive a market rate of interest on 61 per cent of the deposit. The other 39 per cent, on which interest is not paid, represents the average component which would have been subject to tax in the year of deposit but for the use of the deferral provision. A tax benefit accrues to producers taking advantage of the scheme when the average rate of tax on an amount in the year of withdrawal is lower than the average rate of tax otherwise payable on that amount in the year of its deposit. This happens if income is shifted into a lower marginal tax bracket, or if marginal tax rates are reduced over time.

Since the early 1980s, nominal income tax rates have been reduced significantly. If this trend were to continue over the life of the IED scheme, nearly all growers could obtain a tax benefit through use of the scheme, while stabilising their disposable incomes. With the IED scheme, growers themselves must plan for years of low income by making deposits in years of relatively high income. Only if they initiate such action, can they obtain assistance through the available tax benefits.

At the draft report hearing, some participants suggested that the IED arrangements did not provide appropriate incentives for growers to use the scheme. It was suggested that, as IED withdrawals were subject to provisional tax, some growers were reluctant to utilise the IED arrangements. Withdrawals are subject to the same tax provisions as income earned in the year of withdrawal. If tax liability on growers' income, including the IED withdrawal, is below that assessed by the Australian Tax Office, growers have the right to have their provisional tax liability reassessed by the Office. As such, the Commission sees nothing unjust or inequitable in the current taxation treatment of IED withdrawals.

Tax averaging

Even if primary producers do not wish to transfer funds between years through the use of IEDs, they can average their income over a number of years for the purpose of determining tax liability.

Under the tax averaging provisions, primary producers may use the incomes of the current year and the preceding four years to determine the tax rate applicable for the current year. The tax rate applicable is determined by the average income over the period. The tax for the current year is then determined as the current year's income multiplied by the tax rate.⁷ The averaging provisions apply to the whole income of the taxpayer, and not just to the income derived from primary production.

One effect of the provisions is to establish equity between primary producers who have fluctuating incomes and other individuals who have stable, but equivalent incomes, over a number of years. However, tax payments are greater in low income years and lower in high income years than they would be in the absence of tax averaging. Thus, in the absence of the use of IEDs to transfer incomes between high and low income years, tax averaging tends to accentuate after-tax income variability.

Both the averaging and the indefinite carry forward of losses provisions advantage primary producer taxpayers relative to other taxpayers in the community. Many taxpayers engaged in other industries and in paid employment are subject to income fluctuations, but are not able to use income averaging for tax purposes or to indefinitely carry forward losses. To this extent, the limited eligibility provisions are inequitable.

Rural Adjustment Scheme

The Commonwealth provides broad-based structural adjustment and income assistance to farmers experiencing financial difficulties arising from circumstances beyond their control through the Rural Adjustment Scheme (RAS)⁸. Assistance under the RAS is available to all industries within the agricultural sector. RAS is administered by State and Territory Governments under legislation complementary to Commonwealth legislation.

The RAS assists farmers to improve performance by helping them to increase the size of their farms, to restructure their liabilities, improve managerial and financial skills, or adopt better practices and technology. After all other options have been considered, RAS helps eligible farmers without prospects to leave the industry.

Part A provides assistance to producers who are suffering, or are likely to suffer, financial difficulties due to circumstances beyond their control, and who have been assessed as being viable in the long term. It takes the form of concessional finance to improve or expand, for example, a cane farm.

⁷ For example, tax for a taxpayer who has a current taxable income of \$40 000 and average income of \$30 000 (including the current year), would be calculated as \$40 000 multiplied by the tax rate applicable for \$30 000.

⁸ Prior to July 1 1989, assistance was also separately available to canegrowers and other farming and small business sectors under the Natural Disaster Relief Arrangements. These arrangements were jointly funded by the states and the Commonwealth as the need arose. After July 1 1989, alternative Commonwealth assistance for such circumstances was incorporated under Part B of RAS.

Under Part B, short term assistance - again in the form of concessional finance for debt reconstruction and carry-on finance - may be made available if the Commonwealth and the relevant state government agree that an industry is suffering a severe temporary downturn. To be assisted under this Part, growers must be assessed as having sound long term prospects.

Part C provides assistance to producers who are: not viable in the long run; are suffering personal financial hardship and are considering leaving primary production; or have left, or are arranging to leave. Two forms of assistance are available. Household support assistance is available to producers who are intending to sell their property. It provides income support equivalent to unemployment benefits when a grower is ineligible to receive the latter for a period of up to two years. Re-establishment assistance involves the payment of a grant, subject to an assets test, of up to \$28 000 to primary producers who have left the industry or who have entered into arrangements to do so.

Expenditure under RAS in Queensland received by canegrowers totalled \$0.29 million in 1989-90, \$0.58 million in 1990-91 and, in the six months to December 1991, \$1.53 million. In the six months to December 1991, 441 applications for assistance were submitted, of which 219 were successful. There were 145 applications with 72 being successful for the previous full year. Of the nearly \$30 million of RAS assistance distributed in Queensland in the period 1 July 1989 to 31 December 1991, about 8 per cent was distributed to canegrowers. In New South Wales, in the same period, there were no application from canegrowers for assistance under RAS.

The Budget allocation for RAS for 1991-92 was \$160 million. In October 1991, the Government revised the funding for RAS in the light of the severe and widespread downturn and the effects of the drought in Australia's rural sector. The main elements involved increasing Commonwealth funding to \$173.1 million, increasing the Commonwealth/State contributions to Part B from 1:1 to 2:1; and increasing access to social security benefits to assist unemployed members of farming families (see below).

Further, the Government, in its February 1992 Economic Statement, announced increased funding for RAS. Under Part A, an additional \$10 million is to be made available for each of the 1991-92, 1992-93 and 1993-94 financial years. Also, the Government announced additional funding of \$10.8 million in 1991-92 and \$5 million in 1992-93 to fund a 75 per cent interest subsidy on commercial loans under Part B of RAS for the purpose of assisting in crop planting by farmers with liquidity and cash problems. The scheme will target broadacre producers of cereals, coarse grains, oil seeds and grain legumes, as well as some sugar producers.

Although not established as a means of achieving income stability or as a means to overcome risk, the RAS has provided a 'safety net' to growers during prolonged periods of adverse circumstances. To this extent, resources may remain in an industry when, if normal commercial pressures were to apply, they may have been redeployed.

Social security

Canegrowers, like other individuals in the rural community and the community in general, are eligible for the full range of social security benefits providing normal eligibility criteria are met. For example, they are eligible for work search allowances providing they are assessed to be full-time unemployed and are looking for full-time employment. Spouses of canegrowers are assessed in the same way.

In its 1991-92 Budget, the Commonwealth Government modified the assets tests for eligibility for the Family Allowance and Family Allowance Supplement for Low Income Families Schemes to apply for two years after 1 January 1992. In October 1991, the Government announced it had bought forward the implementation date for these arrangements to 1 December 1991. Farmers, as well as people with non-farm businesses, can benefit from the changes. The new rules assist low income families in financial hardship who are currently ineligible for family payments because the value of their assets exceeds the prescribed limit. Under the new rules, farmers qualify for the Family Allowance Supplement if they have income below the married rate of benefit of \$13 078 (with adjustment for each child), with limited available funds (below \$6000 for a single person and \$10 000 for couples) and assets of less than \$600 000. The Government has also introduced an asset test for the Family Allowance from 1 January 1992 of \$600 000. However, people with assets over this limit meeting the income and available funds criteria are still eligible.

9.6 The Commission's assessment

Fluctuations in returns due to weather, biological factors and prices are an inherent part of the agricultural environment. The most important source of the fluctuations in growers' and millers' returns is unstable world prices. Prices for sugar in world markets have fluctuated more than they have for many other rural commodities. This is, in part, a consequence of protectionist policies for sugar in several major countries, and of the impacts of those policies on the residual world market for sugar. Australian policies which reduce the responsiveness of sugar production and consumption to world prices contribute to this instability. Australia is seeking to reduce international protection for sugar and other rural commodities through the GATT round of multilateral trade negotiations. Success in these negotiations would make sugar prices more stable in world markets.

In the Commission's view, the case for specific action by governments to shelter Australian growers, millers or sugar users from fluctuations in world sugar prices is weak. The case for governments playing this stabilising role is no stronger than is the case for their holding the level of domestic sugar prices above world prices, either routinely or when world prices are low.

Of the policy measures which fall in the category of 'price stabilisation', the costs appear to be high in relation to the benefits. The measures having the best prospects of being successful are probably buffer fund stabilisation arrangements and price underwriting. However, Australia's experience with these measures in agricultural industries - including sugar - indicates that they have significant limitations. Price underwriting, even at a conservative level, involves the risk of a substantial cost to taxpayers. The buffer fund schemes which have operated in Australian agriculture have distorted price signals facing farmers and have compelled all farmers in an industry to immobilise part of their resources in the stabilisation funds in years of high prices, regardless of their income situation and their priorities. These schemes also have required underwriting by the government to guarantee that funds are always sufficient to supplement farmers' prices in the agreed way when prices are low.

IEDs can be viewed as improving upon, and hence making redundant, buffer fund price stabilisation. IEDs improve upon buffer fund schemes of the type used previously in Australia in being voluntary, more flexible in the amount of stabilisation that can be achieved, not distorting price signals, and providing stabilisation against all sources of fluctuations in incomes.

Stabilisation of prices is a weak rationale for pooling arrangements if that stability is imposed on all participating producers or buyers. The need for risk reduction varies among individuals, who could be expected to undertake their own appropriate risk reduction strategies, such as product diversification, asset management and the use of insurance or hedging markets. Stabilisation policies which require the compulsory participation of producers or buyers reduce the incentives for sound production and financial control and retard the development of risk avoidance markets which operate in some other industries and countries.

The Industries Assistance Commission (IAC) looked at the objectives of stabilisation policies generally in an inquiry into rural income fluctuations in the late 1970s⁹. Its main conclusions were that there was little evidence to suggest that price stabilisation schemes would encourage efficient resource use, and that such schemes were likely to lead to an inefficient use of resources by discouraging profitable adjustments to price trends. It noted:

Individual producers, in agriculture and other sectors, adjust to risk and uncertainty in the way they organise their businesses, employing stabilising measures and strategies in the light of their own situations and preferences and the costs involved. It should not be assumed that farmers' evaluations of the benefits and costs of alternative risk reducing strategies are inadequate or that the social costs of risk reduction could be reduced by intervention.

In the Commission's view, it would be desirable if growers and millers were in a position to hedge against possible adverse price movements. If growers and millers could use futures contracts to

⁹ Industries Assistance Commission, *Rural Income Fluctuations*, Report No. 161, AGPS, Canberra, 1978.

'lock into' a particular price, much uncertainty could be removed. However, as the Sugar Corporation acquires all raw sugar produced in Queensland, growers and millers do not have any control over marketing on which to base a hedging position. Indeed, at present any activity by growers and millers involving futures markets or other financial instruments can only be regarded as speculation. The Commission can see merit in the development by the Corporation of any facility which would enable individual growers and millers to undertake hedging to reduce risks associated with adverse movements in the returns they receive for their output. The recommendations outlined in Chapters 5 and 6 of this report would, if implemented, ultimately provide producers with the freedom to choose both the extent and manner in which they engage in activities to stabilise prices and incomes and reduce risks.

It may be appropriate for the Sugar Corporation to offer voluntary stabilising options, such as price pooling or entry to hedging markets, to participating producers. Furthermore, to the extent that the Corporation improves market information and helps to maintain stable access to overseas markets, it can contribute to price stability and improve resource use efficiency.

In its May 1988 Economic Statement, the Commonwealth Government signalled its intention to reduce domestic price support, to restrict price and cost pooling, and to phase out its underwriting role in line with general reductions in assistance elsewhere in the economy. Its March 1991 Industry Statement continued that process. Although the Government has indicated some support for industry-funded underwriting, the Commission has reservations about the benefits of such schemes, particularly if participation is compulsory. Other existing mechanisms may be more advantageous. For example, provisions within the Australian tax system, the RAS and the social security system reduce the impact of fluctuations in both prices and yields on the disposable incomes of cane growers and other farmers. Changes to IEDs and the RAS in 1989, and Family Allowances in 1991, have improved the capacity of these provisions to deal consistently and equitably with fluctuations, from whatever source, in the incomes of farmers.

10 VALUE-ADDING

Raw sugar can be used directly in some industrial manufacturing processes, for example, in the manufacture of citric acid. However, raw sugar is generally an intermediate product which requires refining to remove impurities before it can be used in final consumption or in the manufacture of food and beverage products. Refineries process raw sugar into white (refined) sugar and liquid sugar products.

A number of other by-products of the sugar industry can be utilised in further processing or for other purposes. Molasses is used as a stock food supplement or further processed into products such as treacle and rum. Bagasse (crushed cane fibre) can be used in the manufacture of paper and other paper products or used in the generation of steam and electricity.

10.1 Refining

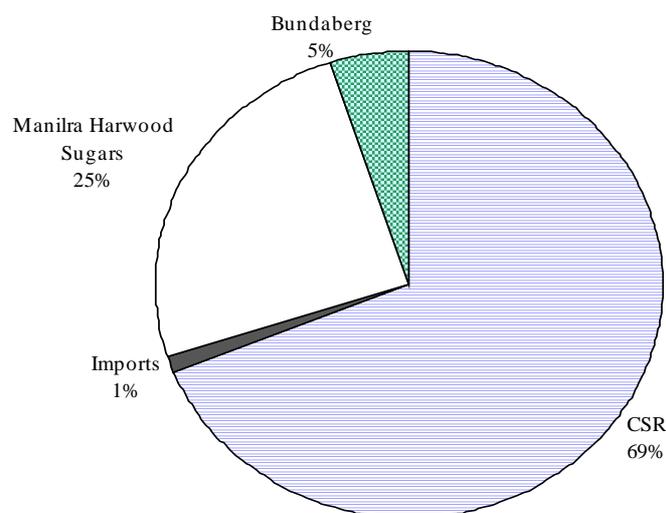
10.1.1 Domestic market

Following the removal of the import embargo in 1989 and the establishment of the Manildra Harwood Sugars' refinery in New South Wales, the nature of the Australian sugar refining industry has changed. Previously the Sugar Board had a monopoly over the sale of refined sugar in Australia. Raw sugar was refined on a toll (contract) basis by CSR and Bundaberg Sugar Company, with the Queensland Government retaining ownership throughout the refining process. At that time, CSR supplied 95 per cent of the domestic refined sugar market with Bundaberg Sugar supplying the remaining 5 per cent. However, since 1989, raw sugar has been sold to the domestic refiners.

Three companies now refine sugar on a commercial basis for resale in Australia, but only for the domestic market. These are CSR, Manildra Harwood Sugars (a joint venture between the Manildra group of companies and NSWSMC) and the Bundaberg Sugar Company (Millaquin) now owned by Tate and Lyle of the United Kingdom. The suppliers of refined sugar to the domestic market are depicted in Figure 10.1. Almost 25 per cent of Australia's raw sugar production (around 820 000 tonnes in 1990-91) is consumed domestically, mostly in the form of refined sugar.

Imports of refined sugar are small. Some 12 500 tonnes (or about one per cent of the domestic market) were imported in 1990-91, valued at about \$7 million. Imports were by some of the major users, essentially to test the viability of importing refined sugar in competition with domestic refiners. The Australian Cane Farmers Association commented that the imports of refined sugar were refined from Australian raw sugar.

Figure 10.1: **Suppliers of refined sugar to the domestic market, 1989-90**



Source: Commission estimates.

CSR has refineries located in all states except South Australia (closed in April 1991) and Tasmania. CSR's Pyrmont refinery in Sydney is also scheduled for closure in late 1992. Bundaberg Sugar has its refinery located in Bundaberg, Queensland.

The new refinery commissioned by Manildra Harwood Sugars in 1989 is located at Harwood near Grafton in New South Wales. Manildra Harwood Sugars obtained 25 per cent of its raw sugar requirements from the Queensland Sugar Board in 1989-90. Major domestic sugar users supported the establishment of Manildra Harwood Sugars' refinery, despite some early teething problems, because of a desire to diversify their sources of supply of sugar. However, now that Manildra Harwood Sugars has been operating for three years, its future position in the domestic market is likely to be largely determined on the basis of the price and quality of its product.

Golden Circle, a statutory authority operating a large cannery in Queensland, commissioned a liquid sugar plant in August 1991 at its Brisbane factory to refine raw sugar for internal use. In its 1990-91 Annual Report, the Sugar Board reported that it had received an increasing number of inquiries during the year from other refined sugar users wishing to explore the possibility of processing raw sugar for use in their manufacturing activities.

Refineries have generally been located so that transport costs from refineries to users are minimised. Transport costs for refined sugar are significantly higher than those for raw sugar as refined sugar must generally be transported either bagged or in specially designed containers that minimise contamination, rather than shipped in bulk. In a paper presented to the 1991 Canegrowers' Convention, Ian Burgess, Managing Director of CSR said that:

Sugar refineries have usually been built in or near large urban centres. The economics of transport dictated this in the past. However, technological advances in the shipment of refined sugar mean it will not always be so.

Refined sugar pricing

Because of the limited competition between refiners on the domestic market, the price of refined sugar is essentially determined by the price at which imported refined sugar is available. The import price of refined sugar consists of the world market price for refined sugar, plus the cost of importing to Australia and the tariff (the duty paid import parity price).

CSR provided information on the current costs associated with importing refined sugar. This suggests that shipping and related costs associated with importing refined sugar free into store (excluding the fob cost and import duty) from the EC are about \$170 per tonne, and from Asia the costs are about \$145 per tonne. Thus, based on a tariff of \$76 per tonne less a discount of 5 per cent for developing countries and a world price (ex Asia) of US15 cents per pound for refined sugar, the duty paid import parity free into store price for refined sugar would be about \$200 per tonne above the world price. On the basis of estimates of freight and port costs supplied by ABARE, the duty paid import parity free into store price for refined sugar would be \$155 per tonne above world price.

SUGA stated that, because of a combination of Queensland and Commonwealth Government policies, members of SUGA have paid at least \$100 per tonne above the free trade price (duty free import parity) for domestically produced refined sugar over the last two years. Based on CSR's estimates of the transport and related costs of importing refined sugar and SUGA's estimate of the effects of Government policies, the duty paid import parity price for refined sugar would be even higher than the Commission's and ABARE's estimates - about \$245 per tonne above the world price. SUGA commented the announced reductions in the import tariff would only reduce the price of refined sugar by \$20 per tonne.

In their submission to the Commission's 1990 inquiry into Statutory Marketing Arrangements, the Australian Soft Drink Association, the Confectionery Manufacturers of Australia and the Ice Cream Manufacturers' Federation estimated that the (then) Sugar Board's pricing powers had the

effect of raising prices of refined sugar, on average, by more than \$100 per tonne. This was estimated to increase the costs of the confectionery industry by over \$20 million annually. Across all sugar users, the cost was estimated at some \$90 million annually.

In contrast, the Sugar Corporation stated that the prices of raw and refined sugar on the domestic market are independently determined; domestic raw sugar prices are determined on the basis of duty paid import parity for raw sugar and the domestic prices for refined sugar are determined by the duty paid import parity for refined sugar. Thus, the Corporation suggests that domestic prices of raw and refined sugar are not necessarily related; that is, there is no fixed refining margin. This is also the situation in the international markets where the refining margin (the difference between the world prices of raw and refined sugar) tends to be volatile.

Domestic prices for refined sugar are currently led by the pricing policies of CSR, within the constraints of import competition. It is in Manildra Harwood Sugars' and Bundaberg Sugar's interests, with refining capacities limited to 25 per cent and five per cent respectively of the domestic market, to set their prices in response to the lead from CSR.

Because of the cost impact of the tariff on the local price of refined sugar, some manufacturers claimed that they are turning toward artificial sweeteners such as fructose, corn syrup and glucose as a substitute for refined sugar. Production of fructose started in Australia in the mid 1980s and sales are now running at some 10 000 tonne per year. Corn syrup is now widely used in the United States. While it is currently not produced in Australia, the feasibility of doing so has been canvassed in recent months. The patent for another artificial sweetener, aspartame (used in Coca-Cola products) ends in April 1993. In view of these developments, there could be increased competition between artificial sweeteners and sugar during the 1990s.

Since the removal of the import embargo and the imposition of tariffs on imported sugar, the domestic price of refined sugar is no longer administratively determined. Movements in the domestic price of refined sugar have basically reflected world prices. At the time the new arrangements took effect, world stocks of sugar were low and world prices for sugar were rising. There was a sharp increase in the domestic price of sugar. As a consequence, the Prices Surveillance Authority received a number of complaints from confectionery, soft drink and other food manufacturers about increases in the price of manufacturer's grade sugar. Following an investigation of the complaints, the Authority stated it was satisfied that the price movements reflected costs and were related to import parity prices. The Authority decided to take no action, but has continued to monitor developments in the industry.

In the Commission's view, given the level of concentration in the refining sector and the absence of significant competition between refiners on the domestic market, it is likely that the duty paid

import parity pricing of refined sugar will prevail. The price of refined sugar could fall below this level if the difference between the price of raw sugar on the domestic market and duty paid import parity price of refined sugar increases the refining margin. This could attract new entrants into the refining sector and increase competition on the domestic market. This could occur if the acquisition powers of the Sugar Corporation were removed and competition between millers for raw sugar sales on the domestic market forced prices to fall towards export parity. Potential competition from alternative sweeteners could also place downward pressure on the domestic price of sugar, particularly in some end-uses.

10.1.2 Export refining

Australia has not exported significant quantities of refined sugar. However, in recent years there have been discussions about the potential to establish a large scale export-oriented refinery in Queensland. Prior to its take over by Tate and Lyle, Bundaberg Sugar commented that:

The potential for refined sugar exports from Australia has been the subject of considerable investigation during the past 18 months. There is a growing level of acceptance that white sugar is the growth market of the future - particularly in the Asian Pacific region. The white sugar premium is at record levels and transport and logistic problems are being addressed by new technology. Two export refining proposals were put forward early in 1990. CSR Limited proposed a very large facility in Townsville to supply both domestic and export markets independent of the industry authority. Bundaberg, in a joint venture with other mills, put forward a proposal for a somewhat smaller dedicated export refinery to operate on a risk sharing basis with the Sugar Board.

In discussing the world sugar outlook and future prices and markets, ABARE in its submission to this inquiry made the following comments:

The transport advantages and low costs of production in the Thai and Australian industries could indicate that they, among other exporters, are the best placed to meet the growing Asian markets. However, many of these developing markets are seeking white, rather than raw, sugar.

Australia at present is not well placed to respond directly to this growth in white sugar trade. Virtually all of Australia's sugar trade is in raw sugar. However, a significant part of the growth in white sugar exports has been met by countries such as China, the Republic of Korea, Singapore and Malaysia, which import Australian raw sugar....

In the absence of an export based white sugar sector, Australia may not fully benefit from future market development and growth opportunities although it will possibly gain indirectly from increased sales to toll refiners such as China, South Korea and Malaysia. Australia's share of world sugar trade is likely to decline if it remains solely a raw sugar exporter.

More recently (October 1991), CSR announced its intention to trial a new technique which will use bagasse to fuel a refining process at its Ayre Kalamia mill. CSR expects to export a sample 20 000 tonnes of white sugar refined by the new technology from Townsville in the first year of operation. The new process requires minimal additional plant and low capital investment. It will use the mill's

energy generation capacity in the off-season when otherwise the mill would be idle. It involves placing a refining module at the mill and utilising bagasse to generate the necessary energy for the refining process in the off-season. Bagasse is a waste from the milling process and its disposal currently presents major problems for many mills.

Although there is evidence of expanding opportunities in export markets in Asia for refined sugar, some factors appear to be hindering the establishment and viability of a large scale export-oriented refining sector in Australia.

First, because of the existing compulsory acquisition and single seller arrangement, potential export-oriented refiners are unable to negotiate on price with the millers of raw sugar produced in Queensland. Negotiation for the purchase of Queensland raw sugar can only take place with the Queensland Sugar Corporation. As raw sugar is acquired by the Corporation and its charter is to maximise the returns to the raw sugar industry, it sells raw sugar on the domestic market at close to duty paid import parity prices. When sugar or sugar products are for export, there are rebate arrangements to compensate for the penalty imposed as a result of the import duty on raw sugar. However, even with compensation arrangements, the price still remains significantly higher than export parity because there are other costs associated with importing sugar (eg transport costs). In the case of refining for export, the price of raw sugar would presumably need to be close to export parity otherwise refining for export is unlikely to be viable. At the Canegrowers Convention in 1991, Ian Burgess, Managing Director of CSR, said that CSR's proposal for an export refinery has been put on hold because of "uncertainty created by the sugar control arrangements in Queensland". Similarly, Bundaberg Sugar criticised the present regulations saying that:

We are of the view that a system of allowing ex-mill sales ... would over time facilitate efficient development of white sugar exports - particularly from those mill areas closest to the developing market in Asia.

Second, the current transport costs of exporting refined sugar to final markets are considerably higher than the costs of exporting raw sugar. Other costs being equal, refiners located in final markets would thus have a significant competitive advantage over a refiner located in Australia, unless Australian refiners were able to offset the transport cost disadvantage by achieving higher levels of efficiency in the refining processes or by obtaining inputs at lower cost.

Third, unless potential export refiners obtain other inputs and services at internationally competitive prices they would be further disadvantaged. Tariffs, although reducing, still apply to much of the materials, plant and equipment required for the establishment of new refineries. Sales tax also applies to some capital items and materials inputs. An increase in the rate of micro-economic reforms is required to reduce the costs of non-traded inputs. Reforms to increase the efficiency of electricity supply would for example, enhance the viability of export refineries (see below).

Finally, the refining margin on refined sugar appears to be extremely volatile reflecting fluctuations in world raw sugar and refined sugar prices which are not always correlated. Thus, investment in export-oriented refining capacity could be regarded as high risk.

While the costs of producing and exporting refined sugar remain significantly higher than overseas competitors, and while exporting raw sugar is profitable, it could be in Australia's and the raw sugar industry's interests to develop an off-shore refining capacity to refine Australian raw sugar closer to emerging market opportunities, or to develop closer ties with refiners in these areas. At present, there does not appear to be anything to prevent the raw sugar industry from doing so, except that individual producers (millers) of raw sugar cannot benefit directly by participating in such arrangements because of compulsory acquisition and the single desk export arrangement for raw sugar.

The experimental refining of sugar for export at CSR's Ayre Kalamia mill has the potential to produce refined sugar at low cost. However, the success of the trial depends on a number of factors. These include the price at which CSR can acquire raw sugar from the Sugar Corporation, the costs of transporting refined sugar to and from Townsville to final markets, the extent to which the enterprise can minimise other costs and on its success in marketing refined sugar. One potential difficulty is that refined sugar is to be shipped in bags and, thus, will have to be shipped via conventional ports rather than through the sugar industry's bulk terminals. Costs associated with physically moving refined sugar across the wharf and loading it are considered high under current waterfront management.

Should this experimental refining prove successful, there would appear to be no reason why other millers could not adopt similar technology and also refine raw sugar for export. One possible additional barrier which other millers might face would be the lack of marketing expertise which CSR and the Sugar Corporation have. However, this could be overcome if CSR, the Corporation or any other trader was able act on behalf of millers in marketing refined sugar.

In its February 1992 Economic Statement, the Government announced a number of initiatives which have the potential to enhance the competitiveness of value-adding activities, including refining. For example, the Government stated that it aims to improve productivity and competition in all areas of port activity and that it will give full and early consideration to the forthcoming report by the House of Representatives Standing Committee on Transport, Communications and Infrastructure on the interface between seaports and land transport. It has also announced its intention to extend its reform program to include a Prices Surveillance Authority examination of land-based charges by shipping conferences in Australian ports and its intention to request that the Industry Commission inquire into port activities and services.

Also, the Government announced new arrangements in the business tax system for an acceleration of depreciation allowances for plant and equipment and certain infrastructure. In addition, the Government has decided to supplement the depreciation changes for a limited period by introducing a development allowance for certain larger scale investments. The development allowance, which will be set at a rate of 10 per cent and be available when plant is first used or installed ready for use, will be modelled broadly on the investment allowance that operated between 1976 and 1985. To be eligible, projects must involve total capital expenditure of \$50 million or more. The allowance will only apply to the plant and equipment component of the investment. In addition, certain eligibility criteria will apply. For example, the projects must be world competitive; there must be no substantial assistance or protection; there must be efficient pricing of inputs under the control of public administration and statutory marketing authorities; and there must be management and industrial relations arrangements which promote the achievement of world best practice.

These new arrangements and allowances should enhance the investment opportunities in all value-added activities, including refining. The cost of establishing an export refinery is likely to exceed \$50 million, but meeting conditions relating to the lack of substantial assistance and efficient input pricing by statutory marketing authorities may be more difficult.

Some of the other value-added activities related to the sugar industry are discussed below.

10.2 Sugar based products

The principal users of refined sugar are the manufacturers of non-alcoholic beverages, the confectionery industry and food processing industries. These industries account for about 80 per cent of Australia's refined sugar requirements. The remainder is sold by retailers for final consumption. Products manufactured by most sugar users compete on the domestic market against imports and, where competitive, on world markets. The extent to which these industries are able to successfully compete on the domestic market depends, in part, on the tariff on competitive imports and on their ability to obtain inputs at competitive prices. Their ability to obtain inputs at internationally competitive prices also affects export capacity.

Domestic food processors claimed that domestic marketing arrangements for sugar add substantially to their costs and unfairly penalise them when in competition with high sugar content imports. The SUGA stated that:

As the closure of Allens' Maryborough plant illustrates, the 300 per cent surge in imports since 1988 has virtually made liquorice manufacture in Australia uneconomic. The imports are coming from sugar exporting countries where manufacturers can obtain sugar at free trade prices.

For sugar based products sold on world markets, manufacturers have obtained some relief from the tariff inflated domestic price of refined sugar. As previously indicated, the Sugar Board/Corporation, in conjunction with CSR and Bundaberg Sugar, has operated an export rebate scheme for sugar incorporated in exported products. Currently, the Corporation gives the rebate on raw sugar sold to the two Queensland refiners, CSR and Bundaberg Sugar. The refiners may subsequently offer export rebates to relevant customers. The rebates are intended to offset the adverse effects that tariffs have on the competitiveness of exported products containing sugar. In 1990-91, export rebates provided by the Sugar Board amounted to slightly over \$5 million. The Manildra Harwood refinery has not offered export rebates to its customers.

The Commission understands that the rebate offered is equal to the developing country tariff applying to raw sugar imports, thereby equating sugar costs to the duty free import price. This price is still higher than the price at which raw sugar is exported from Australia.

In the absence of both the acquisition and the tariff, sugar would be available to value-adding activities at prices below duty free import parity. As such, the competitiveness of domestic value-adding activities in both the export and import-competing sectors would be enhanced.

The Government has recognised the arrangements currently in place for the sugar industry substantially increase the price of sugar used in value-adding activities over that available to producers in competitor countries. For example, in its March 1991 Economic Statement, the Government announced its intention to provide a production bounty to Australian manufacturers of citric acid by fermentation¹, in part, to compensate for the existing sugar marketing arrangements.

While the compulsory acquisition of raw sugar remains, sugar-using industries will continue to be disadvantaged as the domestic price of sugar is likely to remain close to import parity. However, the implementations of the recommendations contained in this report would, in the longer term, result in the removal of the Sugar Corporation's acquisition power and tariff assistance. Consequently, the cost of sugar inputs to value-adding activities would fall, and the competitiveness of sugar using industries would be increased.

10.3 Bagasse utilisation

A major by-product of the milling process is the fibrous residue or bagasse, the disposal of which is a major problem for the millers. About 3.5 million tonnes of dry bagasse is produced each year in the milling process. Some of the bagasse is used to produce steam and generate electricity for use

¹ Bounty (Citric Acid) Bill 1991, Second Reading Speech.

within mills². In some cases, surplus energy is sold to the Queensland Electricity Commission (QEC). Although bagasse is used overseas to produce paper of various grades, liner and corrugated board, there is currently no production of paper products using bagasse in Australia.

10.3.1 Energy generation

Currently, 100 MW of capacity is installed at sugar mills fuelled by bagasse, but this only operates during the crushing season (or about 4 months a year). Some contend that electricity generation is limited to the crushing season because the QEC's purchasing policy makes energy generation uneconomical outside the milling season.

Dr David Hagen of the Australian National University stated that, in Queensland, the QEC exercises inhibitory monopolistic powers in effectively refusing to accept any power generated by independent producers, particularly the sugar mills. It is suggested that QEC sets the buyback price of electricity so low as to make it commercially impossible to generate electricity to sell to the grid, mainly to protect its own generation interests.

Dr David Hagen stated:

...price of 2c/kWh paid by the Queensland Electricity Commission is an example of current monopolistic government imposed barriers to renewable energy in Australia where the buyback is set at only the fuel cost of displacing coal.

- The buyback rate of 2c/kWh is substantially less than the average generation cost of fossil fuels of about 4c/kWh as shown in the Electricity Supply Association of Australia's annual report.
- This low buyback rate ignores the very high costs to society of about 4c/kWh for generating electricity.

In a submission to a recent Commission inquiry on Greenhouse Gas Emissions³, the Sugar Research Institute stated that sugar mills could play a greater role by supplying the grid and, by replacing output from coal fired plants, could reduce carbon dioxide emissions.

In a recent paper presented by Kaneff and Hagen⁴ it was stated:

² A study which was issued by the World Bank Industry and Energy Department identifies several possible ways by which surplus bagasse could be used to generate electricity for sale to grids. - *Identifying the Basic Conditions for Economic Generation of Public Electricity from Surplus Bagasse in Sugar Mills*, Energy Series Paper No 34, Reprinted April 1991, (Originally Published in October 1983).

³ Industry Commission, *Costs and Benefits of Reducing Greenhouse Gas Emissions*, Report No 15, November 1991, AGPS.

⁴ Kaneff, S. & Hagen, D.I., *Sugarcane and Solar Thermal Power Systems*, Solar 1991 Conference, Energy for a Sustainable World, Australian & New Zealand Solar Energy Society, Adelaide, SA, 5-7 December 1991.

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- Efficient co-generation from the delivered bagasse (plus the other cane residues) with efficient mills could generate over 10 percent of all the electricity generated in Australia or 60 percent of electricity in Queensland and still meet all mill process heat needs.
 - Sugar mills could increase their gross revenue [at current production levels] by up to \$700 million per year or over 50 percent of sugar revenues by converting to efficient plants, gasifying their bagasse, and generating electricity in modern aeroderivative or combined cycle turbines (using the rest of the sugarcane biomass or natural gas to generate power in the off-season).

The Australian Sugar Milling Council endorsed the broad thrust of Dr Hagen's submission. However, it indicated that the estimate of the potential could be optimistic, particularly as the technology involved could still be considered to be in the development stage.

CSR is also in broad agreement with the submission by Dr Hagen, but is not as optimistic with regard to the scope for power generation. CSR considers the maximum power output may be limited to 120kWh/tonne of cane compared with the figure of 460 kWh/tonne of cane quoted. The difference is attributable to two factors; first, the technology required is in its infancy and, second, year round generation would require supplementary fuel such as coal.

In a submission to a recent Commission inquiry into Energy Generation and Distribution⁵, the Queensland Government noted that QEC buys electricity from private suppliers:

... on the basis of its [QEC's] assessment of the costs it avoids by purchasing such electricity. In the cases where electricity is supplied only as and when available, these savings are limited to fuel costs, but if a private operation is able to guarantee to operate to an agreed schedule, additional payments are made on account of capital costs of generating plant which may be notionally avoided or deferred because of the purchase capacity.

During the Commission's inquiry into Energy Generation and Distribution, a number of participants alleged that the prices at which electricity authorities throughout Australia are prepared to purchase electricity from private generators for re-sale are unrealistically low. However, in addressing this issue, the Commission indicated that, to some extent, low buy back prices may have reflected high levels of surplus generating capacity which existed in most electricity authorities during the 1980s. Mention was also made of legislative barriers to competition that provide state/territory government owned electricity authorities with the sole right to supply electricity for public sale in their region. This factor, coupled with the lack of competition from substitute energy sources in many electricity markets (eg street lighting and urban rail transport), has reduced the pressures on publicly owned authorities to minimise supply costs. In turn, this has reduced the incentive for government utilities to substitute privately generated electricity for in-house capacity where it is cost effective to do so.

⁵ Industry Commission, *Energy Generation and Distribution*, Report No. 11, May 1991, AGPS.

To improve the efficiency of electricity supply, the Commission proposed a range of measures encompassing the breaking up of the existing government electricity monopolies, privatisation of some parts of the industry and the corporatisation of the remaining publicly owned entities. If implemented, these measures would considerably increase the level of competition within the industry and provide a strong incentive for suppliers to acquire electricity from the cheapest available source. In these circumstances, both the demand and price for power from private generators, such as sugar mills, would almost certainly increase.

Sugar mills and other potential generators/co-generators of electricity could also benefit from the Commission's recommendation that electricity transmission grids and distribution systems be operated on an 'open access' basis. This would require that, subject to certain guidelines (eg regulations covering safety matters), any party could have access to the electricity transmissions and distribution systems. This would permit private generators to sell directly to users. For example, it would permit CSR mills to sell to adjacent sugar growers, to other electricity users or to supply electricity for use by CSR establishments located in other parts of Queensland engaged in other forms of commercial activity. Such an arrangement would provide a means by which potential generator/co-generators could trade in electricity without having to negotiate buy back prices with electricity authorities.

Agreement to provide open access to state electricity grids was accepted at the July 1991 Special Premiers' Conference as part of an agreement to form a 'national grid' linking all eastern and southern states. It was also decided to develop a protocol to cover the operations of a national grid for consideration at a later date. A draft of the protocol was released in December 1991. While recognising that open access should ultimately be provided, the draft would not provide private generators or users access to the grid until an unspecified 'later date'.

In its February 1992 Economic Statement, the Government announced that it would contribute up to \$100 million to strengthen existing interstate linkages, conditional on the formation of a separate National Grid Corporation to own and operate the transmission infrastructure in southern and eastern states. This initiative should increase the likelihood of the development of a competitive market in electricity and facilitate participation in electricity generation by private generators, including sugar mills.

10.3.2 Other uses

As reported in the Commission's report on Pulp and Paper⁶, bagasse is pulped in many countries including South Africa, Brazil, Cuba, India, Indonesia, China and Taiwan. In 1987, an estimated 93 bagasse pulp mills were operating at output capacities of 30 tonnes per day or more.

⁶ Industry Commission, *Pulp and Paper: Bleaching and the Environment*, Report No. 1, May 1990, AGPS.

Bagasse fibres are short and comparable to those of hardwood. About 40 per cent of the raw bagasse comprises pith which produces a low strength paper with inferior paper properties. Bagasse pulp must be depithed to minimise the use of pulping chemicals. Depithed bagasse pulp is suitable for tissue papers and other papers requiring dense, low porosity sheets.

In a submission to the Pulp and Paper inquiry, Queensland Bagasse claimed that Australia is essentially the last of the major sugar producing countries which does not exploit its bagasse. The company has proposed a 50 000 tonne pulp mill, costing \$150 million, to be sited in northern Queensland. It would produce, using a soda pulping process, both bleached and unbleached pulp for the export market. Bleaching would involve either chlorine dioxide or a non-chlorine bleaching agent. Though the pulp produced would not have the strength or brightness of equivalent wood pulps, it could be blended with wood pulp in proportions up to 60 per cent, as already done in other parts of the world.

The Mackay Sugar Co-operative indicated that mills have been trying for many years to find alternative uses for surplus bagasse, ranging from stockfeed to particle board. To date, no financially viable project has been developed. It said, however, that it is giving serious consideration to a proposal to enter into a joint venture with an Australian company to manufacture pulp from bagasse.

A 1988-89 proposal by CSR for a bagasse pulp mill in the Burdekin irrigation area is still on hold. The proposal is similar to that of Queensland Bagasse. The mill would have a production capacity of 50 000 tonnes of chlorine bleached and unbleached pulp. To provide enough raw material for a pulp mill producing 50 000 air dry tonnes per annum, the bagasse from three or four sugar mills would be required -- such a mill would need to be centrally located near a cluster of existing sugar mills.

At the Pulp and Paper inquiry, CSR said that, although it was technically viable, the project was on hold because of the absence of domestic markets, international market uncertainty and the environmental problems of chlorine bleaching. It said:

In the absence of a satisfactory domestic market, [CSR] will continue to monitor the situation, particularly the reaction of pulp prices to new pulp manufacturing capacity expected to come on-stream in 1991-92.

In its report on Pulp and Paper, the Commission concluded that prospects for pulp and paper made from non-wood feedstocks appear limited on the domestic market. This was because none of the large pulp and paper companies sees any advantage in pulping non-wood feedstocks. Some of these companies have their own extensive forestry interests, and there appears to be a surplus of pulpwood available from State forestry commissions. As a result, if pulp and paper were to be produced in Australia from non-wood feedstocks, they may have to be exported.

11 EFFECTS OF POLICY CHANGES

11.1 Domestic reforms

Several influences of the regulatory system are identified in this Chapter as constraining the industry's efficiency. Their effects are estimated using modelling techniques. The regulatory influences simulated are:

- (a) the limits imposed on the size of the industry by the assignment system,
- (b) the constraints on exploiting economies of size at the farm level, due mainly to the difficulty of transferring assignment;
- (c) the higher domestic prices made possible by the tariff and the acquisition policy in Queensland.

For comparison, simulations of the effects of reforms in other areas of the Australian economy, and of reform of sugar industry policies in other countries are also presented.

The model used for the domestic simulations is ORANI-FOOD. Although its database has not been updated and still relies on 1980-81 information, ORANI-FOOD was chosen for this inquiry because it is better suited to the analysis of reforms within the sugar industry than standard ORANI. Not only are cane-growing, sugar milling and sugar refining separately identified in ORANI-FOOD, but also the model incorporates a detailed representation of the agricultural and food processing sectors generally. Details of the model are presented in Appendix G.

General equilibrium models like ORANI-FOOD are not suited to analysing transition processes. Because of this, the question of how to move from the current environment to a less regulated one, as well as the costs associated with such a move, are not covered. These issues were discussed in Chapters 5 and 6.

On 17 September 1991, the Commission held a modelling workshop in Brisbane, presenting its preliminary analyses of the above issues. Modelling work was also presented by ABARE and the Centre for International Economics. Comments of participants were taken into account when preparing the Commission's reports.

The differences between the analyses reported in this Chapter and in the workshop paper mainly concern the domestic reforms considered. First, potential cost savings from lower initial values for sugar land have not been included in these simulations. The main reason for this is the uncertainty of the direction in which land values will initially change. Second, the responsiveness of the demand for Australian sugar in ORANI-FOOD to the world price of raw sugar was set relatively low (an export demand elasticity of -5) so as to be consistent with the international model used to assess the effects of other countries' protection (Appendix G).

11.1.1 Feasible improvements

The major production constraint imposed on the sugar industry by the current institutional arrangements is the limit on the amount of cane that can be grown. A clear indication that more sugar would be produced in a deregulated environment is that the administratively set expansions in assigned areas have, to-date, been heavily over-subscribed.

In 1991, a year of low world prices and drought, the land sought by applicants was equivalent to at least a 10 per cent expansion, when only 2.5 per cent was made available. In the previous year, when expansion was set at 8 per cent, the applications were five times higher in the Proserpine and Herbert River areas. They were double the set 8 per cent in the Mackay area, where around a third of Queensland's cane is currently grown. Details of the extent of over-subscription are presented in Chapter 5.

One manifestation of the scarcity of land approved for cane-growing is that, in most sugar-growing regions, a premium is paid on assignment. In areas where major expansion is possible, such as the Burdekin, Proserpine and Herbert River, the value of land with assignment is generally above similar land without assignment. In recent years the premium has varied between \$ 1000 and \$3000 a hectare. The premiums have also varied across regions (Chapter 5).

The above suggests that, if the constraints to entry, location and rationalisation were removed, the sugar industry would expand significantly, though it is not clear at what pace. Removal of constraints on location and amalgamation would facilitate formation of larger farms, with consequent efficiencies from lower per unit production costs through exploitation of economies of size.

The reforms modelled are described below.

Land expansion

Estimates of the extent to which available land would be taken up for cane-growing vary. The Sugar Industry Working Party reported that there was additional land suitable for cane-growing equivalent to a 50 per cent expansion in the area of land already assigned.¹ The Queensland Department of Primary Industries estimated a greater potential for expansion (Table 11. 1).

The potential for expansion varies between regions. Some mill areas are effectively landlocked, with little room for expansion, while others have significant areas that could be used for the production of sugar cane. Over half of the additional land identified as being suitable for cane-growing is located in the Burdekin and Herbert River areas (Table 11. 1).

¹ Sugar Industry Working Party, *Report to the Queensland Minister for Primary Industries*, Brisbane, 1990.

Table 11.1: Availability of land suitable for cane-growing, 1990

<i>land</i>	<i>Number Of</i>	<i>Total area</i>	<i>Additional</i>
Mill Area	growers	assigned	available ¹
		ha	ha
Northern	1 404	83 799	59 000
Burdekin/Herbert	1 334	85 644	134 000 ²
Mackay	505	110 059	33 232
Southern	1 429	83 196	20 884
State Total	5 672	362 699	247 116

¹ Queensland Department of Primary Industries estimates. These are considerably higher than estimates by the Queensland Cane Growers' Council and by the CSR/CIE - see Centre for International Economics (1991, p. 33). ² Includes the 94 000 ha estimate for the Herbert and the 40 000 ha lower bound estimate for the Burdekin (assuming minimum irrigation development).

Source: Sugar Industry Working Party (1990), Appendix 8.

Judging by the extent of over- subscription for the 1990 and 1991 assignments, expansion of the industry is likely to remain constrained for many years despite announced increases in assignment.

For the modelling work it was assumed that, if cane-growers were free to respond to market incentives, land under cane would expand by 30 per cent. A simulation assuming a 15 per cent expansion was also carried out.

The practice of granting increases in assignment on a pro-rata basis to existing assignment holders has encouraged the use of marginal land in existing cane-growing regions at the expense of more suitable land in new areas. Restrictions on the transfer of assignment between mill areas mean that growers in landlocked areas are unable to use their increased assignment in another mill area. As a consequence, growers have an incentive to move onto more marginal adjacent land, rather than lose assignment.

The Sugar Industry Working Party estimated that some 5 per cent of assigned land was marginal or unsuitable for cane-growing.² For this analysis it was assumed that, in a more flexible environment, production from the 5 per cent of marginal areas would shift to the new areas (eg Burdekin, Herbert River, Proserpine).

Simulating the removal of the assignment system requires, in the model, the shifting of land into cane-growing away from other agricultural uses. In the simulations the Commission increased the area of land available to ORANI-FOOD's cane-growing industry by 30 per cent, with offsetting reductions in the area available to alternative agricultural activities. The movement of activity from marginal land in existing regions to the new areas has been modelled as a further expansion of 5 per cent in the new areas and an equivalent decline in existing areas.

² Ibid

At the Commission's workshop, some participants expressed concern about the ability of the industry to expand by 30 per cent due to the difficulties of financing an expansion of that magnitude. However, the extent of over-subscription of assignment in recent years suggests that existing and potential cane-growers consider that they would be able to finance expansions well beyond those set for 1990 and 1991.

The timeframe of expansions is not specified in the model. The rate at which land suitable for cane-growing is taken up in practice will depend on producers' assessment of the short and long-term price prospects for sugar. However, while a crucial commercial issue, world price prospects are not relevant to the simulations presented. This is because the simulations are only concerned with the effects of the policy changes modelled, keeping all other economic factors, including the world price, unchanged.

Lower production costs

Per unit production costs vary significantly across farms, some operations being run more efficiently than others. For example, production costs on marginal land are likely to be considerably higher than the average and the costs of recent entrants to the industry would need to be relatively low to make up for receiving the lower pool 2 price and, for some, the costs of having to lease assignment. This suggests that there is significant scope for productivity improvements on many established farms. The Commission has attempted to assess the extent to which per unit production costs vary with farm size and between farms of the same size. However, there was insufficient data on cane farm cost structures from the usual official sources, such as ABARE and the ABS.

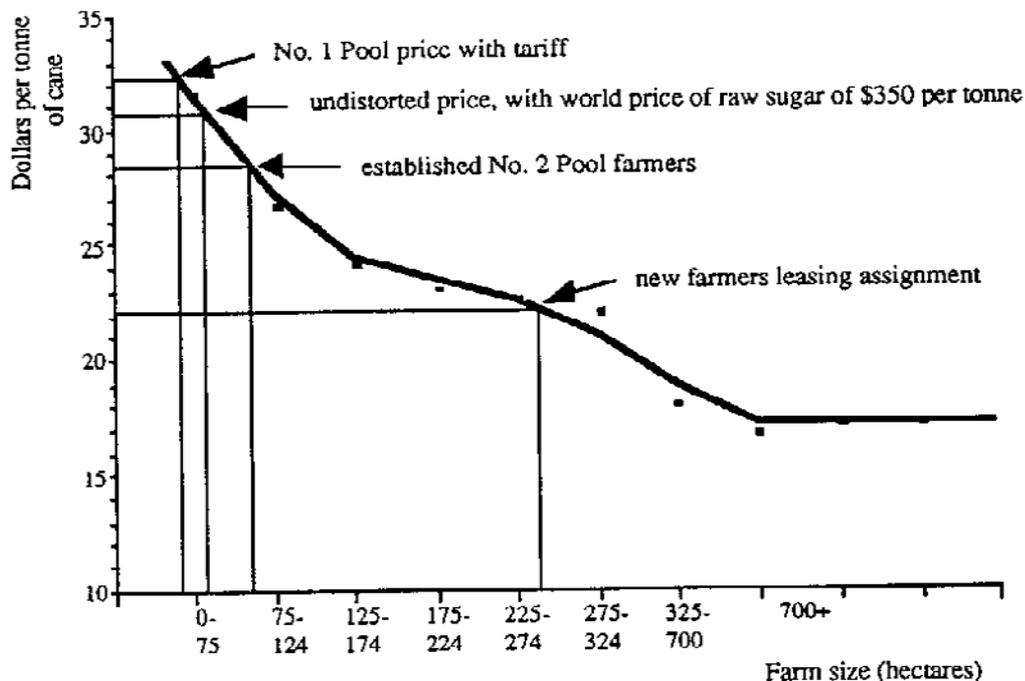
In its submission Davco alluded to the productivity improvements that could be achieved through greater use of broad-area farming techniques. Davco described how it managed to achieve significant cost reductions on its 570 ha Burdekin region cane farm. It explained how, by setting out each paddock as a one kilometre square -- so as to minimise the time and quantity of labour required in irrigating, cultivating and harvesting -- it achieved significant cost reductions.

Based on figures produced in Sedgwick, Davco estimated the potential cost savings from economies of size (Figure 11.1).³ In the calculations, savings arose because employed and imputed owner-operator labour, and depreciation on capital fell on a per tonne basis as farm size increased. The costs associated with fertilisers, fuels, levies, repairs, irrigation, harvesting and interest on capital borrowing were assumed to be constant on a per tonne basis, irrespective of farm size.

³ Sedgwick, KX, *Estimates of Profitability of Burdekin Irrigation Farms*, Queensland Department of Primary Industries, Information Series QI 87011, Brisbane, 1990.

Figure 11.1 indicates that in 1987 the cost of production for the average 65 ha cane farm in Queensland was around \$30 per tonne. For farms of around 300 ha or more, the unit costs of production were estimated to be around \$20 per tonne -- a saving of one third. These estimates are in line with the findings of O'Sullivan, who calculated that cost savings of around 30 per cent are possible by increasing farm size from 100 ha to 300 ha.⁴ Actual variations in per unit costs across farms suggest that cost differences of around 30 per cent are currently occurring in the industry. For example, growers who lease assignment at a cost of 15 per cent of gross returns and are also receiving the 12 per cent lower pool 2 price must, of necessity, operate with a significantly lower cost structure (up to 30 per cent) than the marginal grower who receives pool 1 returns.

Figure 11.1: Average cost of production, 1987



Source: Submission by DAW0 (No. 24, p. 22).

The Commission has assumed for modelling purposes that the potential 30 per cent land expansion and the 5 per cent relocation of marginal lands in Queensland would result in large farms in the new areas, while the average farm size would remain unchanged in existing areas. Cost reductions of around a third would thus result for 26 per cent of the cultivated area Australia-wide. This is equivalent to a cost reduction of around 9 per cent when averaged across all cane farms within Australia. The cost reductions would arise from adoption by more growers of best practice cane growing, including exploitation of available economies of size.

⁴ O'Sullivan, M. H., *Sugar Cane: Biological and Environmental Considerations, Alternative Uses and Economies of Scale*, Contributed paper presented to Agricultural Economics Society Conference, Brisbane, 12-15 February, 1990.

In practice, even in an unconstrained environment not all new farms would be large. Offsetting this, however, would be changes in traditional cane-growing regions, a less constrained environment making it easier for existing farms to amalgamate and thus reap the benefits of economies of size. Thus, it is unclear whether the 9 per cent cost reduction simulated is an over or under-estimate of what might actually occur Australia-wide.

Removal of domestic price distortions

The tariff, together with acquisition and the single seller arrangements in Queensland, allows the raising of the domestic price of raw sugar above the price at which the majority of raw sugar is exported. The maximum price that can be charged on the domestic market, while still keeping out imports, is the landed duty paid price of imported raw sugar. With no tariff, and in the absence of acquisition, competition for the domestic market between mills would be likely to reduce the domestic price of raw sugar close to export parity.

For refined sugar it is unclear whether, in a deregulated environment, the industry would remain import competing or become a significant exporter. For the simulations it was assumed that the industry would remain import competing. The benchmark price for calculating the domestic price distortions was thus the duty-free import parity price for refined sugar.

The domestic price distortions considered in the simulations are the developing country rates calculated for 1991-92 (28 per cent of the export parity price for raw sugar and 7 per cent of the import parity price for refined sugar). The effects of the 1989-90 estimate (38 and 13 per cent) and the 1992-93 estimate (23 and 4 per cent) are also considered. Details are in Workshop Paper No. 3, 'Assistance to the Australian Sugar Industry', available from the Commission on request.

There is some debate as to whether the estimate for raw sugar is too high, given that the domestic price may not be set at the maximum allowed by the tariff. However, a major conclusion of the simulations is that the effect of removing the tariff by itself is small compared with that of other possible reforms. Such a conclusion would not be altered if the estimated values of the domestic price distortions were lowered.

11.1.2 Results of simulations

The following changes to the current system were simulated:

- (a) land expansion and on-farm productivity improvements: a 30 per cent land expansion plus a 9 per cent reduction in on-farm costs estimated to be available through exploitation of economies of size. The cost savings were simulated as a uniform productivity improvement arising from improved use of all farm inputs; and

- (b) price reforms: the 28 per cent price gap between the domestic and world prices for raw sugar, and the 7 per cent gap for refined sugar estimated for 1991-92 were removed.

The results of the simulations are summarised in Table 11.2.

Table 11.2: **Long-run effects of reforming the Australian sugar industry**
(per cent change)

	<i>30% land expansion & 9% on-farm productivity improvement (a)</i>	<i>price reform¹ (b)</i>	<i>total (c) = (a) plus (b)</i>
Economy-wide result			
Real GDP	0.1	0.0	0.1
Aggregate real consumption	0.1	0.0	0.1
CPI	0.4	-0.1	0.3
Sectoral output levels			
Agriculture	1.0	-0.1	0.9
Mining	-1.6	0.0	-1.6
Manufacturing	0.2	0.0	0.2
Services	0.0	0.0	0.0
Sugar industry results			
• output			
- raw sugar	35.9	-2.4	33.5
- refined sugar	0.0	0.2	0.2
• exports			
- raw sugar	44.2	-3.0	41.2

¹ The 28 per cent domestic price distortion on raw sugar and 7 per cent on refined sugar, corresponding to the current \$76/t specific tariff, is removed.

Source: ORAM-FOOD simulations.

The effects of the land expansions combined with productivity improvements -- simulation (a) -- are estimated to lead to real GDP being 0.1 per cent higher than otherwise. However, since the early 1980s where the model's database is based, raw sugar output as a share of GDP declined from around 0.60 to 0.34 of one per cent. As the value of the industry's output declines relative to GDP, the economy-wide impact of reforms in the industry is expected to be proportionally lower. The current economy-wide gains in terms of higher GDP are thus likely to fall between 0.05 and 0.1 of one per cent of GDP, worth between \$200 and \$400 million per year in 1990-91 dollars. Unlike the economy-wide results, the industry-specific results are not affected by a change in the relative size of the industry.

At the draft report hearings some participants expressed the view that the economy-wide benefits simulated by the model would occur anyway with the expansions in assignment already announced and that no further reform was required. However land expansions by themselves, without improvements in the cost structures of cane farms, do not lead to economy-wide gains. This is because the resources needed to support the expansion in cane-growing are drawn from other efficient activities (such as beef cattle). These industries then contract, offsetting the economy-wide

benefits of the expansion in the sugar industry. It is the productivity improvements made possible by deregulation of the sugar industry that allow an improvement in GDP and the living standards of Australians, by using less resources per unit of sugar output, and not the 30 per cent land expansion for sugar alone.

In simulation (a) the higher level of economy-wide activity, stimulated by the expansion of a more productive cane-growing industry, leads to upward pressure on wages and inflation. The CPI was estimated to increase slightly, by 0.4 per cent. Raw sugar output and exports were estimated to be 36 and 44 per cent higher, respectively. In 1990-91, a 44 per cent expansion in exports would have been worth \$375 million.

The cost reductions resulting from on-farm productivity improvements have been modelled as an equal improvement in the efficiency of use of all inputs. One implication of this is that average cane yields are simulated to increase (land expands by 30 per cent while cane output expands by 36 per cent, leading to an implied 4.5 per cent yield increase). There are likely to be forces operating in both directions on average yields following deregulation. With the relaxation of land constraints there would be less pressure for farmers to use fertilisers and other non-land inputs to increase yields. However, the most marginal land currently being used may no longer be planted to cane and expansions of cane-growing land would most likely be concentrated in newly available irrigated areas, such as the Burdekin. Since yields in these areas are well above the current Queensland average, their expansion would put upward pressure on the average yield achieved by the industry.

The expansion in output would not be evenly distributed across regions. Based on the assumption that the regional distribution of the expansion would be broadly proportional to the additional land available in each region, production would expand in the Burdekin and Herbert River by over 80 per cent, in the Northern region by close to 40 per cent, and in the Mackay and Southern regions by over 10 per cent (Figure 11.2).⁵ This is broadly in line with the findings of the Centre for International Economics, which used an ORANI based model with Australia's sugar industry disaggregated into five regions.⁶ In its 'unconstrained expansion' simulation, the Centre predicted output expansions of 36 per cent in the North, 119 per cent in the Burdekin, 50 per cent in the Central region and 25 per cent in the South (Table A2).

Although Australia's sugar industry is simulated to expand overall, not all cane-growers are expected to benefit. In its workshop paper ABARE predicted, using its cane farm model, that landlocked farmers would be worse off, receiving slightly lower prices for their cane, with most of the benefit flowing onto non-landlocked farms. ABARE predicted a 32 per cent increase in the average net farm revenue of non-landlocked farms.

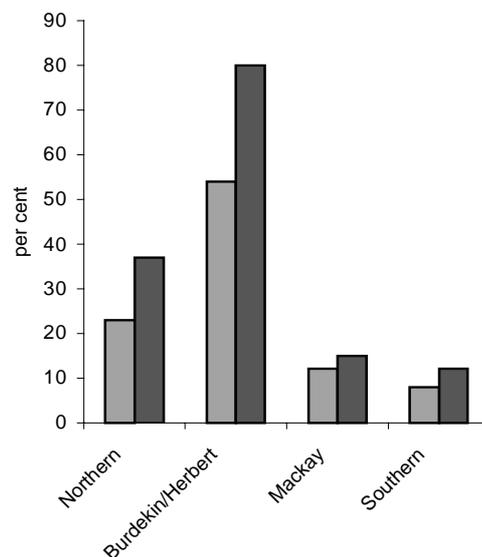
⁵ Since the policy changes do not affect New South Wales growers, no change was assumed for New South Wales.

⁶ Centre for International Economics, *Sugar Winning in a Corrupt World Market*, report commissioned by CSR Limited, 1991.

Removal of the domestic price distortion -- simulation (b) -- would lead to a smaller sugar industry, with raw sugar output and exports declining by around 2 and 3 per cent, respectively. Lower sugar prices on the domestic market would advantage sugar-using industries, with exports of the Preserved fruits and jams and Confectionery and cocoa industries estimated to increase by 2 and 4 per cent, respectively (Appendix G). Lower sugar prices on the domestic market would also result in a small reduction in the CPI (0.1 per cent). Because of the small share of sugar in total consumption within Australia, the economy-wide benefits would be small relative to the gains which could be realised from removing the regulatory controls over production.

The simulations suggest that significant gains are unlikely to result from price reforms alone. However, significant benefits would be gained from reforming the system of production and market controls that are in place largely to support the current pricing arrangements. The overall effect of cane-land expansion, productivity improvements and price reform which could follow from the Commission's recommendations are given in the third column of Table 11.2.

Figure 11.2: **Regional distribution of the 35.9 per cent output expansion**



■ distribution of additional land available, by region 1
 ■ per cent increase in production, by region, from 30% land expansion with 9% productivity improvement 2

¹ Based on data presented in Table 11.1. ² Calculated on the assumptions that the output increase estimated by the model would be distributed across regions in the same proportion as the additional land available, and that total output is distributed across regions in the same proportion as the total assigned area (see Table 11.1)

Source: Simulation (a) in Table 11.2

Two additional simulations were carried out. In relation to simulation (a), a 15 per cent land expansion was coupled with a 6 per cent reduction in on-farm costs. In relation to simulation (b) use was made of estimates of the 1989-90 price distortions (38 and 13 per cent for raw and refined sugar, respectively) and the 1992-93 estimates (23 and 4 per cent, respectively). The results of these supplementary simulations are presented in Appendix G.

There are a number of reasons why the results of the simulations may represent an over or under-estimate of the potential benefits from reform. First, in the absence of the assignment system, sugar land may expand by less than the assumed 30 per cent. However, even if it only expanded by 15 per cent, the economy-wide gains from the on-farm productivity improvements that would become possible by a less constrained environment would still be significant (Appendix G). Second, in carrying out the simulations, not all possible gains from reform have been accounted for. For example, improvements that would become possible in

harvesting, in the transport of cane and in its processing, as well as the economies of size in the existing cane-growing regions that are likely to occur once constraints on the location and amalgamation of farms are removed, have not been modelled.

In summary, the key findings are that:

- significant benefits would arise from removing regulations which constrain production and support the raw sugar and cane pricing arrangements. Removal of the tariff alone would have relatively little direct impact; and
- the 9 per cent on --farm productivity improvement resulting from a more flexible industry allowed by the freeing up of regulations would provide considerable industry-wide benefits (36 per cent increase in output leading to \$375 million worth of additional raw sugar exports annually) and economy -- wide benefits (0.05 to 0.1 per cent increase in real GDP, worth between \$200 and \$400 million annually).

11.2 International reforms

The purpose of the international simulations reported in this Section is to assess the implications for Australia of various reforms in world sugar trade. The analyses have been prepared in response to section 3(a) of the terms of reference which requests the Commission to consider, amongst other things, the international marketing environment for sugar.

Several publicly available models can be used to analyse the effects of international sugar reform. Most cover all major agricultural commodities. One exception is SUGABARE, developed by the Australian Bureau of Agricultural and Resource Economics (ABARE), which focuses on the world trade of sugar only.⁷ For this report, the Commission has mainly used SUGABARE. For purposes of comparison, the Commission also made use of its multicommodity World Food Trade (WFT) model. Both are described in Appendix H.

SUGABARE and the WFT model were used to assess the extent to which other countries' protection raises or lowers the world price of raw sugar. ORANI-FOOD was then used to estimate the implications for Australia of the changes in world sugar prices that would be likely in a liberalised trading environment.

11.2.1 Other countries' protection

There appears to be a general perception that world sugar prices have been depressed as a result of other countries' sugar policies. Most submissions commented on the high protection offered to the sugar industries of key OECD economies. The OECD group, however, accounts for only a relatively small proportion of world raw sugar production and consumption. Policies of both OECD

⁷ Australia Bureau of Agricultural and Resource Economics, *The Economic Consequences of International Sugar Trade Reform*, Discussion Paper 89.7, AGPS, Canberra, 1989.

and non-OECD economies could therefore have a major influence on world sugar markets. Among non-OECD economies, Brazil, China, India, Cuba and the USSR are of particular importance due to the magnitude of their production. Thailand, which is currently challenging Australia as the third largest exporter of sugar, should also be considered. The nature of key OECD and non-OECD economics' policies is described in Appendix B.

Changes in a number of countries' sugar policies have the potential to significantly influence world sugar prices. In some instances, such as in OECD economies, reforms would place an upward pressure on world prices. This is because governments in these economies tend to subsidise sugar production and tax its consumption. In most non-OECD countries self-sufficiency and foreign exchange concerns dominate. Reforms in these countries would generally place a downward pressure on world prices. The direction of the effect of global policy change on world sugar prices is thus an empirical issue.

Assistance in OECD economies

Protection of most agricultural commodities in OECD countries is high and, despite a great deal of multilateral negotiation, there has been little progress in lowering assistance. For sugar, the pattern is similar. In 1990, the producer subsidy as a proportion of the world price ranged from 15 per cent in Australia to 400 per cent in Japan. This latter figure means that; in Japan, growers received prices for their beet that were around 400 per cent higher than the world price for beet. The average producer subsidy for OECD economies was close to 100 per cent. Also, a high proportion of producer support was financed directly by consumers (Table 11.3).

Part of the simulations of sugar trade reform is the removal of producer support in OECD economies. Because the issue addressed here is the effect of other countries' policies on Australia, the price distortions for Australia have not been removed in the simulations. Reforms to the Australian institutional arrangements were discussed in Section 11. 1.

Table 11.3: **Sugar industry - subsidies to producers and taxes on consumers, ^{1,2} 1990, OECD economies (per cent)**

	<i>Producer subsidy rate</i>	<i>Consumer tax rate</i>
Australia	15	12
European Community	99	99
Japan	403	142
United States	32	5
OECD average	99	94

¹ Subsidy and tax rates were calculated as refined sugar equivalents, ² The subsidy and tax rates were measured at the farm level and Presented using the OECD's nominal assistance coefficients (NAC). The rates can be expressed as: (PSEu/PW)100 and (CrEUM)100, where PW is the border price (in national currency), PSEu the per unit producer subsidy equivalent and CTEu the per unit consumer tax equivalent. The producer subsidy rate is similar to the nominal rate of assistance used by the Commission. ³ Provisional.

Source: OECD(1991) (Annex W).

The effect of policies within the OECD group is to depress world sugar prices below what they would be in a 'free-trade' environment. Estimates of the extent to which reform in OECD economies would be likely to raise world prices are presented in sections 11.2.2 and 11.2.3.

Assistance in non-OECD economies

In non-OECD economies the focus tends to be on self-sufficiency and foreign exchange concerns. Because little information is available on the policies of many of these countries, reforms in non-OECD economies are much harder to define and simulate. Some attempts can, however, be made to assess the changes in the world price of raw sugar that would be likely to follow reforms in these economies.

If Brazil were to adopt a more market-oriented approach towards its fuel policy, it would lower ethanol subsidies and ease export controls on raw sugar. This is because ethanol is not a cost-effective alternative to petrol, given current crude oil prices (see Borrell).⁸

At one extreme, if all cane grown in Brazil were used to produce raw sugar (rather than being diverted to ethanol), the increases in Brazil's production would be equivalent to a rise of around 11 per cent in the world's raw sugar production. This would correspond to a ten fold increase in Brazilian exports. For this report it was assumed that, in the medium term, Brazil would place less emphasis on its ethanol policies and that this would allow a third of the cane allocated to ethanol production to be diverted to the production of raw sugar, leading to a 50 per cent increase in Brazilian raw sugar production.⁹ In 1989, this would have amounted to a 400 per cent increase in Brazil's raw sugar exports.

Policies in Mexico also severely constrain sugar production. Borrell notes that in Mexico state agencies affect the cultivation and milling of cane, influence the operations of the sweetener using sector and govern virtually all aspects of pricing¹⁰

At the Commission's modelling workshop, the question arose as to whether raw sugar production in non-OECD countries would actually expand if government policies were relaxed. The proposition was that these economies may be inefficient sugar producers and that their cane-growers may be heavily subsidised, in an indirect way, by the complex web of regulations currently in place.

⁸ Borrell, B., *How a Change in Brazil's Sugar Policies Would Affect The World Sugar Market*, Policy Research and Extension Affairs, Working Papers, International Trade, International Economics Department, The World Bank, April, WPS 522, Washington D.C, 1991.

⁹ The figure of a third for diversion of the cane allocated to ethanol production was chosen for technical reasons. It was the greatest proportion diverted that SUGABARE was able to handle. This is because the model tends to show unrealistically large production responses to price changes outside the range of the historical data on which it is based, due to the exponential terms in its production equations (Appendix H).

¹⁰ Borrell, B., *The Mexican Sugar Industry, Problems and Prospects*, Working Papers, International Trade, International Economics Department, The World Bank, February, WPS 522, Washington D.C, 1991.

The Commission investigated this issue and found that key non-OECD economies tended to be cost-effective sugar producers. For example, Landell Mills ranked Thailand 6th, Brazil 7th, Mexico 15th and India 24th in terms of ex-mill cane sugar production costs out of the 61 countries it surveyed in 1986-87.¹¹ Australia ranked 8th, the US (mainland) 29th, Hawaii 35th and Japan 60th. That Brazil, India, Thailand and Mexico are still relatively efficient producers is shown by the grower price data released recently by the US Department of Agriculture¹² (see Appendix H). The available evidence thus suggests that several key non-OECD economies are efficient sugar producers, with potential to compete internationally without government assistance.

The increase in the volume of sugar traded internationally if Brazil and Mexico adopted more market-driven policies would be very large. Trade expansion of that order would be expected to place a considerable downward pressure on the world price of raw sugar.

For Thailand, it is unclear whether the setting of domestic prices represents assistance to growers and/or millers. There seems to be a general view that the Thai sugar industry is heavily exposed to the world free market. This suggests that, even if the industry were assisted, the level of assistance would be quite low.

Cuba's share of world sugar exports could decline considerably if the planned withdrawal of the implicit subsidies by the states previously belonging to the USSR were actually implemented. However, Soviet sugar imports may also decline, as its member states strive for greater self sufficiency in an attempt to save foreign exchange. Because the net effect of the breaking up of the USSR/Cuba relationship is unclear, changes to the USSR/Cuba trade agreement have not been simulated.

In other non-OECD countries it is possible that imports of sugar will in general grow more rapidly in the future than in the past. The tendency in these countries to relax trade barriers, in an attempt to secure IMF loans, suggests that their imports will increase significantly over the next 5 to 10 years. Key countries among the non-OECD group are Thailand, which is a major exporter and India, which is a major producer. Government interventions seem to be minimal in Thailand, however until recently they have been considerable in India. With taxes on sugar production in India having been lowered as part of India's recently announced trade reforms, that country could become an exporter of sugar. This could place a significant downward pressure on the world price of raw sugar.

The likely direction of world sugar price changes as a result of reforms in key non-OECD economies is indicated in Table 11.4.

Overall, liberalisation of sugar policies in key non-OECD economies would be likely to place a significant downward pressure on the world price of raw sugar.

¹¹ Landell Mills Commodity Studies (1989), 'A World Survey of Sugar and HFCS Production Costs, 1979/80 to 1986/87'.

¹² US Department of Agriculture (1991), *World Sugar Situation and Outlook*, May.

Table 11.4: **Reforms to sugar policies in non-OECD economies – likely effects on world sugar prices**

	<i>Direction of effect on world sugar price</i>
Brazil - relaxation of ethanol policies	negative
India - removal of taxes on production	negative
Mexico - moving to free trade	negative
Thailand - removing domestic price distortion	positive or negative (small)
Cuba - loss of Soviet subsidies	positive

11.2.2 Previous studies

Reform of world sugar trade has been studied extensively. Much of the empirical analysis published to date has concentrated on barriers to trade in OECD economies. Because of this, the results of these modelling exercises have tended to show that reform would increase world prices. Of the studies reviewed, the estimated world sugar price changes arising from various agricultural policy reforms in OECD economies ranged from virtually nil to an increase of 53 percent (Table 11.5).

The effect of trade liberalisation in non-OECD countries could be significant. Borrell found that Brazil had the potential to depress world sugar prices by up to 30 per cent and that moving to free trade in Mexico could further depress the world price of raw sugar by 14 per cent (Table 11.5).¹³

Studies looking at liberalisation of agricultural trade in Western Europe and East Asia, and in all GATT member countries, indicated declines in world sugar prices of -10 and -1 per cent respectively (Table 11.5). There are also a number of important countries, such as India and China, for which studies have not been conducted. Policy changes in these countries could further depress world sugar prices.

World sugar prices tend to fluctuate to a significantly greater extent than prices for other internationally traded commodities. Data for the period 1955 to 1981 show sugar as having the greatest price fluctuations out of 34 mining and agricultural commodities (see Fry).¹⁴ Studies suggest that reductions of 10 to 30 per cent in the variability of world sugar prices could arise from even partial, well targeted, trade reform (Table 11.6). Exceptional price variability in world sugar markets has in part been caused by government interventions and, in particular, production controls (Appendix B).

¹³ Borrell, B., *How a Change in Brazil's Sugar Policies Would Affect The World Sugar Market*, Policy Research and Extension Affairs, Working Papers, International Trade, International Economics Department, The World Bank, April, WPS 522, Washington D.C, 1991.

¹⁴ Fry, J. , *Sugar: Aspects of a Complex Commodity*, World Bank Working Paper No. 1985-1, 1985.

Table 11.5: **Effects on the world price of sugar of reform of domestic markets – the results of various models (per cent change)**

<i>Author</i>	<i>Model</i>	<i>Simulation</i>	<i>Effect on World Sugar Price</i>
Modelling changes in OECD economies' policies			
Roningen and Dixit (1989)	SWOPSIM	Removal of all agricultural assistance in industrial market economies	+53
ABARE (1989)	SUGABARE	Partial liberalisation, reduction of domestic sugar prices by 10 percent in the United States, EC Japan and Australia	+4
		Partial liberalisation, OECD consumers forced to pay world prices, some liberalisation of marginal production of major exporters	+8
		Reduction in domestic sugar and grains prices in the US, EC, Japan and Australia	-1
Borrell and Duncan (1990)	SUGABARE	partial liberalisation in US, Japan and EC	+33
OECD (1989)	Ministerial Trade Mandate Model	Reform measures in EC countries only 10% reduction in consumer subsidy equivalents	+2
Modelling changes in both OECD and non-OECD countries			
Anderson and Tyers (1986)		Removal of all agricultural support in Western European Countries and East Asia	-10
Horrige, Pearce, Walker (1990)	WFT model	Removal of all agricultural trade distortions in GATT member countries	-1
Borrell (1992a)	SUGABARE	8.3 percent increase in Brazilian exports ¹	-2.4
		32.6 percent increase in Brazilian exports ¹	-9.8
		96.1 percent increase in Brazilian exports ¹	
Borrell (1991b)	SUGABARE	move to free trade in Mexico	-14

¹ The simulations concern sustained increases in exports from 1985 onwards.

Overall, the results of the empirical studies suggest that, in the context of agricultural trade liberalisation under the auspices of the GATT, the upward pressure that would be exerted on the world price of sugar by OECD country reforms could be offset by the downward pressure arising from non-OECD country reforms. The studies also suggest that liberalisation could significantly reduce world sugar price variability.

Table 11.6: **Effect of multilateral policy reform on price variability**

<i>Author</i>	<i>Changes in world Sugar price variability (per cent)</i>
Anderson and Tyers (1986)	-22
ABARE (1989)	-11 to -33
Borrell (1990)	-28

11.2.3 Simulations and results

The reforms simulated using SUGABARE are:

- the removal of sugar protection in key OECD economies. For Japan and the US this was achieved by setting producer and consumer prices equal to the world price. For the EC it was assumed that production subject to quota is just sufficient to satisfy domestic demand, and that there are no subsidies to any EC sugar exports;
- diversion of a proportion of cane currently allocated to ethanol production in Brazil so that production of raw sugar increases by 50 per cent;
- removal of OECD protection combined with a 50 per cent increase in raw sugar production in Brazil

The findings are summarised in Table 11.7. In the simulations, the results of a 'base' case (ie, when no reforms are undertaken) are compared with the results of several cases in which certain specified reforms have occurred. Each simulation was run stochastically (ie. with random variations), sixty times, so as to account for fluctuations in weather patterns. The results reported are the mean of the world price estimates from these sixty simulations. Unlike ORANI, which has no built-in time dimension, SUGABARE -- which relies on data over the 1964 to 1984 period -- can be used to project scenarios over a given period. For this report the 1985 to 2004 period was chosen.

The first policy simulation ((b) in Table 11.7) concerns the removal of sugar protection in key OECD economies. Estimated price effects of the policies, using database averages over the 1964 to 1984 period, show that in the base case consumer and producer prices for sugar in Japan were on average around 500 per cent higher than the world price. In the US they were around 60 per cent higher. For the EC, the consumer price was 128 per cent higher and the producer price (the intervention price) 51 per cent higher. In line with the general view that agricultural protection in OECD economies has changed little over time, the price distortion data embedded in the model are similar to the 1990 OECD estimates reported in Table 11.3. In simulation (b), projected values of these price differentials over the 1985 to 2004 period were implicitly eliminated.

Table 11.7: Effects on world price of simulated policy reforms ¹, 1985-2004

	<i>Mean Uscllb</i>	<i>increase above 'base' (per cent)</i>	<i>variability</i> ²
(a) Base	13.13	na	0.56
(b) OECD protection eliminated (EC, Japan, US)	17.34	32	0.47
(c) production in Brazil ³ increased by 50%	7.84	- 40	0.70
(d) b plus c above	12.17	- 7	0.58

na not applicable

¹ Each simulation was run stochastically, sixty times, by adding random shocks to production equations in order to obtain representative probability distribution. ² Coefficient of variation (standard deviation divided by mean). The measure indicated the extent to which year to year observations differ from the mean. ³ Raw sugar production in Brazil increased change in ethanol policies and relaxation of controls on raw sugar exports.

Source: SUGABARE simulations.

The effect of removing OECD protection is estimated to be a 32 per cent increase in the world price of raw sugar. The increase would be over the US 13c/1b value, ie the mean base price estimated over the 1985 to 2004 period. Price variability would be lower than in the base case, with a coefficient of 0.47 compared with 0.56.

The second simulation (c) concerns an increase of 50 per cent in Brazil's raw sugar production. The increase would occur through a relaxation of Brazil's ethanol policies, with a diversion to raw sugar of a third of the cane currently allocated to ethanol production. Reflecting the importance of Brazil in world sugar markets, the effect of increased raw sugar production is estimated to lead to a 40 per cent decline in the world price of raw sugar.

The third simulation (d) concerns removal of OECD protection combined with an increase in Brazil's raw sugar production of 50 per cent. By eliminating production subsidies, the OECD reforms place an upward pressure on the world price, while the changes simulated for Brazil (more exports) act in the opposite direction. The estimated net effect is a 7 per cent decline in the world price of raw sugar. The simulations illustrate how feasible reforms in non-OECD countries (such as relaxation of Brazil's ethanol policies so that a third of ethanol-related cane is diverted to raw sugar production) can more than offset the world price effect of policies in OECD economies.

Since policy reforms in several key non-OECD countries could place further downward pressure on the world price of raw sugar, it is possible that the trend value of the current corrupt world price is above what it would be in the absence of distortions in all countries. However, even if this were the case, reforms would benefit exporting countries through greater Price stability, since published estimates of reductions in price variability due to liberalisation of world sugar trade are significant (ranging from 10 to 30 per cent - section 11.2.2).

The reforms simulated using the WET model are:

- removal of sugar policies in GATT countries (with around one hundred countries being members of the GARTT);

- removal of sugar policies in OECD economies within the GATT; and
- removal of sugar policies in non-OECD countries within the GATT

The results, in terms of estimated changes in the world price of raw sugar, are summarised in Table 11.8. As for the SUGABARE results, they illustrate the way reform in non-OECD countries can offset the effects of reforms in OECD economies.

The extent of the impact on world prices is lower with the WFT model than with the SUGABARE model. The main reason for this is that, within the WFT model (which accounts for seven agricultural commodities) substitution is allowed between sugar and the other commodities modelled. This allows the production mix to adjust, lowering the effect on raw sugar prices.

Table 11.8: **Removing sugar policies in GATT countries**

	<i>Change in World price (per cent)</i>
GATT countries	-3
OECD economies	+7
non-OECD countries	-10

Source: World Food Trade Model Simulations

The key conclusion from these simulations is that the effect of liberalising world sugar trade on international raw sugar prices would crucially depend on which countries liberalised, as well as the timing and sequencing of their reforms. Regardless of the direction in which the trend of sugar prices might move, Australia is likely to benefit from freer international trade. First, the domestic industry would operate in a more stable environment, with considerably lower variability in world prices. Second, Australia -- a low cost producer capable of becoming even more competitive internationally than currently -- would be well placed to benefit from a more open world trading environment. Efforts to facilitate reform within the GATT are thus worth pursuing, even though the negotiating process has, to date, proved to be slow.

11.2.4 Effects of sugar trade reform on Australia

The results reported above show that changes to various countries' sugar policies could place either an upward (OECD economies), or a downward (non-OECD countries) pressure on the world price of raw sugar. The Commission has not attempted to predict which countries would reform their sugar policies over the medium term. While OECD countries appear more favourably disposed to agreeing to liberalise within the GATT framework, many non-OECD countries already have -- under pressure from the World Bank and the International Monetary Fund -- announced major trade liberalisation initiatives. Because of uncertainty, the implications for Australia of both higher and lower world raw sugar prices are considered.

The effects on Australia of a 32 per cent rise and 7 and 40 per cent declines in the world price of raw sugar were simulated, using ORANI-FOOD. In the simulations all variables were maintained constant within Australia, ie no policy changes were considered domestically.

The 32 per cent increase was the estimate obtained, using SUGABARE, of the effect of removing protection in key OECD economies (EC, Japan and the US). The 40 per cent decline arose from simulating a 50 per cent increase in Brazil's raw sugar production. While these changes seem large, they are feasible in view of the recent replacement of Brazil's government with one favouring pro-market policies, the replacement having opened the way to removal of the massive subsidies needed to maintain Brazil's ethanol program. The 7 per cent decline arose from a combination of the OECD and Brazilian reforms.

The results of the ORANI-FOOD simulations are summarised in Table 11.9. An increase (decrease) in the world price of sugar would lead to a significant increase (decrease) in real aggregate consumption, reflecting the improved (worsened) terms of trade for Australia. The size of Australia's sugar industry would increase (decrease) considerably.

Table 11.9: **Effects on Australia of changes in the world price of raw sugar**
(per cent change)

	<i>32 per cent increase in world price¹</i> (a)	<i>40 per cent decline in world price²</i> (b)	<i>7 per cent decline in world price³</i> (c)
Australia-wide results			
Aggregate real consumption	0.34	-0.43	-0.07
CPI	0.72	-0.90	-0.16
Sugar industry results			
• output			
raw sugar	24.59	-30.74	-5.38
refined sugar	-0.47	0.58	0.10
• exports			
raw sugar	30.44	-38.04	-6.66

¹ The 32 per cent was estimated, using SUGABARE, by simulating elimination of OECD sugar protection (EC, Japan, US) – see Table 11.7. ² The 40 per cent was estimated, using SUGABARE, by simulating a 50 per cent increase in Brazil's raw sugar production – see Table 1.7. ³ The 7 per cent was estimated by combining the effects of (1) and (2) above – see Table 11.7.

Source: ORANI-FOOD simulations.

Overall, changes in other countries' policies have the potential to significantly affect the size of Australia's sugar industry, as well as the well-being of its citizens generally. However, the direction of policy-driven changes in world sugar prices is sensitive to the extent of reforms and the range of countries considered.

11.3 Domestic versus international comparisons

A number of commentators have claimed that the benefits from domestic reforms are likely to be outweighed by the benefits from reform of international sugar trade. Attention is usually focussed on the policies of key OECD countries which are claimed to substantially suppress the world price of raw sugar.

For purposes of comparison, the results of the sugar industry simulations are presented in Table 11.10 together with estimates of the effects of international reform and domestic microeconomic reform.

Table 11.10: **Comparison of International and Domestic Reforms**

	<i>7 per cent in the world price of raw sugar¹</i> (a)	<i>Reductions in assistance in Australia (March 91 statement)²</i> (b)	<i>reforms in Australia³ sugar industry³</i> (c)
Economy-wide results			
Real GDP	0.0	0.7	0.1
Aggregate real consumption	-0.1	0.1	0.1
CPI	-0.2	-2.6	0.3
Sugar industry results			
• output			
raw sugar	-5.4	0.6	33.5
refined sugar	0.1	0.3	0.2
• exports			
raw sugar	-6.7	0.7	41.2

¹ OECD protection eliminated plus diversion of some 33 per cent of the cane allocated to ethanol production in Brazil, so that raw sugar production increases by 50 per cent. ² Reductions from levels prevailing in 1988-89 to those expected to prevail once reforms announced in 1988 and 1991 are implemented. ³ Refers to the simulation (c) described in Table 11.2: 30 per cent land expansion coupled with a 9 per cent improvement in on-farm productivity, combined with removal of price distortions.

Source: ORANI-FOOD simulations.

Of the economy-wide micro-economic reforms recently considered by the Commission, reductions in manufacturing assistance are likely to be the most significant for the sugar industry. ORANI-FOOD was again used to separately identify the effects of this reform on the sugar industry. The Commission has modelled the effect of reducing assistance from levels prevailing in 1988-89 to those expected to prevail once the reforms announced in 1988 and March 1991 are fully implemented.

Although not modelled, reforms of the waterfront and coastal shipping would also benefit the sugar industry. To date, the raw sugar industry has managed to by-pass the cost-penalties imposed by the work practices adopted on the waterfront, because of the use of bulk handling facilities. However, efficiency in bulk-handling and in loading at ports is very important for major exporting industries, such as sugar.

The industry uses coastal shipping for the transport of raw sugar between mills and refineries within Australia. The Queensland Sugar Corporation and CSR provided the Commission with information on freight rates which suggests that the cost of shipping raw sugar between Queensland

and Thailand is around a third lower than the cost of transporting a similar sized load over a similar distance around Australia - for example from Queensland to Fremantle. Thus, reforms to coastal shipping would reduce the cost of refining sugar within Australia.

To illustrate the effects of reform within the sugar industry, results of the simulation concerning a land expansion, improved on-farm productivity and price reform, are also presented in Table 11.10. The results reported suggest that most reforms considered would lead to an expansion of sugar production and exports. They also lead to the conclusion that the benefits to the sugar industry from reforms within the industry itself are likely to be larger than the benefits from international and domestic reforms which are outside the industry's control.

In summary, the key findings of the analyses presented in this Chapter are that:

- the Australian sugar industry could gain significant benefits from reform of its regulatory arrangements. Initiation of such reforms is within the industry's control. International reforms are more uncertain since Australia has little influence on the policies adopted by other countries;
- the sugar industry is likely to benefit more from within-industry reforms than from international sugar reforms or general economy-wide reforms within Australia;
- the benefits arising from lower domestic prices as a result of removing the tariff and the associated acquisition powers are small relative to the benefits achievable from removing the production controls and other measures that are in place largely to support the current pricing arrangements; and
- productivity improvements made possible by removal of these supporting measures have the potential to provide greatest gains to the industry -- leading to over \$375 million additional sugar export earnings annually -- and to the economy generally through higher GDP, worth between \$200 and \$400 million annually.

APPENDIX A: PARTICIPANTS WHO MADE WRITTEN SUBMISSIONS

THE ORGANISATIONS LISTED BELOW PROVIDED THE COMMISSION WITH ONE OR MORE WRITTEN SUBMISSIONS:

Australian Bureau of Agricultural and Resource Economics
Australian Cane Farmers Association
Australian National University
Australian Raw Sugar Industry (QSI), joint submission by the Sugar Board,
Canegrowers, and the Australian Sugar Milling Council
Australian Soft Drink Association
Australian Sugar Milling Council
Bundaberg Sugar Company Limited
Bureau of Sugar Experiment Stations
Canegrowers
Canegrowers, Bundaberg
Canegrowers, Burdekin District
Canegrowers, Herbert River
Canegrowers, Mourilyan Area
Canegrowers, Proserpine district
Canegrowers, South Johnstone Area
Centre for International Economics
Coca - Cola Amatil Ltd
Confectionery Manufacturers of Australia Ltd
CSIRO
CSR Limited's Sugar Mills Group
CSR Refined Sugars Group
Dawo Farming
Department of Foreign Affairs & Trade
Department of Primary Industries - Queensland Government
Edgerton, E
Great Barrier Reef Marine Park Authority

Kerry (New Zealand) Ltd
Mackay District Canegrowers'
Mackay Sugar Co-Operative Association Ltd
Manildra Harwood Sugars
Maryborough Sugar Factory, The
Mossman Central Mill Company Limited
Mossman District Canegrowers' Executive
New South Wales Canegrowers' Association
New South Wales Government - The Treasury
New South Wales Sugar Milling Co-operative Limited
Proserpine Co-operative Sugar Milling Association Ltd
Proserpine District Canegrowers' Executive
Queensland Government
Queensland Sugar Corporation
South Johnstone Mill Limited
Sugar Research & Development Corporation
Sugar Users Group Australia (SUGA), joint submission by the Australian Soft Drink
Association Ltd and the Confectionery Manufacturers of Australasia Ltd
Tooheys Limited
Tully Sugar Industry
Unicorn International Inc
Wilkinson, J

APPENDIX B: SUGAR POLICIES IN MAJOR SUGAR PRODUCING NATIONS

B1 Characteristics of the world sugar market

Sugar is produced in about 100 countries in both temperate and tropical regions. It is one of the world's most regulated food commodities. The world sugar market is influenced by the domestic policies of many countries. The aims of the sugar policies in developed countries are usually the maintenance of farm incomes, industry expansion, and protection from the volatile price cycle. In Europe and Japan, self-sufficiency has been a consideration. Intervention is also widespread in developing countries, where a primary aim is to earn or conserve foreign exchange.

The impact of policies in OECD countries is to reduce the world price and increase its variability. However, some policies of non-OECD countries serve to increase the world price. For example, Brazil directs some two-thirds of its cane to the production of ethanol.

B2 Major OECD countries

B2.1 The European Community¹

The European Community (EC) beet sugar industry is highly supported under the Common Sugar Policy (CSP). The support provided by the CSP has transformed the Community from a net sugar importer in the early 1970s into the world's second largest exporter with net exports of about 3.2 million tonnes in 1989.

Prices

The EC uses two sets of measures to support internal sugar market prices at levels well above world market prices and to control the amount of sugar subject to support. The pricing provisions insulate the EC sugar industry from import competition. They are also designed to ensure a return to growers and millers which is related to industry costs.

The CSP price support arrangements involve setting annual 'target' and 'intervention' prices for refined sugar. The target price is, on average, the price at which the EC authorities consider growers should obtain for sugar. The objective is for the support system to maintain sugar prices at around the target price. The intervention price is the price at which the intervention agencies of the

¹ For a more detailed discussion see ABARE, *Domestic and world market effects of EC sugar policies*, Discussion Paper 91.1, 1991, Canberra.

EC members are required to purchase sugar. It provides a 'floor', below which domestic sugar prices are prevented from falling. Intervention prices, which are set in relation to the target price, differ between regions as they take into account production conditions and transport costs. Intervention prices have been substantially above world market prices throughout most of the period for which the CSP has applied.

Production quotas

The quantities supported under CSP are limited by a three-tier pricing system. Each EC member country is allocated a base quantity of refined sugar, the 'A' quota, on which the full intervention price is paid. This quota is subject to levies. Additional production, termed S' quota sugar, is also supported at the full intervention price. However, B quota sugar is subject to higher levies than A quota sugar. Together, the A and B quotas make up what is termed the 'maximum' quota. The Community's production of A and B quota sugar exceeds domestic consumption and this excess production is exported. When world prices are less than EC support prices, an export subsidy is given to cover the difference between the world price and the EC domestic price. When the target price is lower than the world prices, EC exports of quota sugar are subject to a tax on the difference. However, in most years, the EC intervention price has exceeded the world price.

Any sugar produced above the maximum quota, referred to as 'C' sugar, is exported without CSP support. No limits apply to the production of C sugar. Growers may elect to carry forward some quantities of B and C quota sugar to be treated as part of their next year's A quota. The quantities are normally limited to 20 per cent of the A quota. Quota A and B sugar is allocated among member countries through negotiation and in turn the country quotas are allocated among processors. Processors in turn allocate quotas to growers in the form of contracts.

Levies

Levies apply to A and B quota sugar and are designed to cover the costs of export subsidies. However, in some years the cost of export subsidies has exceeded the receipts from levies. In these years support was basically funded from EC budget revenue. The levies applying to A and B quota sugar include:

- a 'basic' levy of up to 2 per cent of the intervention price applying to A and B quota sugar
- a B quota levy of up to 30 per cent of the intervention price. If this is insufficient an additional levy of up to 7.5 per cent is imposed; and

-
- an 'additional' levy on both A and B quota sugar to cover any shortfall between the cost of running the CSP in any one specific year and the various levies mentioned above. The cost of the levies is split 60:40 between growers and processors.

The application of these levies results in the effective domestic producer prices of B quota sugar being some 37.5 per cent of the intervention price below the A quota price.

The EC sugar support arrangements are normally reviewed every five years. The current arrangements expire in 1990-91. However, the EC Commission has recommended that current policies and quota levels be continued to June 1993 before being reviewed again.

The EC sugar support arrangements also apply to starch based sweeteners for each member country.

Import controls

Protection against imports is provided through a system of import levies and 'threshold' prices. The threshold price is based on the target price plus transport charges between the area of greatest surplus and the area of greatest deficit. When the world sugar price is lower than the threshold price, imports are subject to a levy equal to the difference. When world prices are above the threshold price, import subsidies are paid.

Under the Lome Convention, African, Caribbean and Pacific (ACP) countries are guaranteed access to the EC market for up to 1.3 million tonnes of refined sugar a year at cif prices which are equivalent to EC internal support prices. As the Community's production of A and B quota sugar already exceeds domestic consumption, these imports result in an increase in the quantity of EC quota sugar that is exported with the aid of export subsidies. Subsidies to enable the export of this amount are provided entirely from the Community funds.

Consequences

The EC sugar policy excludes free entry of imports, raises domestic producer and consumer prices above the world price, raises production, lowers consumption and increases exports. For example, the OECD estimated that in 1990, the EC sugar growers received prices that were 99 per cent higher than the world price. Consumers were estimated to pay prices 99 per cent higher than world prices.²

² OECD, *Agricultural Policies, Markets and Trade*, Monitoring and Outlook, 1991.

B2.2 Japan³

Japan is the world's second largest importer of sugar, with estimated imports of 1.9 million tonnes (raw value) in 1989-90. The importance of sugar imports relative to domestic production has declined, mainly as a result of rising sugar production and falling sugar consumption. Japan's consumption of sugar per person is the lowest of all developed countries. It has generally been declining since 1975, when corn syrup began to make inroads into the sugar market.

Most of the increase in Japanese sugar production in recent years has been due to increase in beet sugar production. Production of beet sugar is much more variable than that of cane sugar because alternative enterprises are available to beet growers (grains, soybeans and fodder crops); there are no major alternatives to cane production.

Prices

The Sugar Price Stabilisation Law came into effect in 1965, and the Sugar Price Stabilisation Agency (now the Raw Silk and Sugar Price Stabilisation Corporation) was established to implement this law. The aims were to stabilise the domestic sugar price, to protect the markets of domestic beet and cane growers and related industries from import competition, and to provide income support to farmers.

The stabilisation Corporation trades in both domestically produced and imported sugar. Japanese consumer and producer prices have been maintained well above the world prices. Consumer prices are kept above the world price by subjecting imported raw sugar to high tariffs and a complex system of variable levies, surcharge and rebates. In addition, subsidies are paid to producers so that producer prices exceed the prices paid for raw sugar by refiners. The high level of sugar price support has allowed a high fructose corn syrup industry to develop resulting in a decrease in raw sugar imports and a surplus in domestic sugar refining capacity.

The prices growers receive for their cane and beet comprise the 'Minimum producer prices' (which millers and beet processors are required to pay to growers, as a condition of obtaining supported prices themselves), plus a production incentive from the Corporation (per tonne of cane or beet).

The minimum prices are promulgated by the Corporation through a process of simultaneous buying and selling. The Corporation guarantees to buy domestically produced sugar from cane millers and beet processors at specified prices provided the miller or processor has paid at least the specified minimum producer prices to farmers. The Corporation simultaneously sells the sugar back to the same millers and processors at a resale price which allows them to compete with imported sugar and which is usually less than the purchase price. The difference, which is incurred by the Agency, is met from government budget allocations, and an adjustment fund which is financed through a surcharge on raw sugar imports.

³ For a more detailed discussion see ABARE, *Japanese Sugar Policy: Its Effects on the World Markets*, Occasional Paper No. 104, 1988, Canberra.

Imported sugar is virtually all raw sugar and is subject to an import duty and a system of variable charges and rebates. In addition, an excise tax is imposed on all refined sugar at the point of sale.

Consequences

High stable sugar producer prices have induced a steady increase in sugar production. The OECD estimated that in 1990, Japanese sugar growers received prices that were around 400 per cent higher than the world price. Consumers were estimated to pay prices 142 per cent higher than world prices.⁴

Decreased consumption and increased production have increased the degree of self-sufficiency by reducing sugar imports. Because import demand is lowered by Japanese sugar policy, the world sugar price is lower than it would otherwise be. Japanese sugar prices are insulated from world price fluctuations, and neither producers nor consumers are able to respond to changes in world supply and demand conditions causing a more volatile world price.

The very high consumer price for sugar not only reduces sugar demand but allows high fructose corn syrup to be priced below sugar. Consumption of high fructose corn syrup is subject to a small tax, but maize, its major raw material, can be imported duty free. This unequal treatment of sugar and corn syrup has encouraged production and use of the syrup in place of sugar.

B2.3 The United States⁵

The major aim of US sugar and sweetener policy is to support returns to US sugar producers. The two major elements of the sugar policy are the provision of a basic support price to sugar producers (the loan rate) and a total quota for imports.

The loan rate

The loan rate is paid to sugar millers and processors who meet the requirement of paying growers a fixed minimum price for cane and beet. It is a rate at which the sugar processor can obtain finance from the Commodity Credit Corporation (CCC) by committing raw sugar or its equivalent as collateral. There are generally no purchases of sugar by CCC, as the domestic market is supported at or above the loan rate by alterations to the total amount that may be imported by quota. Variations in sugar imports are used to control sweetener supply and allow the market price to be supported at a level equivalent to the loan rate.

⁴ OECD, *op. cit.*

⁵ For a more detailed discussion see ABARE, *1990 and US Sugar Policy Reform*, Discussion Paper No. 90.4, 1990, Canberra.

Import Quotas

Import quotas have been the main element of protection for the US sugar industry, ensuring that the domestic market price does not fall below wholesale equivalent of the loan rate. Quotas have been used to support US domestic sugar prices at levels above world market prices.

The share of sugar imports in the total US sweetener market was only 6 per cent in 1988 compared with 35 per cent in 1970. Over the same period the imports' share of the total sugar market declined from 45 per cent to 14 per cent. The total import quota is at present distributed among some 39 sugar exporting countries. The US currently provides a market for 3 per cent of Australian sugar exports. In 1990, the US announced a new quota system (the tariff-rate quota system) to replace the old strict system. Under the new arrangements, the US allows sugar imports up to the quota level, but places a 16 cent per pound tariff on additional imports. Table B1 shows the distribution of the US import quota to the major sugar producing countries.

Table B 1: **Distribution of the US sugar import quota**
(per cent)

<i>Year</i>	<i>Dominican Republic</i>	<i>Brazil</i>	<i>Philippines</i>	<i>Australia</i>	<i>Arizentina</i>	
1983		16.9	14.0	13.0	8.0	4.1
1984		16.9	13.8	12.9	7.9	4.0
1985		16.7	13.8	12.8	7.9	4.1
1986		16.3	13.4	13.4	7.7	4.0
1987		16.0	13.2	15.0	7.5	4.0
1988		16.7	13.8	14.8	7.9	4.1
1989		16.8	13.8	15.0	7.9	4.1
1990		16.7	14.0	15.3	8.0	4.2

Source: ABARE, 1990 and US sugar policy reform, Discussion Paper No. 90.4.

Consequences

One major consequence of the US policy has been the rapid technological progress in the development of alternative sweeteners such as high fructose corn syrup and non-caloric sweeteners such as aspartame. Sugar has been almost completely substituted by alternative sweeteners in canned and bottled beverages and partly substituted for in fruit canning. Substitution continues to grow in baking and confectionery industries.

Second major consequence has been an expansion in US sugar production -particularly from beet, which grew by 38 per cent from 1984 to 1987. This has occurred because of attractive sugar prices as a result of US domestic support policies for sugar and has attracted production activities on land which can grow beet. The OECD estimated that in 1990, US sugar growers received prices which were 32 per cent higher than world prices while consumers were estimated to pay 5 per cent higher than world prices.⁶

B3 Policies of key non-OECD economies

B3.1 Brazil

Brazil is the fourth largest sugar producer after the EC, India and the (former) USSR, with sugarcane production of over 200 million tonnes annually. Raw sugar production is mainly for the domestic market. In 1989, Brazil's raw sugar production was 7.33 million tonnes, consumption 7.40 million tonnes, stocks 2.33 million tonnes and exports 0.97 million tonnes.

Brazil has a policy of diverting around two-thirds of its cane to the production of ethanol so as to save foreign exchange on imported oil. It achieves this diversion by the Government controlling raw sugar exports and by subsidising ethanol production. If all cane grown were used to produce sugar, Brazilian raw sugar output would increase from 8 to 20 million tonnes annually.

Brazil's cane-growing industry is highly regulated. The Government establishes a crop plan and assigns production quotas for sugar and fuel alcohol. It also specifies consumer and producer prices, setting domestic sugarcane, sugar and ethanol prices at high enough levels relative to costs to ensure that all production quotas are filled⁷. The Government assigns export quotas to individual mills. The export quotas can be exercised once sugar and alcohol targets have been met. The private sector negotiates contracts, which are then reviewed by the Government. Export licences are granted if the contract price is in line with international futures prices.

Although heavily regulated, the sugar industry in Brazil is cost-efficient by world standards. In the 1986-87 Landell Mills survey, Brazil's cane growing and milling regions ranked 7th and 13th

⁶ OECD, *op. cit.*

⁷ B Borrell, *How a Change in Brazil's Sugar Policies Would Affect the World Sugar Market*, Policy Research and Extension Affairs, Working Papers, International Trade, International Economics Department, The World Bank, April 1991, VYTS 522, Washington D.C. US Department of Agriculture, *World Sugar Situation and Outlook*, May 1991.

lowest in terms of production costs among the 61 countries covered.⁸ Also, recent estimates by the US Department of Agriculture suggest that, in 1990-91, the government-determined grower and consumer prices in Brazil were among the lowest in the world.

The extent to which tight regulations in Brazil distort domestic sugar costs and prices is therefore unclear. The key question seems to be: by how much do the regulations, which divert cane to ethanol production, limit Brazilian raw sugar exports?

B3.2 China

China is one of the major sugar importers among developing countries. However, as government policies encourage self-sufficiency in an attempt to 'save' foreign exchange, the country may become self-sufficient in sugar in the near future.⁹

During the 1980s rapid development of the Chinese economy led to high growth in sugar consumption. Between 1977 and 1986, consumption of refined sugar increased from 3.7 to 6.3 kgs per person (Table B2).

Table B2: **Per capita consumption of sugar for selected countries, 1977 and 1986 (kg raw value)**

	1977	1986
Australia	55.8	51.2
EEC	37.7	37.6
Japan	29.0	22.5
United States	46.8	30.6
Brazil	44.7	47.6
Cuba	53.9	66.0
India	6.8	11.4
Thailand	13.6	14.1
Mexico	41.5	44.2
China	3.7	6.3
USSR	45.8	47.7
World average	20.2	20.4

Source: Sugar Yearbook (1986 and earlier issues).

Since sugar consumption in China is still well below the world average of 20 kgs per person, high growth is likely to continue in the medium term. The question is how this would affect imports given the government's self sufficiency policies. F.O. Licht (1991) Notes that China's pricing system in the past had led to reduced acreage being devoted to sugar crops. This occurred because

⁸ Landell Mills, 1989, 'Commodity Studies, A World Survey of Sugar and H17CS Production, 1979/80 to 1986/87.

⁹ F.O. Licht, International Sugar and Sweetener Report, September 1991.

the Government eased control over production and pricing of many crops, but not of sugar. In fact, from 1963 to 1988 the Government kept sugar prices unchanged, at a time when prices for other crops were allowed to rise. As a result, farmers were reluctant to grow cane and beet.

To redress the situation, the Government in 1988 raised the wholesale price of cane sugar by 65 per cent and that of beet sugar by 54 per cent. It raised prices again in 1990 by 45 and 41 per cent for sugar of cane and beet origin respectively. At the same time, the Government raised the purchasing prices for cane and beet. This resulted in increases in the land used for sugar crops.

The recent increases in production, backed by China's comprehensive refining industry, are expected to make self-sufficiency possible within the next two to three years. However, in view of the likelihood of continued rapid increases in per capita sugar consumption, China may not be able to maintain self-sufficiency over the longer term.

B3.3 India

India, a major sugar producer, is pursuing 'self sufficiency' policies similar to those in China. In the 1970s the country was an exporter of sugar, but has since been virtually self sufficient. Since the late 1970s, consumption of refined sugar in India has grown very rapidly, increasing from 6.8 to 11.4 kgs per person between 1977 and 1986. However, India's 1986 consumption level was still well below the world average of 20 kgs per person (Table B.2). Over the 1977 to 1986 period, production in India expanded roughly in line with consumption, maintaining the country's self sufficiency status.

Sugar is one of the most regulated sectors in India. The broad regulatory framework, which has been in place since the 1970s, includes a split of the domestic market into two sectors: levy sugar (sold through the public distribution system at low prices to low income earners) and 'free-market' sugar (sold on the open market).

The minimum price at which mills can buy cane is specified by the central government. However, the actual price paid is generally higher since State governments tend to set their own minimum prices above national prices.¹⁰ In 1990-91, the minimum prices set by the States were 50 to 80 per cent above national minimum prices.¹¹

Mills must sell 45 per cent of their production to the government. The remaining 55 per cent is sold on the open market, although the government controls the quantity which is released. In 1990-91, the Government imposed excise taxes of US26c per kg on free-market' sugar and US2c per kg on levy sugar.

¹⁰ S Baru, *The Political Economy of Indian Sugar- State Intervention and Structural Change*, Oxford University Press, 1990.

¹¹ US Department of Agriculture, *World Sugar Situation and Outlook*, May 1991.

The Government is the sole importer. Currently an ad valorem duty of 35 per cent applies. In 1990-91, there were no sugar imports. The Government is also the sole exporter. In 1990-91, it subsidised exports with shipments receiving 20 per cent 'cash compensatory support'. In that year, around 2 per cent of India's sugar production was exported.

As with most other major industries, sugar milling in India is subject to the Industries Act which regulates the licensing of new units, as well as the sanctioning of their location and size. Wages paid to workers and the rate of return on sugar (and its by-products) are also subject to government regulation and monitoring.

Baru describes how government-backed 'co-operative' sugar mills, owned by growers and landowners, emerged after Independence.¹² At that time co-operative mills were seen as institutions from which rural development could proceed. Co-operative mills still receive significant government support.

Currently the milling sector has a complex structure, comprising a large co-operative sector, a sizeable private sector (the modernisation of which was partly financed by government) and a public sector (consisting mostly of 'sick' mills taken over by State governments). The effects of policies that maintain mills through government subsidies is that, unlike the growing sector, India's milling industry is inefficient by world standards. During most of the past decade milling costs in India were about twice as high as in Australia (See Table F1.2 in Appendix H).

Recently the Indian government announced major structural reforms in its foreign trade policy with a view to eliminate the complicated web of controls on imports and exports of most goods. The reforms aim to help India secure substantial foreign loans, so as to enable the country to tackle its balance of payments problem. The Government of India indicates that from July 1991, export subsidies have been abolished and the exchange rate adjusted.¹³ The subsidy on refined sugar to consumers - arising from the gap

between the levy price paid to producers and the issue price set for consumers in the public distribution system - has been abolished. The issue price of sugar under the public distribution system has been increased by 16 per cent. At the same time, the provision for general food subsidies in the budget has been stepped up.

By September 1991, the effect of the July exchange rate reforms resulted in a 19 per cent devaluation of the rupee against the US dollar. This made India's sugar industry more competitive on world markets, despite the withdrawal of export subsidies. Early in 1991, India returned as an

¹² S Baru, *The Political Economy of Indian Sugar- State Intervention and Structural Change*, Oxford University Press, 1990.

¹³ Government of India, *Budget for 1991-92*, part A, pp 13 and 15.

exporter with sales of around 350 000 tonnes of white sugar on world markets and with plans to export a further 325 000 tonnes early in 1992.¹⁴

Over the medium term it is unclear whether India would continue to be a sugar exporter. Since excess supplies appear to have mainly arisen from four consecutive seasons of good rains, current events are unlikely to point to a medium-term trend. Also, future increases in production may not be sufficient to match increases in sugar consumption as India's consumption moves closer to the world average.

B3.4 Thailand

Thailand is a major exporter of both raw and refined sugar. Domestic prices are set by the Government, imports are banned and exports controlled. The US Department of Agriculture reports that grower-guaranteed prices are set through negotiations between the private sector and the Government, although mills can pay more than the guaranteed price.¹⁵ The Government determines consumer prices. These are usually set above the world price with a view to supporting growers and millers.

The Government regulates the land available for sugar production and offers growers subsidised credit. It specifies production quotas for individual mills and obliges them to allocate set proportions of their output to the domestic and export markets. The Government also sets export quotas and offers rebates for exports of sugar and sugar-containing products. Millers arrange their own export contracts and sell through four licensed exporters.

Although government involvement in Thailand is extensive, the extent to which it distorts sugar-related activities is unclear. The country is heavily exposed to international markets and the industry is efficient by world standards. In terms of production costs, it ranked sixth lowest among the 61 countries surveyed in 1986-87 (See Table H.2 in Appendix 11).

At present domestic prices do not seem to be distorted to a significant extent. Estimates by the US Department of Agriculture suggest that the grower price in Thailand in 1990/91 was similar to that in Australia, and the consumer price for refined sugar around a third lower than in Australia (See Table H. 1 in Appendix H).

Overall, the institutional arrangements in Thailand have the potential to lead to significant production, price and trade distortions. However, the available evidence suggests that the regulations have been, at least in recent years, administered in a market-conforming fashion.

¹⁴ F.O. Licht, International Sugar and Sweetener Report, September 1991. ¹⁵ US Department of Agriculture, *World Sugar Situation and Outlook*, May 1991.

¹⁵ US Department of Agriculture, *World sugar Situation and Outlook*, May 1991.

B3.5 Mexico

Mexico is an important producer of sugar, with levels of production close to that of Thailand. During the 1960s and early 1970s production grew more rapidly than consumption. Around one quarter of Mexico's production was destined for export markets. Borrell notes that during the high oil price years of the late 1970s, sugar production in Mexico stagnated.¹⁶ As a consequence, the country - which was virtually self sufficient in sugar in the latter part of the 1970s - switched to importing in the early 1980s. It is only since 1987 that Mexico started exporting again.

The government-run sugar board, AZUCAR, controls most aspects of sugar production, pricing and marketing. Grower prices, processor prices and consumer prices are all set by Government and exports can only take place once export permits have been obtained. Currently the Government only allows shipments under the US tariff-rate quota.¹⁷

Borrell describes how AZUCAR's acquisition and marketing powers affect the patterns of distribution, exporting and importing; how price fixing, price discrimination and trade barriers affect production, consumption and trade; and how legal restrictions on land sales influence methods of production and the scale of operations.

Recently, certain aspects of the regulations have been relaxed. F.O. Licht reports that since 1990 private companies have been allowed to import alongside AZUCAR and that sugar mills previously owned by the Government have been privatised.

The juxtaposition of stringent regulation, central control by AZUCAR and freer operations by private-sector importers and the privatised mills has, at least initially, led to problems. The explosion of imports by private companies at a time when AZUCAR itself imported large quantities resulted in oversupply on the domestic market. This, combined with high debt levels, rigid labour contracts and the inability to export, appears to have caused problems for the (now privatised) sugar mills. F.O. Licht reports that in 1991 AZUCAR was forced to re-export some of Mexico's surplus sugar to China.

B3.6 Cuba/USSR

Cuba is the world's largest sugar exporter. In 1988, its exports accounted for 25 per cent of world sugar trade. Until recently, around half of Cuba's exports were destined for the former USSR under a bilateral trade agreement, representing around three quarters of the imports of the Soviet Union.

¹⁶ B Borrell, *The Mexican Sugar Industry, Problems and Prospects*, Working Papers, International Trade, International Economics Department, the World Bank, February, 1991, WPS 522, Washington D.C.

¹⁷ US Department of Agriculture, *World Sugar Situation and Outlook*, May 1991.

Despite attempts to diversify the Cuban economy, sugar is still the major commodity produced and exported by the country.¹⁸

Under the bilateral agreement, the USSR provided implicit subsidies to the Cuban economy.

With the breakup of the USSR and the formation of the Commonwealth of Independent States (CIS) and the economic problems that have resulted, Cuba faces a shrinking of its largest market. The CIS is expected to reduce the subsidies paid to Cuba through sugar purchases, and is expected to extend barter deals for Cuban sugar because of shortages of foreign exchange. The impact on Cuban production if it must sell at the significantly lower world price, or faces competition in the former USSR market, is unclear.

¹⁸ J. F. Perez-Lopez, 'Sugar and Structural Change in the Cuban Economy', *World Development*, Vol 17, No 10, 1989.

APPENDIX C: KEY FEATURES OF THE QUEENSLAND SUGAR INDUSTRY ACT 1991

In response to the recommendations of the Sugar Industry Working Party, the Queensland Government introduced the *Sugar Industry Bill 1991* into Parliament during April 1991. The Bill was passed in late April and received Royal Assent on 1 May 1991.

The Act repealed and replaced Acts dating back to the early 1900s, the most significant of which were the *Sugar Acquisition Act* and the *Regulation of Sugar Cane Prices Act*.

One of the major changes as a result of the *Sugar Industry Act 1991* is the abolition of the Central Sugar Cane Prices Board (CSCP) and the Sugar Board. The marketing and administrative functions of these boards have been amalgamated and are now carried out by the newly formed Queensland Sugar Corporation. The judicial activities of the former CSCP are performed by the new body called the Sugar Industry Tribunal.

C1 Sugar Industry Policy Council

A Sugar Industry Policy Council has been established to undertake the role of advising the Queensland Government on the sugar industry, with particular regard to advising the Minister and the Sugar Corporation on how much assignment should be increased each year. The membership of the Council is determined by the Minister.

C2 Queensland Sugar Corporation

The Corporation consists of a chief executive officer and 8 other members appointed by the Governor, one of whom is the Chairperson. At least two of the members must have experience in growing sugar cane and two must have experience in milling.

The objectives of the Corporation are:

- to enhance the efficiency, competitiveness and access to markets of the Queensland sugar industry;
- to enhance the long-term economy of the Queensland sugar industry;
- to enhance the benefits to the Queensland economy generally; and
- to encourage initiative and innovation among growers and millers.

The major functions of the Corporation are:

-
- to manage the regulation of the quantity and quality of sugar cane and raw sugar produced in Queensland;
 - to determine issues relating to the size of the Queensland sugar industry; to manage the acquisition and marketing of raw sugar by the Corporation; and
 - to distribute to mill owners the net proceeds resulting from the marketing of raw sugar.

The Corporation may also acquire, construct, manage and maintain bulk sugar terminals and other facilities for the processing, storage and handling of products of the Queensland sugar industry or the sugar industry elsewhere.

The Corporation may make guidelines for the purpose of providing standards for contracts relating to the harvesting of sugar cane by mechanical cane harvesters. These guidelines are, however, only advisory and are not binding on participants.

The Corporation has the power to purchase, sell or participate in trade or commerce concerning any products of, or connected with, the sugar industry in Queensland.

The costs of the Corporation are funded from the proceeds of raw sugar sales.

C3 Sugar Industry Tribunal

The Tribunal consists of 3 members appointed by the Governor in Council. The chairperson is a legal practitioner. One member is a person who has no pecuniary interest in the industry, but has a good working knowledge of the industry. The third member is a person nominated by the Minister who has special qualifications considered by the Minister to be relevant and appropriate to the Tribunal's functions.

The Sugar Industry Tribunal is established to act as an avenue of review of decisions of the Corporation and local boards. An application may be made to the Tribunal for review of many issues (eg, the adjustment, transfer or cancellation of assignment and/or peaks by either the local board or the Corporation). The Corporation is required to fund the operations of the Tribunal.

C4 Acquisition

All raw sugar manufactured in Queensland by specified mills is acquired and vested in the Corporation. The ownership of raw sugar is acquired in exchanged for a right to receive payment for that sugar. An owner of a mill may retain for local consumption, and not deliver to the Corporation, a quantity of not more than one percentum of the sugar manufactured at the mill (ie, 'miller's sugar').

All sugar vested in the Corporation is to be delivered to the Corporation by mills. The Corporation may direct a mill to manufacture a specified type of raw sugar.

C5 Payment for sugar

Payment for sugar retains many features of the former system. Payment to mill owners is in pools called No. 1 Sugar Pool (Pool 1), No. 2 Sugar Pool (Pool 2) and penalty sugar.

Pool 1 consists of sugar produced from adjusted areas of assignment up to mill peak, plus sugar delivered by the Director of Sugar Experiment Stations. Pool 2 consists of sugar grown on assigned land in excess of the mill peak. All other sugar is penalty sugar and its price is set by regulation (which traditionally - but not always - has been set at \$1 per tonne).

The net value per tonne of Pool 1 sugar is deemed to be 12 per cent greater than the net value per tonne of sugar included in Pool 2.

The payments system is to be reviewed by the Corporation within 5 years of the date of commencement of the legislation.

C6 Local boards

A local board may be constituted for one mill or for adjacent mills. Local boards consist of a chairperson, two representatives of the local mill and two representatives of the local mill suppliers' committee - a total of 5 members.

The functions of a local board are: to make awards; to provide a convenient local forum for mediation or settling of disputes and issues within the Queensland sugar industry; to advise the Corporation concerning any matter relating to the local sugar industry; and to take all such action within the powers conferred upon it by the Act as may be necessary to achieve its objectives.

C7 Awards

The role and general conditions of awards have not changed with the new legislation, except that it is now the Corporation that may make guidelines regulating the form of awards rather than the CSCPB.

Local boards are required to make an award each year in relation to their mill area and for that crushing season.

An award is to provide for;

- all matters relating to harvesting and delivery of sugar cane to mills by assignment holders on lands assigned to the mill;

-
- all matters relating to transport, handling and crushing of sugar cane by the mill owner; and
 - all matters relating to the payment of sugar cane by the mill owner.

Awards determine cane crushing times and the price and payment of cane to assignment holders. The price payable is to be the same for every assignment holder bound by the award for cane of the same quality. The Act also outlines the current method of paying growers during the harvesting season, with payments being based on the season average level of ecs. However, the Act does not specify that this formula must be used, only that it may be used.

Disputes over awards are to be heard by the Sugar Industry Tribunal.

C8 Contracts outside awards (mill supply contracts)

Contracts between the mills and individual assignment holders, or groups of assignment holders, outside the award are permitted. This has the effect of varying or operating in place of the award. Such agreements were possible under the previous Act, but there were many more impediments to them. Current agreements for continuous crushing are of this type. To be valid, a contract must be lodged with, and approved by, the Corporation.

A mill supply contract can be made binding on all assignment holders if 85 per cent of assignment holders agree. This provision seems to be directed at allowing only a significant number of growers, or all growers as a group, to negotiate a mill supply contract outside the traditional award rather than for individual growers to negotiate separate agreements with the mill. The provision (allowing a mill supply contract to be made binding on all growers with the approval of 85 per cent of growers) can be used to override any individual contracts between a grower and the mill unless the grower can muster support from more than 15 per cent of growers.

C9 Assignments

The new Act allows for greater flexibility in the assignment system.

An assignment confers upon the holder an entitlement to deliver sugar cane (grown on the number of hectares situated within the boundaries of the farm assigned to the mill) to a mill for payment. The mill is obliged to accept cane grown on land assigned to that mill and the grower is obliged to deliver sugar cane to the mill assigned the land.

This differs from the previous situation where sugar cane had to be grown on clearly specified plots of land, except for the roaming provision which permitted 15 per cent of assignment to be grown on any part of the grower's land.

The holder of an assignment may only dispose of sugar cane grown on that assignment to the mill to which that land is assigned.

C10 Transfer of assignment

An assignment may be disposed of, wholly or partially, by the holder by way of sale, sublease or other form of transfer. However, the person to whom the assignment is transferred must have land on which that assignment can be used.

The transfer of, or variation to, an assignment within a mill area requires the approval of the local board. This is through the issuing of an order by the local board to the Corporation. The local board may refuse to issue an order, but must give reasons. why it does not grant an application.

An application to transfer to another mill area (ie, an application involving more than one local board) requires the unanimous decision of the members of both local boards. Approval for transfer within a mill area requires the majority approval of the local board only. The unanimous decisions of the local boards are not subject to appeal to the Tribunal, but a right of appeal does apply in the case of majority decisions.

An assignment holder may make application directly to the Corporation for transfer of assignment to another mill area. This provision, however, does not cover the sale or transfer of assignment between two growers, but is directed at a grower transferring his own farming operation to another mill area.

C11 Expansion of assignment

Assignments are to be expanded by 2.5 per cent (approximately 10 000 hectares) each year for five years beginning in 1991. Larger expansions may be approved by the Minister (after consultation with the industry). The distribution of new assignment between existing and new growers is to be determined by the Corporation. The Commission understands that the initial expansion will be divided equally between established and new farms.

Among the powers available to the Corporation is that it may, out of future expansion, grant to an assignment holder in one mill area an equivalent assignment in a different mill area for the purpose of improving the viability of that farmer's enterprise.

The power to cancel assignment has been retained. The Act states that the Corporation may cancel assignment 'upon wilful failure of the holder to grow sugar cane...'

The Corporation also has the power to reduce all assignments in any year. This is called the 'adjusted area of assignment'. There is also provision for the Minister (after consultation with the Sugar Industry Policy Council) to adjust the area of assignment to greater than 100 per cent of the area of assignment.

C12 Farm peak

Farm peak is the quantity of sugar cane harvested from the assignment holder's land which is delivered within the mill peak of the sugar mill, and for which growers are entitled to receive the higher Pool 1 sugar price.

Farm peak is regarded as a property which may be disposed of separately from assignment. The purchaser must, however, have an assignment to which that farm peak is applied.

Regulations governing transfers are the same as those for assignments, ie, farm peak may be transferred between mill areas subject to the unanimous agreement of the respective local boards.

There are no provisions for changes to the level of farm peaks. They remain effectively frozen.

C13 Mill peak

Mill peaks are essentially the sum of farm peaks in the mill area. The Corporation has the power to adjust mill peaks to take into account variations in farm peaks.

C14 General provisions relating to management of sugar harvesting

Mill owners are required to carry on the business of manufacturing sugar. If the mill owner fails to manufacture sugar, the Minister may appoint an administrator to run the mill. The Corporation may, however, grant an exemption.

The Corporation may redirect cane to another mill.

APPENDIX D: PAYMENT ARRANGEMENT FOR SUGAR

Under the Queensland *Sugar Industry Act 1991*, all raw sugar produced in Queensland becomes the property of the Queensland Sugar Corporation. Ownership of raw sugar is exchanged for a right to receive payments in accordance with the Act.

payments to mills are made from the net revenue from domestic and international sales of raw sugar and any other activities of the Corporation. Net revenue is the proceeds of raw sugar sales and from other Corporation activities, excluding all costs of the Corporation (including marketing and promotion costs, transport costs, bulk handling and storage costs, waterfront and shipping costs and some costs associated with operation of Local Boards) and any such reserves as may be necessary to fund the Corporation's operation.

Sales revenue for the 1990 season totalled some \$1280 million compared with \$1520 million for the 1989 season. As all sugar is sold c&f and cif, sales revenue includes a component for freight and insurance. Costs incurred by the then Sugar Board represented approximately 10.2 per cent of revenue. Of the costs incurred freight, selling brokerage, insurance etc represented about 66.8 per cent (\$87.1 million), bulk terminal receiving, storage, out-loading and financing about 12.7 per cent (\$16.5 million), marketing about 10.1 per cent (\$13.2 million), communication, public relations about 2.4 per cent (\$3.1 million), sugar rebates about 3.9 per cent (\$5.1 million), quantity and quality assurance about 4.0 per cent (\$5.2 million) and finance for advances and stocks about 0.2 per cent (\$0.2 million).

D1 Current sugar pools

Net revenue is divided into two pools. Since the beginning of the 1990 season, the net value per tonne of raw sugar included in Pool 1 has been calculated, in relation to each crushing season, as 12 per cent greater than the net value per tonne of Pool 2.

In the 1990 season, Pool 1 comprised 3.07 million tonnes of raw sugar while Pool 2 comprised 283 000 tonnes (see Table D1). As Pool 1 comprised nearly 92 per cent of sales by volume in the 1990 season, the per tonne return for Pool 1 was only 0.9 per cent higher than the average return from all sales, while the Pool 2 price was 9.9 per cent lower than average returns.

One of the perverse effects of the price differential between Pool 1 and Pool 2 is that while the industry is expanding, the per unit returns for Pool 1 will become higher and higher above average returns while per unit returns for Pool 2 will become closer to the average. Thus, it would be expected that there would be increasing resistance from pool 1 producers to the removal of the price differential.

The current arrangements for a fixed percentage difference between Pool 1 and Pool 2 returns were introduced following a decision on the recommendations in a report by a Committee of Inquiry (The Queensland Sugar Industry Pooling System and Related Matters, June 1989).

Table D 1: Sugar production and payments

	1989		1990	
Production (tonnes 94 nt)				
Up-to-peak	3086819	85.3%	3070075	91.6%
Excess	530341	14.7%	28323	28.4%
Total	3617160	100.0%	3353307	100.0%
Production (actual)		3522786		3262170
Payments (\$'000)				
Up-to-peak	1 121750	83.8%	1056167	92.4%
Excess	216379	16.2%	8699	77.6%
Total	338129	100.0%	1 141164	100.0%

Source: Sugar Board Annual Report, 1989 and 1990.

Each mill has a right, specified in tonnes of raw sugar, to receive the higher Pool 1 sugar price. This is called the 'mill peak'. The mill peak is the aggregate of individual farm peaks held by cane-growers in a mill area. Raw sugar in excess of 'peak' (often called 'excess' sugar) receives the Pool 2 sugar price. Cane used to produce raw sugar must be grown on assigned land if it is to receive either the Pool 1 or Pool 2 price. Raw sugar produced from cane grown on unassigned land usually receives the penal payment of \$1 per tonne, but in the 1990 season, because of shortfalls in production, raw sugar from cane grown on unassigned land received the Pool 2 price.

Under the Sugar *Industry Act 1991*, the Corporation is, within 5 years, required to review the development of the pool pricing system, to assess the current rules, and to investigate alternative rules for consideration.

D2 Historical background to sugar pools

Prior to the 1990 season, the Pool 1 price was based on proceeds from sugar sold domestically, from sales to assured export markets, and from any other sales necessary to bring the quantity in Pool 1 up to the total of mill peaks. The Pool 2 price was based on sales to less assured markets. In

some years, the returns for Pool 2 have been higher those for Pool 1 because the more stable returns from long-term contracts and the previously regulated domestic market are included in Pool 1 (see Table D2). However, because Pool 1 includes sales on the domestic market and to quota protected markets such as the US where a price premium can be obtained, the Pool 1 price tends, the longer term, to be higher than the Pool 2 price.

D2: Queensland production and payments for sugar: 1980 to 1990

Season	Production		Prices	
	<i>Up-to-peak</i> (No. 1 pool)	<i>Excess</i> (No. 2 Pool)	<i>Up-to-peak</i> (No. 1 Pool)	<i>Excess</i> (No. 2 Pool)
	'000 tonnes 94 net titre		\$ per tonne 94 net titre	
19M	2872.1	275.9	372.44	407.60
1981	2942.1	307.3	278.94	240.30
1982	3115.6	208.5	224.05	201.10
1983	2906.9	103.9	262.91	142.80
MIA	3131.3	216.9	234.57	99.90
1985	3099.2	108.5	223.28	216.80
1986	2929.9	278.6	282.18	201.90
1987	3099.2	144.7	289.12	251.10
1988	3081.8	400.4	334.27	327.40
1989	3086.8	530.3	363.40	408.00
1990	3070.1	283.2	344.02	307.16

Notes: Excluded from the above Table is the production and payment for penal excess sugar (sugar produced from cane grown on unassigned land). A total of 145 tonnes of penal excess sugar was produced over the period 1980 to 1990. Payment for penal excess sugar is set at a rate of \$1.00 per tonne, however, for the 1990 season the Pool 2 price was paid.

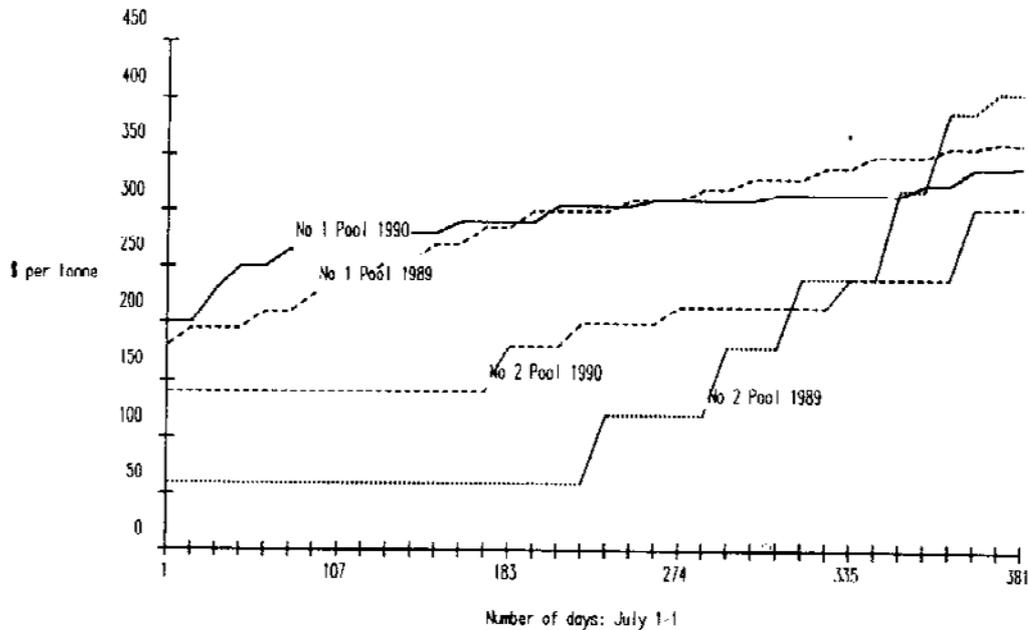
Source: Submission by the Sugar Board, Cane-growers and Australian Sugar Milling Council.

D3 Schedule of payments

At the beginning of a season, the Corporation estimates a 'base price' for raw sugar on the best information available at the time. This base price is used to provide advance payment to mills and growers over the season. An initial advance, called an 'interim price', is paid to mills at the beginning of the season. For Pool 1 sugar, the interim price is 90 per cent of the estimated base price. For Pool 2 sugar, the interim price is 70 per cent of the interim price for Pool 1 sugar.

The schedule of payments for the two pools has also differed. Sugar sold for the Pool 1 was deemed to be sold before sugar for Pool 2. As a consequence, increases on the initial payments to mills arrived earlier for 'peak' sugar than for 'over peak' sugar (see Figure D1). As a consequence the effective difference between the Pool 1 and Pool 2 price was greater than 12 per cent. The Commission estimates that this was equivalent to an additional 4 per cent price difference for the 1990 season.

Figure D 1: Progress payments: 1989 and 1990 seasons



Source.. Derived from data contained in Sugar Board Annual Reports, 1989 and 1990.

Note: The graph is indicative only because the initial payments and progress payments are made only when the sugar cane has been delivered and raw sugar has been produced. This occurs throughout the milling season, beginning in June and extending through to December.

Prior to the 1990 season, the difference in the scheduling of payments for the two pools was greater. The schedule for the 1989 and 1990 seasons is shown in Figure D 1.

Under the new Act, the schedule of payments is at the discretion of the Sugar Corporation. Recently, the Corporation decided that, for the 1992 season, the interim payment for Pool 2 sugar will be 12 per cent less than that for Pool 1, and that further advance payments will be at the same rate for both pools while maintaining the 12 per cent differential.

D4 Financing of advance payments

The nature of the advance payments may create a timing mismatch between receipt of sales revenue and payments to mill owners which may necessitate the borrowing of funds. Under the new Act, the Corporation is able to borrow money to assist in the marketing of sugar. Such

borrowings are subject to the approval of the Queensland Government and as appropriate, the Australian Loan Council. As raw sugar is acquired by the Corporation rather than the State, the Corporation can use the sugar as security for any borrowings whereas in the past, the Sugar Board could not. However, as sugar is sold for cash and considerable reserves are held, there has been little need for borrowings.

The Sugar Corporation under The Statutory Authorities Act, is approved to employ a number of financial mechanisms as adjuncts to its marketing function. These include the use of options, swaps, futures and forward exchange contracts and agreements.

D5 Payments to growers

Millers make delivery payments to growers based on the declared delivery price for sugar in each of the pools and on the terms stated in their Local Board Awards. Awards generally specify that delivery payments to growers should be made within 30 days of mills receiving delivery payments from the Corporation. Section 8.5 of the *Sugar Industry Act 1991* directs local boards to specify a base price or base prices for sugar cane of different qualities. The Act nominates ccs as one aspect of quality which must be taken into account when determining a base price for sugar cane. In addition, local awards also provide for deductions from base prices in respect of diseased, damaged or ill-prepared cane and in some cases for the delivery of cane off unassigned land. Historically, the same price formula has been set in all Awards in Queensland.

The cane rice formula, which determines the price growers receive for cane according to sugar content and the pool to which it belongs in each mill area, is:

$$P_c = 0.009 * P_s * (ccs - 4) + 0.328$$

P_c is the average price of green cane paid to farmers in a season in a mill area.

P_s is the pool price of raw sugar.

ccs is the average commercial content of sugar.

The average commercial content of sugar is determined from the formula:

$$ccs = \frac{3p}{2} * (1 - \frac{5+f}{100}) - \frac{b}{2} * (1 - \frac{3+f}{100})$$

p is pol per cent first express juice (measure of sucrose) f is fibre per cent b is brix per cent first express juice (measure of soluble solids).

The cane payment formula was introduced in 1916. Since then, it has been modified on numerous occasions. In recent years however, it has remained broadly unchanged, although growers have sought changes on a number of occasions.

The original aim of the formula was to share the net proceeds equitably between growers and millers by allowing each to cover their costs with any surplus split on the basis of asset values. The

division has traditionally approximated two-thirds to growers and one-third to millers. However, the proportion has varied in practice as the proceeds are allocated to reward the growers for quality of cane (in terms ccs) and reward the millers for the efficiency of the mill (ability to extract sugar from cane). For example, if a mill was extracting at close to 100 per cent efficiency, the growers' share of sugar revenue would be about 51 per cent at a ccs of 9, and would be about 68 per cent at a ccs of 16. The mill would also benefit from an increase in revenue and through a reduction in costs by transporting and crushing less cane per tonne of sugar produced. While growers' share increases at higher ccs, returns to the mills are not reduced in absolute terms. On the other hand, at a constant ccs of 14, if mills increased efficiency, say, from 90 per cent to 100 per cent, their returns per tonne of cane crushed would increase by about 10.6 per cent, or from 28 per cent to 35 per cent of the sugar revenue. While growers' share of revenue declines, there is no decline in growers' returns in absolute terms.

Over the last 20 years average ccs has varied considerably. However, it has been trending downwards slightly. Over the same period mill efficiency has been increasing. As a consequence, growers share of sugar proceeds has been declining (see Figure D2).

In recent years there has been an increasing tendency for growers and millers to enter into direct negotiations on a wide range of payments (for example, for continuous crushing) or incentives (for Pool 2 cane) which are outside the formulated price for sugar cane. Such negotiations take into account local factors. The Sugar Industry Working Party (1990) recognised this and recommended that, where changes to industry practices are contemplated, local areas should negotiate any transfers of revenues deemed necessary and that the existing cane price formula should be regarded as a 'bottom line' base in such negotiations.

The Commission understands that CSR has paid special allowances which are outside the formulated prices to growers for sugar cane to enable them to maximise the yearly throughput of mills without having to undertake capital expenditure. One such allowance is a 'supervising harvesting allowance' for cane which is delivered to mills which are continuously crushing. Where mills extend the crushing season to maximise yearly throughput, a 'ccs underwriting' allowance has been paid to compensate growers for the lower sugar content of cane delivered in the extended period.

Figure D2: **Growers' share of sugar proceeds**



Source: Canegrowers

APPENDIX E: SUGAR INDUSTRY RESEARCH

Sugar industry research in Australia is conducted by a number of organisations at both the Commonwealth and State level. This appendix discusses some aspects of sugar industry research activities and the research bodies involved. Commonwealth involvement in sugar research is part of a broader government policy for funding agricultural research and, as a consequence, needs to be considered in this wider context. No attempt is made in this appendix to assess this broader question of the funding of rural research.

E1 The Bureau of Sugar Experiment Stations

The major research and development work relating to cane growing is undertaken by the Bureau of Sugar Experiment Stations (BSES). The BSES was set up by the Queensland Government in 1900 and has operated under the *Sugar Experiment Stations Act 1900-1983*. This Act has been consolidated and incorporated into the *Sugar Industry Act 1991*. The Bureau is administered by a Board which includes the Director-General of Primary Industries and industry personnel.

The Board is required to establish, maintain and administer the BSES, with the purpose of assisting in the improvement and development of the Queensland sugar industry in all matters relating to productivity, profitability and sustainability of the sugar industry.

The major functions of the BSES are:

- to conduct research into cane growing (including the development of new varieties) and sugar milling, with the aim of improving the efficiency of sugar production;
- to communicate the results of research to cane growers and sugar millers; and
- to administer regulations concerning plant quarantine, pests and disease control.

The BSES has research stations in the main Queensland cane growing districts, advisers in other areas, and maintains central laboratories and administration in Brisbane.

The BSES is primarily funded from a levy per tonne of sugar cane produced in Queensland paid jointly by millers and growers. In 1990-91, the levy was \$0.24 per tonne of cane. This provided an annual income of about \$6 million. The Queensland Government also contributes to BSES. In 1990-91, the Queensland Government contribution was \$0.9 million.

The New South Wales sugar industry does not contribute levy funds to the BSES. Any services provided by the BSES to the New South Wales industry are on a commercial basis.

E2 The Sugar Research Institute

The Sugar Research Institute (SRI), which is located in Mackay, is a private research organisation which was formed in 1949 to undertake research into technology related to cane sugar mills. It was initially formed by 26 Queensland sugar mills which were later joined by the remaining Queensland mills and, finally, by the three New South Wales mills in 1981. Currently all mills in the Australian sugar industry belong to the SRI.

The SRI's research activities include basic and applied research projects directed towards improvements in the processes, methods and equipment of the Australian raw sugar mills. The Institute also provides assistance to mills in the purchase and installation of new equipment and on problems arising during the season. Research activities cover the areas of cane harvesting and transport, cane preparation, milling and diffusion, juice clarification, heating and evaporation, sugar crystallisation, separation, drying and transport, steam generation and energy systems, and effluent treatment.

The SRI has also contributed to the improvement in milling techniques through its work on computerisation and automation in the milling sector. The results of research are communicated to mills, and many research projects are undertaken in conjunction with mills.

The work of the SRI is financed largely by an annual levy from the member mills. In 1990-91 the levy from member mills was set at 11.5 cents per tonne of cane crushed. Some income is received from research grants. The SRI also undertakes contract work. In 1990-91, the SRI's research and extension budget was about \$4 million.

A Board of Directors, comprising five members elected by the member mills and three Associate Directors appointed by the Board, has overall responsibility for SRI.

E3 Sugar Research and Development Corporation

The Sugar Research and Development Corporation (SRDC), a Commonwealth statutory authority established in 1990, has taken over the research and development activities of the former Sugar Research Council (SRC) which was established in 1985 under the Rural Industries Research Act (RIR Act).

The SRDC is not structured to undertake a direct role in research. Rather it distributes funds to research organisations and commissions research it considers desirable.

The long term objectives of SRDC are:

- to improve efficiency in the growing, processing, manufacture and refining of raw sugar;
- to ensure a sustainable industry;

-
- to attract increased and new resources into the industry's research and development programs;
 - to improve training in sugar research and development; and to establish effective lines of communication with and between industry bodies and research and academic institutions;

The SRDC has adopted the basic structure identified by the former SRC to address these long term objectives. Currently, the main focus of research and development is in the following areas, with particular emphasis on the first three items:

- the cane plant;
- the crop and its environment;
- harvesting and cane transport;
- cane quality and assessment;
- processing and manufacture of raw sugar;
- sugar handling;
- storage and product specification;
- alternative products and by-products;
- refining;
- farm extension services and decision support; and
- human resource development.

The SRDC argues that the emphasis on the first three items is warranted as many of the issues being addressed influence subsequent processing.

SRDC administers research funds collected from the industry and granted by the Commonwealth Government. In 1990-91, the industry contributed \$0.06 per tonne of cane crushed (half from millers and half from growers). The funds collected from the industry were matched by the Commonwealth on a dollar-for-dollar basis (up to a maximum of 0.5 per cent of the gross value of Australian cane production), giving an annual income of \$3.6 million. The New South Wales Sugar Milling Co-operative contributed to the SRDC on an identical levy basis to the Queensland industry.

The distribution of SRDC funds to research organisations in 1991-92 was expected to be as follows:

	\$ Million
BSES	1.90
SRI	0.30
CSIRO	0.16
CSR	0.12
Others	0.50

E4 Productivity Boards

Productivity Boards were incorporated into the Queensland's Sugar *Industry Act 1991* to take over the functions and activities of the Cane Pest and Disease Control Boards which carried out pest and disease control in mill areas.

Although not research bodies, Productivity Boards do have peripheral research function. One function is to assist and co-operate with the BSES in research related to the production, harvesting, transport and processing of sugar cane or to the production of sugar cane related products. The principal role of Productivity Boards is to enhance the productivity of the sugar industry by increasing the quantity and improving the quality of sugar cane produced by providing advice on matters related to the production and harvesting, and prevention, control and eradication of pest infestation of sugar cane.

Productivity Boards are funded by a levy per tonne of sugar cane received at every mill within the area of a Productivity Board. The levy varies between mill areas and ranges from 1 to 5 cents per tonne of cane.

E5 Other research bodies

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) also has some research input into the sugar industry. In the 1980s, CSIRO undertook research into problems of sugar production, mainly on the ratooning of sugar cane, the nitrogen nutrition of cane and several aspects of genetics and breeding. The availability of SRDC funds and some redirection of research priorities has led to a substantial CSIRO involvement in strategic research for the sugar industry in 1990-91. CSIRO's Division of Tropical Crops and Pastures proposes to increase its expenditure on sugar research from its present level of \$1.1 million to \$1.8 million by 1996.¹

Sugar research is also undertaken by the Queensland Department of Primary Industries, the New South Wales Department of Agriculture and Forestry and CSR. Economic research is undertaken by the Australian Bureau of Agricultural and Resource Economics (ABARE).

E6 Participants' comments

The BSES said that research and development should be industry driven, funded as much as possible by users, and directly responsible to the needs of users. The BSES also supported the concept of government incentives for industry to carry out research and development. In their submission to this inquiry they said that:

¹ CSIRO Institute of Plant Production and Processing, submission to the IC sugar inquiry, 1991, p. 4.

The 150 per cent research and development tax concession scheme has proved to be very effective as a means for government to support sugar industry research programmes ... With the tax concession scheme, the industry controls the setting of research priorities, and the conduct of research is directly accountable to the industry.

The Tully Sugar Industry said that there was need for a more cost effective research program to be developed with a much faster response to sugar industry needs. They went on to say that:

This involves integration of the SRDC with the Boards of BSES and SRI. The Board should be drawn from members of the BSES and SRI Boards.

Similarly, the Australian Cane Farmers Association, while recognising the overlap in the milling research undertaken by BSES and SRI, recommends the continuation of the BSES milling research unit because:

... this unit is seen as a bridge between milling and cane supply ... It provides the miller with an input into the needs for suitable varieties for milling which are compatible with industry quality requirements, and for growers, it provides an impartial observance of the need for quality of cane supply for the mutual benefit of both parties.

The BSES recognised that there was some overlap between the functions of the BSES and the SRDC which highlighted a need for a special relationship between the two organisations to provide the most efficient service to the industry. However, the SRDC believes that the role and functions of both organisations are quite distinct. The BSES charter is narrower in focus than the SRDC charter. SRDC also believes that a special relationship already exists with BSES in that BSES has received more than 50 per cent of SRC/SR13IC funds allocated.

E7 Commission's assessment

E7.1 Funding

A number of participants (eg. Cane-growers and SRDC) commented that the sugar industry is under researched. They went on to say that the expansion of the sugar industry advocated by the Commission in its draft report cannot be supported by the existing research and development base.

It is difficult to establish the optimal level of funding of industry research. Returns from research are inherently uncertain and, to the extent that they generate benefits that cannot be easily identified or recouped from users, the benefits are difficult to judge. Comparisons with other industries or other countries are of little help as it is not clear that their level of funding is optimal. In this situation funding derived principally from the industry itself has the merit that those most likely to benefit from the research pay the cost, and are thus most likely to make an accurate judgement on

whether the level is optimal. They are also more likely to have the necessary information to judge whether additional funds would be worth directing to research compared to other income generating activities.

It is not immediately apparent that research activity needs to increase with an increase in the size of the sugar industry. Much, even most research would be the same irrespective of the industry size. In addition, because research funding is by levy on industry production, expansion will result in additional funds for research. This additional revenue could be used to fund additional research in the industry.

While it is frequently difficult to identify and charge individuals who benefit from research, the benefits often accrue to clearly identifiable groups in society (such as a particular industry). This is widely considered to justify the conclusion that such research should be funded by that group rather than by society as a whole.

Cane-growers believe that sugar research benefits the wider community through export returns and flow-on effects of industry activity to the community. However, the Commission considers that these flow-on effects could also be obtained if funds are invested in other activities. It is not clear that such flow-on effects would be any higher if invested in sugar research than other research or for that matter, left in the hands of taxpayers to be spent or invested depending on their own judgement of benefits.

While it is not clear that there are benefits from sugar industry research that are not primarily internalised in higher industry returns or lower costs, the availability of information is limited. Also, there is currently a general mechanism for funding rural industry research, and on the basis of information available to the Commission it is not possible to justify differential treatment for the sugar industry. The Commission considers that a review of the level of funding and the extent of Commonwealth contribution would more appropriately be undertaken in the context of a more comprehensive review into the funding of rural research generally.

E7.2 Amalgamation of SRDC and BSES

A number of industry participants criticised the overlap and duplication of research carried out by various bodies and suggested the amalgamation of the BSES and SRDC. There appears to be some dissatisfaction in the industry about SRDC's role in controlling research funds. This appears to stem from a perception in the industry that when the Commonwealth funding was introduced in 1985, this was to be a replacement of industry funding for the BSES. Under this view, the industry was prepared to levy itself and set up the SRDC to attract the federal money on dollar-for-dollar basis in the belief that this money would be passed on back to the BSES for their operation.

The South Johnstone Milling Company said that:

There are some concerns about the direct contribution from the industry to the SRDC. We have grave misgivings about the siphoning off of the current BSES levy to the SRDC to bridge a perceived gap in research funds that may be available from the industry.

Flower, the SRDC sees itself as having a wider charter and hence responsible for providing a balance between research priorities of several organisations. At present BSES has to apply for funds from the SRDC along with other research organisation and receives about half the funds distributed by the SRDC.

There is certainly a degree of overlap and duplication in the administration of research funding in the sugar industry. Indeed, a comment was made to the Commission that a total of some 50 people are on various bodies involved in deciding research priorities in the sugar industry. However, it is reasonable to expect that if the Commonwealth is to provide funding, it should have some mechanism for ensuring that the money is well spent. In addition, the Commonwealth Government has a wider responsibility than simply the Queensland part of the sugar industry, particularly given that the New South Wales industry contributes to SRDC funds.

If amalgamation of the SRDC and the Sugar Experiment Stations Board were to occur, it would be reasonable for the amalgamated body to include representation from the Commonwealth and the New South Wales industry. This could bring about savings by reducing the bodies involved in administering research.

APPENDIX F: THE ENVIRONMENT

F1 Background and participants' comments

Cane-growing has the potential to cause significant environmental damage through soil erosion and nutrient and pesticide run-off. Eroded soil, together with harmful nutrients (mainly nitrate and phosphate), are dumped in mangrove estuaries and flushed into the ocean during storms and cyclones. These nutrients and run-off fertilisers act as nurseries for algae blooms that grow at a rapid rate squeezing out the slower-growing coral polyps (that build reefs).¹ Furthermore, unnaturally high concentrations of nutrients can kill marine organisms.

Of particular concern in Queensland is the potential for damage to the Great Barrier Reef through sedimentation from erosion and from nutrient run-off upsetting the ecological balance of the reef. The Great Barrier Reef Marine Park Authority (GBRMPA) said it has been postulated for some time that run-off from cane cultivation may be having a deleterious effect on the reef. It noted that there have been a relatively large increase in the use of fertilisers on cane - levels in use at present being over three times the levels of the early 1950s. GBRMPA also said that sugar cane accounts for most (74 per cent) of the fertiliser used in the area.

The land assignment system has contributed to the potential for environmental damage. Pro-rata allocations with limited scope for transfers have encouraged land-locked growers to expand onto more marginal land. As a result, 16 080 hectares of land, or about 5 per cent of assigned land, is farmed in marginal and unsuitable areas.²

In addition, because there are restrictions on bringing additional land under cane production, there is an incentive for the more intensive use of fertilisers and pesticides to increase output. The combination of increasing fertiliser usage and increasing soil erosion in recent years have compounded the potential for adverse environmental impacts.

The new *Sugar Industry Act 1991* (Section 9.10 (2.c)) includes provisions for the refusal to allow transfer of assignment between growers unless the land has been prepared and utilised for the growing of sugar cane without undue damage to the environment. However, pro-rata increases of assignment will continue under the new legislation together with continued restrictions on the transfer of assignment to more suitable areas.

¹ The Grenadine's World's End Reef, at the far eastern end of the Caribbean, is showing signs of pollution. Scientists suspect that the Headwaters of the Orinoco River that flow through logged and eroded southern Venezuela - hundreds of kilometres away - are providing the nutrients creating a devastating algal plume sighted 120 kilometres out to sea. *Eailliwatcli Magazine*, p15, February, 1991.

² Sugar Industry Working Party, Report to the Queensland Minister for Primary Industries, 1990, Appendix 9.

Members of the Australian sugar industry are uncertain about the environmental impact of their industry but acknowledge that careful monitoring is necessary. The Cane-growers of the South Johnstone Mill Area said that:

The Cane-growers South Johnstone Mill Area Committee acknowledges the need to examine further the possibility that fertiliser run-off causes damage to the reef. However, actual research data has not concluded the cause-effect relationship of this question nor how other developments such as increased urbanization and road work practices contribute to the problem.

Similarly, Cane-growers - Mourilyan Area said that:

Environmental management of existing lands, rivers and ocean reefs is important and should be effectively applied to prevent soil erosion, land degradation, flooding and damage to the Barrier Reef, commercial fisheries, and productivity.

Responsibility for managing the Great Barrier Reef Marine Park resides with GBRMPA. The Great Barrier Reef Marine Park Act provides the power for the Governor General to make regulations "regulating or prohibiting acts (whether in the Marine Park or elsewhere) that may pollute water in a manner harmful to animals and plants in the Marine Park". The regulations which exist at present under this section of the Act relate primarily to the discharge of waste in the Marine Park. GBRMPA said that, where impacts on the Great Barrier Reef appear to be coming from outside the Marine Park, the Authority prefers to act in co-operation with other local, state and industry bodies.

The GBRMPA commented that evidence that run-off from cane cultivation is causing damage to reefs is not yet available but that initial results from postgraduate work in progress at James Cook University suggest that there may be problems in selected locations. Two projects, now being written up, were centred in the Cairns and Proserpine areas respectively. Press coverage of initial results from the James Cook study reported that pollutants from farming are flowing into the inner sections of the Great Barrier Reef, but have failed to reach coral further out to sea. Results of the study are due at the end of 1991.³

The GBRMPA said that soil erosion could be contained by sound farm management practices. Cutting cane green, which results in a trash blanket left on the ground, along with zero tillage are two major improvements in reducing soil erosion rates. The trend towards more ratoon crops also reduces soil disturbance and subsequent erosion. The GBRMPA referred to studies which showed that soil losses are reduced by up to approximately 100 tonnes per hectare per year due to these improvements but said that these improvements have very little impact on soluble nutrient run-off.

³ *The Australian*, 3 July, 1991.

The *Australian Cane-grower* 28 January 1991 reported that after heavy rain and flooding due to Cyclone Joy, farms that had implemented conservation farming techniques had suffered the least damage:

Ratoon paddocks contoured and minimum tilled had only minor damage providing that banks and waterways were built and maintained to specifications. Plant cane suffered the greatest damage where rows went straight up and down slopes. Contoured plant cane paddocks sustained some damage but to a significantly lesser degree.

The GBRMPA concluded in its submission by saying that it has applied for a special budget item for the 1991-92 financial year and subsequent years for water quality research monitoring. It said that if successful, a considerable proportion of this would be spent on attempting to answer questions related to sources of nutrient and sediment run-off on coral reefs and establishing any connection with adjacent land use.

F2 The Commission's assessment

A greater effort is required in understanding the respective roles of run-off and leaching in removing nutrients from farm lands, including ways of limiting these losses by appropriate land management practices such as trash blanketing, zero tillage, buffer zones, etc. The role of groundwater as a sink for nutrients and the quality of surface water is largely unknown. The need to design and manufacture farm equipment to operate more efficiently in conjunction with green cane trash blanketing is also required. Educating farmers about minimising environmental damage is also important.

Any action to restrict or 'tax' cane-growing activity in response to environmental concerns should not be initiated without adequate information on whether any significant detrimental environmental impact is occurring. Studies should include investigations of both the extent of any damage and the cost of reducing such damage. Such studies could be undertaken by an independent body, such as CSIRO. Only with good information could a reasonable judgement be made on the cost and benefits of any government action.

APPENDIX G: MODELLING THE EFFECTS OF DOMESTIC REFORMS

G 1 Description of ORANI-FOOD

The simulations carried out for this report are an extension of the work reported in the Commission's Statutory Marketing Arrangements (SMA) report (Industry Commission 1991). Both in the SMA report and in this Appendix the Commission used a version of the ORANI model of the Australian economy, known as ORANI-FOOD. In this model cane-growing, raw sugar production and refined sugar production are each separately identified. The basic format of the SMA analyses has been retained. However, the impact of more extensive reforms have been considered and the potential for improving on-farm productivity has been significantly revised.

G1.1 ORANI-FOOD

ORANI is a multisectoral model embodying both direct relationships between industries and final users of goods and services, and economy-wide constraints on the availability of resources and on spending and saving by Australian households and governments. In these simulations an extended version of the model was used, called F11-ORANI, which includes a full accounting of government revenue and expenditure, and a stylised accounting of foreign ownership of Australian assets and income payments by Australians to foreigners.

The model is solved in percentage change form. The resulting solution is a linear approximation to the true solution. The linearisation errors arising from this procedure are negligible for simulations involving only small shocks, but can become more serious as the magnitude of the shocks increases. Because the solution procedure is linear, the results from a complex simulation consisting of several components can in general be expressed as the sum of the results from each component.

Several agricultural commodities and food processing industries were separated out in preparing a special purpose ORANI database, known as ORANI-FOOD. Comparisons of the commodities covered in standard ORANI and the ORANI-FOOD database (both constructed from 1980-81 input-output statistics) are presented in Tables G 1 and G2.

A key parameter affecting the simulations is the sensitivity of cane supply to changes in the price received for cane. The long run elasticity of supply for cane-growing in ORANI-FOOD has a value of 0.5.

Table G1: Additional agricultural commodities in ORANI-FOOD

<i>ORANI commodity</i>	<i>ORANI-FOOD commodity</i>
Milk cattle and pigs	Milk for market milk Milk for manufacturing milk Pigs
Agriculture nec, export-oriented	Sugarcane Agriculture nec, export
Other cereal grains	Unprocessed rice Other cereal grains nec Oilseeds

Source: Standard ORANI and ORANI-FOOD databases.

Table G2: Food processing industries in ORANI-FOOD

<i>ORANI industry</i>	<i>ORANI-FOOD industry</i>	<i>Status</i>
Meat products	Export meat products	Export-oriented
	Other meat products	Import-competing
Milk products	Market milk	Non-traded
	Manufactured milk	Export-oriented
Fruit and vegetables	Preserved fruit and jams	Export-oriented
	Fruit and vegetables	Import-competing
Margarines, oils and fats	Margarines, oils and fats	Import-competing
Flour and cereal products	Rice	Export-oriented
	Flour and cereal products	Import-competing
Bread, cakes and biscuits	Bread, cakes and biscuits	Import-competing
	Confectionery and cocoa	Export-oriented
Other food products	Raw sugar	Export-oriented
	Processed seafood	Export-oriented
	Refined sugar	Import-competing
	Other food products	Import-competing
Soft drinks and cordials	Soft drinks and cordials	Import-competing
Beer and malt	Beer	Import-competing
	Malt	Export-oriented

Source: Standard ORANI and ORANI-FOOD databases.

-
- benefit rates for transfer payments are fixed in real terms;
 - income tax brackets are indexed to the consumer price index;
 - direct tax rates on personal and company income vary equiproportionately so as to maintain a fixed real government sector borrowing requirement;
 - the exchange rate is fixed; and
 - fixed ratios are maintained between private consumption spending and national saving, and between investment and capital usage within each industry. The relation between investment and saving determines the balance on current account which, together with net income payments to foreigners, determines the balance of trade.

G2 Detailed results

Detailed results for the simulations reported in Table 10.2 are presented in Table G3.

In simulation (a) - 30 per cent land expansion combined with 9 per cent on-farm productivity improvements resulting from increased flexibility within the industry - the sugar industry's output and exports are estimated to increase by 36 and 44 per cent, respectively. GDP and aggregate consumption are estimated to increase by 0.1 per cent each, annually.

Increasing the supply of raw sugar results in a decline in its price (around 10 per cent). Also, cane-growing being a more labour intensive activity than grazing in the region from where land was taken away, employment of rural workers increases by 1 per cent. This puts upward pressure on wages, with nominal wages economy-wide increasing more rapidly than the CPI (0.6 per cent compared with 0.4 per cent).

The main sugar-using industries specified in ORANI-FOOD as exporting (Preserved fruits and jams and Confectionery and cocoa) would obtain their sugar inputs at a lower price. However, they would also face higher labour costs. Since the raw sugar contents of their outputs are low (0.6 and 0.4 per cent, respectively, in value terms), and labour's share of their total costs is relatively high (around 25 per cent), the effect of higher labour costs outweighs the effect of lower raw sugar prices. Overall, the industries would become less competitive internationally, their exports declining by 8 and 7 per cent, respectively. This contrasts with the results of the price reform simulation - simulation (b) - where gains in competitiveness through lower prices for sugar inputs were not eroded through higher inflation and higher real wages.

Industries other than sugar benefiting from the reforms simulated in (a) are in the rural and manufacturing sectors which are estimated to expand by 1.0 and 0.2 per cent respectively. Due to the exchange rate effects of increased sugar exports, certain exporting industries become less competitive. These mainly fall within the mining sector, the output of which is estimated to decline by close to 2 per cent.

Table G3: **Long run effects of reforming the Australian sugar industry**
(per cent change)

	<i>30% land expansion & 9% on-farm productivity improvements (a)</i>	<i>Price Reform¹ (b)</i>
Economy-wide result		
Real GDP	0.1	0.0
Aggregate real consumption	0.1	0.0
Aggregate exports	0.4	-0.1
Aggregate imports	0.3	0.0
CPI	0.4	-0.1
Nominal wage rate	0.6	0.0
Sectoral output levels		
Agriculture	1.0	-0.1
Mining	-1.6	0.0
Manufacturing	0.2	0.0
Services	0.0	0.0
Processed food and beverages		
• output	1.9	0.0
-preserved fruits and jams	-2.2	0.5
-confectionery and cocoa	-0.3	0.2
--raw sugar	35.9	-2.4
--refined sugar	0.0	0.2
• exports	9.5	-0.4
-preserved fruits and jams	-8.3	1.9
-confectionery and cocoa	-6.7	3.6
-raw sugar	44.2	-3.0

¹ The 28 per cent domestic price distortion on raw sugar and 7 per cent on refined sugar, corresponding to the current \$761t specific tariff, were removed.

Source: ORAM-FOOD simulations.

In simulation (b), the domestic price of both raw and refined sugar would decline. The industry would then not be able to raise revenue from consumers to subsidise producers. The price received by growers for their cane would decline and, as a result, raw sugar output and exports would be 2 and 3 per cent lower, respectively. With lower domestic sugar prices the demand for refined sugar would increase slightly (0.2 per cent).

The main sugar-using processed food industries specified as being export oriented in ORANI-FOOD, (Preserved fruits and jams and Confectionery and cocoa), would obtain their sugar inputs at a lower cost and thus become more competitive internationally. Their exports were simulated to expand by 2 and 4 per cent, respectively.

G 3 Sensitivity tests

G3.1 Domestic price distortions

The first set of sensitivity tests was carried out to see how the effects of removing the domestic price distortions for raw and refined sugar varied as the specific tariff was reduced from \$115/t (its 1989-90 value) to \$55/t (the value it will have in 1992-93).

The results are summarised in Table G4. They show that, as one would expect, the effects of removing the price distortion become less as the level of the tariff is lowered.

The overall conclusion is that the effects of removing the domestic price distortion are small, both economy-wide and on the sugar industry itself, for the range of tariff rates applying in recent years.

Table G4: **Long-run effects of removing the domestic price distortions**
(per cent change)

	<i>Degree of price distortion removed</i>		
	<i>1989-90¹</i>	<i>current²</i>	<i>1992-93³</i>
Economy-wide results			
Real GDP	0.01	0.01	0.01
Aggregate real consumption	0.03	0.02	0.02
CPI	-0.06	-0.05	-0.04
Sugar industry results			
• output			
raw sugar	-3.04	-2.41	-2.06
refined sugar	0.29	0.23	0.19
• exports			
raw sugar	-3.84	-3.05	-2.60

¹ 38 per cent on raw sugar and 13 per cent on refined sugar (corresponding to the \$1 151t specific rate). ² 28 per cent on raw sugar and 7 per cent on refined sugar (corresponding to the current \$76A specific rate). ³ 23 per cent on raw sugar and 4 per cent on refined sugar (corresponding to the \$551t specific rate).

Source: ORANI-FOOD simulations.

G3.2 Land expansion and productivity improvements

A sensitivity test was carried out regarding the extent of expansions in sugar land and the associated productivity improvements. For this purpose the assumed expansion was halved from 30 per cent to 15 per cent.

The proportion of sugar land on which the improvements have been assumed to apply Australia-wide is: $(0.15+0.05)/1.20 = 17$ per cent. The 1.20 figure for total sugar land includes the 15 per cent expansion and accounts for the 5 per cent of cane-growing located in NSW. The cost savings arising from economies of size amount to 6 per cent, simulated as an improvement in on-farm productivity.

The results are summarised in Table G5. The estimated benefits of the on-farm improvements arising from a 15 per cent land expansion are significant - a 0.05 per cent improvement in CDP, worth close to \$200 million in 1990-91 dollars. Raw sugar production was simulated to expand by 20 per cent leading to a 24 per cent increase in raw sugar exports.

G3.3 Higher export demand elasticity

A sensitivity test was also carried out for the 30 per cent land expansion combined with a 9 per cent productivity improvement simulation, setting the export demand elasticity for raw sugar at -20. The results are reported in Table G6. They show that, with the higher export demand elasticity, the estimated increases in raw sugar output and exports are also higher (41 and 50 per cent, respectively).

Table G5: **Long-run effects of reforming the Australian sugar industry**
(per cent change)

	<i>15% land expansion & 6% on-farm productivity improvement</i>
Economy-wide result	
Real GDP	0.05
Aggregate real consumption	0.03
Aggregate exports	0.24
Aggregate imports	0.2
CPI	0.2
Nominal wage rate	0.3
Sectoral output levels	
Agriculture	0.5
Mining	-0.9
Manufacturing	0.1
Services	0.0
Processed food and beverages	
• output	1.0
-preserved fruits and jams	-1.2
-confectionery and cocoa	~0.2
-raw sugar	19.8
-refined sugar	0.0
• exports	5.3
-preserved fruits and jams	-4.6
-confectionery and cocoa	-3.7
-raw sugar	24.4

Source: ORANI-FOOD simuladons.

Table G6: **Effect of setting the raw sugar export demand elasticity to - 20**
(per cent change)

	<i>30% land expansion with 9% productivity</i>
Economy-wide result	
Real GDP	0.1
Aggregate real consumption	0.1
Aggregate exports	0.2
Aggregate imports	0.4
CPI	0.5
Nominal wage rate	0.8
Sectoral output levels	
Agriculture	1.1
Mining	~2.1
Manufacturing	0.1
Services	0.1
Processed food and beverages	
• output	2.0
-preserved fruits and jams	-3.1
-confectionery and cocoa	-0.5
-raw sugar	40.8
-refined sugar	-0.1
• exports	10.3
-preserved fruits and jams	-11.8
-confectionery and cocoa	-10.5
-raw sugar	50.3

Source: ORANI-FOOD simulations.

APPENDIX H: MODELLING THE EFFECTS OF INTERNATIONAL REFORM

H 1 Key sugar producing and consuming economies

For sugar, the key OECD economies are the European Community (EC), Japan and the United States (US), partly because of the importance of their production or consumption and partly because of the magnitude of their government interventions. The agricultural policies of these economies are well documented, with their distorting effects having been regularly monitored. The policies tend to subsidise domestic production and tax domestic consumption.

Policies of key non-OECD economies - Brazil, China, India, Thailand, Mexico and Cuba are much more diverse and their effects are more difficult to quantify.

Details of the policies of key sugar producing and consuming economies are presented in Appendix B.

The available evidence suggests that important non-OECD economies, such as Brazil, and Thailand are low cost sugar producers (Tables H. 1 and H.2). One consequence of this is that such countries would be able to compete internationally even if their existing complex, and often tight regulations, were removed.

Table H.1: Sugar price comparisons, 1990-91, selected producers

	<i>raw material</i>	<i>price to grower for sugar¹</i> (US c/kg)	<i>consumer price, 1991 (refined)</i> (US c/kg)	<i>raw sugar</i>		
				<i>production</i> (1000 tonnes)	<i>exports</i> (‘000 tonnes)	<i>imports</i> (000 tonnes)
Australia	cane	18	81	3515	1299 ⁵	10
Brazil	cane	15 ³	50	7900	1548	81
India	cane	15 ²	46	12920	250	0
Japan	beets	74	182	925	1	1850
Mexico	cane	22	58	3400	10	1823
South Africa	cane	17	67	2165	800	0
Thailand	cane	19	51	3900	2503	0
United States	cane and beets	31 ⁴	96	6350	510	2574

Note: These data are indicative, and not meant to be definitive. They include many estimates and approximations and are subject to fluctuating exchange rates.

¹ For the many countries where only the grower price for cane or beets was available, the cane or beet price per kg was divided by the 1990-91 recovery rate for raw sugar to obtain the grower price for sugar. ² Central government's mandated minimum price. ³ 1989-90 price which was a weighted average of prices for CS and NE producing regions. ⁴ 1989-90, USDAINASS, weighted average of cane and beet sugar prices. ⁵ July 1990 through September 1990

Source: US Department of Agriculture (1991).

Table H.1: Cane sugar production costs, selected countries, 1979-80 to 1986.87
(\$US per tonne of sugar, raw value, ex mill)

		1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-96	1986-87
Australia	field cost	126	145	163	160	172	139	140	144
	factory cost	66	57	59	63	81	67	75	73
	rank*	9	9	9	7	17	6	7	8
Brazil (CS)	field cost	114	122	152	160	135	112	113	121
	factory cost	69	65	73	88	79	85	89	91
	rank*	7	4	11	18	5	5	6	7
Brazil (NE)	field cost	160	172	202	205	172	142	151	150
	factory cost	109	105	116	122	114	102	102	99
	rank*								
China	field cost	176	192	192	199	216	238	270	227
	factory cost	177	189	190	224	242	214	196	162
	rank*	44	39	41	45	48	49	48	42
India	field cost	143	197	199	159	164	141	148	152
	factory cost	113	189	110	76	83	169	158	132
	rank*	25	40	24	13	12	31	27	24
Japan	field cost	461	469	599	502	493	478	522	561
	factory cost	196	182	262	248	215	207	213	246
	rank*	52	52	54	57	57	59	59	60
Mexico	field cost	156	188	202	162	151	172	166	175
	factory cost	96	133	108	112	103	99	97	81
	rank*	24	27	29	23	16	20	16	15
South Africa	field cost	112	127	136	148	181	146	117	142
	factory cost	36	46	50	59	99	65	57	56
	rank*	1	3	2	4	22	7	3	5
Thailand	field cost	148	201	171	206	204	125	136	113
	factory cost	81	219	93	59	67	89	100	85
	rank*	21	45	20	20	19	9	8	6
USA (main land)	field cost	214	234	236	234	269	257	254	235
	factory cost	53	60	87	98	105	93	93	84
	rank*	29	25	39	34	39	36	36	29
USA (Hawaii)	field cost	242	273	291	293	294	262	246	249
	factory cost	66	89	92	106	105	115	106	95
	rank*	37	37	42	43	44	40	38	35

Rank relative to total cost (field plus factory) out of all countries surveyed (61 in 1986-87).
Source: Landell Mills (1989).

Two models were used to assess the extent to which other countries' protection raises or lowers the world price of raw sugar: SUGABARE developed by ABARE and the Commission's World Food Trade Model. Results of the simulations are detailed in Chapter 11. A description of the models themselves is provided below.

H2 SUGABARE

H2.1 Model description

Country coverage

SUGABARE is designed to analyse economic issues that relate to world sugar trade. It consists of nine sectors: Australia, Brazil and the EC (the key exporters); US and Japan (the main OECD importers); Soviet Union and Cuba (to account for their special trade agreement); China (one of the most important non-OECD importer); and the Rest of the World, ROW (a net importer, containing mainly developing countries).

The version of the model used in this report is the one described in ABARE (1989). The model equations have generally been estimated using data over the 1964 to 1984 period. The world price used in the database is the International Sugar Agreement (ISA) daily bulk raw sugar price.

The equations

The model comprises a series of econometrically estimated equations concerning production, consumption, stocks and trade for each country or country grouping. The world sugar price is solved by the equality between world demand and world supply. That is, world sugar price adjusts in the model so as to ensure that the world market clears.

Interactions

Commodities other than sugar are considered by the model if, historically, they have had an influence on sugar markets. The commodities considered are wheat (a substitute for sugar beet in production in the US and the EC); high fructose corn syrup (a substitute for refined sugar in consumption in the US and Japan); ethanol, which can be used to power motor vehicles and can be produced from sugar cane (Brazil); and crude oil, the prices of which are modelled to affect administratively set domestic sugar prices in China. In countries like China, high international sugar prices pose a threat to foreign exchange objectives. In the model, producer prices in China increase more rapidly than world prices in order to reflect the government's desire for increased self sufficiency as world prices rise. Through foreign exchange considerations, the oil price also

Influences the setting of sugar cane prices since, in 1984, 16 per cent of China's foreign exchange earnings were from crude oil exports. In the model, the domestic price of cane in China varies inversely with the world price of crude oil.

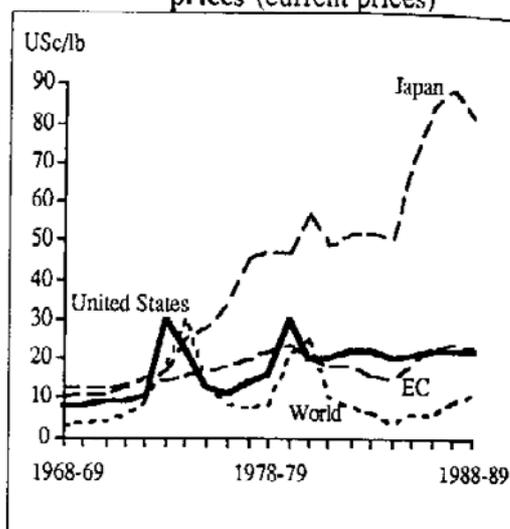
Policies affect prices

A characteristic of the world sugar market is that in many countries' domestic sugar prices are held, by policy, above the world price (Figure H.1). As suggested by previous studies, the net effect of various countries' sugar policies is a lower and less stable world price.

Demand

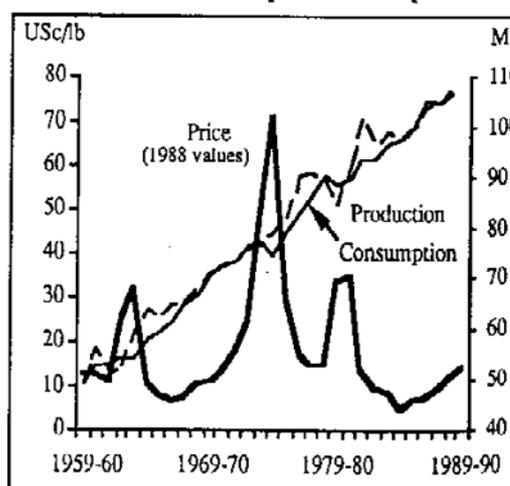
World sugar consumption doubled over the past two decades (Figure H.2). This was mainly due to large increases in demand in those developing countries with experienced rapidly rising living standards. For example in the seven years between 1980 and 1987, per person consumption of refined sugar in China increased from 3.82 kg to over 7 kg – an average growth rate of close to 12 per cent a year. China's relatively high income elasticity of demand is reflected in the model's econometric estimates, with consumption elasticity for sugar relative to income having been estimated at 1.4, compared with around 0.3 for OECD economies (Table H.3). Table H.3 also shows that consumption is relatively insensitive to changes in sugar prices. Consumption is generally modelled as a function of income per head and the domestic price.

Figure H.1: World and domestic prices (current prices)



Source: Information supplied by ABARE (1989).

Figure H.2: World production consumption and price



Source: Information supplied by ABARE.

Table H.1 Consumption elasticities (in 1985 unless otherwise specified)

	<i>Sugar consumption with respect to</i>		
	<i>Income</i>	<i>Domestic price</i>	<i>World price</i>
Australia	0.364	-0.076	-0.024 ¹
European Community	0.264	-0.320	0.005
United States ²	0.287	-0.048	-0.048 ³
Japan ²	0.241	-0.119	-0.170 ⁴
Brazil	0.484		-0.009
China	1.362		-0.005
Cuba	0.847		0
USSR	0.401		-0.003
Rest of World	0.510		-0.007

¹ Assuming operation of a system of fixed duties (introduced July 1989). ² Elasticities of total caloric sweetener consumption. ³ Respectively, when an import quota is and is not in force. ⁴ Respectively, when the world price is below the minimum stabilisation price, and midway between the latter and the target price.

Source: ABARE (1999).

Supply

Over the past 20 years, world supply grew broadly in line with demand. However, in several years growth in production was ahead of consumption. This is thought to have arisen from asymmetrical responses in supply due to production quotas in several key countries expanding when sugar prices rose, but not declining when prices slumped. In years of oversupply there were large increases in stocks, placing downward pressure on world sugar prices.

In some years, world production did not fully match consumption, generally due to adverse weather conditions. Overall, the effects of government policies, combined with variable weather conditions, resulted in a less steady trend in production than in consumption.

The above characteristics, which have led to instability in world prices, are embedded in the model as:

- an exponential formulation of production to account for the asymmetrical response to world price changes in key countries;
- a full account of stock behaviour.,
- the modelling of weather patterns, with projected patterns assumed to follow those observed in the past;
- addition of a stochastic facility allowing for averaging the results of 60 simulations (production equations subject to random disturbances with the same variance as the estimated residuals). The stochastic simulations aim to capture the effects of random fluctuations in the price cycle; and
- availability of a 'deterministic' mode. Deterministic simulations show the effect of the underlying economic variables on prices.

Model solution

The model is first run in 'base' mode over a specified time period (that is without changes to policy variables), so as to obtain the baseline mean and variance of the world sugar price. Then the model is rerun with the desired policy changes and the results are compared with those of the baseline.

H2.2 Model validation and sensitivity testing

To validate its model, ABARE used the Kolmogorov-Smirnov non-parametric test, Theil's U2 test and sensitivity analysis. The Kolmogorov-Smirnov test showed that the model was capable of replicating the historical distribution of world sugar prices; the Theil test indicated that the model was capable of tracking recent price movements; and the sensitivity tests showed that the results were not unduly sensitive to changes in parameter values.

ABARE concluded that there were no misspecification errors in the model and that it could be confidently used to simulate the market and to assess the likely effects of policy changes.

However, ABARE noted that, because of the exponential terms in the production equations, the model tended to show unrealistically large production responses to price jumps outside the historical range - the biggest historical jump having been US20c/lb.

H2.3 Assumptions about the external environment in forward simulations

The model projects into the future, using data over the 1964 to 1984 period. For the simulations in this report, the projection period chosen is from 1985 to 2004. The following assumptions were made for the forward simulations:

- annual population growth rates: 1 per cent for OECD countries and USSR and 2 per cent for China, Cuba, Brazil and ROW;
- annual income growth rates: 5 per cent for China and 2.5 per cent for all other countries or groupings;
- exchange rates projected by use of ARINIA models;
- US average farm price for wheat and EC farm price index for wheat were held constant at their 1985 levels - US\$3.5 per bushel and 76.95 (1970=100) respectively;
- weather dummy replicated the historical weather pattern. Since in the estimation period had the value 1 in 1966, 1968, 1971, 1972 and 1979, in the forward simulations it had been set at 1 for 1987, 1989, 1992, 1993 and 2000;
- for the USSR, the yield of beets per ha was increased by 2 per cent a year and was subjected to random shocks in accordance with observed variance;

-
- Japanese policies remained at their 1989 settings: import duty Y413/kg, refining cost Y56/kg, excise tax Y16/kg; and
 - Australian sugar import tariff remained at 15 per cent.

The assumptions are the same as those listed in ABARE (1989).

H 3 The World Food Trade model (WFT)

The WFT model was developed by the Commission, based on Tyers (1984 to 1986). Like the Tyers model, the WFT model recognises 30 regions and seven agricultural commodity groups. It displays, however, some important differences.

First, the WFT is a general equilibrium model in that it accounts for production and consumption of all goods markets, rather than in the seven food commodity markets only. Second, the WFT model adopts a comparative static frame-work, with its equations being a linear approximation of the original Tyers equations. While sacrificing the dynamic capabilities of the original model, the advantage of such a formulation is its relative simplicity and ease of interpretation -- a feature especially useful in policy analyses.

Third, while in the Tyers model production and consumption behaviour are mostly described by unrestricted estimates of demand and supply elasticities, the WFT model imposes the requirement that the own and cross-price elasticities be consistent with underlying utility and production functions. That is, standard neoclassical optimisation behaviour provides the basis for the WFT model's demand and supply equations.

Finally, the ORANI model has been made an integral part of the world model. This provides a detailed picture of the effects of world food trade liberalisation on Australia. More detail on the WFT model and on the way the WFT and ORANI models are linked is described in Horridge, Pearce and Walker (1990).

APPENDIX I: THE GROWER – MILL RELATIONSHIP

In this report, the Commission has proposed that the more or less uniform delivery arrangements embedded in the existing local awards no longer be obligatory. This would provide growers and mills with greater flexibility to negotiate arrangements that are mutually agreeable to the individual parties concerned and would facilitate efficient growing and milling practices in each region.

After this proposal was made in the draft report, it resulted in considerable comment at the draft report hearing and in additional submissions to the Commission. As a consequence, the Commission has examined more closely the economic relationship between growers and mills, and at aspects of likely contractual arrangements.

I1 The economic relationship between mills and growers

The principal concern of cane-growers is the potential economic power of mills as the single buyer of cane in a region (accentuated by the prevalence of common ownership of adjacent mills), compared with the limited power possessed by a large number of cane-growers. In its submission, Cane-growers said that;

Abuse of the mills' monopsonistic power in the early years of this century led to the introduction of the general form of regulation which remains in place today. There is nothing to indicate that those who now own the mills have become any more altruistic.

While much has changed in the ensuing 80 years, some changes have served to strengthen the position of mills, while others have served to weaken that position. The market power of mills has been strengthened by:

- the introduction of mechanical harvesters to cut cane into billets which has reduced the time available between when the cane is cut and when it is crushed. This has significantly reduced the effective distance that harvested cane can be transported; the development of tram lines dedicated to a particular mill; the rationalisation the mills' operations over the years;
- the increase in the common ownership of groups of mills in the major geographical sugar cane regions; and
- the increased capital cost of mill construction which limits new entrants into milling.

The market power of mills has been weakened by;

- the growth of organised grower representation;

-
- greater access by growers to information; and the development of legislation governing trade practices and the provision of opportunities for external arbitration.

Despite changes in mill ownership which may have reduced the potential for competition between mills, it is clear that, as a result of the development of legislation over time, groups in society whose members have little individual power (such as farmers and consumers) are better protected from the abuses of economic power than they were at the beginning of the century. Nonetheless, there is clearly concern that, without the existing regulations, mills could exercise market power.

In principle, there are two forms of behaviour that mills could engage in to the detriment of growers. These involve what can be termed 'opportunistic' behaviour and discriminatory pricing to appropriate land 'rent'.

11.1 Opportunistic behaviour

Opportunistic behaviour could be aimed at exploiting 'quasi-rents' generated by the capital committed to an activity. Quasi-rents result from the investment of dedicated capital which, once invested, cannot be used for other activities and the output of which is dedicated to a single or very limited number of buyers. In this situation, the single buyer (mill) can bargain the price (of cane) down below the level necessary to provide a return on the capital invested (in cane growing). The buyer is essentially only contributing to operating and maintenance costs and not to the cost of capital. Because of the limited opportunity to shift the capital once committed, the supplier is still better off continuing to supply rather than closing down.¹ The benefit to the buyer from this action is regarded as a 'rent' in economic terms as its appropriation does not change the level of economic activity (that is, the supplier continues to supply) but, because in the longer term this action will discourage future investment by suppliers, it is essentially a short-term or quasi rent.

The possibility of this behaviour is often avoided by the use of long-term contractual arrangements prior to the investment being committed and, if necessary, vertical integration between suppliers of raw materials and processors to overcome the costs of this potential behaviour. Vertical integration

¹ Benjamin Klein, Robert Crawford and Armen Alchian, 'Vertical Integration, Appropriable Rents and the Competitive Contracting Process', *Journal of Law and Economics*, October 1978, Oliver Williamson, 'Transaction-Cost Economics: the Governance of Contractual Relations', *Journal of Law and Economics*, October 1979. Glen Hubbard and Robert Weiner, 'Efficient Contracting and Market Power: Evidence From the U.S. Natural Gas Industry', *Journal of Law and Economics*, April 1991.

becomes more attractive as the assets become more specific and the quasi-rents increase.²

The likelihood of this sort of behaviour in the Queensland sugar industry would appear to be small, despite the existence of specific capital in cane-growing and limited buyers. At best, it is a short-term strategy that would seriously discourage long-term investment in cane-growing.

CSR commented that;

Millers have to ensure cane supplies over many years, not year to year. They cannot afford to alienate growers in the short, medium or the long term.

and;

The economics of milling are highly sensitive to the throughput of cane. If growers were to constrain their aggregate production by, say, 10 per cent it would have a calamitous effect on the mills' profitability. We have experienced this effect this year in that the fall in crop alone, which in our mills has been of the order of 25 per cent, has reduced CSR's sugar milling profits by at least 75 per cent.

Indeed, it can be argued that growers, once organised, are in a better position to engage in this sort of opportunistic behaviour because, in some regions, it is easier for growers to find alternative uses for their land than it is for a miller to find an alternative use for the considerable capital invested in a sugar mill.

The representative of the South Johnstone Cane-growers said;

... there is a fear amongst growers that if all the regulations were taken away, the mill owner would use some big stick over the growers... I think I would be far more fearful in a deregulated industry of being a mill owner than a grower because a mill owner can do one thing with his mill and that is crush cane and nothing else.

One possible reason for a mill to engage in this otherwise destructive long-term behaviour would be if it were part of a strategy to displace private cane-growers and acquire land for a vertically integrated cane-growing and milling operation. While this is a conceivable scenario, it is unlikely, as there would be the strong possibility that such action would precipitate intervention by government.

11.2 Appropriation of land rent

The second form of behaviour that mills could engage in is discriminatory pricing to appropriate some of the additional value that is generated by using land for cane-growing compared with lower-return alternative uses. This value would normally appear as a higher land value reflecting the higher return from cane-growing. At the margin, land under cane would have the same value as alternative land uses, but there will exist considerable areas of land where the return from cane-growers will be appreciably higher than any alternative use, either because of agronomic and /or locational characteristics.

If the cane-grower had many mills to deliver cane to, a single market price for at any one time would be expected to exist for all growers, with the additional returns to more suitable

² R. H. Coase, 'The Nature of the Firm: Influence', in, *771e Nature of the Firm* Edited by Oliver E Williamson and Sidney G Winter, Oxford University Press, 1991.

land accruing to the landholder in the form of higher land prices. However, if there is only one mill that growers can sell to, the potential exists for the mill to discriminate in prices between growers, offering a lower price to those whose alternative land use is significantly less profitable than cane-growing. The land would remain under cane, so long as the price was not low enough to make the alternative land use a viable alternative, with the higher returns generated from land's characteristics being appropriated by the mill rather than the landholder.

Because such opportunistic behaviour, if undertaken effectively, would not change the choice on whether to grow cane, it would not represent a decline in economic efficiency. It would simply represent a wealth transfer from landholders to the mill. Whether action needs to be undertaken to limit such potential transfers is a question of equity rather than economic efficiency.

I2 Options

Where there is a difference in organisational structure - many small growers and a few large millers - a rational economic response would be for growers to join forces to balance the mill's market power, or for farms to become fewer and larger enterprises. An example of this behaviour

was the formation of a grower organisation for the negotiation of sales of a particular quality of wheat direct to a flour miller to increase returns over what would have been obtained if the wheat had been sold through the then existing channels (Australia Wheat Board).³ Under deregulation, sugar growers would have an additional incentive to become larger, or to organise themselves into groups to negotiate conditions with the local mill.

Grower organisations would, however, be subject to the provisions of the Trade Practices Act which limit collusive arrangements to reduce competition between suppliers. However, the Act provides for the exemption of pricing agreements if 50 or more parties are involved, provided that the arrangement is judged to be in the national interest and that participation is voluntary.

I2.2 Contracting

Contracting is a means of coordinating successive stages in a commodity systems. Contracts can reduce uncertainty for both parties. The assurance of an outlet for sugar cane, the assurance of a supply to process, and the increased efficiency from harmonising stages from production to processing operate to the advantage of both contracting parties. Another benefit of contracting is that it offers an alternative to government refulation.

CSR commented;

It does not seem to be widely recognised that a commercial contract system would have to replace the existing legislative system comprising awards, and that these contracts will clearly specify the benefits and obligations to both parties. Both growers and millers need the certainty of a contract and they need a contract which may last at least 3 to 5 years. The growers need to have the confidence that they will be able to supply cane on reasonable terms and the mills need to know they are going to obtain cane supplies on reasonable terms.

Contracts do not cover all contingencies. Appropriate adaptations will not be evident for many contingencies until circumstances materialise. A range of processes and techniques, including arbitration as a final measure if others cannot resolve the problem, could be used to maintain the needed flexibility. Rational contracting could also encompass an adjustment process. The reference point is not only the original agreement, but the entire relationship between the parties over time.

Characteristics of private contracts

It is difficult for the Commission to specify what should, or even what is likely to be, included in any contract between growers and millers. These matters are best left to negotiation between these parties who are far more familiar with the industry and the particular situation they face in their regions. Nevertheless, there are some features that could reasonably characterise a private contract system.

³ Walgett Special Pool's Evidence, Industry Assistance Commission's Inquiry – *The Wheat Industry*, - Report No. 411, February 1988, AGPS.

Interim arrangements

It is unlikely that deregulation would mean the immediate move to a system of private contracts. It will take time for contracts to be negotiated and agreed. In the short term, mills have an incentive to maintain supplies and, in the longer term, encourage growers to stay in the industry and new growers to enter. Therefore, it is likely that the current local awards would continue to govern the relationship between growers and mill as the conditions of private contracts are developed by negotiation. However, with deregulation, the conditions could be modified over time.

Length of contract and price variability

Given the extent of investment needed to establish a cane farm and the four to five year cycle for cane-growing, contracts are likely to be for an extended period of time, rather than on a year to year basis. CSR commented that contracts of three to five years are likely to be necessary to ensure supplies for mills and markets for growers. They could also include roll-over provisions, that is, include options to extend on an annual basis, but with the negotiation conducted well before the contract period expires.

Such long-term contracts would be primarily aimed at ensuring continuity of supply for the mill and access to milling capacity for the grower. Given the variability in the sugar price in the international market, contracts are likely to need to include provision for regular adjustment to prices. This could be either automatic adjustment subject to an appropriate index, perhaps based on the spot or futures price for sugar, or, depending on the risk preferences of each party, the contract could include greater or lesser price stability for cane.

Development of a standard contract

Given the large number of small growers in each mill area, it is unlikely that each grower would negotiate a unique contract with the local mill. The costs of negotiating hundreds of separate contracts with unique conditions is likely to be far too high, both for the grower and the mill. It is likely that a standard contract would be developed following consultations between growers and their mill. This could be used by the majority of the smaller suppliers to the mill.

However, individual contracts could be negotiated between the mill and some growers (such as very large farms or harvesting groups) whose circumstances may differ from the majority of growers in the mill area. In these circumstances, it could be worthwhile for them to negotiate clauses specific to their situation.

. *Scheduling of mill supply and price variation over the season*

One of the principal features of cane supply to mills is the need to schedule delivery of cane throughout the season. Under a system of a single price for ccs over the season, there is an incentive for growers to deliver at the time of peak ccs. The mill, however, has limited capacity and a capital investment which it would maximise by operating for as long a period as possible. This scheduling problem is currently handled by the organisation of harvesting schedules under the local award, with rotating harvesting programs operating over a number of years.

The problem of seasonal processing scheduling is not unique to sugar, it is a feature of many agricultural products. In many cases an agreed scheduling of deliveries to a processing plant is a feature of a contract, but intra-seasonal price differences essentially control the harvesting and processing schedule.

By way of illustration, the price of cane per unit of ccs could vary over the season, in an inverse relationship to the level of ccs. At the period of high ccs, the price would be low, discouraging supply in excess of mill capacity, with higher prices per unit of ccs at the beginning and end of the season to encourage sufficient cane to maintain the mill at optimal crushing rates. At the extreme ends of the season, the price the mill was prepared to offer would not be sufficient to encourage growers to grow and supply and this would determine the economic limits of the harvesting and crushing season. Some price differences throughout the season already exist through harvesting allowances towards the ends of the season.

Transport costs

Given the ownership of much of the transport infrastructure by the mills, notably dedicated tram lines, transport arrangements could be negotiated in two ways. One form would be based on delivery 'at the mill gate' for situations where trucking of cane is the norm and growers or private contractors can more efficiently transport cane than the mill. Another form would be for delivery at the loading facilities on the tram network operated by the mills. In comparison with the current situation, where transport costs are effectively averaged across all growers, a more flexible system could result in higher prices for growers closer to the mill and lower prices for more distant growers, reflecting the different transport costs. The extent to which this would occur would depend, to some extent, on the need for the mill to maintain throughput, and in some cases, mills may need to absorb transport costs to encourage sufficient production from more distant areas.

Arbitration of disputes

CSR commented at the draft report hearings that arbitration of disputes is likely to be a feature of contracts. CSR said;

We believe that an arbitration process should be and would be included in the contract for the determination of any matters which are unable to be settled by agreement. By this, we mean local arbitration, not the perpetuation of a central arbitration authority.

CSR also said that there is an Arbitration Act in Queensland [as there is in every State] which is often included in contracts as a means of resolving disputes. The Commission understands that, subject to the agreement of both parties, the Act can still apply, even if the relevant clause is not included in a contract. However, arbitration under the Act can be as expensive as litigation. Alternative arrangements involving agreed mediation procedures could be included within contracts. This is becoming more common in other industries in response to the cost of established litigation and arbitration procedures.

In its investigations, the Commission received mixed comment on the usefulness of external arbitration, with criticism of the encouragement of ambit claims and the disincentive it provided for the parties to resolve differences themselves. The Commission is aware of a system of arbitration in operation in the province of Ontario in Canada known as 'final offer selection'. This is used in Canadian tomato contracts. Under this system, written submissions are obtained from both parties and an arbitrator selects one submission or the other. This discourages unrealistic ambit claims, which would stand little chance of acceptance, and encourages the two parties to submit claims closer to the middle ground.

Increased flexibility

One of the principal benefits of a system of private contracts would be the scope for greater flexibility than is currently possible. The Commission received some criticisms and heard much anecdotal comment on the current 'formula' system, particularly the difficulties of introducing any changes to the established procedures. Private contracts would make it easier to negotiate different mixes of prices and penalties for such things as quality, which would be better able to reflect the different growing and harvesting conditions that individual growers face. They would also make it easier to introduce new technology without having to be concerned that this would threaten the current measurement system in a way that would require fundamental alteration -- something that has proved to be almost impossible to achieve. An example that has been mentioned is the use of diffusers to supplement the crushing of cane which, while efficient, cause problems with the current system of measuring ccs from the first crush. There are likely to be other changes to mill technology that are difficult to introduce because of the inflexible system currently in use.

I2.3 Negotiating committees

In Victoria, Negotiating Committees have been set up under State legislation in response to a perceived need to provide primary producers of three commodities (processing tomatoes, broilers and wine grapes) with a countervailing bargaining position to that of food processing enterprises.

These Committees seek to equalise the bargaining positions of the processors and primary producers. The intention is to establish a formal environment in which the two groups attempt to negotiate the terms, conditions, specifications and prices at which producers and processors trade produce.

In circumstances where there is failure to reach agreement, the legislation provides for recourse to an arbitrator who adjudicates on the issue in question and makes a decision which is binding on both parties.

The Public Bodies Review Committee (Victoria) appraised these Negotiating Committees in 1987 and stated that:

Negotiating Committees appear to be relatively efficient structures for intervening in the marketing of specific agricultural commodities in that they represent less intervention than is generally involved with statutory marketing authorities.... Voluntary agreements have predominated and more stable business interrelations have been fostered between primary producers and food and beverage processing companies.⁴

The Review Committee recommended the continuation of the negotiating committees for tomatoes and broilers, and the abolition of the committee for wine grapes because the characteristics of that market did not warrant such regulation.

In other States, some statutory marketing authorities and committees have been set up principally for the purpose of negotiation of prices between producers and processors, for example, the Wine Grape Processing Industry Negotiating Committee in New South Wales.

If private contracts were not acceptable in Queensland, the use of negotiating committees along the lines of those in Victoria could be a useful alternative to the current controls, or could even act as a transitional arrangement between the current system and complete deregulation.

⁴ Public Bodies Review Committee, *Nineteenth and Twentieth Report to the Victorian Parliament, 1987*.

REFERENCES

- Abbott, G. (1990), *Sugar*, Routledge, New York.
- Anderson, K. and Tyers, R. (1986), Agricultural Policies of industrial countries and their effects on traditional food exporters, *Economic Record* 179 (December), 385-99.
- Australian Bureau of Agricultural and Resource Economics (1989), 'The Economic Consequences of International Sugar Trade Reform', Discussion Paper 89.7, AGPS, Canberra.
- _(1982), 'EEC sugar support policies and world market prices: a comparative static analysis', Working Paper 82-13, ABARE.
- _(1988), 'Japanese Sugar Policy and its Effects on World Markets', ABARE Occasional Paper No. 104, Canberra.
- _(1990a), 'Australia's Influence on World Sugar Prices', *Agriculture and Resources Quarterly*, March.
- _(1990b), '1990 and US Sugar Policy Reform, ABARE Discussion Paper No, 90.4., AGPS Canberra.
- _(1991 a), 'An Analysis Of The Effects Of Government Intervention On The International Price Of Sugar', ABARE Conference Paper 91.40, project 8226.101 presented at Industry Commission Sugar Modelling Workshop.
- _(1991b), 'Domestic and World Market Effects Of EC Sugar Policies', ABARE Discussion Paper 91.1, AGPS Canberra.
- Australian Canegrower*, (1991), 23 September.
- Australian Sugar Yearbook* (1991)
- Baru, S. (1990), *The Political Economy of Indian Sugar - State Intervention and Structural Change*, Oxford University Press.
- Borrell, B. (1990), 'An Overview of World Sugar Policies and Prospects', ABARE paper presented to the ACP Third Special Ministerial Conference on Sugar, 9-11 May.
- Borrell, B. (1991 a), 'How a Change in Brazil's Sugar Policies Would Affect The World Sugar Market', Policy Research and Extension Affairs, Working Papers, International Trade, International Economics Department, The World Bank, April, WPS 522, Washington D.C.
- Borrell, B. (1991 b), 'The Mexican Sugar Industry', Problems and Prospects, Working Papers, International Trade, International Economics Department, The World Bank, February, WPS 522, Washington D.C.

-
- Borrell, B. and Duncan, R.C. (1990), 'A survey of the costs of world sugar policies, Policy Research and Extension Affairs', Working Papers, International Trade, International Economics Department, The World Bank, October, WPS 522, Washington D.C.
- Centre for International Economics (199 1), *Sugar Winning in a Corrupt World Market*, report commissioned by CSR Limited.
- F.O. Licht, (1991), *International Sugar and Sweetener Report*, September.
- Fry, J. (1985), 'Sugar: Aspects of a Complex Commodity', World Bank Working Paper No. 1985-1.
- Government of India (199 1), *Budgetfor 1991-92*, part A, pp 13 and 15.
- Horridge M., Pearce D., Walker A. (1990), 'World Agricultural Trade Reform: Implications for Australia', *The Economic Record*, September.
- Industry Commission (199 1), *Statutory Marketing Arrangements for Primary Products*, Report No. 10, AGPS, Canberra.
- Landell Mills Commodity Studies (1989), 'A World Survey of Sugar and HFCS Production Costs, 1979/80 to 1986/87'.
- O'Sullivan, M. K(1990), 'Sugar Cane: Biological and Environmental Considerations, Alternative Uses and Economies of Scale', Contributed paper presented to Agricultural Economics Society Conference, Brisbane, 12- 15 February.
- OECD (1989), *Agricultural Policies, Market's and Trade, 1989*.
- OECD (199 1), *Agricultural Policies, Markets and Trade, 1991*.
- Perez-Lopez, LF.(1989), 'Sugar and Structural Change in the Cuban Economy', *World Development*, Vol 17, No 10.
- Roningen, V.O and Dixit, P.M (1989), 'How Level is the Playing Field? An Econometric Analysis of Agricultural Policy Reform In Industrial Markets Economies', Economic Research Service, US Department of Agriculture, Washington D.C.
- Sedgwick, K.N. (1987) 'Estimates of Profitability of Burdekin Irrigation Farms', Queensland Department of Primary Industries, Information Series QI 87011, Brisbane.
- Sturgiss, R., Tobler, P., and Connell, P. (1990), 'Australia's influence' on world sugar prices', *Agricultural and Resources Quarterly*, 2(1), 47-55, AGPS Canberra.
- Sugar Industry Working Party (1990), Report to the Queensland Minister for Primary Industries, Brisbane.
- Tyers, R. (1984), 'Agricultural Protection and Market Insulation: Analysis of International Impacts by Stochastic Simulation', *Pacific Economics Papers*, No. 111, Australian Japan Research Centre, ANU, Canberra.

_(1985), 'International Impacts of Protection: Model Structure and Results for EC Agricultural Policy', *Journal of Policy Modelling*, 7 (2), 219-51.

_and Anderson, K. (1986), 'Distortions in World Food Markets: A Quantitative Assessment', Back-round Paper for World Bank, *World Development Report 1986*, Washington D.C.

US Department of Agriculture (1991), *World Sugar Situation and Outlook*, May.

Webb, A.T., Roningen, V.O. and Dixit, P. (1987), 'Analysing agricultural trade liberalisation for the Pacific Basin', Paper presented at the Livestock and Feedgrains Working Group of the Pacific Economic Cooperation Conference, Napier, New Zealand, 20-22 October.