This interim report has been prepared for further public consultation and input. The Commission will finalise its report after these processes have taken place.
This work is copyright. Apart from any use as permitted under the Copyright Act 1968, the work may be reproduced in whole or in part for study or training purposes, subject to the inclusion of an acknowledgment of the source. Reproduction for commercial use or sale requires prior written permission from the Productivity Commission. Requests and inquiries concerning reproduction and rights should be addressed to Media and Publications (see below).

This publication is available from the Productivity Commission website at www.pc.gov.au. If you require part or all of this publication in a different format, please contact Media and Publications.

Publications enquiries:
Media and Publications
Productivity Commission
Locked Bag 2 Collins Street East
Melbourne VIC 8003
Tel: (03) 9653 2244
Fax: (03) 9653 2303
Email: maps@pc.gov.au

General enquiries:
Tel: (03) 9653 2100 or (02) 6240 3200

An appropriate citation for this paper is:

The Productivity Commission

The Productivity Commission is the Australian Government’s independent research and advisory body on a range of economic, social and environmental issues affecting the welfare of Australians. Its role, expressed most simply, is to help governments make better policies, in the long term interest of the Australian community.

The Commission’s independence is underpinned by an Act of Parliament. Its processes and outputs are open to public scrutiny and are driven by concern for the wellbeing of the community as a whole.

Further information on the Productivity Commission can be obtained from the Commission’s website (www.pc.gov.au) or by contacting Media and Publications on (03) 9653 2244 or email: maps@pc.gov.au
Opportunity for further comment

You are invited to examine this interim report and comment on it by written submission to the Productivity Commission, preferably in electronic format, by Friday 11 July 2014. Further information on how to make a submission is included on the study website listed below.

The Commission is planning to hold further meetings with stakeholders following the release of the interim report. The contributions of study participants and the Commission’s further analysis will inform the final report, which will be provided to the Australian Government in early October 2014.

Commissioner

The Commissioner on this study is the Chairman, Peter Harris.

Study contacts

Website: www.pc.gov.au/study/projects/study/business-costs/dairy-manufacturing

Email: dairy.manufacturing@pc.gov.au
Terms of reference

I, Joseph Benedict Hockey, Treasurer, pursuant to Parts 2 and 4 of the Productivity Commission Act 1998, hereby request that the Productivity Commission undertake a study into the cost structures of the dairy product manufacturing industry and the retail trade industry, including costs relative to international competitors, where relevant.

Background

A sound understanding of the cost structures of Australian businesses, including costs relative to any international competitors, can provide valuable insights for considering policies to support living standards and economic growth.

Scope of the research study

In undertaking the study, the Commission should:

1. Undertake a case study of the costs (such as costs relating to capital, labour, intermediate inputs including energy, taxation, superannuation and/or regulatory compliance) facing businesses operating in Australia in the dairy product manufacturing industry and in the retail trade industry.

2. Where relevant, identify areas of cost advantage and disadvantage for these businesses compared to international competitors.

Process

The Commission should consult as appropriate and provide an interim report drawing on submissions and a final report.

The interim report should be published within two months of receipt of this terms of reference. The final report should contain findings and be provided to the Government within six months of receipt of this terms of reference.

The final report will be published.

J.B. HOCKEY
Treasurer

[Received 7 April 2014]
Contents

Opportunity for further comment iii
Terms of reference v
Preliminary observations 1
Information requests 7
1 About the study 11
   1.1 The Commission’s task 11
   1.2 The Commission’s approach 11
2 Snapshot of the Australian dairy product manufacturing industry 15
   2.1 Raw milk production 16
   2.2 Dairy product manufacturing 25
   2.3 Domestic and export markets 34
   2.4 Global markets 40
3 Costs of dairy product manufacturing 47
   3.1 Framework for examining cost structures 48
   3.2 Cost structure of dairy product manufacturing 52
   3.3 Factors underlying the cost structure of dairy product manufacturing 57
4 Potential policy influences on dairy manufacturing costs 73
   4.1 Scale and competition 74
   4.2 Access to capital 80
   4.3 Transport issues 86
   4.4 Utilities 89
   4.5 Workforce 92
   4.6 Regulatory standards 96
   4.7 Barriers to farm entry, amalgamation and exit 99
   4.8 Research and development 100
   4.9 Other issues 104
<table>
<thead>
<tr>
<th>A</th>
<th>Conduct of the study</th>
<th>105</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Economics of dairy markets</td>
<td>107</td>
</tr>
<tr>
<td>References</td>
<td>113</td>
<td></td>
</tr>
</tbody>
</table>
# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABARES/ABARE</td>
<td>Australian Bureau of Agricultural and Resource Economics and Sciences (previously the Australian Bureau of Agricultural and Resource Economics)</td>
</tr>
<tr>
<td>ACCC</td>
<td>Australian Competition and Consumer Commission</td>
</tr>
<tr>
<td>ADIC</td>
<td>Australian Dairy Industry Council</td>
</tr>
<tr>
<td>AFGC</td>
<td>Australian Food and Grocery Council</td>
</tr>
<tr>
<td>AMF</td>
<td>anhydrous milkfat</td>
</tr>
<tr>
<td>ASX</td>
<td>Australian Stock Exchange</td>
</tr>
<tr>
<td>CBE</td>
<td>Commercial butter equivalent, a unit of conversion of AMF to butter</td>
</tr>
<tr>
<td>cpl</td>
<td>cents per litre</td>
</tr>
<tr>
<td>CSIRO</td>
<td>Commonwealth Scientific and Industrial Research Organisation</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FIRB</td>
<td>Foreign Investment Review Board</td>
</tr>
<tr>
<td>FSANZ</td>
<td>Food Standards Australia New Zealand</td>
</tr>
<tr>
<td>FTA</td>
<td>free trade agreement</td>
</tr>
<tr>
<td>GM</td>
<td>genetically modified</td>
</tr>
<tr>
<td>kt</td>
<td>kilotonne</td>
</tr>
<tr>
<td>LHS</td>
<td>left hand side</td>
</tr>
<tr>
<td>LNG</td>
<td>liquefied natural gas</td>
</tr>
<tr>
<td>MG</td>
<td>Murray Goulburn</td>
</tr>
<tr>
<td>NFF</td>
<td>National Farmers’ Federation</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>research &amp; development</td>
</tr>
<tr>
<td>RHS</td>
<td>right hand side</td>
</tr>
<tr>
<td>SMP</td>
<td>skim milk powder</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>UHT</td>
<td>Milk subjected to ultra high temperature treatment to extend shelf life</td>
</tr>
<tr>
<td>UDV</td>
<td>United Dairyfarmers of Victoria</td>
</tr>
<tr>
<td>VET</td>
<td>vocational education and training</td>
</tr>
<tr>
<td>VFF</td>
<td>Victorian Farmers Federation</td>
</tr>
<tr>
<td>WCB</td>
<td>Warrnambool Cheese and Butter</td>
</tr>
<tr>
<td>WMP</td>
<td>whole milk powder</td>
</tr>
</tbody>
</table>
## Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bargaining group</strong></td>
<td>A group of farmers who bargain collectively (rather than individually) with dairy product manufacturers to negotiate the terms and conditions of raw milk supply</td>
</tr>
<tr>
<td><strong>Branded milk</strong></td>
<td>Milk sold under the manufacturer’s brand name</td>
</tr>
<tr>
<td><strong>Collective bargaining</strong></td>
<td>When two or more businesses negotiate a deal for the sale or purchase of products or services with a common customer or supplier</td>
</tr>
<tr>
<td><strong>Co-operative</strong></td>
<td>Manufacturer jointly owned by a group of farmers</td>
</tr>
<tr>
<td><strong>Dairy product manufacturers</strong></td>
<td>Entities that manufacture dairy products using raw milk (includes drinking milk processors)</td>
</tr>
<tr>
<td><strong>Farmgate price</strong></td>
<td>Price paid by manufacturers to dairy farmers for raw milk</td>
</tr>
<tr>
<td><strong>Manufactured dairy products</strong></td>
<td>Fresh and long-life drinking milk products and other dairy products such as butter, cheese and milk powder</td>
</tr>
<tr>
<td><strong>Private label milk</strong></td>
<td>Drinking milk products sold in supermarkets under the supermarket’s brand name (also called generic or home brand milk)</td>
</tr>
<tr>
<td><strong>Raw milk</strong></td>
<td>Milk that has not been pasteurised</td>
</tr>
</tbody>
</table>
Preliminary observations

The Commission’s preliminary assessment is that Australian dairy product manufacturers face some cost disadvantages relative to their competitors, but also some relative advantages (including lower raw milk costs). Some cost disadvantages arise from inefficient policies where corrective action by governments could be warranted, but others simply reflect market conditions where policy interventions are not warranted. A major constraint on dairy product manufacturing appears to be raw milk supply, but the commerciality of increasing milk production is primarily a matter for manufacturers and dairy farmers.

The industry — in brief

*Australia’s dairy product manufacturing industry is globalised*

- About 40 per cent of Australia’s dairy output (in milk equivalent terms) is exported, with China and Japan the largest markets. In 2012-13, Australian dairy exports accounted for about 7 per cent of international dairy trade (down from 15 per cent in 2002) and earned $2.76 billion.
- The integration of Australian dairy manufacturers into world markets means that domestic dairy product prices (and farmgate milk prices) are strongly influenced by international markets and prices.

*Consolidation in dairy product manufacturing has been a longstanding trend*

- Consolidation and rationalisation is ongoing as businesses seek to exploit scale economies and secure raw milk supply. The six largest manufacturers (Murray Goulburn, Fonterra, Lion, Warnambool Cheese and Butter, Parmalat and Bega Cheese) processed about 90 per cent of Australia’s raw milk supply in 2012-13.

*Dairy product manufacturing businesses are diverse*

- There is significant variation in the scale and product mix of dairy manufacturing businesses, which has direct implications for cost structures (and prices).
- While the industry has a national footprint, most manufacturing activity occurs in south eastern Australia, where about 80 per cent of Australia’s raw milk is produced.
Raw milk is the largest input cost, but Australian raw milk prices appear relatively low

- Raw milk costs averaged 29 per cent of industry output for Australian dairy product manufacturing in 2009-10 (denoted by ‘agricultural products’, column 1, figure 1) but this share varies across dairy products, and some participants reported much higher cost shares. Other major costs include manufactured food and beverage inputs (often milk-based), labour, packaging, transport, energy and capital.
- Australian farmgate milk prices have generally been lower than those in the United Kingdom and United States (and broadly on par with those in New Zealand) (figure 2), largely due to the absence of price support mechanisms for raw milk and relatively low on-farm production costs in key dairy regions (owing to natural climatic advantages and pasture-based feeding).
- Preliminary data suggest the gap in costs between low-cost dairy producers, such as Australia, and regions with traditionally higher on-farm costs, such as Europe and the United States, has narrowed in recent years.

**Figure 1**  
Country comparison of overall cost structures  
Per cent of industry output, various years

---

\[ \text{a} \] Includes both compensation of employees and gross operating surplus. In 2007 the US value added for the dairy industry was about 55 per cent compensation of employees, and about 45 per cent gross operating surplus.
Raw milk volumes and seasonal variability may be limiting manufacturers’ ability to achieve scale efficiencies and better asset utilisation

- Raw milk output has declined since 2001, partly because of drought and despite strong productivity growth. Substantial restructuring (and relocation) in the farm sector in the period following deregulation may also have contributed. Dairy manufacturers are responding by offering farmgate price incentives for ‘new’ milk, entering into co-investment schemes with dairy farmers (underpinned by longer-term supply agreements) and seeking third-party capital investment.

Australian dairy manufacturers face relatively higher prices for labour and energy

- While comparatively flat in Australian dollar terms and declining in real terms, hourly labour costs in the Australian food, beverage and tobacco product manufacturing sector were substantially higher than those in New Zealand, the United Kingdom and the United States in 2012 largely due to the appreciation of the Australian dollar.
- As at 2011, the Australian retail electricity price was above those in New Zealand, the United Kingdom and the United States. Domestic electricity and natural gas wholesale prices have increased substantially since 2006.
A role for government?

Most costs incurred by dairy product manufacturers (including raw milk costs) and dairy farmers are largely driven by their commercial decisions and market factors

- Dairy manufacturers and farmers have little choice but to adapt to market conditions.

Removing inefficient policies that advantage particular firms or industries at the expense of the rest of the economy (including dairy product manufacturers and dairy farmers) would have community-wide benefits

- Examples include:
  - distortionary forms of drought assistance, such as interest rate policies, that can impede farm exit and amalgamation and thus impede scale efficiencies
  - biofuel subsidies that potentially increase feed costs for livestock industries, including dairy
  - inefficient environmental and climate change policies, including the renewable energy target and state-based feed-in tariffs for renewable electricity.

Other reforms could benefit the economy and reduce costs for dairy product manufacturers and dairy farmers

- Utilities regulations should promote efficient pricing and ensure that reliability requirements reflect consumers’ willingness to pay.

- The forthcoming review of workplace relations will provide an opportunity to identify regulatory issues that affect the dairy industry and the economy more broadly.

Good policy outcomes depend on good policy processes

- A key feature of ‘best practice’ regulatory process is to ensure that unnecessary regulations are not introduced in the first place. The expected benefits and costs of significant regulatory reforms must be assessed to avoid imposing unnecessary burdens on all businesses, including dairy product manufacturers and dairy farmers.

- Some participants have suggested that front-of-pack labelling regulations and State Government restrictions on genetically modified crops have limited benefits and/or impose unnecessary costs on the dairy industry.
Opportunities and challenges for dairy product manufacturing businesses

*Dairy product manufacturers have been effective in finding solutions*

- Businesses are reducing excess capacity (and associated costs) through plant rationalisation, and diverting resources toward producing higher value dairy products (in place of basic commodities). Some farmers and manufacturers have shifted toward greater mechanisation, reducing reliance on land and labour.

- Farmgate price incentives and co-investment schemes are increasingly being used to encourage on-farm investment and increased raw milk supply. Similar arrangements could incentivise ‘flatter’ production (in which milk production is spread more evenly across the year) if the benefits to manufacturers outweigh the additional costs.

- There are a number of market-based initiatives being explored within the dairy industry to increase capital availability for farms (such as the capital landlord model and corporate farming models).

*But challenges will be ongoing*

- Dairy product manufacturing is a highly competitive and reasonably mature global market. Strong demand for imported dairy products in Asia (and China in particular) presents a significant opportunity for Australia. However competition for export markets is fierce and is poised to increase further once EU milk production quotas are lifted (2015) and as US dairy exports expand.

- Competition for resources (such as land, capital and skilled labour) among domestic industries reflects the relative strength and diversity of the Australian economy and provides an incentive for firms to remove inefficiencies in their cost structures.

- Faced with these competitive forces dairy product manufacturers will need to continue to innovate and improve the efficiency of their cost structures.
  - Foreign direct investment in the dairy industry can assist in improving and extending supply chains, help gain access to foreign markets, bring know-how and promote innovation.
  - Research and development is an important contributor to improvements in efficiency and productivity.
Scale is important but not the whole story

- For manufacturers, the potential benefits from consolidating manufacturing plants need to be weighed against offsetting costs, including additional transport and storage costs.

- Where the Australian dairy product manufacturing industry continues to compete in global markets, greater consolidation of the industry reflecting commercial considerations should offer potential for scale-based economic gains and wider community benefits.

Where to from here?

The Commission is inviting written submissions on this interim report, including responses to the information requests (below), by Friday 11 July 2014. Further information on how to make a submission is provided on the Commission’s website at www.pc.gov.au/study/projects/study/business-costs/dairy-manufacturing.

The Commission also plans to hold further meetings with stakeholders following the release of the interim report. The contributions of study participants and the Commission’s further analysis will inform the final report, which will be provided to the Australian Government in early October 2014.
Information requests

INFORMATION REQUEST 3.1

Is it appropriate to compare Australia’s dairy product manufacturing costs to those in New Zealand, the United Kingdom and the United States? Should alternative countries be considered? If so, why?

INFORMATION REQUEST 3.2

How reflective of the dairy product manufacturing sector are the data presented in the Australian input–output tables? How does the type of product manufactured influence the costs of production?

INFORMATION REQUEST 3.3

Is the volume and seasonal variability of Australia’s raw milk supply constraining dairy manufacturers from achieving economies of scale and/or optimal asset utilisation? What are the major impediments to increasing raw milk supply, or achieving more consistent raw milk output year-round? To what extent can supply agreements (including contracts) between farmers and manufacturers overcome these issues?

INFORMATION REQUEST 3.4

Are the persistent productivity declines in the Australian food, beverage and tobacco manufacturing sector reflective of the productivity performance of the Australian dairy product manufacturing industry? If so, what are the drivers of these productivity declines?

INFORMATION REQUEST 3.5

To what extent have recent energy price rises in Australia been reflected in the energy prices paid by dairy product manufacturers? Are energy costs a serious impediment to investment in manufactured dairy products? Are seasonal factors or the regional location of dairy manufacturing plants relevant to the energy prices paid by dairy manufacturers?
INFORMATION REQUEST 3.6

How do transport costs in the Australian dairy product manufacturing sector compare with those internationally? What are the key drivers of transport costs in the Australian dairy product manufacturing industry? To what extent is the regional location of many manufacturing plants a hindrance to managing transport and logistics?

INFORMATION REQUEST 4.1

How does the scale of dairy product manufacturing influence the costs of production, and international competitiveness? Is there scope for increased plant rationalisation in the Australian dairy product manufacturing sector, given the significance of transport costs when raw milk is moved across large distances, and differences in the importance of scale across different dairy product lines? Other than competition law, does the industry perceive any other barriers to industry consolidation?

INFORMATION REQUEST 4.2

Is access to capital — financial and physical — a problem for dairy manufacturers or dairy farmers? If so, what are the reasons for this?

INFORMATION REQUEST 4.3

Is heavy vehicle regulation, or coastal shipping regulation, an impediment to the competitiveness of the Australian dairy industry?

INFORMATION REQUEST 4.4

How do the availability, reliability and cost of energy and water affect the performance of the dairy product manufacturing industry?

INFORMATION REQUEST 4.5

How do labour regulations and training and skill requirements affect the dairy industry workforce? Does the industry face difficulties attracting and retaining skilled labour? What are the main reasons for this?
INFORMATION REQUEST 4.6

What are the costs and benefits of, and potential reforms to:
- dairy food safety regulations?
- front-of-pack labelling?
- regulation of genetically modified crops?
- other regulatory standards affecting the dairy industry?

INFORMATION REQUEST 4.7

To what extent do policies such as drought assistance, or taxation and superannuation arrangements, discourage farm exit or amalgamation? Can participants identify examples of such policies? If so, how could these impacts be alleviated?

INFORMATION REQUEST 4.8

How does research and development (R&D) in the dairy industry affect costs for dairy farmers and dairy product manufacturers? Is there scope for improving arrangements for R&D in the industry?

INFORMATION REQUEST 4.9

Are there other factors affecting the performance and competitiveness of the Australian dairy industry, such as policy inconsistencies across jurisdictions? Are there lessons to be learned from the policy settings in other countries?
1 About the study

1.1 The Commission’s task

The Australian Government has asked the Productivity Commission to undertake a study into the costs of doing business in the dairy product manufacturing industry. The Commission has been asked to:

- undertake a case study of the cost structures of businesses operating in the Australian dairy product manufacturing industry
- where relevant, identify areas of cost advantage and disadvantage for these businesses compared to international competitors.

In the same terms of reference, the Commission has also been asked to undertake a study into the costs of doing business in the retail trade industry. A separate interim report has been prepared for that study.

The terms of reference are reproduced at the front of this report.

1.2 The Commission’s approach

Scope of the study

The dairy industry is Australia’s third largest agricultural industry (behind beef and wheat), and produced products with a wholesale value in excess of $13 billion in 2012-13 (Dairy Australia 2013b).

A relatively sophisticated supply chain underpins the Australian dairy industry. The three key elements of this supply chain are raw milk production (dairy farming), dairy product processing and manufacturing1, and the sale of dairy products (including fresh products, such as drinking milk, and other manufactured products, such as cheese, milk powder and butter) to domestic and export customers (figure 1.1).

1 Manufacturing is used to refer to processing and manufacturing activities throughout the rest of this report, unless stated otherwise.
While the focus of this study is on dairy product manufacturing, the performance of this industry is inextricably linked to, and dependent on, activities and outcomes in upstream and downstream sectors. For this reason, where it is relevant, other elements of the dairy industry supply chain will also be examined by the Commission.

**Cost structure analyses**

Cost structure analyses can help establish a broad understanding of the costs of Australian dairy product manufacturers, and identify areas of cost advantage or disadvantage relative to international competitors.

While this analysis could provide insights into possible ways to reduce dairy product manufacturing costs in Australia, it is important to be mindful of the limitations of cost structure analyses for formulating public policy. Raw differences in cost structures between countries are expected, and are not necessarily symptomatic of any problem with Australia’s policies or institutional frameworks. Moreover, while some of the costs faced by manufacturing businesses are amenable to public policy, other costs cannot be effectively influenced by governments (and in many cases, costs are a product of decisions made by the businesses themselves). The Commission’s framework for examining costs is described in chapter 3.
Study process

The Commission has consulted as widely as possible given the compressed timetable for this study. The Commission released an issues paper on 11 April 2014 and met with a range of participants including dairy manufacturers, industry bodies, regulators and government departments. The Commission received 8 submissions prior to the release of this interim report. The full list of visits and initial submissions is provided in appendix A.

This interim report examines the costs of dairy product manufacturing in Australia and selected other countries, and the potential factors affecting those costs.

- Chapter 2 provides a snapshot of the Australian dairy product manufacturing industry.
- Chapter 3 presents preliminary data on the costs of dairy product manufacturing in Australia and key competitor countries.
- Chapter 4 examines the potential policy influences on dairy manufacturing costs in Australia.

The Commission is inviting written submissions on the interim report by 11 July 2014, and will hold further meetings with stakeholders. The contributions of study participants and the Commission’s further analysis will inform the final report, which will be provided to the Australian Government in early October 2014.
2 Snapshot of the Australian dairy product manufacturing industry

Key points

- About 40 per cent of Australia’s dairy output (in milk equivalent terms) is exported (predominantly as cheese, milk powders and butter), with China and Japan the largest markets. Australian dairy exports earned $2.76 billion in 2012-13.
  - Although Australia is a small dairy producer by world standards, Australian manufactured dairy exports account for a significant share of international dairy trade (about 7 per cent in 2012, down from about 15 per cent in 2002).
  - The integration of Australian dairy manufacturers into world markets means that domestic dairy product prices (and farmgate milk prices) are strongly influenced by international markets and prices.
- Consolidation in dairy product manufacturing has been a longstanding trend in Australia and overseas.
  - ABS data report that there were over 400 dairy manufacturing businesses in Australia in 2013, with the six largest manufacturers (Murray Goulburn, Fonterra, Lion, Warrnambool Cheese and Butter, Parmalat and Bega Cheese) processing about 90 per cent of Australia’s raw milk supply.
  - In 2011, the 20 largest dairy product manufacturing companies worldwide processed nearly 40 per cent of global raw milk deliveries. In some major dairy producing countries a single company dominates dairy manufacturing (for example, Fonterra in New Zealand, Friesland Campina in the Netherlands and Arla Foods in Denmark and Sweden).
- In 2012-13, the Australian dairy product manufacturing industry’s value added was over $2.4 billion.
  - There is significant variation in the scale and product mix of Australian dairy manufacturing businesses. This has direct implications for cost structures (reflecting both input requirements and manufacturing technologies) and prices (as exposure to export markets varies between products and locations).
  - While the industry has a national footprint, most manufacturing activity occurs in south eastern Australia, where about 80 per cent of Australia’s raw milk is produced.

While the focus of this study is on dairy product manufacturing, there are important linkages between dairy manufacturing, dairy farming and domestic and export
markets. This chapter provides a brief overview of each of the main elements of the dairy supply chain.

2.1 Raw milk production

The dairy supply chain begins with the production of raw milk on dairy farms. In 2012-13 there were about 6400 dairy farms in Australia (Dairy Australia 2013b), yielding around 9.2 billion litres of raw milk (with a farmgate value of production of $3.7 billion) (ABARES 2013a).

Production is concentrated in south eastern Australia

Raw milk production occurs in all states, but is concentrated in south eastern Australia (principally Victoria) (table 2.1). This region is climatically more suited to dairy farming, as its rainfall levels are conducive to significant pasture growth which, along with grain, comprises the critical feed input for dairy farming (box 2.1). Dairy product manufacturing tends to follow the geographic distribution of dairy farming.

<table>
<thead>
<tr>
<th>Table 2.1 Australian production of raw milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012-13</td>
</tr>
<tr>
<td>Production (million litres)</td>
</tr>
<tr>
<td>Victoria</td>
</tr>
<tr>
<td>New South Wales</td>
</tr>
<tr>
<td>Tasmania</td>
</tr>
<tr>
<td>South Australia</td>
</tr>
<tr>
<td>Queensland</td>
</tr>
<tr>
<td>Western Australia</td>
</tr>
<tr>
<td>Australia</td>
</tr>
</tbody>
</table>

Source: ABARES (2013a).

To produce milk, a cow must have delivered a calf. The most common production method in the dairy industry is ‘seasonal production’, whereby calving occurs during the peak period of pasture availability during spring and milk production tends to peak. This system is favoured in Victoria and Tasmania, where the majority of raw milk is used to produce less perishable dairy products, such as cheese and butter, for domestic and export markets (figure 2.1).
Box 2.1  **Diversity of feeding systems used on Australian dairy farms**

There are a number of influences on the choice of feeding system for a dairy farm, including climate, the natural resources of the farm, utilisation of machinery, price of grains and other supplementary feeds, whether seasonal or year-round production is required, and the financial resources of the farmer.

Little (nd) outlined five main feeding systems used on Australian dairy farms:

1. Pasture, plus other forages, plus low grain/concentrate feeding in bail.
2. Pasture, plus other forages, plus moderate to high grain/concentrate feeding in bail.
3. Pasture, plus a partial mixed ration, possibly combined with grain/concentrate feeding in bail.
4. Hybrid system, comprising of pasture for less than nine months per year, in addition to a partial mixed ration, and possibly with grain/concentrates fed in bail.
5. 'TMR' system: involves zero grazing, with cows housed and fed a total mixed ration.

Dairy Australia’s 2010 National Dairy Farmer Survey showed that 50 per cent of Australian dairy farms use the second feeding system (above), while a further 30 per cent of dairy farms use the first system. About 98 per cent of all Australian dairy farms used some form of pasture in their feeding system, with only 2 per cent of dairy farms using the TMR feeding system.

The alternative (but less common) production system used in Australia is ‘year-round production’, where calving is distributed evenly throughout the year to achieve more stability in raw milk production. This method is most prevalent in New South Wales, Queensland, and Western Australia, where the majority of raw milk is used to produce more perishable dairy products (predominantly drinking milk) for the domestic market (Dairy Australia 2013b; PwC 2011).

Year-round raw milk production generally entails higher feed costs (as pasture availability is affected by seasonal conditions, so reliance on purchased feed increases). This generally means that manufacturers must pay higher raw milk prices, all else equal, to meet domestic consumers’ demand for fresh dairy products. Manufacturers may also encourage a ‘flatter’ raw milk supply where the benefits (such as better asset utilisation and scale economies) outweigh the associated costs. The impact of seasonal variability in Australia’s raw milk supply on manufacturing efficiencies is discussed further in chapter 3.
Prior to 1 July 2000, the Australian and State Governments regulated the pricing and supply of milk in Australia (box 2.2). In each state, raw milk used to make drinking milk (‘market milk’) was purchased from dairy farmers at prices determined by State Governments (ACCC 2001). Legislative provisions restricted interstate milk trade, providing scope for market milk prices to differ between states. Dairy farms were licensed, and market milk prices were set artificially high, leading to the creation of systems in each state which rationed the access of farmers to the market, to prevent the production of an excess supply of milk (Edwards 2003).
Prior to 2000, Australia's dairy industry was subject to a high degree of regulation, with a number of Australian Government and State Government policies governing the sourcing, distribution, retailing and pricing of milk. A key element of the regulatory structure was the distinction drawn between 'market milk' and 'manufacturing milk'.

Specifically, State Governments regulated the market milk sector, with statutory marketing authorities established in each state to license dairy farms and regulate production levels and milk quality. Prices were set by the states, and farmers received higher prices for market milk than manufacturing milk. Legislation restricted the ability for market milk to be traded across jurisdictions, limiting arbitrage opportunities. These regulations limited the ability of farmers to choose who could purchase their milk. For example, New South Wales dairy farmers were registered to supply designated processors and manufacturers, and all milk produced in the state was vested in the statutory marketing authority of the State, the New South Wales Dairy Corporation. Indeed, in all states except Queensland and South Australia, ownership of milk was passed to the statutory marketing authority.

The Australian Government regulated the manufacturing milk sector, administering various policies to support domestic prices, restrict imports and subsidise exports and/or production. Of particular significance were the 'domestic market support' arrangements, whereby farmers were required to pay a levy on all (market and manufacturing) milk, and the proceeds were distributed to manufacturers as an export subsidy.

In the 1990s, the Australian Government began phasing out these market support arrangements. A review of Victoria’s market milk regulations in the late 1990s found evidence of a negative net public benefit, and the Victorian Government subsequently decided to dismantle the regulations. The other states subsequently agreed to do the same. Since 1 July 2000, Australian milk prices have been set by market forces, not government regulations.

Sources: ABS (2004); ACCC (2001); DAFF (2012); Edwards (2003).

There has been a long-term trend toward fewer but larger (and more productive) dairy farms in Australia. Since deregulation in 2000 to 2012-13:

- Farm numbers have declined from about 13 000 to 6400 (figure 2.2). Structural change has been particularly pronounced in Queensland and Western Australia; farm numbers declined by 29 per cent and 28 per cent respectively between 2006-07 and 2012-13 (compared to an 8 per cent decline in the number of Tasmanian dairy farms over the same period) (calculations based on Dairy Australia 2013b).

- Average herd size has steadily increased, from about 170 cows per farm to 258 cows per farm (Dairy Australia 2013b).
- Annual milk yield per cow has increased from around 4800 litres to 5400 litres (ABARES 2013a).

Figure 2.2  Dairy farm numbers and average herd sizes, 1999-2000 to 2012-13

Large dairy farms account for the majority of Australia’s raw milk production — in 2010, 55 per cent of dairy farms produced approximately 80 per cent of Australia’s raw milk. The largest 830 or so farms in this group (representing 11 per cent of national dairy farms by number) accounted for about 28 per cent of Australian raw milk production (Dairy Australia 2010).

Australian dairy farming is dominated by owner-operated farms. Nearly 80 per cent of dairy farms followed this model in 2012-13. Share farming — in which a farm owner and a sharefarmer operate a dairy business together (but do not form an equity partnership or company) — was utilised on 18 per cent of Australia’s dairy farms. Only 3 per cent of farms followed a corporate farm model, in which shareholders (as opposed to the operator) own the business, and management is carried out through a board of directors (Dairy Australia 2013b).

Government assistance to the Australian dairy industry has declined significantly since deregulation (prior to 2000, the Commission estimated that the effective rate
of assistance\(^1\) to dairy cattle farming alone exceeded 30 per cent). The rate of assistance to dairy farming was estimated at 13.2 per cent in 2007-08, but fell to 1.8 per cent in 2011-12, reflecting the cessation of payments under the Dairy Structural Adjustment Program (2008) and a decline in exceptional circumstances drought payments. This compares to an overall effective rate of assistance to the primary sector of 4.1 per cent in 2011-12, which ranged between 0.1 per cent for primary production services and 7.2 per cent for forestry and logging (PC 2013b).

However, a number of restrictions on the importation of particular dairy products remain in place. For example, there is four per cent tariff on dairy spread imports (excluding those from developing countries), and duties and quotas also apply to a range of cheese and curd products (generally of $1.22 per kilogram for imports outside the quota range, with concessions for some developing countries) (ACBPS 2013).

**Production remains below pre-drought levels**

Following a decline during the 1970s, raw milk production in Australia increased steadily from the 1980s until the early 2000s, and reached a (historic) peak of 11.27 billion litres in 2001-02 (figure 2.3). The nature of dairy farming means that farmers are heavily reliant on rainfall and/or irrigation for the production of forages and drinking water for cows. Consequently, major droughts in 2002-03 and 2006-07 had a significant effect on raw milk production, with year-on-year volumes falling by about 9 per cent and 5 per cent, respectively.

**The market for raw milk is competitive**

Raw milk is purchased by dairy product manufacturers or milk brokers (who then on-sell milk to manufacturing companies). Since the removal of price support mechanisms, the market for raw milk has operated competitively. Dairy farmers can choose who they sell milk to, and buyers are free to negotiate the terms of that supply. In its 2008 report into the competitiveness of retail prices for standard groceries, the ACCC noted that it was:

… satisfied that the acquisition of raw milk from the farmgate is competitive and price is set by market forces of supply and demand. (2008, p. 274)

---

\(^1\) The effective rate of assistance measures the total net assistance to an industry, in proportion to its (unassisted) value added. It is an indication of the extent to which assistance to an industry enables it to draw and retain resources compared to other industries (PC 2013b).
Manufacturers compete on price and non-price terms to acquire raw milk from farmers. Negotiations between farmers and manufacturers can be facilitated by cooperatives, collective bargaining groups (box 2.3) or occur on an individual basis.

The nature of supply agreements also varies. The large dairy product manufacturers tend to operate ‘step-up’ payment systems (Phillips 2013), where:

- the manufacturer agrees to acquire all milk produced by the farmer
- prior to the commencement of the season, a monthly schedule of prices is announced
- during the season, the manufacturer may announce additional payments (step-ups), which apply retrospectively to milk already delivered.
Box 2.3  **Collective bargaining by dairy farmers**

Collective bargaining has emerged as a method of organisation amongst farmers, used in the negotiation process for the sale of raw milk to dairy product manufacturers. In 2002, Australian Dairy Farmers (a non-profit organisation representing dairy farmers) was granted authorisation by the Australian Competition and Consumer Commission (ACCC) to allow dairy farmers to collectively bargain with dairy product manufacturers. The authorisation was extended by the ACCC in 2011 for a further 10 years. The ACCC remarked:

> ... collective bargaining arrangements will continue to result in public benefits through transaction cost savings and providing the opportunity for increased farmer input into contracts relative to a situation where farmers negotiate individually with the processor they supply. (2011, p. ii)

A number of conditions apply to the collective bargaining authorisation held by Australian Dairy Farmers, including:

- Collective bargaining groups may only be formed by farmers with a ‘shared community interest’ — farms must have a reasonable expectation of supplying the same plant and be within the economic delivery zone of the plant, in addition to demonstrating that they have similar supply patterns or supply a speciality raw milk product.
- Dairy companies are able to choose whether or not to negotiate with collective bargaining groups (ACCC 2011).

The Department of Agriculture submitted that there are currently 19 dairy farmer collective bargaining groups in operation and observed that:

> ... while a number of collective bargaining groups have been formed, a majority of producer-processor supply contracts are established on an individual farmer basis. (sub. 7, p. 13)

Similarly, Australian Dairy Farmers submitted to the Australian Competition Tribunal:

> Collective bargaining groups are not prevalent in Victoria and Tasmania or particularly active where access to multiple processors is available. (2014, p. 4)

According to Australian Dairy Farmers:

> Typically, in June of each year farmers are advised of an opening price for the following financial year. This price is usually 85 per cent to 90 per cent of an expected final price. During the financial year farmers receive step-up payments towards the final price which are also paid retrospectively for previous month’s supply in that current financial year. (2014, p. 4)

Alternatively, farmers and manufacturers may enter into ‘direct’ contract arrangements on an annual or multi-year basis. The two largest drinking milk processors in Australia — Lion and Parmalat — use direct contract arrangements (Phillips 2013; SERC 2011). These contracts typically specify the volume of milk a
farmer is expected to deliver, and the prices to be paid. Multi-tier pricing structures are often used to encourage *consistent* raw milk production throughout the year.

The Department of Agriculture remarked:

Management can include sending market signals such as a two-tiered … contract pricing system which pays farmers a higher price per litre for tier one milk, which secures supplies for the drinking milk market, and a lower price for excess (tier two) milk. (sub. 7, p. 7)

More recently, a number of ‘direct source’ contracts have been entered into between dairy cooperatives, including Murray Goulburn and Norco, and the major supermarket chains. Supermarkets are also contracting directly with individual dairy farmers in some cases. The Department of Agriculture has suggested that it is too early to assess the full impact of the new arrangements on farmers and manufacturers (sub. 7).

The scope for dairy farmers to change (or ‘switch’) manufacturing companies to secure more favourable terms and conditions also drives competition in the raw milk market. Some evidence suggests that switching activity is relatively low (ACCC 2008). As Australian Dairy Farmers submitted to the Australian Competition Tribunal:

A relatively small proportion of suppliers move processors each year. We estimate this would be less than three per cent per year. (2014, p. 4)

Possible reasons for low switching rates include the length of supply contracts between farmers and manufacturers, and the step-up benefits offered by manufacturers (where the step-ups are linked to ‘farmer loyalty’). The Queensland Dairyfarmers’ Organisation considered that the scope for farmers in that state to switch is particularly constrained:

With only two main processors in Queensland, combined with the requirement to supply milk in a flat supply system … it makes for a difficult operational environment for dairy farmers with limited or no alternative supply and production systems options. (2014, p. 10)

Notwithstanding this, a number of study participants regarded the potential for switching as an important feature conditioning the farmer–manufacturer commercial relationship.
2.2 Dairy product manufacturing

In 2012-13, Australian dairy product manufacturing generated a total industry value added of more than $2.4 billion (roughly 0.15 per cent of GDP) and employed over 17,500 people. It accounts for 13 per cent of Australia’s food product manufacturing sector, and 8 per cent of the sector’s employment (ABS 2014a). In 2012-13, dairy’s share of total farm exports was approximately 6 per cent, while its share of total Australian merchandise exports was about one per cent (ABARES 2013a).

Key outputs and activities

Raw milk is initially stored on-farm in vats, before being collected (and tested) by the relevant manufacturing company and ultimately transported via tanker to the manufacturing plant (or plants). Dairy manufacturers pasteurise and homogenise raw milk, at which point it can be packaged into fresh drinking milk, further refined to make other types of drinking milk (such as UHT milk), or used to manufacture other dairy products (including for export), such as milk powder, cheese and yoghurt.

In practice, the product mix of individual businesses will have a direct bearing on the business’s input requirements and operational activities (and by consequence, on costs). For example, while the manufacture of full cream drinking milk is a relatively simple process, cheese production generally involves combining pasteurised raw milk, starter cultures and rennet in a process that involves heating, cutting, draining, milling and pressing (and all of the machinery and infrastructure required for those activities). In some cases, the output mix of manufacturers reflects the interdependence between two dairy products — for example, cream is the fat component of milk, so skim milk production can have implications for the volume of cream products produced.

The scale and scope of production by Australian dairy manufacturers is diverse — some businesses are primarily focused on high-volume drinking milk processing, while others specialise in niche, high-value dairy products. Geographic factors (and the natural advantages this gives rise to) also have a role to play, with the mix of outputs varying markedly between the states. In 2012-13, all of Queensland’s raw milk supply was processed into drinking milk for the domestic market. By contrast, dairy manufacturers in Victoria, Tasmania and South Australia direct over half of their raw milk acquisitions to the manufacture of other (non-drinking milk) products (figure 2.1).
Structure of the dairy manufacturing industry

Consolidation activity continues

As for the dairy farming sector, consolidation in dairy product manufacturing has been a longstanding trend. A significant amount of acquisition and merger activity has underpinned this (box 2.4).

Box 2.4  Acquisitions, mergers and consolidation in the dairy industry

The Australian dairy product manufacturing industry has experienced a long period of consolidation, a process that began with the first stages of industry deregulation in the 1980s. Some of the major acquisition and consolidation activity that has occurred over the last decade is outlined below.

**Acquisition and consolidation activity**

<table>
<thead>
<tr>
<th>Year</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>Fonterra purchases 25 per cent of Bonlac</td>
</tr>
<tr>
<td>2003</td>
<td>Fonterra purchases another 25 per cent of Bonlac</td>
</tr>
<tr>
<td>2006</td>
<td>Fonterra completes its acquisition of Bonlac</td>
</tr>
<tr>
<td>2007</td>
<td>Bega Cheese acquires 70 per cent of Tatura Milk</td>
</tr>
<tr>
<td>2008</td>
<td>Dairy Farmers Group acquired by National Foods</td>
</tr>
<tr>
<td>2011</td>
<td>Bega Cheese completes its acquisition of Tatura Milk</td>
</tr>
<tr>
<td>2013</td>
<td>Fonterra purchases Launceston-based yoghurt specialist Tamar Valley Dairy</td>
</tr>
<tr>
<td>2014</td>
<td>Canadian firm Saputo assumes 88 per cent ownership of Warrnambool Cheese and Butter</td>
</tr>
<tr>
<td>2014</td>
<td>United Dairy Power purchased by private investor</td>
</tr>
<tr>
<td>2014</td>
<td>Parmalat acquires Western Australian milk producer Harvey Fresh</td>
</tr>
</tbody>
</table>

One of the most significant recent events to have occurred in the dairy manufacturing industry concerns the rivalling bids (made throughout 2013 and early 2014) for ownership of Warrnambool Cheese and Butter, mounted by Bega Cheese, Murray Goulburn, and the Canadian-based dairy company Saputo. By February 2014, Saputo had acquired 87.9 per cent of all issued Warrnambool Cheese and Butter shares.

**Sources:** Binsted (2014); Dairy Australia (2013b); Fonterra (2013); Lion (2014b); Saputo (2014); Tatura Milk (2011); UDP (2014).

Currently, six firms (Murray Goulburn, Fonterra, Lion, Warrnambool Cheese and Butter (WCB), Parmalat and Bega Cheese) purchase nearly 90 per cent of Australia’s raw milk supply (table 2.2). Within this group, a distinction can be made between Lion and Parmalat (the dominant players in the domestic drinking milk market), and Murray Goulburn, Fonterra, WCB, and Bega Cheese, which generally focus on manufacturing other types of dairy products, such as milk powder and
cheese (although some of these companies also process significant volumes of drinking milk).

Table 2.2 Purchase of raw milk in Australia, 2012-13

<table>
<thead>
<tr>
<th>Company</th>
<th>Quantity of raw milk purchased (million litres)</th>
<th>Share of total Australian raw milk purchases (%)</th>
<th>Major brands</th>
<th>Collection regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murray Goulburn</td>
<td>2 990</td>
<td>33</td>
<td>Devondale</td>
<td>Victoria, South Australia, New South Wales, Tasmania</td>
</tr>
<tr>
<td>Fonterra&lt;sup&gt;b&lt;/sup&gt;</td>
<td>1 700&lt;sup&gt;a&lt;/sup&gt;</td>
<td>18</td>
<td>Mainland, Western Star</td>
<td>Victoria, New South Wales, Tasmania</td>
</tr>
<tr>
<td>Lion</td>
<td>1 000&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11</td>
<td>Pura, Dairy Farmers, King Island, Coon</td>
<td>Victoria, Queensland, New South Wales, Tasmania, Tasmania, Western Australia</td>
</tr>
<tr>
<td>Warrnambool Cheese and Butter</td>
<td>890</td>
<td>10</td>
<td>Sungold, Warrnambool Cheddars, Great Ocean Road</td>
<td>Victoria, South Australia</td>
</tr>
<tr>
<td>Parmalat</td>
<td>850&lt;sup&gt;a&lt;/sup&gt;</td>
<td>9</td>
<td>Pauls, Vaalia, Oak</td>
<td>Queensland, New South Wales, Victoria</td>
</tr>
<tr>
<td>Bega Cheese</td>
<td>641</td>
<td>7</td>
<td>Bega Cheese</td>
<td>Victoria, New South Wales</td>
</tr>
<tr>
<td>Other</td>
<td>1 129</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9 200</td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Approximate figures based on Fonterra and Lion websites, and media reports relating to Parmalat’s acquisition of Western Australian beverage and milk company Harvey Fresh. <sup>b</sup> Fonterra also has a licensing agreement with Bega Cheese for the marketing of cheese and butter products sold in Australia.

Sources: Bega Cheese (2013); Binsted (2014); Fonterra (2014b); Lion (2014a); Murray Goulburn (2013b); Phillips (2013); WCB (2013).

Medium-sized regional processors (such as Burra Foods and Longwarry Food Park), and Norco account for most of the remaining 12 per cent of raw milk purchases (Phillips 2013).

There are also a large number of small-scale, highly specialised dairy manufacturing firms in Australia. Indeed, the ABS estimates that there were 423 dairy product manufacturing business in Australia in 2013 (table 2.3). However, only a handful of these businesses had more than 200 employees, and more than 80 per cent of Australian dairy businesses did not have any employees in 2013, or had between one and 19 employees (ABS 2014b).
### Table 2.3 Number of businesses engaged in dairy product manufacturing

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>Victoria</th>
<th>Queensland</th>
<th>SA</th>
<th>WA</th>
<th>Tasmania</th>
<th>NT</th>
<th>ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk and cream processing</td>
<td>15</td>
<td>21</td>
<td>18</td>
<td>3</td>
<td>7</td>
<td>6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Ice cream manufacturing</td>
<td>44</td>
<td>43</td>
<td>28</td>
<td>6</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cheese and other dairy products</td>
<td>53</td>
<td>100</td>
<td>29</td>
<td>14</td>
<td>12</td>
<td>14</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>112</strong></td>
<td><strong>164</strong></td>
<td><strong>75</strong></td>
<td><strong>23</strong></td>
<td><strong>23</strong></td>
<td><strong>23</strong></td>
<td><strong>0</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

*Source: ABS (Counts of Australian Businesses, Including Entries and Exits, Jun 2009 to Jun 2013, cat. no. 8165.0).*

**Manufacturing plants are located close to dairy farms and domestic markets**

The location of dairy manufacturing capacity reflects a range of factors, including the location of dairy farmers and domestic customers, access to skilled labour and transport and logistics infrastructure. The Australian Dairy Industry Council (ADIC) and Dairy Australia noted that manufacturers focused on drinking milk products tend to be located close to their domestic markets:

- **Milk**: is a highly perishable product with a short life before processing: raw milk requires processing within 48 hours after pickup.

- **Fresh milk manufacturing facilities ...** must be in close proximity to their local urban markets given that the cost of transporting bulk milk is lower than that of the finished product. Hence, such plants are invariably in urban areas. Transport of fresh product requires smaller, refrigerated trucks capable of operating in urban distribution areas. (sub. 6, p. 3)

Manufacturers focused on producing less-perishable dairy products tend to locate close to dairy farms, giving rise to a cluster of manufacturing capacity in south eastern Australia (figure 2.4).
A number of the major manufacturers have recently announced significant new investments in dairy manufacturing facilities (box 2.5). Some of this activity reflects recent changes to the contract relationships between manufacturers and supermarkets for fresh drinking milk.
Recent investments in the dairy industry

In 2013, Murray Goulburn announced a 10-year supply contract with Coles for drinking milk under Coles’ private label brand in Victoria and New South Wales, to commence on 1 July 2014. To help enable it to meet its contract, Murray Goulburn is investing $120 million in the construction of two new milk processing plants, one located in Sydney, and the other in Melbourne. In the 2012-13 year, Murray Goulburn also invested in UHT facilities at its Leongatha plant ($19.1 million), a new butter packing line at Koroit ($5 million), and an automated cheese cutting and wrapping facility at Cobram ($2 million).

In May 2014, Murray Goulburn announced three additional investment projects worth a combined $127 million, namely:
- $74 million for cheese cutting and wrapping facilities at Cobram
- $38 million at Koroit and Cobram to increase capacity for the production of infant formula
- $14 million at Edith Creek to upgrade cup and bottle filling lines for dairy beverages.

Fonterra invested $6.5 million in 2013 for an upgrade of equipment for cheese production at its Stanhope facility in Victoria. It also spent $6 million upgrading two of its Tasmanian plants to expand its processing and exporting capabilities. In April 2014, Fonterra announced an investment of over $30 million for milk processing at Cobden to help it fulfil its contract to supply private label milk to Woolworths.

Lion has earmarked $140 million to upgrade its cheese production facility at Burnie in Tasmania, and also committed $50 million to double the capacity of its dairy product plant at Morwell, Victoria.

Sources: Dairy Australia (2013b); Fonterra (2014a); Murray Goulburn (2014a).

Ownership structures have evolved

Prior to industry deregulation in 2000, four of the largest dairy product manufacturers in Australia (Bega Cheese, Bonlac, Dairy Farmers Group and Murray Goulburn) were Australian farmer-owned cooperatives (box 2.6). At that time Murray Goulburn and Bonlac held a combined share of about 55 per cent of the manufacturing milk market, while Dairy Farmers Group dominated the drinking milk market (SERC 2010).
Dairy cooperatives

Dairy cooperatives are generally financed by their members, who share in the profits generated by the cooperative, usually based on the quantity of milk they supply to the cooperative. Murray Goulburn is the largest cooperative in the Australian dairy industry. Other cooperatives in the Australian dairy industry include Norco, which in 2012-13 had 159 member farms and a milk intake of approximately 150 million litres.

As Keogh observed of the differences between cooperatives and private companies:

A cooperative exists for the benefit of its members, while a company exists for the benefit of its shareholders. So while a dairy cooperative might pay a quite high price for milk and forgo some cooperative profits in order to bring benefits to dairy farmer members, a company is, by law, required to maximise its returns for shareholders. (2013, p. 1)

Commercial cooperatives have some drawbacks. For instance, because claims (unlike shares) cannot be traded, where a member’s claim on the income generated from a particular asset is shorter than the life of an asset, there may be a tendency for cooperatives to under-invest in the asset. There may also be issues arising from principal–agent relationships, including the potential divergence of interests of owners (cooperative members) and agents (management).

Sources: Norco (2014); Keogh (2013); Ortmann and King (2007).

Over time, the role of cooperatives in the Australian dairy manufacturing industry has declined:

- Bonlac was gradually acquired by Fonterra between 2001 and 2006.
- In 2008, Dairy Farmers Group was acquired by National Foods (now Lion).
- Bega Cheese changed its structure from a cooperative to an unlisted public company in 2008.

In 2012-13, Australian farmer-owned cooperatives accounted for approximately 35 per cent of raw milk purchasers, the largest of these being Murray Goulburn, taking roughly one third of national raw milk output in 2012-13 (Dairy Australia 2013b). Murray Goulburn is currently considering changes to its capital structure to provide access to equity capital for investment purposes (box 2.7). Under the proposed structure, farmer suppliers would retain control of the cooperative, while holders of units in an ASX-listed unit trust would receive the same dividend as farmers, but would not have voting rights.
Murray Goulburn’s capital structure proposal

Murray Goulburn is considering making changes to its capital structure to raise the equity capital required to fulfil its investment plans. Murray Goulburn hopes to raise $500 million in capital over the next three to five years. In a discussion paper sent to suppliers and shareholders in May 2014, Murray Goulburn considered that ‘undertaking a $500 million capital investment solely from available sources of bank debt funding would result in Murray Goulburn being very close to reaching its prudent and permitted peak borrowing levels’ (Murray Goulburn 2014d, p. 3).

The structure proposed by Murray Goulburn would result in the creation of an ASX-listed unit trust, distinct from the shares held by Murray Goulburn’s supplier shareholders. The holders of the securities (units) issued by the unit trust would not have voting rights in Murray Goulburn under the proposed structure; they would however, have the same economic rights as supplier shareholders, which principally relate to the right to receive the same dividend.

Murray Goulburn has stated that the proposed restructure would not alter active dairy farmer control of the cooperative, and that its existing 100 per cent farmer control would not change. Furthermore, Murray Goulburn intends for existing supplier shareholders to be given the opportunity to purchase additional shares in the company at the market price, prior to the listing of any units on the ASX, to reduce the quantity of external equity required by the cooperative (Murray Goulburn 2014d).

Foreign-owned companies and cooperatives have a strong presence in the Australian dairy product manufacturing sector:

- Fonterra, a New Zealand based cooperative, commenced operating in Australia in 2001.
- Parmalat Australia, a subsidiary of Italian-based Parmalat Finanziaria (which is controlled by Lactalis, a multi-national dairy products corporation based in France), has operated in Australia since 1998.
- Lion has been owned by Japan-based Kirin Holdings since 2009; Lion was formed by the merger of Lion Nathan and National Foods, the latter of which had been owned by Kirin since 2007.
- In early 2014, Canadian-based dairy company Saputo purchased an 88 per cent share in WCB; a further 10 per cent of WCB is owned by Lion.

How is raw milk used by Australian manufacturers?

Australian dairy manufacturers produce a diverse range of products for domestic and export customers. In 2012-13, a third of the raw milk purchased by manufacturers was used to produce cheese (figure 2.5). About 2.45 billion litres (or
27 per cent) of total raw milk supply in Australia was processed into drinking milk (Dairy Australia 2013b), while the remaining 40 per cent of raw milk was used to manufacture other dairy products. These shares have remained relatively constant over the last decade.

Figure 2.5 **Milk utilisation in Australia, 2012-13**  
Product share of total milk production

<table>
<thead>
<tr>
<th>Product</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>33%</td>
</tr>
<tr>
<td>Drinking milk</td>
<td>27%</td>
</tr>
<tr>
<td>SMP/butter</td>
<td>28%</td>
</tr>
<tr>
<td>WMP</td>
<td>9%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
</table>

*SMP refers to skim milk powder and WMP to whole milk powder.*  

In absolute terms, the production volumes of most dairy products have declined in recent years (figure 2.6). Skim milk powder is a notable exception — output has increased from 205 kilotonnes in 2005-06 to over 220 kilotonnes in 2012-13.
2.3 Domestic and export markets

Dairy products manufactured in Australia are sold in a range of domestic and export markets:

- Within Australia, key buyers of dairy products include retailers (and most notably, supermarkets) and food service and industrial businesses, such as restaurants and airlines.
- Products destined for the export market generally travel as refrigerated containerised sea freight, and are typically held in cold storage facilities prior to being loaded on ships. Dairy goods may be subject to quarantine or treatment procedures, depending on the destination.

The distribution and storage of dairy products is an important part of the supply chain. Dairy products are usually transported by milk vendors to storage facilities for warehousing, or transported directly to domestic customers (Phillips 2013). In 2011, the Amalgamated Milk Vendors Association estimated that there were about 745 milk distributors in Australia, employing 2200 staff (SERC 2011).
Domestic dairy markets

In 2012-13, about 60 per cent of Australia’s total dairy output was sold domestically. Domestic markets are particularly important for manufacturers of drinking milk products — the large majority of drinking milk produced in Australia is purchased by domestic customers (Dairy Australia 2013b).

Australian consumption of dairy products

Total Australian consumption (including imports) of major dairy products (drinking milk, cheese, yoghurt and butter) has increased in recent years (figure 2.7). In 2012-13, per capita dairy consumption was estimated at 299 litres per person in milk equivalent terms, up from an estimated 274 litres per person in 1999-2000 (Dairy Australia 2013b). Domestic cheese consumption has grown particularly strongly, increasing about 25 per cent over the six year period to 2012-13. The increase in national butter consumption was more modest, rising about 8 per cent over this period.

Figure 2.7  Australian consumption of dairy products

Source: ABARES (2013a).

Domestic drinking milk consumption has also grown quite strongly, increasing from approximately 2 billion litres in 2005-06 to over 2.4 billion litres in 2012-13 — a 19 per cent increase. This has been driven by an increase in Australia’s population,
and growth in per capita milk consumption — this fluctuated between 100 and 104 litres per person from the late 1970s to the 1990s (ABS 2004), but has increased more sharply in recent years, and measured 107 litres per person in 2012-13 (Dairy Australia 2013b).

A number of factors are likely to be driving this — for example, manufacturers have responded to health concerns about full-fat milk by introducing a range of low-fat varieties, as well as developing different-sized products and innovative forms of packaging. Lower retail prices for drinking milk (‘$1 milk’) are a further factor driving the boost in consumption. (Dairy Australia 2013b) considers that the growing popularity of coffee in Australia also explains some of the recent strong growth in per capita milk consumption.

Supermarket chains account for the large majority of domestic sales of Australian dairy products (table 2.4). The exception is cheese, where more than half of Australian production was sold to non-grocery customers in 2012-13.

Table 2.4  **Domestic sales of Australian dairy products**  
2012-13

<table>
<thead>
<tr>
<th></th>
<th>Grocery customers(^a)</th>
<th>Non-grocery customers(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tonnes</td>
<td>Share of total sales</td>
</tr>
<tr>
<td>Drinking milk (mil litres)</td>
<td>1 294</td>
<td>53</td>
</tr>
<tr>
<td>Butter</td>
<td>44 406</td>
<td>79</td>
</tr>
<tr>
<td>Cheese(^c)</td>
<td>117 141</td>
<td>47</td>
</tr>
<tr>
<td>Cream</td>
<td>56 327</td>
<td>52</td>
</tr>
<tr>
<td>Custard</td>
<td>21 303</td>
<td>89</td>
</tr>
<tr>
<td>Dairy desserts</td>
<td>16 654</td>
<td>98</td>
</tr>
<tr>
<td>Milk powder</td>
<td>7 652</td>
<td>50</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>123 825</td>
<td>89</td>
</tr>
</tbody>
</table>

\(^a\) Refers to major supermarket chains. \(^b\) Refers to other retailers including convenience stores, as well as foodservice and industrial buyers. \(^c\) 2011-12.

Source: Dairy Australia (2013b).

**Dairy imports**

Australia imports a range of dairy products, including cheese, butter, lactose and cream. Imports, by volume, accounted for 24 per cent and 20 per cent, respectively, of total Australian cheese and butter consumption in 2012-13 (Dairy Australia 2013b). Most imported dairy products are sourced from New Zealand — in 2012-13, New Zealand accounted for about 90 per cent and 60 per cent of Australia’s butter and cheese import volumes respectively (table 2.5). The European
Union, Australia’s second largest source of cheese imports, accounted for approximately one quarter of Australia’s cheese imports in 2012-13, while cheese from the United States made up nearly 15 per cent of imports in the same year, making it Australia’s third largest source of cheese imports (Dairy Australia 2013b).

Table 2.5  **Australian imports of dairy products, 2012-13**

<table>
<thead>
<tr>
<th></th>
<th>Imports sourced from New Zealand</th>
<th>Imports sourced from other countries</th>
<th>Total volume of imports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cheese</td>
<td>43 573</td>
<td>30 133</td>
<td>73 706</td>
</tr>
<tr>
<td>Ice cream (’000 litres)</td>
<td>2 527</td>
<td>18 216</td>
<td>20 743</td>
</tr>
<tr>
<td>Whole milk powder(^a)</td>
<td>7 894</td>
<td>7 470</td>
<td>15 364</td>
</tr>
<tr>
<td>Butter(^b)</td>
<td>13 475</td>
<td>1 108</td>
<td>14 583</td>
</tr>
<tr>
<td>Whey powder and concentrates</td>
<td>2 128</td>
<td>11 340</td>
<td>13 468</td>
</tr>
<tr>
<td>Lactose</td>
<td>4 026</td>
<td>7 627</td>
<td>11 653</td>
</tr>
<tr>
<td>Skim milk powder</td>
<td>3 262</td>
<td>355</td>
<td>3 617</td>
</tr>
<tr>
<td>Butter oil</td>
<td>2 607</td>
<td>440</td>
<td>3 047</td>
</tr>
<tr>
<td>Condensed milk</td>
<td>81</td>
<td>2 147</td>
<td>2 228</td>
</tr>
<tr>
<td>Cream</td>
<td>2 164</td>
<td>1</td>
<td>2 165</td>
</tr>
<tr>
<td>Buttermilk powder</td>
<td>232</td>
<td>1 538</td>
<td>1 770</td>
</tr>
<tr>
<td>Milk</td>
<td>1 258</td>
<td>72</td>
<td>1 330</td>
</tr>
<tr>
<td>Yoghurt</td>
<td>649</td>
<td>479</td>
<td>1 128</td>
</tr>
<tr>
<td>Casein and caseinates</td>
<td>770</td>
<td>262</td>
<td>932</td>
</tr>
</tbody>
</table>

\(^a\) Includes infant powder. \(^b\) Includes butter blends.

*Source: Dairy Australia (2013b).*

**Export markets**

About 40 per cent of Australia’s dairy output (in milk equivalent terms) is sold to export customers. In 2012-13, the total value of Australian dairy exports was estimated at over $2.76 billion (Dairy Australia 2013b). Dairy products account for a substantial portion of Australia’s total agricultural exports, although this share has declined in recent years (from 10 per cent in 2007-08 to 6 per cent in 2012-13) (ABARES 2013a).

**Key products**

Australia’s most significant dairy export is cheese, with approximately 175 kilotonnes being exported in 2012-13 (or around one half of Australian cheese production). Skim milk powder is the second largest export product, with 147 kilotonnes (or 66 per cent of Australian output) exported in 2012-13 (figure 2.8).
The dairy cooperative Norco recently announced its successful trial of fresh drinking milk exports to China (box 2.8). There is potential for fresh milk export volumes to increase over time in response to growing demand in overseas markets for imported fresh milk, coupled with customers in these markets that have a comparatively high willingness to pay for these products.

**Box 2.8  Norco exports fresh milk to China**

In April 2014, dairy cooperative Norco, in association with industry body Dairy Connect NSW and Peloris Global Sourcing (an export consulting company), announced the successful trial shipment of fresh milk to China.

This required a quarantine clearance agreement to be developed with China in order to ensure that the delivery time between packaging the milk in Australia and its availability to consumers in China was within the shelf life of pasteurised fresh milk. Prior to this, export attempts had been hampered by testing and quarantine procedures before shipment, resulting in an export lead time of 14 to 21 days, outside the standard shelf life for the product. Norco indicated that a trial air shipment of almost 1000 litres of milk was successfully completed in March 2014.

The changes to China’s import clearance procedures granted to Norco have provided it with a ‘pipeline’ that has the capacity to enable it to deliver over 20 million litres of fresh milk to Chinese consumers within the first year of its operation. The chairman of Norco has been quoted in the media as stating that the cost of the product to Chinese consumers will likely be approximately $7 to $9 Australian dollars per litre.

*Sources: ABC (2014); Dairy Connect, Norco and PGS (2014).*
Key markets

China is Australia’s fastest growing export market for dairy products, and when combined with Hong Kong and Macau, represents Australia’s largest export market in volume terms (and the second-largest market in value terms) (ADIC and Dairy Australia 2013) (table 2.6). China also accounts for the largest share of Australian exports of live dairy heifers. In 2012-13, over 87,300 dairy cows were sold to foreign customers (of which more than 59,000 were sold to Chinese customers).

Table 2.6  Top 10 Australian dairy product export destinations, 2012-13

<table>
<thead>
<tr>
<th>Country</th>
<th>Volume (tonnes)</th>
<th>Share of total exports (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chinaa</td>
<td>129,320</td>
<td>16</td>
</tr>
<tr>
<td>Japan</td>
<td>125,104</td>
<td>16</td>
</tr>
<tr>
<td>Singapore</td>
<td>84,250</td>
<td>11</td>
</tr>
<tr>
<td>Malaysia</td>
<td>51,922</td>
<td>6</td>
</tr>
<tr>
<td>Indonesia</td>
<td>42,881</td>
<td>5</td>
</tr>
<tr>
<td>Thailand</td>
<td>41,671</td>
<td>5</td>
</tr>
<tr>
<td>New Zealand</td>
<td>40,859</td>
<td>5</td>
</tr>
<tr>
<td>Philippines</td>
<td>30,880</td>
<td>4</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>25,319</td>
<td>3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>24,133</td>
<td>3</td>
</tr>
</tbody>
</table>

*a* Includes Hong Kong and Macau.

Source: Dairy Australia (2013b).

How are prices for Australian manufactured dairy products determined?

The integration of the Australian dairy manufacturing industry into world markets means that domestic product prices — and by consequence, raw milk prices (box 2.9) — are strongly influenced by international prices.

This is particularly true for heavily traded (less-perishable) dairy products such as cheese — Australian dairy manufacturers will not sell into the domestic market at a lower price than can be obtained in export markets, and competition from domestic manufacturers, and from imports, means that Australian customers will not pay more than the world price (notwithstanding there will be some divergence between prices due to transport costs). The ADIC noted:

With around half the annual milk production being sold directly into export markets, no significant tariff barriers to commercial imports, and a sizable component of domestic consumption in some categories based on imports, Australian dairy company and farmgate returns in the southern states are directly determined by the prices prevailing in world markets. (nd, p. 2)
Box 2.9  Farmgate milk prices follow world product prices

Australian dairy manufacturers compete to purchase raw milk from farmers. For manufacturers of heavily traded (less perishable) dairy products, the maximum price they will be willing to pay for raw milk is the residual of the price they receive for output (the world price) minus their processing value adding, other intermediate inputs and transport costs. Hence, for any given ‘other’ manufacturing costs, the world price of heavily traded dairy products and the price of raw milk will move together.

Furthermore, a dairy farmer will not accept a lower price selling into one market than could be obtained in an alternative market. This means that manufacturers in a particular region will pay the same price for raw milk, regardless of whether it is destined for heavily traded or less-traded product markets.

As such, world prices of heavily traded dairy products largely determine the raw milk prices paid by all manufacturers.

The properties of more perishable dairy products (such as drinking milk and cream) make it costly to transport over long distances, meaning Australia does little trade in these products. Accordingly, domestic prices for these products are determined by domestic supply and demand conditions. That said, because raw milk is an input for all dairy products, traded and nontraded, and the farmgate milk price is strongly influenced by world prices for traded dairy products, international factors do bear on the costs of supplying (and hence the prices of) more perishable dairy products in Australia.

Appendix B examines the relationships between world markets, domestic dairy product prices and farmgate milk prices in more detail.

2.4  Global markets

Major dairy producers

The largest global producers of raw milk (and hence, manufactured dairy products) are the United States (which accounted for about 20 per cent of global raw milk production in 2012), and India (12 per cent) (table 2.7). China, the Russian Federation and Brazil are the next most significant producing countries, with each accounting for about 7 per cent of global production. Australia’s share of global raw milk production (about 2 per cent) is similar to that of Argentina, Canada and Ukraine. When the countries that constitute the European Union are considered as a group, total raw milk production for that region exceeds that of any other single country.
Table 2.7  Global raw milk production

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>European Union</td>
<td>132241</td>
<td>34.5</td>
<td>139000</td>
<td>29.9</td>
</tr>
<tr>
<td>United States</td>
<td>73749</td>
<td>19.2</td>
<td>90824</td>
<td>19.6</td>
</tr>
<tr>
<td>India</td>
<td>36000</td>
<td>9.4</td>
<td>55500</td>
<td>11.9</td>
</tr>
<tr>
<td>China</td>
<td>7176</td>
<td>1.9</td>
<td>32600</td>
<td>7.0</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>32000</td>
<td>8.3</td>
<td>31917</td>
<td>6.9</td>
</tr>
<tr>
<td>Brazil</td>
<td>21700</td>
<td>5.7</td>
<td>31490</td>
<td>6.8</td>
</tr>
<tr>
<td>New Zealand</td>
<td>11070</td>
<td>2.9</td>
<td>20567</td>
<td>4.4</td>
</tr>
<tr>
<td>Argentina</td>
<td>10300</td>
<td>2.7</td>
<td>11679</td>
<td>2.5</td>
</tr>
<tr>
<td>Ukraine</td>
<td>13140</td>
<td>3.4</td>
<td>11080</td>
<td>2.4</td>
</tr>
<tr>
<td>Australia</td>
<td>10483</td>
<td>2.7</td>
<td>9774b</td>
<td>2.1b</td>
</tr>
<tr>
<td>Canada</td>
<td>8164</td>
<td>2.1</td>
<td>8614</td>
<td>1.9</td>
</tr>
<tr>
<td>Japan</td>
<td>8457</td>
<td>2.2</td>
<td>7631</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>World</strong></td>
<td><strong>383281</strong></td>
<td><strong>100.0</strong></td>
<td><strong>464464</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Data pertain to cow’s milk. Production in India was 129,000 kilotonnes in 2012 when other milk is included. Figure is for year-ended 30 June.

Sources: ABARES (2013a); USDA (2014c).

Individual country shares of global output have remained broadly constant in recent years, with the exception of China. Its share of world production increased by roughly 5 percentage points between 1999 and 2012. The European Union’s share of global raw milk supply declined by approximately the same amount over that period.

Global output of each of the major dairy products has increased over time (figure 2.9). Total production of cheese, for example, has increased from 12,650 kilotonnes in 2000 to more than 17,000 kilotonnes by 2012 (a 34 per cent increase). While worldwide production of whole milk powder has increased by about 50 per cent from its 2000 levels, the increase in skim milk powder volumes has been more modest.
The product mix of dairy producing countries can vary significantly — for example, while a third of Australia’s raw milk supply is used to produce cheese, in New Zealand the product mix is heavily geared toward milk powders and butter.

**Global consolidation in dairy product manufacturing**

Consolidation in dairy product manufacturing has been a global trend. In 2011, the 20 largest dairy manufacturing companies worldwide utilised 24 per cent of global raw milk production. Measured in terms of global raw milk deliveries (that is, raw milk that is actually delivered to manufacturers, as compared to being consumed on-farm or sold informally), these companies accounted for 39 per cent of global volumes (IFCN 2012). Fonterra, the largest dairy manufacturing company in the world, accounted for 3 per cent of global raw milk production in 2011, followed by Dairy Farmers of America (2.4 per cent) (table 2.8).
The International Union of Food and Allied Workers’ Dairy Division noted that consolidation in the EU dairy manufacturing sector has been driven by economies of scale benefits:

In the contemporary EU dairy sector, the process of mergers and acquisitions has produced a core of large processing companies and a ‘fringe’ of smaller operations. Concentration has been greater in the Northern economies with the exception of Germany. In general, the biggest companies are getting far more from assets than others in the sector, reflecting returns to scale. (IUF nd, p. 1)
Similarly, between 1995 and 2008, the top 20 dairy product manufacturing companies in the United States increased their share of the US dairy market from 55 per cent to 67 per cent. In 2008, roughly 20 per cent of the total value of dairy products manufactured in the United States was accounted for by two companies, Dean Foods and Kraft Foods (Gould 2010).

**World dairy prices**

World prices for dairy products spiked in 2007-08, before falling sharply during the global financial crisis, then subsequently rebounding (figure 2.10). The OECD and FAO (2011) attributed the increase in prices in 2009 and 2010 to strong demand in South East Asia and the Russian Federation, and to constrained output in Oceania. Rabobank observed:

… some major structural shifts have occurred in the global dairy market in recent years. Central to these shifts are that global dairy commodity prices have shifted to a higher average trading range. The combination of cost push pressure, strong demand growth and supply constraints in key production regions have all combined to exert considerable upward pressure on the prices of dairy products in international trade. (2010, p. 3)

**Figure 2.10  World dairy prices**

![Graph showing world dairy prices from 2004-2013](source: ABARES (Agricultural Commodities, various editions)).
During 2012, higher returns and good pasture conditions in Oceania and parts of South America drove a response in supply, leading to a slight decline in world prices for most dairy commodities (OECD and FAO 2013).

**Global trade in dairy commodities**

The US Department of Agriculture estimates that the equivalent of about 5 per cent of global raw milk supply is traded internationally (USDA 2012).

Due to the relatively short shelf life of drinking milk products, global trade is dominated by other manufactured products, such as cheese and milk powders, although some trade also occurs in more perishable products, such as ice cream and yoghurt. The share of global production that is traded is highest for milk powder products (over 40 per cent). In contrast, a relatively low portion (less than 10 per cent) of global cheese and butter output is traded (USDA 2014c).

**Key exporters**

New Zealand plays a prominent role in international trade in dairy products, accounting for a 37 per cent share of global exports in 2012 (this represents about 95 per cent of total New Zealand production). In 2012, Australia was the fourth-largest dairy exporter in the world, behind New Zealand, the European Union and the United States (table 2.9). Australia’s share of global dairy exports has declined five percentage points since 2006, and by over 8 percentage points since 2002, when it measured over 15 per cent (Dairy Australia 2007).

<table>
<thead>
<tr>
<th><strong>Table 2.9</strong> Exporters’ share of world dairy trade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Milk equivalents</strong></td>
</tr>
<tr>
<td><strong>Country</strong></td>
</tr>
<tr>
<td><strong>Share of world exports (2006)</strong></td>
</tr>
<tr>
<td>New Zealand</td>
</tr>
<tr>
<td>European Union</td>
</tr>
<tr>
<td>United States</td>
</tr>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>Argentina</td>
</tr>
<tr>
<td>Uruguay</td>
</tr>
<tr>
<td>Ukraine</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>Sources:</strong> Dairy Australia (2007, 2013).</td>
</tr>
</tbody>
</table>

Historically, the United States has accounted for a relatively modest share of global dairy exports (USDA 2012), however export volumes have increased in recent years.
(as has the *scope* of export markets serviced by the United States dairy industry), making it the third largest exporter in 2012.

**Key importers**

China has emerged as the largest importer of dairy products in the world, with dairy imports totalling 1.375 million tonnes in 2012 (this includes approximately 370 kilotonnes of whey products). Approximately 47 per cent of these imports (or approximately 650 000 tonnes) were sourced from New Zealand, with Australia accounting for roughly 4 per cent (or about 61 000 tonnes) of Chinese dairy imports (ADIC and Dairy Australia 2013). The ADIC and Dairy Australia (2013) have emphasised the importance of China as a destination for Australian dairy exports:

> China is Australia’s fastest-growing dairy market … the Australian industry wants to see an FTA [Free Trade Agreement] completed between Australia and China as soon as possible, with a favourable outcome for dairy to help restore the commercial advantage lost to New Zealand. (p. 10)

In 2012, China accounted for about one quarter of global milk powder imports. The world’s largest importer of cheese is Russia, followed by Japan and the United States. Russia and the European Union account for over half of world imports of butter (table 2.10).

**Table 2.10**  **Top 10 importers of major dairy products**  
2012, kilotonnes

<table>
<thead>
<tr>
<th>Country</th>
<th><strong>Cheese</strong></th>
<th>Country</th>
<th><strong>Butter</strong></th>
<th>Country</th>
<th><strong>Milk powders</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>356</td>
<td>Russia</td>
<td>119</td>
<td>China</td>
<td>574</td>
</tr>
<tr>
<td>Japan</td>
<td>235</td>
<td>European Union</td>
<td>55</td>
<td>Indonesia</td>
<td>261</td>
</tr>
<tr>
<td>United States</td>
<td>122</td>
<td>Mexico</td>
<td>37</td>
<td>Mexico</td>
<td>245</td>
</tr>
<tr>
<td>Mexico</td>
<td>89</td>
<td>Australia</td>
<td>21</td>
<td>Philippines</td>
<td>141</td>
</tr>
<tr>
<td>European Union</td>
<td>78</td>
<td>Taiwan</td>
<td>18</td>
<td>Russia</td>
<td>124</td>
</tr>
<tr>
<td>South Korea</td>
<td>78</td>
<td>United States</td>
<td>18</td>
<td>Brazil</td>
<td>104</td>
</tr>
<tr>
<td>Australia</td>
<td>76</td>
<td>Japan</td>
<td>10</td>
<td>Taiwan</td>
<td>52</td>
</tr>
<tr>
<td>China&lt;sup&gt;b&lt;/sup&gt;</td>
<td>45</td>
<td>India</td>
<td>8</td>
<td>Japan</td>
<td>32</td>
</tr>
<tr>
<td>Brazil</td>
<td>27</td>
<td>Ukraine</td>
<td>8</td>
<td>South Korea</td>
<td>19</td>
</tr>
<tr>
<td>Canada</td>
<td>25</td>
<td>Canada</td>
<td>7</td>
<td>Chile</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total world imports</strong></td>
<td><strong>1 154</strong></td>
<td><strong>Total world imports</strong></td>
<td><strong>302</strong></td>
<td><strong>Total world imports</strong></td>
<td><strong>1 924</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup> Comprises whole milk powder and skim milk powder.  
<sup>b</sup> Preliminary estimate for 2013.  

Source: USDA (2014c).
3 Costs of dairy product manufacturing

Key points

- While cost structure analyses can help in gaining a broad understanding of the costs of Australian dairy product manufacturers relative to international competitors, care needs to be exercised interpreting them or using them to formulate policy.
  - Costs vary across countries due to natural characteristics, government policies and commercial decisions by manufacturers.
    - Differences across countries drive international trade.
    - Higher costs may reflect commercial decisions about product mix, or the differentiation of products in pursuit of higher profits.
- Raw milk is the largest input cost for dairy product manufacturers. Other costs include manufactured food and beverage inputs (often milk-based), labour, packaging, transport, energy and capital.
- Raw milk prices paid by dairy product manufacturers in Australia appear to be generally lower than those paid in the United Kingdom and United States (although the cost gap has narrowed), and broadly on a par with those in New Zealand. Reasons include the absence of price support mechanisms for raw milk and relatively low on-farm costs of production in key dairy regions.
  - However, some participants indicated that the stagnation and subsequent decline in Australian raw milk output since 2001 due to factors such as drought has limited the ability of manufacturers to obtain scale efficiencies.
  - Seasonal variability in raw milk production in south eastern Australia can impact on asset utilisation and manufacturing efficiencies and costs.
- While wage data for the Australian dairy manufacturing industry are not available, hourly labour costs in the broader food, beverage and tobacco product manufacturing sector have not increased significantly since 2002.
  - Australian hourly labour costs in the food, beverage and tobacco product manufacturing sector are lower than for the manufacturing sector as a whole, but were substantially higher than those in the United Kingdom, United States and New Zealand in 2012, largely due to appreciation of the Australian dollar.
- Multifactor productivity in the Australian food, beverage and tobacco product manufacturing sector declined between 2000 and 2011, as it has for most of the Australian market economy. However, dairy farm productivity has improved.
- Since 2006 there have been substantial increases in the domestic wholesale prices of electricity and natural gas, which are used intensively in the production of some dairy products such as milk powder.
This chapter presents preliminary data on the costs of dairy product manufacturing in Australia and key competitor countries, drawing on publicly available information and evidence provided to the Commission through submissions and industry consultations (appendix A). Section 3.1 sets out the Commission’s framework for examining dairy manufacturing costs. The cost structure data are presented in section 3.2, followed by a discussion of some of the factors that affect costs in this industry (section 3.3).

### 3.1 Framework for examining cost structures

Cost structure analyses can help establish a broad understanding of the costs of Australian dairy product manufacturers relative to international competitors, and the drivers of those costs. In turn, they could provide insights into possible ways to reduce dairy product manufacturing costs in Australia.

That said, care needs to be exercised in using cost structure analyses for formulating public policy.

First, businesses in the dairy product manufacturing industry incur a range of costs. While some of the costs are amenable to public policy (for example, government regulation), other costs and cost drivers are not (such as raw milk price increases reflecting developments in world markets). Moreover, the decisions made by dairy manufacturers about, for example, their product mix, market focus, production technology, factor use and risk management will have a significant bearing on their unit costs of production.

Furthermore, firms act to maximise profits (revenue minus costs). Profit maximisation may mean that firms seek to improve their competitiveness through product differentiation (in terms of quality or branding), or by establishing relationships with key customers. Such strategies could entail higher costs (for example, paying higher prices for premium quality milk) in the expectation of bringing even greater revenues. Of course, profit maximisation requires that any given output is produced at least cost, but this does not equate to cutting costs without regard to the impacts on outputs and revenues.

Second, government intervention is not costless — even if policy interventions could reduce dairy product manufacturing costs, they inevitably impose costs on other areas of the economy. Where these costs exceed the benefits to dairy product manufacturers, the community will be made worse off overall. As a general principle, well-functioning markets promote community wellbeing by allocating resources (such as capital, labour and skills) to their highest value uses. In this
circumstance — that is, in the absence of any significant market failure, or impediment to efficient resource allocation — intervention by government to alter consumption or production decisions (by way of a subsidy, for example) may advantage the targeted beneficiaries, but disadvantage competitors that do not receive the assistance, and lead to a net loss for the community overall.

Third, there are numerous reasons why costs differ across countries.

- The unique characteristics of individual countries — such as climate, natural resources, endowments such as labour, competition for resources from other sectors and proximity to export markets — have a significant bearing on costs, and will mean certain countries have a comparative advantage in some industries over others. Indeed, it is these differences that drive production choices and generate gains from international trade.

- Differences in cost structures across countries will also arise where foreign governments elect to provide assistance (in various guises) to their local agricultural industries. Examples of such policies include the EU’s Common Agricultural Policy and the 2014 United States Farm Bill. These policies can affect the global cost-competitiveness of Australia’s dairy products, but do not constitute a sound rationale for equivalent government assistance in Australia.

- Certain cost differentials between Australia and other countries are the result of broader factors, such as the country’s stage of economic development and standards of living. For example, industrialised countries generally have higher wages, reflecting higher productivity levels and living standards.

**The Commission’s approach**

The broader policy, regulatory and institutional environment in which the Australian dairy product manufacturing industry operates will influence the productivity and competitiveness of manufacturers. This environment can also affect the incentives for, and the capacity of, dairy product manufacturers to respond to cost pressures and changing competitive conditions.

In this context, the Commission’s approach has been to draw on the cost analyses contained in this chapter to better understand the drivers of dairy manufacturing costs in Australia, and the possible reasons for differences in cost structures between countries. In doing so, the Commission draws a distinction between costs (and cost drivers) that are potentially amenable to policy action, and those which are not.
Further, while raw differences in cost structures between countries are expected — and are not necessarily symptomatic of any problem with Australia’s policies or institutional frameworks — these comparisons can provide important insights and lessons, particularly where policy differences arise.

**International comparisons**

The Commission has been asked to compare Australian dairy manufacturing cost structures with other significant dairy manufacturing nations. The focus in this interim report is on New Zealand and the United States (both significant dairy exporters and competitors), and the United Kingdom (a similarly sized, domestically-focused dairy processing market) (box 3.1). Each of these countries uses raw milk in different ways (figure 3.1), which has a direct bearing on dairy manufacturing cost structures.

**Figure 3.1  Milk utilisation in the United Kingdom and the United States\(^a\)**

*2012, Raw milk equivalents*

United Kingdom

- Liquid consumption
- Butter
- Cheese
- Milk Powder

United States

- Other
- Whey
- Frozen Products

\(^a\) US milk equivalents are Commission estimates using a weighted average of 40 per cent butterfat weight and 60 per cent non-fat solid weight, following Jesse and Cropp (2003).

Sources: DEFRA (2013); USDA (2014b).

The Commission is seeking feedback on whether additional or alternative countries should be examined in the final report, keeping in mind the potential difficulties associated with accessing reliable data on dairy manufacturing costs.
Box 3.1  International comparison countries

New Zealand

New Zealand is the world’s largest exporter of dairy products (by milk equivalents (table 2.9)), but only accounts for a relatively modest share of global dairy production (4.4 per cent in 2012 (table 2.7)). New Zealand exports represented 37 per cent of global dairy exports (in milk equivalent terms) in 2012. Milk powders are the dominant dairy export, accounting for about 54 per cent of the total value of New Zealand’s dairy exports (Coriolis 2014). The bulk of dairy manufacturing in New Zealand is undertaken by Fonterra Cooperative Group. Fonterra processes about 90 per cent of the country’s raw milk (IUF 2012) and is the largest single dairy manufacturer in the world (by milk intake, table 2.8). Other dairy manufacturers in New Zealand include Tatua Co-Operative Dairy Company and Westland Milk Products (both co-operatives), and Open Country Dairy and Synlait.

United States

The United States is the largest cow’s milk producing nation in the world — it produced 90 824 kt of raw milk, or around 20 per cent of global production, in 2012 (table 2.7). Major dairy manufacturers include Nestle, Dean Foods and Saputo (publicly traded companies), Schreiber Foods (a private company) and cooperatives such as Land O’Lakes and Agropur Cooperative (Dairy Foods 2013). The United States is a major dairy exporter, accounting for 11 per cent of global dairy exports in 2012 (table 2.9). US dairy exports have grown rapidly in recent years — with a compound annual growth rate of 18 per cent from 2009 to 2013, and further growth is expected (Australian Dairy Industry Council and Dairy Australia, sub. 6). Much of the increase in export volumes is expected to flow to the same Asian markets that are currently important for Australia (Australian Dairy Industry Council and Dairy Australia, sub. 6). The US Government provides significant assistance to encourage dairy exports (section 3.3).

United Kingdom

The United Kingdom is one of the largest dairy producers in the European Union (EU). In 2011 it accounted for about 10 per cent of total EU raw milk production (Eurostat 2012). The bulk of this output is consumed domestically — only about 11.8 per cent of UK dairy products (by value) were exported in 2012 (Dairy Co 2013; ONS 2013a). UK dairy production and exports are expected to increase from 2015 following the removal of EU quotas on raw milk production. There were 400 dairy manufacturers in the United Kingdom in 2012, with eight companies processing about 70 per cent of total raw milk supply (Dairy Co 2014b). The largest manufacturers in the United Kingdom are Muller UK, Arla Foods, Dairy Crest and First Milk.
Is it appropriate to compare Australia’s dairy product manufacturing costs to those in New Zealand, the United Kingdom and the United States? Should alternative countries be considered? If so, why?

### 3.2 Cost structure of dairy product manufacturing

To gain insights into the overall cost structure of dairy product manufacturing, the Commission has analysed input–output tables provided by the Australian Bureau of Statistics (ABS) and overseas statistics agencies. Specifically, input–output data have been used to examine:

- the cost structures of the dairy manufacturing industries in Australia and comparison countries, for the most recent period for which data are available (2009-10)
- changes in cost structures over time, where feasible.

In addition, other available data — including evidence provided through study submissions and meetings with stakeholders — have been considered to better understand how cost structures may vary between individual dairy manufacturing businesses.

#### Australian cost structures

The Australian input–output data indicate that, in 2009-10, the key inputs into dairy product manufacturing in Australia were (figure 3.2):

- agricultural products — predominantly raw milk (about 29 per cent of industry output)
- manufactured food and beverage products (about 16 per cent, of which about 80 per cent was manufactured dairy products (such as fresh milk) used in the manufacture of other dairy products. These inputs also use raw milk, and thus the effective amount of raw milk used in the manufacturing process will be higher than the 29 per cent included in the agricultural products category)
- labour costs (compensation of employees) (about 13 per cent)
- plastic and paper products, predominantly used for packaging (about 6 per cent)
- transport costs (about 5 per cent)
- energy and other utilities costs (about 1.7 per cent).
The cost structure of the Australian dairy product manufacturing industry has remained broadly unchanged over the decade to 2009-10, although there has been some fluctuation in the relative importance of particular elements. The most significant changes include a decline in the input cost share of agricultural products (from 36 per cent in 1998-99 to 29 per cent in 2009-10), offset by an increase in the cost share of manufactured food and beverage products (from 10 per cent in 1998-99 to 16 per cent in 2009-10). There has also been a gradual rise in the input cost share of labour (from 10 per cent in 1998-99 to 13 per cent in 2009-10).

These trends may be due to a range of factors. For example, they could indicate a change in the relative prices of various inputs, or they could indicate a change in the input mix used as a result of differences in the products produced or technology used. Some of the factors underlying these costs structures are considered in section 3.3.

Figure 3.2  **Australian dairy manufacturing cost structure**

Per cent of industry output, various years

![Australian dairy manufacturing cost structure chart]

*Note that ‘wholesale trade’, which represents margins on products sold wholesale to dairy product manufacturers, is a substantial proportion of the ‘other’ category (about 6 per cent of industry output in 2009-10).*

*Source: ABS (Cat. no. 5209.0.55.001, *Australian national accounts: input–output tables*, various years).*
Variations in cost structures across firms

While the input–output data represent the average cost structure of the industry as a whole, they may not be representative of an individual manufacturer. In particular, cost structures would be expected to vary depending on the types of products a firm produces, the size of plants, and the production techniques used in manufacturing.

The Commission has some evidence on the differences in input costs across products. For example, a feasibility study into dairy product manufacturing in Western Australia highlighted the differences in production costs for fresh drinking milk and milk powder production (table 3.1). Wages, packaging and (overseas) transport cost shares are higher for the fresh milk plant, while raw milk and energy cost shares are higher for the milk powder plant — representing the different inputs and production techniques used in the manufacture of these products.

Table 3.1  Operating costs in Western Australia

<table>
<thead>
<tr>
<th>Per cent of operating costs</th>
<th>Milk powder</th>
<th>Fresh drinking milk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw milk production</td>
<td>71.0</td>
<td>53.8</td>
</tr>
<tr>
<td>Wages</td>
<td>4.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Repair and maintenance</td>
<td>1.6</td>
<td>1.2</td>
</tr>
<tr>
<td>Electricity and gas</td>
<td>6.8</td>
<td>4.1</td>
</tr>
<tr>
<td>Water</td>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td>Effluent disposal</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Packaging</td>
<td>2.9</td>
<td>5.9</td>
</tr>
<tr>
<td>Transport (to China)</td>
<td>1.9</td>
<td>25.1</td>
</tr>
<tr>
<td>Other</td>
<td>9.5</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Source: DAFWA (2013).

The extent of value adding undertaken by dairy manufacturers can also lead to differences in cost structures. For example, for businesses that primarily produce fresh drinking milk, raw milk is expected to constitute a high proportion of total costs. However, this share can decline quite significantly for products that require more processed inputs and manufacturing processes. According to the US input–output tables for 2007, while raw milk costs represent about 45 per cent of output for fresh milk and butter products, this share falls to about 6 per cent for ice cream and other frozen desserts — with the latter products using a higher proportion of inputs from the food and beverage manufacturing sector (BEA 2014).

Rabobank (2012) has observed that international dairy businesses producing fast-moving consumer goods have focused on improving their value add, thereby reducing the cost share of raw milk.
While study participants in Australia reported cost structures that were broadly similar to the input–output data for most inputs, there was a large difference in the cost proportion reported for raw milk, with some participants suggesting that this input was over 70 per cent of their cost structure. Some of this variation can be explained by differences in the way the data are presented — for example, gross operating surplus, which generally accounted for about 10 per cent of output in the input–output data, was not included in the cost structures provided by participants.

These differences may also highlight the extent to which costs vary across different firms in the sector, and across different products. For example, businesses producing fresh drinking milk are likely to have a higher proportion of costs consisting of raw milk than businesses producing higher value add products, such as flavoured milk and yoghurts.

Data contained in company annual reports also suggest that there may be substantial variation in the share of raw milk costs across businesses in Australia (table 3.2) — although these variations may be larger than expected, and are difficult to reconcile using publicly available data.

### Table 3.2  Estimates of business-level cost structure
Per cent of revenue. Based on annual report data, various years.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw milk</td>
<td>50.3</td>
<td>78.1d</td>
<td>24.7d</td>
<td>39.6</td>
<td>26.8d</td>
</tr>
<tr>
<td>Labour costs</td>
<td>9.7</td>
<td>9.6</td>
<td>13.5</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Distribution expenses</td>
<td>6.6</td>
<td>4.9</td>
<td>4.4</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Administration expenses</td>
<td>3.3</td>
<td>na</td>
<td>4.3</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Depreciation</td>
<td>2.5</td>
<td>2.5</td>
<td>2.1</td>
<td>na</td>
<td>na</td>
</tr>
<tr>
<td>Finance costs</td>
<td>1.3</td>
<td>0.9</td>
<td>0.8</td>
<td>na</td>
<td>na</td>
</tr>
</tbody>
</table>

a Revenue does not include revenue from MG Trading. b Revenue does not include revenue from sources other than commodity and consumer goods. c Revenue does not include revenue from Norco’s rural retail business segment. d Raw milk costs estimated by multiplying the amount of raw milk purchased by the business by the average price (across all businesses) of raw milk in that year. Bega Cheese estimate based on milk supplied by direct suppliers. na Not available.

Sources: Bega Cheese (2013); Murray Goulburn (2013b); Norco (2009); Parmalat (2014); Warmambool Cheese and Butter (2013).

The Commission is seeking further information on how cost structures for dairy manufacturing vary across firms, and the extent to which the input–output data are representative of the cost structure faced by firms in the sector.
How reflective of the dairy product manufacturing sector are the data presented in the Australian input–output tables? How does the type of product manufactured influence the costs of production?

International comparison of cost structures

The Commission has also drawn on input–output data to identify dairy manufacturing cost structures in comparator countries. While cost structures in New Zealand, the United States and the United Kingdom are broadly similar, there are some significant differences between the cost shares for this group and Australian dairy product manufacturers (figure 3.3).

Figure 3.3  
Country comparison of overall cost structures
Per cent of industry output, various years

- The cost share of agricultural products (predominantly raw milk) recorded in the input mix of Australian manufacturers is lower than all countries considered (however, as noted above, anecdotal information provided by study participants...
suggests that raw milk inputs may represent a higher proportion of costs in Australia than the input–output data suggest).

- The cost share of labour and transport is higher in Australia.

Section 3.3 considers some of the potential drivers of these cost share discrepancies across countries.

3.3 Factors underlying the cost structure of dairy product manufacturing

While cost structure analyses can identify the cost shares of each input to dairy product manufacturing, it does not reveal the reasons for variation in cost shares. This section canvasses some of the possible drivers of the differences in dairy manufacturing costs, over time and across countries. Chapter 4 will consider whether any of these drivers are amenable to policy intervention.

At a high level, cost structures can vary due to differences in the product mix manufactured, relative input prices, production techniques and industry structure. For this interim report, the Commission has focused primarily on examining the prices of key inputs, including raw milk, labour, energy and transport. The Commission is seeking feedback on the importance of other factors and costs to provide a more comprehensive exploration of cost drivers in the final report.

Raw milk costs

International comparisons indicate that farmgate milk prices in Australia have been at the lower end of the range when compared to other milk producing countries, including New Zealand, the United States and the United Kingdom (although the price gap has narrowed) (figure 3.4).

This suggests that Australian dairy manufacturers enjoy a raw milk cost advantage relative to several of their key competitors. A number of factors underpin this advantage, including the competitive and largely unregulated nature of Australia’s raw milk market (chapter 2) and relatively low on-farm production costs.
Raw milk production costs in major Australian dairy regions appear relatively low

The cost of producing raw milk can vary considerably from one farm to another, depending on the system of farming used, the scale of farming operations, operator expertise, herd genetics and various other factors. Nonetheless, average production costs for dairy farmers in Australia and New Zealand have historically been lower relative to farmers in most other major milk producing countries (Clark, Malcolm and Jacobs 2013; IFCN 2013; Rabobank 2012).

Recent analysis by Rabobank shows that the cost of producing raw milk in Victoria (which accounts for two thirds of Australian milk production and the bulk of dairy exports) has remained competitive with many other dairy producing nations, with farm working expenses particularly low by world standards. This cost advantage partly reflects the various natural (including climatic) advantages enjoyed by Australian and New Zealand dairy farmers. For example, the lower cost pasture-based production system used in Australia and New Zealand is a key driver of cross-country differences in on-farm costs (Rabobank 2012).
However, the costs of raw milk production in dairy regions predominantly focused on servicing domestic drinking milk markets (such as New South Wales), are substantially higher (figure 3.5).

**Figure 3.5 Raw milk production costs**

$US/Litre, various years

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netherlands</td>
<td>2011</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>Poland</td>
<td>2012</td>
<td>Rabobank (2013, pers. comm., 23 May 2014)</td>
</tr>
<tr>
<td>Upper Midwest (USA)</td>
<td>2011-12</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>California (USA)</td>
<td>2011</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>China</td>
<td>2011</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2011</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>Victoria (Australia)</td>
<td>2011-12</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>Argentina</td>
<td>2011</td>
<td>Dairy Australia (2013c)</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>2011-12</td>
<td>Dairy Australia (2013c)</td>
</tr>
</tbody>
</table>

The most significant costs for Australian dairy farmers are fodder (purchased livestock feed such as hay or grain) and labour (figure 3.6). Over time the total cost of labour used to produce one litre of milk has fallen, while the total cost of fodder used has increased (figure 3.7).
Figure 3.6  **Average operating expenditure per dairy farm**  
*Australia 2012-13*

![Pie chart showing the average operating expenditure per dairy farm in Australia 2012-13. The chart breaks down the expenses into categories such as fodder (32%), labour (19%), repairs and maintenance (9%), renovation and maintenance (8%), fertiliser (6%), fuel oil and grease (4%), animal health and breeding (3%), electricity (3%), cropping (3%), water (3%), and other operating costs (10%).]

*Source: ABARES (2014b).*

Figure 3.7  **Australian fodder and labour**\(^a\) **costs over time**  
*Real Australian 2013-14 dollars per litre*

![Line graph showing the real Australian 2013-14 dollars per litre for fodder and labour costs from 1989-90 to 2012-13. Labour costs are represented by a blue line, and fodder costs by a green line.]

\(^a\) Includes labour of owner/manager and family.  
*Source: ABARES (2014b).*
In addition, Australia has experienced continued productivity growth at the farm level. A study by ABARES found that from 2000-01 to 2010-11, multifactor productivity growth in the dairy farm sector averaged 2 per cent per year (Dharma and Dahl 2013). This growth is higher than for all other broadacre agricultural industries in Australia (ABARES 2014a). Dharma and Dahl (2013) identified a number of reasons for this improvement, including:

- improved scale through the consolidation of dairy farms, with many smaller producers exiting the industry, and the production share of small operations gradually declining. Average farm size increased by 45 per cent between 1988-89 and 2010-11
- a shift toward greater production mechanisation and corresponding declines in the average farm’s use of land and labour
- advances in herd genetics, soil testing and pasture management have helped increase milk yields. Milk yield increased from 3811 litres per cow in the early 1990s to about 5630 litres per cow in 2010-11.

That said, the gap in farmgate milk prices between low-cost producers, such as Australia, and regions with traditionally higher on-farm costs, such as Europe and the United States, has narrowed in recent years (figure 3.4). This has been attributed to the weaker US dollar and the rising debt costs in the southern hemisphere associated with increasing land costs (Rabobank 2012). The increased reliance of Australian farmers on fodder over pasture as a form of feed (figure 3.7), particularly in drought years, is also likely to have contributed to the narrowing cost gap.

*Deregulation of the dairy industry has driven lower farmgate prices and on-farm efficiency improvements*

In part, low on-farm costs and farmgate prices in the Australian dairy industry can be attributed to Australia’s significant and long standing (by world standards) commitment to deregulation of the industry. Dairy industry reform began in the early 1970s, with wide-reaching policy reforms such as the deregulation of statutory marketing arrangements and the removal of subsidies for inputs (including fertiliser subsidies and concessional credit), and culminating in July 2000 with the removal of all price support to dairy farmers (ABARES 2014a). These reforms strengthened incentives for farmers to improve productivity and resulted in consolidation and more efficient resource use across farms.

Since deregulation, the level of government assistance to dairy markets has progressively reduced in Australia and New Zealand (OECD 2013). In Australia the
effective rate of assistance for dairy farming has fallen from 12.5 per cent in 2006-07 to 1.8 per cent in 2011-12 (PC 2013b).

In contrast, governments in the United Kingdom and United States provide more extensive assistance to dairy farmers which drive up farmgate milk prices.

- The European Union milk quota sets a national production quota for the United Kingdom (which is in turn distributed to individual farmers). All else being equal, this regulatory arrangement raises the farmgate price of milk in European Union member nations.

- In the United States, minimum farmgate milk prices are supported by a range of tariffs, quotas and export subsidies, as well as government purchasing arrangements for butter, skim milk powder and cheddar cheese products. The five main government assistance programs are: the Dairy Product Price Support Program, the Milk Income Loss Contract Program, Federal Milk Marketing Orders, Dairy Import Tariff Rate Quotas, and the Dairy Export Incentive Program. In addition, when farmgate prices fall below target levels, a payment is made per tonne of milk marketed below a per-farm production limit (OECD 2013).

Such arrangements distort raw milk production and consumption decisions, in turn imposing costs on other (downstream) industry participants and on the economy overall.

**Raw milk volume and seasonal variability also affect manufacturing costs**

There are large fixed costs involved in manufacturing certain dairy products, particularly where significant infrastructure or mechanised technology is required.

While dairy manufacturers in Australia are able to take advantage of comparatively low raw milk prices, the stagnation and subsequent decline in Australia’s raw milk output since 2001-02 (figure 2.3, chapter 2) is claimed by some manufacturers to have limited the achievement of scale efficiencies at the manufacturing level. As noted by the Department of Agriculture:

A decline in raw milk production over the past decade has constrained Australian dairy manufacturers’ capacity to invest [in] operations in a period when many international competitors are aggressively pursuing such outcomes. Further, Australia’s relatively small scale operations have affected its cost competitiveness in the global dairy commodity market. (sub. 7, p. 19)
While scale economies might be somewhat less important for manufacturers of higher-value or niche products (as consumers are prepared to pay a price premium), participants considered that economies of scale are vital for plants focused on commodity dairy products, such as milk powders.

**Seasonal variability**

The most common on-farm production method in the Australian dairy industry is ‘seasonal production’, whereby calving occurs during the peak period of pasture availability during spring, and raw milk production tends to peak (chapter 2). The challenges of managing this seasonal production regime can be a key factor affecting the profitability and international competitiveness of processors and manufacturers (Department of Agriculture sub. 7).

The Australian Dairy Industry Council and Dairy Australia (sub. 6, p. 3) considered that seasonal variability in Australia’s raw milk supply limited the types of plant and technology that could be used by Australian dairy manufacturers, and prevented some manufacturers from achieving scale economies:

Outside of peak season, a significant part of the dairy manufacturing sector is forced to run at lower capacity … Historically, Australian processors have attempted to manage this milk supply challenge to efficiency through plant design: that is, by opting for smaller dryers (for example, combining at one manufacturing site, two 6 tonne per hour dryers instead of one 12 tonne per hour dryer) to enable shutdown during off-peak when milk supply is too low to maintain efficiency (a 20 hour operational day is required to run such plant efficiently). Australian supply conditions have made 4-6 tonne dryers the optimal size dryer.

However, manufacturers seeking a ‘flatter’ supply of raw milk throughout the year (to achieve better asset utilisation, for example), can incentivise their farmer-suppliers to deliver this, albeit at a cost (owing to the higher feed and other costs associated with year round production). Indeed there is evidence that a flatter milk supply is becoming a greater commercial imperative, with falls in the proportion of milk available at peak times in most areas of Australia over the period 1999-00 to 2011-12 (Hauser 2012). This trend is particularly strong in Victoria, where the majority of Australia’s raw milk is produced (Hauser 2012).

The Commission is seeking feedback on the impact of the predominantly seasonal nature of Australia’s raw milk supply on manufacturing efficiencies and costs.
**Why the lack of growth in milk supply?**

Possible reasons put forward by participants for the lack of growth in Australia’s raw milk volumes include:

- severe drought and floods and the consequent impact on water availability, pastures and fodder (Australian Dairy Industry Council and Dairy Australia, sub. 6)
- dairy farmers lacking the capacity (and confidence) to invest at the farm level, due to factors such as low and/or variable farmgate milk prices, volatile and uncertain farmer returns and input prices, and higher debt costs (driven by increasing land costs)
- various other factors, including the relative attractiveness of exporting live dairy heifers (box. 3.2).

**Box 3.2  Live exports have increased in recent years**

An additional source of income for many dairy farms is the sale of live dairy heifers to other dairying nations. This has become increasingly important for many farmers in recent years as a means to stabilise farm income (Dairy Australia 2013b).

From 2008-09 to 2012-13 the number of dairy cattle exported increased from about 59 000 to about 87 000 (Dairy Australia 2013b). Much of this growth was driven by demand from China, with exports to that country rising from about 7000 to 59 000 over the same period (Dairy Australia 2013b). The reported prices of heifers for live export have ranged from $1400 to $2000, which is over double the domestic price (Rogers 2014).

Farmer decisions about on-farm investment and raw milk production are ultimately determined by market realities and risk assessment and preferences. Where manufacturers seek larger raw milk volumes (to exploit scale efficiencies or meet rising customer demand, for example), the price of raw milk would be expected to rise (all else being equal). Higher farmgate prices would, in turn, provide an incentive for farmers to invest on-farm and expand production.

There is strong evidence that such market forces ‘are working’. Manufacturers are responding by offering farmgate price incentives for increases in raw milk, or increasing expected farm returns by taking on risks including through entering into co-investment schemes with farmers (underpinned by longer-term supply agreements) and seeking third-party capital investment. Indeed, Dairy Australia recently noted that “… the focus on incentivising “new milk” is as strong as ever, with various price and co-investment incentives in place” (2014, p. 12). For
example, Bega Cheese recently announced a $25 million initiative to encourage dairy farmers (by way of an additional payment per litre (in milk solid equivalents)) to make on-farm investments that either boost farm productive capacity or enhance the environmental sustainability of their farms (Bega Cheese 2014).

The Commission is seeking feedback on the impact of Australia’s stagnant raw milk supply on manufacturing efficiencies, and whether there are impediments that limit cooperation or co-investment between dairy farmers and manufacturers to increase raw milk supply.

**INFORMATION REQUEST 3.3**

Is the volume and seasonal variability of Australia’s raw milk supply constraining dairy manufacturers from achieving economies of scale and/or optimal asset utilisation? What are the major impediments to increasing raw milk supply, or achieving more consistent raw milk output year-round? To what extent can supply agreements (including contracts) between farmers and manufacturers overcome these issues?

**Labour costs**

The input cost share of labour into Australian dairy product manufacturing has increased over time. Moreover, labour represents a greater proportion of input costs for Australian dairy product manufacturers than for manufacturers in New Zealand, the United States and the United Kingdom. Possible reasons for this include greater labour intensity in Australian dairy product manufacturing, higher wages, or lower productivity.

While data were not available on compensation costs for the dairy product manufacturing sector, data on labour compensation costs in the broader food and beverage manufacturing industry can be used to proxy the trend in wages in the dairy product manufacturing sector. Dairy product manufacturing contributed about 9.5 per cent of food, beverage and tobacco manufacturing value add in 2012-13 in Australia (ABS 2014a).

Hourly labour compensation costs in the Australian food, beverage and tobacco product manufacturing sector have not increased significantly in recent years (figure 3.8). Between 2002 and 2012 nominal labour compensation costs have grown slightly. However, real labour compensation costs (deflated using the producer price index for food, beverage and tobacco product manufacturing) have been largely flat, aside from a substantial drop between 2007 and 2008, caused both by a slight decline in nominal compensation costs and a large increase in food
prices in this period. Since 2002 nominal labour compensation costs for the broader manufacturing sector have steadily increased, and as a result, hourly labour compensation costs in the food, beverage and tobacco manufacturing sector were substantially below those in the manufacturing sector in 2012. The Commission will explore the reasons for the divergence in wages between the food, beverage and tobacco manufacturing sector and the broader manufacturing sector further in its final report.

Figure 3.8 **Hourly labour compensation costs\(^a\) in the Australian food, beverage and tobacco product manufacturing sector**

2002–2012, A$/hour

![Graph of hourly labour compensation costs](image)

\(^a\) Compensation costs include direct payments, social insurance expenditures and labour-related taxes. \(^b\) Between 2002 and 2007 the data are for the food, beverage and tobacco product manufacturing industry. Between 2008 and 2012 the data are for the food products manufacturing industry.

Sources: ABS (Cat. no. 6401.0, *Producer Price Index, March 2014*); BLS (2013b).

**Labour costs compared to international competitors**

Due largely to the rise in the Australian dollar, hourly labour costs in the Australian food and beverage processing industry have increased relative to international competitors. As a result, in 2012 Australian hourly labour costs in the industry were substantially higher than in New Zealand, the United Kingdom and the United States (figure 3.9).

Anecdotal evidence from the Australian Dairy Industry Council and Dairy Australia (sub. 6) and United Dairymen of Victoria (sub. 4) also suggested that Australian dairy product manufacturing wage rates are higher than those in New Zealand. A
New Zealand dairy product manufacturing worker without experience generally earns about NZ$14 per hour (about A$13), increasing to NZ$16–$24 (A$15–$22) for a worker with experience, whereas, the minimum wage for an Australian dairy product manufacturing worker is about $16 per hour.

Figure 3.9 **Hourly labour costs in the food, beverage and tobacco product manufacturing industry**
2002–2012, $A/per hour (nominal)

*Between 2002 and 2007 the data are for the food, beverage and tobacco product manufacturing industry. Between 2008 and 2012 the data are for the food products manufacturing industry. Data for New Zealand prior to 2008 are not available. Sources: BLS (2012, 2013b).*

**Productivity performance**

An improvement in productivity means that, for any given input prices, the same amount of output can be produced using less labour, capital and other inputs, or that more output can be produced using the same amount of resources. Productivity improvements are driven by the decisions of individual firms and can come from a range of sources including adoption of new technologies, organisational efficiencies and economies of scale. Productivity can also be affected by policies and regulations. In essence, productivity performance is about the real costs of production and thus, along with input prices, is an important driver of an industry’s ability to compete.

Australia’s productivity performance in the food, beverage and tobacco manufacturing sector has been relatively poor — multifactor productivity in the
sector steadily declined between 2001 and 2011, while total factor productivity (which captures the use of intermediate inputs) declined between 2000 and 2007 (figure 3.10). These data are not necessarily reflective of productivity in the dairy manufacturing sector, but some of the factors explaining low productivity growth in the sector are likely to have affected dairy manufacturing.

Figure 3.10  International comparison of productivity in the food, beverage and tobacco product manufacturing sectora
2000–2011

![Graph showing productivity comparison](attachment:graph.png)

a Multifactor productivity data for the United Kingdom and total factor productivity data for New Zealand are not available. Multifactor productivity data for the United States are for the food product manufacturing sector. Australian multifactor productivity data are for the financial year ending June that year.

Sources: Barnes et al. (2013); BLS (2013c, 2014); DEFRA (2014); EU KLEMS (2010); Statistics New Zealand (2014).

Barnes et al. (2013) noted that the poor productivity performance reported for the food, beverage and tobacco sector could be due to a range of factors, including both measurement issues and other factors, such as:

- a change in the composition of output across the food, beverage and tobacco sector
- adjustment pressures from the appreciation of the Australian dollar
- reduced availability of agricultural inputs due to drought.

Specific to the dairy product manufacturing sector, participants noted a number of factors that may have negatively affected the productivity of the sector.
The Australian Dairy Industry Council and Dairy Australia (sub. 6) and United Dairyfarmers Australia (sub. 4) noted difficulties in attracting and retaining skilled workers.

Reductions in raw milk production in Australia may have resulted in manufacturing plants and machinery having excess capacity (discussed above).

**INFORMATION REQUEST 3.4**

*Are the persistent productivity declines in the Australian food, beverage and tobacco manufacturing sector reflective of the productivity performance of the Australian dairy product manufacturing industry? If so, what are the drivers of these productivity declines?*

**Energy costs**

*The use of energy in dairy product manufacturing*

Energy is a vital input for many aspects of dairy product manufacturing. For example, electricity is required to support general plant operations, such as refrigeration and lighting, and thermal energy is used for pasteurisation and evaporation processes (Australian Dairy Industry Council and Dairy Australia, sub. 6). In 2010-11, the bulk of energy used in dairy product manufacturing was either natural gas (55 per cent) or grid electricity (29 per cent) (Dairy Australia 2013a). While energy accounts for a relatively small proportion of input costs overall, energy cost shares can vary markedly across products (figure 3.11).

There was an increase in the energy intensity of dairy product manufacturing in Australia between 2005-06 and 2010-11 — from around 1000 GJ/ML of raw milk to around 1400 GJ/ML (Dairy Australia 2013a). According to Dairy Australia (2013a), this is likely to have been influenced by a decrease in milk powder production, resulting in powder drying equipment being run below capacity and thus increasing the energy intensity of milk powder production.
Energy prices

Australia has traditionally been a relatively low energy cost country — for example, in 2004 Australia’s wholesale electricity prices were similar to those paid by New Zealand, the United Kingdom and the United States (IEA 2014). However, there have been substantial increases in Australian natural gas and electricity prices in recent years (relative to other countries) (figure 3.12) — and as of 2011, the Australian retail electricity price was higher than prices in New Zealand, the United Kingdom and the United States (DRET 2012).

Market factors and government policies underpin the recent growth in Australian energy prices. Much of the increase was driven by network costs, such as increased investment in electricity networks (to replace, upgrade and expand network assets) (PC 2013a). Environmental policies, including the carbon tax, the Renewable Energy Target and state-based feed-in tariffs for renewable electricity, accounted for around 17 per cent of the retail electricity price in 2012-13. According to the Australian Energy Markets Corporation (AEMC 2013a) electricity price increases are expected to moderate over the next few years.

Despite increases in Australian natural gas prices over time, the Australian gas price is still below the United Kingdom (but above the United States, which has experienced a decline in natural gas prices in recent years) (IGU 2013). However, there remains upward pressure on Australian natural gas prices, as the market
adjusts to the development of the liquefied natural gas export industry (AEMC 2013b).

Overall, for less-energy intensive dairy products, recent energy price rises in Australia are unlikely to have had a significant impact on dairy manufacturing costs. However, for manufacturers of high-energy products such as milk powder, price increases would have had a more substantial bearing on cost-competitiveness.

**Figure 3.12 Changes in international energy wholesale prices**

National currencies (nominal), 2000–2013. 2000 = 100 index points


**INFORMATION REQUEST 3.5**

*To what extent have recent energy price rises in Australia been reflected in the energy prices paid by dairy product manufacturers? Are energy costs a serious impediment to investment in manufactured dairy products? Are seasonal factors or the regional location of dairy manufacturing plants relevant to the energy prices paid by dairy manufacturers?*

**Transport costs**

Transport costs, including both the transport of raw milk from the farm to the manufacturer, and the distribution of manufactured products, are a significant cost
for dairy product manufacturers. The predominant mode of transport in the sector is road transport.

There are limited data available to allow comparisons of Australian dairy product manufacturing transport costs with international competitors. There is evidence that real road transport rates in Australia currently are at the same level as in 2005. However, there has been considerable volatility from year to year and rates have risen since 2000 due to factors such as higher fuel and regulatory compliance costs (figure 3.13) (SKM 2013). Transport costs in the sector will also be affected by factors such as total distances travelled — which will be influenced by factors such as plant and dairy farm location and scale — and quality of infrastructure in the relevant regions. Transport issues are considered further in chapter 4.

INFORMATION REQUEST 3.6

How do transport costs in the Australian dairy product manufacturing sector compare with those internationally? What are the key drivers of transport costs in the Australian dairy product manufacturing industry? To what extent is the regional location of many manufacturing plants a hindrance to managing transport and logistics?

Figure 3.13  Australian real short- and medium-haul road transport rates
Cost per net tonne kilometre, 2000=100 index points

4 Potential policy influences on dairy manufacturing costs

Key points

- Most dairy product manufacturing costs are largely driven by market factors and commercial decisions. However, a number of government policies influence market outcomes and producer decisions.
- Policy interventions to reduce business input costs in the absence of a clear link to improved resource allocation, for example in response to market failure, favour some firms at the expense of others and will impose net costs on the community.
- The importance of economies of scale in the dairy manufacturing industry has led to calls for regulators to approve mergers between manufacturers more readily.
- Where the Australian dairy product manufacturing industry continues to compete in global markets, greater consolidation of the industry reflecting commercial considerations should offer potential for scale-based economic gains and wider community benefits.
- Access to capital is generally likely to be forthcoming at prices reflecting the risk to capital providers without government intervention. Regulatory arrangements that support foreign investment are important for the dairy sector.
- While using larger tankers to collect milk from farms could reduce costs, upgrading rural roads to accommodate larger tankers will only be warranted where the expected economywide benefits outweigh the expected costs.
- The dairy industry is a large user of water. Water trading promotes the efficient reallocation of water among competing uses. The overall impact of water trading on the dairy industry will depend on the value industry participants can obtain from using water, relative to the value other industries obtain from water use.
- In some cases, restrictive award provisions may be contributing to higher labour costs for dairy product manufacturers. However, to the extent economywide factors are influencing the cost and availability of labour, dairy product manufacturers and dairy farmers have little choice but to adapt.
- Food safety is very important to the dairy industry and can provide a source of competitive advantage. Industry participants and regulators are generally satisfied with current food safety regulatory arrangements.
- Research and development is an important contributor to improvements in the efficiency, productivity and competitiveness of the dairy industry.
- The Commission is seeking feedback on policies affecting dairy manufacturers and farmers, and on relevant policy lessons that could be learned from other countries.
In chapter 3, the Commission examined the costs of Australian dairy product manufacturers relative to international competitors, including areas of cost advantage or disadvantage. The source of these advantages and disadvantages is often external to the dairy product manufacturing industry. Some sources of cost disadvantage might also be amenable to public policy responses.

This chapter explores whether (and how) public policy influences the input costs faced by dairy manufacturers and dairy farmers in Australia. As noted in chapter 3, on-farm production costs can affect the price and availability of raw milk in Australia, which in turn has consequences for dairy manufacturing costs.

Other policy-related issues that participants have identified as potentially bearing on costs are also examined, including real or perceived regulatory barriers to firm consolidation (and in turn, scale economies), access to capital and impediments to farm exit and amalgamation. In considering these issues, the Commission has adopted an economywide perspective — that is, public policy shifts are justified where the benefits of a policy change are demonstrably greater than the costs from the perspective of the economy as a whole.

### 4.1 Scale and competition

A number of participants have highlighted the importance of economies of scale in the dairy manufacturing industry, and suggested that the relatively fragmented nature of the Australian dairy manufacturing industry (chapter 2) diminishes Australia’s ability to take advantage of available scale economies, and therefore its international competitiveness. In particular, comparisons have been made between the structure of Australia’s dairy product manufacturing industry and the more concentrated industry structure in New Zealand, where Fonterra manufactures over 90 per cent of the country’s raw milk (and has plants with several times the production capacity of equivalent plants in Australia).

**Scale is important, but not the whole story**

*Tradeoffs with other costs*

A number of study participants have suggested that a larger, ‘Fonterra-like’ dairy product manufacturer in Australia would enable further plant rationalisation in the industry, greater scale economies and lower dairy product manufacturing costs. However, the business case for plant consolidation in Australia is limited by the geographically diverse location of dairy farms, given the significant transport and storage costs involved with carrying milk large distances from the farmgate for
processing. Indeed, anecdotal evidence provided to the Commission suggests these costs could often outweigh the benefits from consolidating manufacturing plants, irrespective of the structure of the industry.

For manufacturers, the potential benefits from consolidating manufacturing plants need to be weighed against offsetting costs, including additional transport and storage costs.

*A dairy export ‘champion’?*

There also appears to be support for the view that the formation of a large ‘champion’ manufacturer would place Australia in a stronger position in global markets, and some participants undoubtedly saw the recent proposed takeover bid by Murray Goulburn for Warrnambool Cheese and Butter (WCB) (discussed below) as a move in this direction. A belief that such an entity could exert market power on global markets does not seem consistent with market realities. The Australian dairy industry is a price taker on global markets and has no real capacity to alter this (appendix B).

Some participants, however, might see the development of a powerful player as providing increased scope to develop distinctive Australian branding. If successful, such product differentiation could see a brand ‘premium’ achieved by increasing the attractiveness of Australian products on world markets.

The emergence of a dominant manufacturer need not be a prerequisite for achieving such a premium, however. In fact, even with the current level of diversity in the sector, the Australian Food and Grocery Council (AFGC) has proposed the development of a ‘Trust Australia’ brand:

The AFGC recommends that the national food brand ‘Trust Australia’ be adopted … ‘Trust Australia’ tells consumers that they can trust the quality and safety of Australian food products … The development of a national food brand needs to be backed up by commitment from federal and state governments to adopt the national food branding and for States and regions to be promoted within the context of the national brand. All too often industry relays frustration from their customers about the fragmented Australian promotional activities and the confusion that causes. Unless a more collaborative and coordinated approach is adopted, Australia risks continuing to lose market share to countries that have a more strategic and coordinated promotional approach. (sub. 8, attach. B, p. 22)
A diverse manufacturing sector can bring other benefits

There are also tradeoffs between the potential scale efficiencies associated with a single, dominant manufacturer, and the benefits of a more fragmented industry structure, including potential impacts on domestic competition (discussed below), and benefits from more diverse industry knowledge and capabilities within the sector. The Australian Dairy Industry Council (ADIC) and Dairy Australia noted:

The majority of the milk pool is now processed by large multinational companies (Fonterra, Lion [Kirin], Parmalat [Lactalis], WCB [Saputo]); hence, while this pattern of ownership exists, there is no incentive for collaboration or co-operation to build a single dominant national manufacturer (like Denmark’s Arla, New Zealand’s Fonterra or The Netherlands’ Royal Friesland Campina). However, the presence of these companies brings stability, processing and R&D capabilities which benefit the industry. (sub. 6, p. 26)

Furthermore, while some participants suggested that a Fonterra-style manufacturer would benefit the Australian industry, others considered that New Zealand’s success as a dairy exporter is related more to natural factors, such as the country’s higher rainfall and relative absence of drought, than it is to the structure (and concentration) of the industry. Trade agreements (showing the costs of bilateral trade agreements on third countries) may have also played a role. Parmalat observed:

New Zealand’s quite different and perhaps unique climate conditions, enable its dairy industry to potentially claim the position of the world’s lowest cost milk producers, particularly with its highly seasonal production curves. The highly seasonal production however results in poor annual plant utilisation. Fonterra offsets that poor utilisation by sheer scale, recently commissioning a 28 tonnes per hour drier. This means that very large powder plants run at even 50% utilisation are more than competitive with smaller 8-10 tonne driers operating at 90%+ utilisation. The challenge for southern Australian dairy is whether the New Zealand model is relevant. Northern Victoria with its irrigation foundations is more than capable of producing milk economically on a much lower seasonal curve than New Zealand. Eastern and Western Victoria is more seasonal, but equally prone to hot weather and drought. (2013, p. 4)

In the Commission’s view, the most beneficial industry structure will generally be determined by the market place, taking the aforementioned tradeoffs and other commercial considerations into account. However government policy — and competition law specifically — can potentially influence industry structure outcomes.
Impact of competition law

Some study participants have suggested that competition law is limiting the ability of Australian dairy product manufacturers to take advantage of economies of scale.

Many proponents of this view were disappointed earlier this year when a takeover bid by Murray Goulburn for WCB was withdrawn after competition concerns were raised. Some dairy industry participants have interpreted the difficulties faced by this bid as being indicative of a presumption against industry consolidation by regulatory authorities (although mergers are considered by regulators on a case-by-case basis, and care should be taken in considering broader implications from the consideration of any one merger) (box 4.1).

The United Dairyfarmers of Victoria (UDV) submitted:

Australia’s current competition laws do not allow any possibility of Australian owned manufacturing on an internationally competitive scale. This issue was highlighted in the widely publicised Warrnambool Cheese and Butter (WCB) bidding war … there were three bids on the table, however only two companies were given the opportunity for acquisition … The Australian Competition and Consumer Commission (ACCC) approved Bega’s bid on October 31, 2013. The Foreign Investment Review Board (FIRB) and the Treasurer approved Saputo’s bid on November 12, 2013. However … Saputo gained a … majority shareholding in the company on January 22, 2014 while Murray Goulburn was still waiting for approval … For Australia to be productive on a global scale, policy priorities have to shift to allow Australian companies the chance to compete against our international competitors, such as New Zealand, which allow a company to have a majority of the market. (sub. 4, p. 3)

Generally speaking, there are tradeoffs between obtaining benefits from consolidation and scale, and benefits from domestic competition (which promotes efficient prices as well as promoting efficient production and innovation). However, where products are internationally traded, domestic suppliers are subject to import competition, lessening the potential for detrimental competition impacts.

---

1 The Canadian dairy company Saputo ultimately bid successfully for WCB.
In November 2013 Murray Goulburn filed an application with the Australian Competition Tribunal (the Tribunal) for authorisation to acquire rival manufacturer Warrnambool Cheese and Butter (WCB). Murray Goulburn suggested that the merger would provide a number of benefits in terms of scale, synergies, operational efficiencies, product optimisation and production flexibility (Murray Goulburn 2013a).

At the Tribunal’s request, the Australian Competition and Consumer Commission (ACCC) prepared an issues paper relating to the Murray Goulburn bid. The paper, which was released on 23 December 2013, raised a number of issues with the proposed merger. These included:

- doubts about whether some of the claimed benefits from synergies or operational efficiencies would actually emerge
- doubts about the competitiveness of the market for farmgate acquisition of raw milk in South Eastern Australia in the absence of an independent WCB, due to:
  - high barriers to entry for new processors, including concerns about whether enough farmers would be likely to switch processors to justify new entrants
  - concerns about the level of farmgate competition between fresh milk producers such as Lion and Parmalat (requiring regular deliveries) and export oriented dairy producers such as Murray Goulburn, Fonterra and WCB (with more seasonal demands)
  - the observation that Murray Goulburn and WCB were strong competitors for acquisition of raw milk in western Victoria and South Australia (with Fonterra being the other major competitor)
  - the potential for coordinated behaviour between processors, given their regular interaction and the existence of an agreement Fonterra has with its suppliers to pay a guaranteed minimum price that is ‘not less than that paid by the volume leading Victorian milk processor’ (that is, Murray Goulburn). To quote the ACCC:

  Without the proposed acquisition, Fonterra faces the incentive to compete with WCB, so that it can attract and retain suppliers. Post-acquisition, without the competitive tension offered by WCB, Fonterra’s only incentive would be to set its prices at the minimum level necessary to fulfil its commitment to at least match Murray Goulburn’s price. Further, if Murray Goulburn is aware that Fonterra will simply match its price, the absence of an additional close competitor means that it has less incentive to offer farmers attractive prices. In this way, the absence of WCB could make Fonterra’s coordination with Murray Goulburn easier, more complete, and more sustainable. (2014, p. 62)

Bega Cheese and Saputo also placed rival bids and the Saputo bid was ultimately successful. Some participants in this study suggested the process was unfair to Murray Goulburn because the Foreign Investment Review Board process (faced by Saputo) was completed well before the Tribunal process, placing Saputo at an advantage in the takeover battle. Saputo improved its initial offer and obtained Board support, acquiring a controlling interest in WCB in January 2014, at which point Murray Goulburn withdrew its bid and sold its stake in WCB to Saputo (Murray Goulburn 2014c).
As earlier chapters indicated, fresh drinking milk is generally not traded internationally, while most other dairy products are. The tradeoff in competition policy is thus between the potential for lower competition in the domestic fresh drinking milk market, against the possible scale gains that might allow better international market access in cheese and milk powders particularly. The emergence of ‘$1 milk’ in recent years can also be seen as representing a shift in the competition paradigm in the fresh drinking milk market between supermarkets and manufacturers (to the extent this sees supermarkets exercising their countervailing power).

It is important that competition law, and its enforcement, is cognisant of all of these considerations. Policy related to these matters should be under consideration by the Competition Policy Review chaired by Professor Ian Harper.

INFORMATION REQUEST 4.1

*How does the scale of dairy product manufacturing influence the costs of production, and international competitiveness? Is there scope for increased plant rationalisation in the Australian dairy product manufacturing sector, given the significance of transport costs when raw milk is moved across large distances, and differences in the importance of scale across different dairy product lines? Other than competition law, does the industry perceive any other barriers to industry consolidation?*

**Equal treatment of bidders**

The attempted Murray Goulburn–WCB merger also raised the issue (noted by UDV above) of equal treatment of foreign and local takeover bids in regulatory processes. The Saputo bid for WCB was cleared by the Foreign Investment Review Board (FIRB) before the Australian Competition Tribunal process had completely dealt with the Murray Goulburn bid. Some claim this disadvantaged the Australian bidder.

While the Commission agrees it would be a perverse situation if local bidders were disadvantaged by the differing timelines of these regulatory processes, all bids were potentially subject to scrutiny under competition law. It was only the Saputo bid that also had to pass the additional FIRB hurdle. The proposed Bega and Saputo takeover bids were deemed not to raise significant competition concerns.

---

2 As WCB is not a major participant in the fresh milk market, these developments were appropriately not a major consideration in the MG–WCB merger application.
It is in the market interest for all bids to be cleared by the FIRB (or not, as the case may be) as soon as possible rather than for the FIRB to act as a market participant and choose the timing of its assessment in a manner that may allow speculation about a bid’s acceptability.

**A regulatory flaw**

Another issue raised in the context of the WCB process is the oddity of the current test for examining public benefit of mergers under s. 95AZH of the *Competition and Consumer Act 2010* (Cwlth). Specifically, this section requires that a significant increase in the real value of exports and a significant substitution of domestic products for imported products must be regarded as benefits.

Placing emphasis on these particular indicators is very likely to lead to sub-optimal outcomes. There is no *a priori* reason why growth in exports or the substitution of domestic production for imported products increases (or decreases) public welfare. Australia benefits when comparative advantage, rather than regulatory fiat, is allowed to determine the outcome of export and import competition. The misjudgement inherent in this legislative provision is evident if it is considered what would happen if a foreign regulator were to deem that it is welfare-enhancing for competitive Australian exports to be replaced by less competitive domestically produced goods. Deeming benefit to lie with increased exports or import substitution has the potential to distort production, waste scarce resources, and ultimately reduce community incomes.

Had the Australian Competition Tribunal action in the WCB case proceeded to conclusion, this provision may have been the crucial, albeit economically deficient, factor.

### 4.2 Access to capital

Many stakeholders have raised capital constraints as a factor increasing financing costs and limiting investment both on-farm and in the dairy manufacturing sector. There have been calls for government intervention to improve access to capital (particularly for farmers). In the dairy sector, and agriculture more generally, there tends to be a greater reliance on borrowings and retained earnings than in other areas of the economy because dairy industry businesses are not generally publicly listed companies. This applies both to farmers and manufacturers, particularly as some significant manufacturers have co-operative structures which can limit
opportunities for raising capital (chapter 2). Profit margins also tend to be relatively thin.

**Importance of access to capital**

The Department of Agriculture highlighted the importance of debt in enabling farmers to improve the efficiency of their operations:

Debt is an important source of funds for farm investment and ongoing working capital for dairy farms. For family farms, funding for farm expansion and improvement is limited to the funds available to the family, the profits the farm business can generate and the funds it can borrow. Increases in average debt per farm business over the past decade have, to a substantial extent, been the consequence of a rapid increase in average farm size … An increase in average debt per farm was also partly due to the exit of small farms. Many of these small farms had little or no debts and their exit raised the average debt for remaining farms. (sub. 7, p. 8)

Notwithstanding widespread concerns about access to capital, rural debt data (a proxy for capital availability) suggest that access to capital for dairy farmers — and the entire rural sector — is high by historical standards. In fact, the growth in rural debt in recent years has led to concerns about indebtedness in some quarters (although the strong links between debt levels and asset levels suggests overall indebtedness of farmers is not likely to be a major concern). Some key facts regarding dairy farmers and debt are:

- Debt for dairy industry farms increased from an average of $328 000 per farm in 2000-01 to $739 000 per farm in 2008-09, a larger increase than for broadacre farms.

- The average debt per dairy farm at 30 June 2012 in each state exceeded average debt per broadacre farm in all states except Queensland. More than 50 per cent of Tasmanian and Western Australian dairy farms carried in excess of $1 million in debt at 30 June 2012.

- The average equity ratio (that is, equity expressed as a percentage of farm capital) for dairy farms was 80 per cent. Twenty-eight per cent of dairy farms were estimated to have equity ratios below 70 per cent in 2011-12, while 38 per cent of dairy farms were estimated to have equity ratios exceeding 90 per cent at 30 June 2012.

- For dairy farms, debt to fund working capital increased by 300 per cent, in real terms, between 2000-01 and 2011-12 while debt to fund land purchase increased by 140 per cent. Over the same period, borrowing to finance farm buildings, structures and land development also increased by 300 per cent and borrowing to
finance purchase of machinery, plant and vehicles increased by 50 per cent, in real terms (ABARES 2013b).

As discussed in the Commission’s recent submission to the Agricultural Competitiveness White Paper (PC 2014c), the availability of capital for the rural sector has increased significantly since financial deregulation. Between 1980 and 2013, rural debt grew from 22 to 91 per cent of annual agricultural production (peaking at 113 per cent in 2009, then falling in the years following the global financial crisis) (figure 4.1).

Figure 4.1 Rural debt has eased from its recent peak
Rural debt as a percentage of annual agricultural production, 1980 to 2013

Sources: ABS (Australian National Accounts, Cat. no. 5206.0), RBA (2014).

It is to be expected that access to capital (and subsequently rural debt) would have risen in response to rising land prices and, more significantly, to financial deregulation in the mid- to late-1980s. The ability of financial institutions to offer credit had previously been restricted, and they had been unable to effectively price risk. Financial institutions tended to favour low-risk lending such as lending for owner-occupied housing rather than lending to the rural sector. The ten or so years before the global financial crisis saw strong competition within the financial sector, including from non-bank lenders, leading to a considerable increase in the availability of capital (partly stemming from a reduction in credit standards), and subsequently rural indebtedness.
The global financial crisis led to a reassessment of risks associated with business lending, which saw rural debt levels fall as a percentage of production from their peak. The diminished presence of the non-bank sector was also a contributing factor.

The overall picture with regard to rural sector lending suggests capital is accessible. In its 2009 inquiry into Government Drought Support (PC 2009a), the Commission looked at the issue of access to capital and found drought-affected farmers were reasonably catered for by the financial system. While drought affected farmers in some areas might have problems accessing finance, market failure was not evident.

Further, there are a number of market-based initiatives being explored within the dairy industry to reduce or spread risk and thereby increase capital availability for farms. They include alternative financing structures such as provision of capital by syndicates (potentially made up of a diverse range of investors), the capital landlord model (where an investor injects capital into the land of a farm) and the corporate farming model (where farm ownership takes a corporate structure) (Horizon 2020 Working Group 2013).

In addition to capital being accessible for farmers, it also appears unlikely that there are major problems accessing capital for the dairy product manufacturing sector. Any difficulties here may more lie with the ability of management to convince owners of the value of an investment, an issue not limited to unlisted companies. Nevertheless, the co-operative nature of some of the more significant manufacturers is likely to limit their ability to access equity. Government has no role to play unless an adverse regulatory factor can be identified.

In fact, given the accessibility of capital for the dairy sector (and rural sector more generally), the Commission sees no role for government in credit provision. Government institutions such as the Commonwealth Development Bank and the Australian Industry Development Corporation have fulfilled a credit provision role in the past. However, while such bodies arguably served a ‘second-best’ purpose when the financial system heavily rationed credit (because there was room for specialised government-owned entities to make viable loans to borrowers unable to obtain private finance), financial market deregulation (the ‘first-best’ remedy) has eroded the raison d’être for such entities (PC 2014c).

**Alternative sources of capital**

Other potential sources of capital for the dairy industry include institutional and foreign investors. For example, the AFGC noted initiatives by Murray Goulburn to bring capital into the industry:
One example of new thinking is the ‘Partnerships’ program developed by Murray Goulburn Cooperative [which] provides supplier-shareholders with an alternate pathway to farm expansion through leasing of farmland owned by equity funds. This allows farmers to maintain capital for spending on cows and business infrastructure as it has not been sunk into the purchase of new farmland. While leasing of farmland is not a new concept, the structured and systematic approach in partnership with a large Australian company is promising. (sub. 8, attach. B, p. 17)

A number of participants felt that institutional investors could play a greater role in the dairy sector. There do not seem to be any policy impediments preventing this from occurring. The relatively small role played by this sector appears to stem from a preference for more liquid forms of investment by institutional investors.

Foreign investment would also be beneficial for the dairy sector and there is a regulatory role for government in this area. As noted by the Department of Agriculture:

Under the Foreign Acquisitions and Takeovers Act 1975, the Treasurer can block foreign investment proposals found to be contrary to the national interest, or can impose conditions or undertakings on an investment to address national interest concerns. Currently, proposals to acquire an interest of 15 per cent or more in a business valued at more than $248 million (or $1078 million for United States and New Zealand investors) must be notified to the Foreign Investment Review Board (FIRB). In addition, all foreign governments, their agencies or state-owned enterprises must notify the FIRB and receive an approval before making a direct investment in Australia, regardless of the value of the investment. (sub. 7, p. 22)

While foreign investment in agriculture is often controversial, its importance as an additional source of capital should not be underestimated. Foreign investment augments the supply of capital to the Australian economy overall. Foreign direct investment in the dairy industry can also assist in improving and extending supply chains, help gain access to foreign markets, and promote increased competitiveness within Australia. For example, recent foreign investment in the grains sector has promoted supply chain competition and helped alleviate concerns about exporters having control of export ports (PC 2014c).

The benefits of foreign investment were highlighted by the Department of Agriculture:

The Australian Government considers that foreign investment in the Australian dairy industry to be a good news story for the sector, increasing job opportunities and supporting rural and regional communities … The Australian Government encourages investment in agriculture, where it is not contrary to the national interest, as it is important to growth, innovation and regional development. Investment — whether from domestic sources or overseas — provides access to capital, supports production and trade, fosters innovation, creates jobs and contributes to the prosperity of rural
communities and the broader Australian economy. Without foreign capital inflows, investment in Australia would be limited only to that provided by domestic savings. (sub. 7, p. 22)

The AFGC has made similar comments:

Foreign direct investment can contribute much needed financial capital to support a domestic food processing and manufacturing presence. This has a direct benefit to the Australian economy and community through employment and economic growth, particularly in rural and regional areas … In addition to being a relatively stable source of finance, direct foreign investment can provide Australia with access to research, skills, technologies, and equipment that are vital to achieving innovation within the agribusiness and food manufacturing sectors. … Australia has benefited greatly from foreign capital investment in its food manufacturing sector. Foreign investment can, and does, play an important role in other parts of the food supply chain, such as the post farm-gate agribusiness and food manufacturing sectors. (sub. 6, attach B, p. 16)

The Business Council of Australia has suggested that the thresholds for the United States and New Zealand should be applied to all foreign investment:

Australia should aim to become a world leader in attracting foreign direct investment. One means of assisting this would be to extend the higher investment screening threshold that applies to the United States and New Zealand – currently set at around $1.1 billion – to private sector investors from all other countries. (2014, p. 4)

Some in the dairy sector have expressed concern that the proliferation of foreign-owned dairy manufacturers in Australia (chapter 2) could see Australia become a ‘branch office’ of global firms that undertake the bulk of their investment and R&D activities in other nations, potentially leading to underinvestment in Australian dairy. However, it could equally be argued that this diversity of ownership means that Australia is better placed than many other nations to benefit from the know-how, R&D and innovation of these manufacturers.

Moreover, the Commission understands there is a widespread perception in the global dairy industry that investing in Australia represents a strong potential springboard for exporting into growing markets in the Asia Pacific region. Improving the efficiency and competitiveness of the Australian dairy industry is likely to be a priority for these foreign investors.

Current Australian regulatory processes relating to foreign investment are less onerous than in many other countries, and the overwhelming bulk of investments considered as part of the FIRB process are approved. The Commission does not see a case for major reform here. However, these processes do have the potential to dissuade potentially beneficial foreign investment and it is important for governments to be cognisant of this.
Import tariffs

While this section has concentrated on access to financial capital, it is also important that the costs of physical capital are not distorted. The Commission’s recent submission to the Agricultural Competitiveness White Paper highlighted the potential for import tariffs applying to inputs to increase the price of physical capital and thereby increase production costs and undermine competitiveness (PC 2014c). The Commission’s most recent estimates of trade assistance suggest this is not a major concern for the dairy industry. However, the Commission is seeking feedback from sector participants on whether import tariffs are seen as a significant cost impost, and whether there are any other policy related impediments increasing the costs of physical capital.

INFORMATION REQUEST 4.2

Is access to capital — financial and physical — a problem for dairy manufacturers or dairy farmers? If so, what are the reasons for this?

4.3 Transport issues

Road transport

The chapter 3 analysis of cost structures suggests transport costs represent one of the more significant cost elements for the dairy manufacturing industry. The Commission has previously noted there are significant potential productivity benefits from allowing larger vehicles on roads, subject to appropriate road pricing (PC 2006). However, participants in this study have not specifically identified heavy vehicle regulation as an impediment to efficiency for the dairy manufacturing industry. The Commission is seeking feedback about whether such regulatory impediments exist and whether they have a material impact (see below).

Participants have noted that there would potentially be efficiency benefits from being able to use bigger tankers to transport milk when collecting milk from farms. The main impediment to this, however, has been the quality of rural roads rather than specific regulatory impediments.

Some participants have suggested governments increase investment to improve rural roads. While improvements to the rural road network would likely provide benefits to the dairy industry, these improvements would involve significant expenditure. Many of the access roads used by tankers would be rarely used, and
further expenditure on them by government may be hard to justify on cost–benefit grounds.

The Commission’s 2014 draft report on Public Infrastructure noted governments should primarily play a role in the provision or funding of infrastructure where net social benefits can be clearly demonstrated. This requires that proposed investments in infrastructure be transparently and rigorously evaluated through cost-benefit analysis. When it is determined that it is appropriate for projects to go ahead, private benefits (such as those for dairy industry firms) should mean funding is sourced from those who directly benefit from the infrastructure. The draft report also emphasised the potentially high cost of poor project selection, particularly if poor investment decisions displace projects with larger expected net benefits (PC 2014b).

Coastal shipping

In the Commission’s recent inquiry into Tasmanian Shipping and Freight (PC 2014d), a number of participants raised concerns about the potentially anticompetitive effects of Australian cabotage regulation and, particularly, the subsequent impact on shipping costs borne by Tasmanian businesses (with Tasmania being home to a number of dairy exporters). The concerns relate to amendments made to the Fair Work Regulations in 2009, and the introduction of the Coastal Trading (Revitalising Australian Shipping) Act 2012 (Cwlth).

The 2009 changes extended the application of the Fair Work Act 2009 (Cwlth) to workers on foreign flagged vessels engaged in coastal shipping. The 2012 changes introduced new hiring, licensing and registration regimes; and tax advantages for certain ship operators.

In its draft report, the Commission found the cumulative effect of the changes was reduced interest from international vessels about engaging in the Australian coastal trade and, consequently, reduced shipping options for users of domestic shipping services. The changes were also found to increase the costs of providing domestic coastal services.

The Commission, noting that the Australian Government has foreshadowed a review of the coastal trading regulatory framework, emphasised that it was important that this work be expedited to improve the competitiveness of Australia’s coastal shipping.
Is heavy vehicle regulation, or coastal shipping regulation, an impediment to the competitiveness of the Australian dairy industry?

**Distortions from biofuel subsidies**

In its 2008 safeguards inquiry into pigmeat imports, the Commission questioned the appropriateness of excise arrangements for ethanol production in Australia, and called for a review of policy towards the biofuel sector. The Commission considered there was potential, in the long run, for the arrangements, by inducing increased demand for local feedstocks, to increase feedgrain prices (particularly as feedgrain cannot be easily imported) and thereby adversely affect consumers and livestock industries (including dairy) (PC 2008).

The recent 2014 budget announced reforms to the excise arrangements for ethanol, designed to save $120 million over six years. Under the pre-budget excise arrangements (known as the Ethanol Production Grants Program), ethanol attracted the same rate of fuel excise as petrol (38.143 cents per litre), but excise paid on ethanol produced and supplied for transport use in Australia from locally derived feedstocks was fully reimbursed (Ferguson 2012). Australian-produced ethanol was effectively subsidised by an amount equivalent to the forgone excise payments on displaced petrol sales. Ethanol imports were effectively frozen out, with local ethanol production being protected by arrangements equivalent to a tariff.

The Bureau of Resources and Energy Economics undertook an assessment of the key costs and benefits associated with these arrangements in early 2014. In short, the Bureau found the program had relatively few benefits and came at a relatively high cost (BREE 2014).

In its 2014-15 budget, the Australian Government announced the Ethanol Production Grants Program would cease on 30 June 2015. The fuel excise on domestically produced ethanol will be reduced to zero from 1 July 2015 and then increased by 2.5 cents per litre per year for five years from 1 July 2016 until it reaches 12.5 cents per litre, which represents 50 per cent of the energy content equivalent rate. However, the excise equivalent customs duty for ethanol will remain at 38.143 cents per litre.

Though these changes will gradually reduce the effective subsidisation of domestic ethanol production they will not eliminate it.
Measures implemented by State and Territory Governments, such as the ethanol mandate in New South Wales, also have the potential to distort grain markets (particularly when operating in conjunction with the Commonwealth excise arrangements) and disadvantage industries such as dairy. Careful consideration should be given to whether the costs of such policies potentially outweigh their benefits.

4.4 Utilities

Energy policy

Some participants expressed concern about increasing energy costs for dairy farmers and dairy product manufacturers in recent years. Rabobank noted:

Recently Australian dairy farmers and processors have had to contend with rising energy prices. The introduction of a carbon tax in 2012 played a role in rising energy costs … The carbon tax was only partly responsible for steep increases in power prices. Other factors contributed … including the cost of investment in energy infrastructure. (Rabobank 2013, pp. 5-6).

Although energy costs represent a relatively small component of overall dairy manufacturing costs (around 1.5 per cent), they are more significant for product segments such as milk powders that are more energy-intensive in their production. They can also represent around 3 to 5 per cent of costs for dairy farmers (chapter 3).

Chapter 3 noted a number of pressures on energy costs in recent years, including the high levels of investment in electricity networks, environmental and climate change policies, and pressures on gas prices stemming from the development of the export-LNG industry.

The Commission’s 2013 report on Electricity Network Regulatory Frameworks highlighted the role spiralling network costs played in increasing electricity prices, and noted these increases were partly driven by inefficiencies in the industry and flaws in the regulatory environment. In particular, network reliability standards were often found to be well above consumer willingness to pay, with the additional costs imposed not always clear to consumers. Catering for relatively brief peak demand periods was also found to add significantly to costs which, in the absence of peak pricing, increased average tariffs and thus were borne by all users.

The report made a number of recommendations including:

- modifying reliability requirements to promote efficiency
- improved demand management
• more efficient planning of large transmission investments
• changes to state regulatory arrangements and network ownership (PC 2013a).

Government programs to reduce carbon emissions and promote alternative energy sources have also been identified as placing upward pressure on energy prices in recent years. Some of these pressures may dissipate with the planned abolition of the carbon tax, although the Renewable Energy Target, which is under review, may have been a greater driver of cost pressures.

The development of the export-LNG industry has seen pressure on domestic gas prices as opportunities emerge to export gas at international prices (typically considerably higher than those prevailing domestically). While the gas price increases have led some domestic producers (not necessarily in dairy) to suggest measures be taken to ensure access to gas at domestic prices for domestic producers (and seen the adoption of policies such as Western Australia’s gas reservation policy), such policies reduce the incentives to explore and develop gas reserves that have the potential to bring in significant export revenue. From a community-wide perspective they are therefore unlikely to be in the national interest.

The Commission is also aware that the reliability of electricity supply (particularly in rural areas) is a major issue for the dairy industry, and can be a significant factor in decisions to invest in manufacturing plants. The ADIC and Dairy Australia highlighted the problems stemming from interruptions to regional power supplies (for both farmers and manufacturers):

Power interruptions can cost companies dearly when they affect the processing of this perishable product. Power interruptions can cause product to be wasted during processing, and reduce output for sale. Unreliable power supplies also affect farmers, who can lose milk and therefore income if, for example, refrigeration is shut down and milk cannot be cooled to food safety standards. With many dairy manufacturers now moving further down the path of plant automation and control systems, even a small disruption to power, in the milliseconds, can cause considerable down time, downgraded product as well as potential damage to electronics. (sub. 6, pp. 52–3)

In highlighting the importance of linking reliability performance with customer willingness to pay, the Commission’s 2013 report recommended regulators impose appropriate penalties (rewards) for distribution businesses failing (exceeding) reliability performance targets, basing the incentives on clear evidence of customers’ willingness to pay for reliability. This would lead to reliability outcomes at the local level that reflected local consumer preferences rather than prescriptive standards, and would encourage efficient expenditure (including for non-network solutions) (PC 2013a).
Water

Water is an essential input for dairy product manufacturing and dairy farming. In dairy product manufacturing, water is used for washing, cleaning, cooling and waste water treatment. Over 80 per cent of the water used in dairy manufacturing is sourced from mains water, with the remainder coming from onsite recycling at dairy manufacturing facilities (ADIC and Dairy Australia, sub. 6).

Water usage varies depending on the product mix of the manufacturing plant; the production of milk powder, for example, is relatively less water intensive than yoghurt and cheese manufacturing. In 2010-11, dairy product manufacturers used an average of 1.75 litres of water per litre of milk processed (ADIC 2013).

Even allowing for the impact of product mix on the final volume of water used, individual dairy processing plants still use substantial volumes of water for equipment cleaning, cooling towers, boilers and other processes. Cleaning is the single largest water consuming process, and critical to ensuring all dairy products consumed are safe. (ADIC 2013, p. 39)

Most of the water purchased by dairy farmers is used for irrigating pasture, although water is also required for dairy shed operations and cleaning, and as drinking water for dairy cattle. A report by the CSIRO found that:

The dairy industry is Australia’s largest user of irrigation water using approximately 25 per cent of Australia’s surface irrigation water. It is also a major user of groundwater, especially in South Australia. (Khan et al. 2010, p. 2)

A number of participants commented on the importance of water policy for dairy product manufacturers and dairy farmers. ADIC and Dairy Australia noted that ‘the way Government regulates water availability and affordability will directly impact on the profitability and future of the Australian dairy industry’ (sub. 6, p. 54).

Water trading regulations, and policies that impact on investment in irrigation infrastructure were also raised by participants. Nguyen et al. considered that ‘to achieve substantial increases in dairy production it is likely that additional investment in irrigation infrastructure will be required, both on and off-farm’ (2013, p. 59), while the ADIC and Dairy Australia cautioned that water trading mechanisms may have an adverse effect on the commercial viability of shared irrigation districts (sub. 6).

Australian dairy farmers are important participants in water trading. Water trading delivers benefits because it helps farmers to manage risks from variable water availability, and promotes the efficient reallocation of water among competing consumptive uses (PC 2010). However, the overall impact of water trading on the
dairy industry will depend on the value industry participants can obtain from using water, relative to the value others industries obtain from water use.

While some barriers to trade in rural water remain, progress has been made in removing unnecessary barriers in recent years. However, government subsidies for rural water storage and delivery infrastructure (such as those paid under the Sustainable Rural Water Use and Infrastructure Program) can act as barriers to water trading. Moreover, by promoting investment in less productive irrigation regions rather than more productive regions, subsidies for water infrastructure may lower agricultural productivity (PC 2014c).

INFORMATION REQUEST 4.4

How do the availability, reliability and cost of energy and water affect the performance of the dairy product manufacturing industry?

4.5 Workforce

After raw milk, labour is one of the largest costs incurred in dairy manufacturing. As noted in chapter 3, the high Australian dollar has led to labour costs in Australia being higher than those of a number of other dairy-exporting nations.

Workplace regulation

Relatively high wages and high labour costs can be justified where they are matched by commensurately higher productivity. However, some stakeholders expressed concern that current industrial relations arrangements are impeding productivity and flexibility in the dairy manufacturing industry by, for example, requiring that staff be given up to four weeks’ notice of shift changes. Where employment conditions such as these are the product of enterprise agreements between firms and their staff, any resultant reduction in productivity or flexibility would be the responsibility of, and could be remedied by, those parties.

However, where employment conditions are determined by awards, there may be particular productivity impacts on certain types of business. An issue of particular concern to dairy farmers is the requirement in the Pastoral Award 2010 (a modern award that applies for most employers in most states and territories) that part-time and casual farm employees be engaged for a minimum of three hours (see, for example, ADIC and Dairy Australia, sub. 6; Queensland Dairyfarmers’ Organisation (QDO 2014). The National Farmers’ Federation (NFF) has said:
In consideration of the impact of the introduction of minimum 3 hour engagement provisions for most of those covered by the Pastoral Award … The impact has been most severe in the dairy industry where milking in most instances takes less than 3 hours and in some instances less than 2 hours. Therefore, there is an adverse cost imposition for the employment of casual milking staff. (NFF 2012, p. 6)

The NFF emphasised that most of the federal, state and territory awards that were replaced by the Pastoral Award 2010 did not contain minimum engagement provisions, and sought to have the three-hour minimum engagement in the Pastoral Award replaced with a two-hour minimum engagement. Fair Work Australia did not approve the proposed award variation, and the three-hour minimum remains in place.

The extent to which dairy farmers are currently affected by award restrictions is unclear as:

… most Australian dairy farms are family owned and operated using a substantial amount of family labour. Typically, these farms do not pay wages or salaries to family and partners who provide labour for the farm’s operation. (Department of Agriculture, sub. 7, p. 8)

Regulation that imposes inflexibility is unlikely to assist the search for innovation in a high-wage economy.

**Skills shortages**

Several study participants, including UDV (sub. 4), raised concerns about the difficulties in recruiting and retaining labour for work on dairy farms and in manufacturing plants, and in attracting highly skilled graduates, managers and engineers. The ADIC said:

The dairy industry, like other agricultural commodities, experiences labour shortages in critical on-farm and manufacturing roles, particularly in rural and regional areas, and often relies on temporary overseas workers to fill these roles. (ADIC 2014, p. 1)

The ADIC and Dairy Australia said that there are:

… challenges for manufacturers in attracting skilled workers to what are invariably small rural towns; this challenge becomes even more acute when there is significant competition from large corporations in sectors such as mining. (sub. 6, p. 7)

The QDO said:

To be successful now and into the future our dairy industry needs to be able to compete for and attract skilled people to work in our industry. Even with a number of industry initiatives targeted at attracting and retaining people within our industry there still exists a shortage of willing employees. (2014, p. 18)
The limited supply of skilled labour in part reflects the rural and regional locations of many businesses (box 4.2).

**Box 4.2  Selected findings from the Productivity Commission’s 2014 report on geographic labour mobility**

- Geographic labour mobility has been an important mechanism for adjusting to the demographic, structural and technological forces shaping the Australian economy. It has accommodated differences in the pace of economic activity across Australia and enabled wealth to be more widely distributed across the country.
- The main factors affecting location decisions are personal, and attempts by government to act in contradiction to them are unlikely to be effective.
- There are no simple levers to affect geographic labour mobility. Many policies aiming to influence where people live and work in regional and remote areas have had limited effectiveness. Reform of some poorly designed policies, such as taxation, housing and occupational licensing, would lessen impediments to geographic labour mobility.
- The increased use of temporary immigration, such as 457 and working holiday visas, has been critical to meeting labour demand for some positions in many parts of the country.

*Source: PC (2014a).*

The cost and availability of labour for the dairy industry are also influenced by trends in the broader economy, such as the strength of employment and wage levels in other industries competing for workers. Where other industries receive special assistance (such as the assistance that SPC Ardmona is receiving from the Victorian Government), this can drive up wages and increase the cost of labour to industries that do not receive such assistance (such as the dairy industry).

Where market forces are influencing the cost and availability of labour, dairy farmers and manufacturers have little choice but to adapt through, for example, paying higher wages, and there is little role for industry-specific actions by government. The Department of Agriculture considered that wage rates have indeed increased in response to unmet demand for labour on dairy farms:

> Award rates for farm labour have largely risen in line with the general rate of inflation. However, the rates actually paid by dairy farmers have risen faster … wage rates paid to full time employees rose by 55 per cent between 1998-99 and 2012-13, in real terms. This is likely to reflect the higher than award rates farmers have needed to pay to attract and retain skilled farm labour. (sub. 7, p. 10)
Training

The dairy industry, like all industries, relies on the vocational education and training (VET) and higher education systems to provide skills to current and future workers. The dairy industry has been:

… particularly proactive with respect to addressing its labour and skills issues. Dairy Australia developed a strategic plan for the dairy industry with the key priority to improve access to world-class skills and knowledge development through better education. Dairy Australia, in collaboration with Goulburn Ovens Institute of TAFE has established the National Centre for Dairy Education Australia. This centre is dedicated to dairy vocational education and training and also provides a platform for the dairy industry to communicate its skill and training needs. (PIMC 2009, p. 33)

The National Centre for Dairy Education Australia delivers nationally accredited courses in agriculture and dairy manufacturing from Certificate II through to Advanced Diploma (NCDEA 2010a).

The Australian Workforce and Productivity Agency has also highlighted the success of training and development arrangements in the dairy industry. It found that ‘the dairy industry is leading the way in its coordinated and comprehensive approach to workforce development’, and suggested dairy industry programs could be used as a model for other parts of the agriculture and food sectors (AWPA 2013, p. 109).

Despite external perceptions that dairy industry training arrangements are successful, study participants considered that more funding is required. They suggested that skills shortages in the dairy industry mean that the industry should receive priority VET funding and that current funding restrictions for workers who are retraining should be relaxed (see, for example, ADIC and Dairy Australia, sub. 6). Others have suggested that changes in farm management practices and increased use of technology ‘have created the need for a more highly trained, qualified and skilled dairy farming workforce’ (NCDEA 2010b).

However, the need for workers to upgrade their skills continually, to learn about new technologies and, in some cases, to retrain is common to all industries. The issue is whether there is a case for particular assistance for the dairy industry in this regard.

INFORMATION REQUEST 4.5

How do labour regulations and training and skill requirements affect the dairy industry workforce? Does the industry face difficulties attracting and retaining skilled labour? What are the main reasons for this?
4.6 Regulatory standards

Food safety

Since October 2008, all dairy businesses in Australia have been required to comply with the Primary Production and Processing Standard contained in the Food Standards Code. This requires dairy businesses — including all dairy farms, milk transport operators, dairy manufacturers and most distributors — to be licensed and have an approved food safety program in place. Regular audits of food safety programs through the dairy food supply chain are conducted by the relevant regulator:

- Victoria, South Australia and Tasmania have separate agencies regulating dairy and dairy products, reflecting the size of the dairy industry in those states.
- In other states, dairy is regulated by food or primary industries regulators.

Additional requirements for registration, documentation and auditing apply to businesses that process, handle, store or load dairy products for export (Department of Agriculture, sub. 7).

Feedback provided to the Commission during this study, including from UDV (sub. 4), suggests that the dairy industry considers food safety to be of the utmost importance, and that industry participants are generally satisfied with current food safety regulatory arrangements. Regulators also expressed satisfaction with current arrangements.

Submissions to other inquiries generally confirm this view. For instance, in an inquiry into the impact of food safety regulation on Victorian farms and other businesses in 2012, Dairy Australia said:

Dairy Food Safety Victoria (DFSV) plays a vital role in enhancing and protecting the enviable food safety reputation of the dairy industry. This helps facilitate national and international trade with the Australian dairy industry being seen as a preferred supplier because of its safety record … The partnership DFSV has with industry is essential to ensure the food safety outcomes required by all can be achieved in a practical and cost effective way without compromising food safety. (Dairy Australia 2012, p. 1)

In that inquiry, the Rural and Regional Committee of the Parliament of Victoria found that the national food standards ‘generally strike that balance between protecting public safety while allowing businesses to innovate’ (2013, p. ix).
Nevertheless, some smaller firms may struggle with the cost of food safety regulation. For example, Goat Man Dairies said:

The regulations imposed by the NSW Health department make it not profitable for a small holding of dairy goats (up to 40) to obtain a licence to sell goats milk and therefore the milk cannot be sold for human consumption and is thrown down the sink. (sub. 1, p. 1)

The NSW Food Authority charges $424 to license a food premises that employs five or fewer full time equivalent food handlers to produce, process or store milk or dairy products (NSW Food Authority 2014). While this charge does not appear unduly high, the Commission has previously expressed concern that compared with the New Zealand Food Safety system, ‘Australia’s charges are generally higher, its fee structure is more complex, and there is jurisdictional diversity and agency duplication’ (PC 2009b, p. xii).

In addition, licence fees may represent only a relatively small part of the costs imposed by food regulators. The costs of complying with a range often prescriptive regulations are also likely to be substantial in some cases. However, these costs may be relatively small compared to other externally imposed costs, such as the costs of meeting changing customer demands. The ADIC and Dairy Australia pointed out that ‘regulatory issues faced by the dairy industry go beyond formal regulation, and in many cases commercial imposts have far greater impact. Examples are numerous in the food industry and include … permeate free milk’ (sub. 6, p. 55).

**Front-of-pack labelling**

Dairy foods, like all foods, must comply with food labelling standards set by Food Standards Australia New Zealand. The standards prescribe the information that must and must not be on food labels, including standards about health claims, country of origin labelling and nutrition and allergen information, among other requirements (FSANZ nd).

An independent review of food labelling law and policy was commissioned in 2009 and reported in 2011. One of the recommendations of the review was that a colour-coded multiple traffic lights front-of-pack labelling system for nutrition information be adopted (Blewett et al. 2011). The labels would be voluntary for many products, but mandatory for products that make health claims.

In response to the recommendation to introduce a front-of-pack labelling system, the Australian, State and Territory Governments have developed a front-of-pack health star rating system. While the Legislative and Governance Forum on Food Regulation has approved various stages of the system’s development, the design of
the system is yet to be finalised and a cost–benefit analysis has not yet been undertaken (Department of Health 2014).

Study participants raised concerns about the health star rating system. In particular, the ADIC and Dairy Australia said:

The dairy industry does not support the Government initiative to introduce the Health Star Rating Front of Pack Labelling Scheme in its current form. While we acknowledge the scheme is not yet finalised, in its current form, the scheme is a clear example of ‘regulation’ not meeting its policy objectives. Under the scheme, the rating of core dairy foods remains inconsistent with the Australian Dietary Guidelines and will not achieve the objectives of the scheme to guide consumer choice towards healthier food options. For example, ‘core’ dairy foods including every day foods such as regular fat cheddar, ricotta cheese and yogurt are identified as core foods in the Australian Dietary Guidelines yet at just 1 – 2.5 stars they are currently rating below discretionary foods and less than the core foods benchmark set for the revised Health Star Rating Calculator of at least 3 stars. (sub. 6, p. 56)

Study participants also highlighted the costs of making changes to labels, pointing out that an individual manufacturer may have hundreds of different products, and it may cost thousands of dollars to change the label on each product.

The Commission notes that a rigorous cost–benefit analysis has not yet been performed for the health star rating system, despite the system having been under development by government for several years. The cost–benefit analysis which is currently being prepared for the Legislative and Governance Forum on Food Regulation will, once completed, help to inform the Commission’s final view on the effects of front-of-pack labelling on dairy industry costs.

**Genetically modified crops**

The development of genetically modified (GM) crops is an area of research and development that is potentially of great benefit to the dairy industry. Genetic modifications to pasture may in future enable longer growing seasons in frost-prone environments, for example. However, there are regulatory restrictions in some jurisdictions that limit the adoption of GM technology (Australian Government 2014).

Historically, the most controversial GM crop has been canola. GM canola was approved for commercial use in New South Wales in 2008, and Western Australia in 2010. A moratorium on its use in Victoria was allowed to lapse in 2008 (Gibbs, Harris-Adams and Davidson 2013). However, South Australia, Tasmania and the Australian Capital Territory continue to prohibit GM crop production despite similar moratoriums being lifted in other jurisdictions, and despite the approval for
commercial release of a number of GM canola varieties with herbicide tolerance by the Gene Technology regulator at the Commonwealth level.

The ADIC and Dairy Australia highlighted the problems the current regulatory environment created for the dairy industry:

In order to realise the benefits of R&D investment in dairy gene technology, and that of many other GM crops currently under development in Australia … a clear and transparent regulatory system is required to deliver confidence to all stakeholders – including farmers, researchers, and investors (local and global). The dairy industry supports the Office of the Gene Technology Regulator and the Act which underpins this system, but believes that if State-based GM crop assessments are to continue, they must be conducted on a sound and technical case-by-case basis with clear and transparent market and trade criteria. (sub. 6, p. 44)

A recent report by ABARES found that Australia’s regulatory environment for GM crops ‘continues to impose an unnecessary burden on many agricultural businesses through inconsistent regulation and lengthy decision-making’ (Gibbs, Harris-Adams and Davidson 2013, p. 40).

The primary issue with the ongoing reluctance of State and Territory jurisdictions to allow GM crops is that it can imply a level of concern that is not supported by evidence.

INFORMATION REQUEST 4.6

*What are the costs and benefits of, and potential reforms to:*

- dairy food safety regulations?
- front-of-pack labelling?
- regulation of genetically modified crops?
- other regulatory standards affecting the dairy industry?

### 4.7 Barriers to farm entry, amalgamation and exit

The presence of policy ‘barriers’ preventing or discouraging farmers from exiting dairy farming would potentially increase the cost base and diminish the competitiveness and efficiency of the Australian dairy industry. Many studies have shown that larger farms tend to perform better than smaller farms. Reasons for this include enhanced ability to exploit economies of scale, marketing advantages (including enhanced ability to enter into long-term supply chain arrangements with customers), greater bargaining power when purchasing inputs, scope for increased
specialisation, and potentially greater scope to adopt new technologies (Gooday and Nossal (2009); Hooper et al. (2002); PC (2005); Sheng, Zhao and Nossal (2011)).

As the Commission has previously noted (PC 2009a), some forms of drought assistance — particularly interest rate subsidies and other forms of concessional finance — can have the effect of delaying exit by providing an incentive for uncompetitive farms to remain in operation. They can also impede more efficient farm businesses from expanding their operations by acquiring land to capture economies of scale.

Despite this, of the $320 million of drought assistance announced by the Australian Government in February 2014, $280 million consists of concessional loans to be provided in 2013-14 and 2014-15. Loan recipients will be able to either restructure a proportion of their existing debt at a lower interest rate, or use the loans to meet operating expenses and recovery costs (DAFF 2014).

Transport subsidies for stock, fodder and water in times of drought can also have a negative impact on long-term competitiveness, while being largely ineffective to the extent to which they increase the price of transport or fodder (including to farmers that do not receive the subsidies) (PC 2009a).

INFORMATION REQUEST 4.7

To what extent do policies such as drought assistance, or taxation and superannuation arrangements, discourage farm exit or amalgamation? Can participants identify examples of such policies? If so, how could these impacts be alleviated?

4.8 Research and development

For both dairy manufacturers and dairy farmers, research and development (R&D) is an important contributor to improvements in efficiency, productivity and competitiveness. R&D can also provide a range of other benefits, including higher quality and lower priced food for consumers and enhanced animal welfare and environmental outcomes.

A range of organisations are involved in dairy R&D in Australia (box 4.3). The Commission reviewed Australia’s rural research and development corporation arrangements in 2011, and made a number of recommendations (box 4.4).
A range of organisations are involved in dairy R&D in Australia. They include:

- **private firms** — large dairy processing and manufacturing firms conduct a range of R&D activities. For example, Fonterra operates a ‘Dairy for Life Innovation Centre’ in Melbourne (Invest Victoria 2011). In addition, ‘Dairy Innovation Australia Limited (DIAL) is an innovation hub for dairy manufacturing research and development. The company is industry led, with members including major dairy processors Murray Goulburn, Bega, Fonterra, Lion and Parmalat’ (Department of Agriculture, sub. 7, p. 19). Dairy Australia also contributes funds to the innovation hub.

- **Dairy Australia** — Dairy Australia is the dairy research and development corporation. It acts as the ‘investment arm’ of the industry, using contributions from farmers (via the dairy services levy) and government to invest in projects that cannot be done efficiently by individual farmers or companies (Dairy Australia nd).

- **universities** — many universities around Australia conduct research in dairy and in related fields, such as pasture management or food processing. Among other examples, the University of Queensland opened a research dairy in 2012, while the Dairy Research Foundation has operated at the University of Sydney for over 50 years (University of Queensland 2012; University of Sydney 2014).

- **state departments of agriculture or primary industries** — state government involvement in dairy research, development and extension includes directly conducting these activities, and contributing funding to other organisations to do so. For example, the Victorian Department of Environment and Primary Industries has an agriculture research division which conducts dairy research into feedbase and nutrition, animal performance, natural resource management and climate, and farm business management (DEPI 2014).

- **the Dairy Futures Cooperative Research Centre (CRC)** — the Dairy Futures CRC is a partnership between dairy farmers, pasture and cattle breeding companies, government and researchers. Its research is designed to deliver improvements in pasture cultivars and breeding dairy cattle (Dairy Futures CRC nd). The Dairy Futures CRC is the largest single research program for the Australian dairy industry (Department of Agriculture, sub. 7).

- **other organisations** — the Gardiner Foundation invests in a range of projects designed to benefit the dairy industry and dairy communities in Victoria.
Box 4.4  
**Australia's Rural Research and Development Corporations**

In 2011, the Commission undertook an inquiry into arrangements for Australia’s Rural Research and Development Corporations (RDCs). It found the RDC model, based on co-investment between rural industries and the Australian Government, had a number of strengths. In particular, the design helped ensure public money was not spent on projects considered of no practical value by industry, reduced duplication of effort, and facilitated faster take-up of research outputs.

However, the Commission found arrangements did not adequately cater for rural R&D research of benefit beyond specific industry groups, that there were no incentives for producers to increase their level of investment over time, and that much of the research funded would have been funded privately by industry without the need for public financial support. Recommendations by the Commission included:

- reducing the existing cap on dollar for dollar matching of industry contributions by government
- creation of a new, uncapped 20 cent in the dollar subsidy for industry contributions above the level that attracts dollar for dollar matching
- provision be made to allow for ‘government directors’ to be appointed to RDC boards where appropriate
- improved project evaluation, performance reporting and monitoring
- creation of a new RDC to sponsor broader rural research.

The Commission considered that the creation of a broader research body would provide the community with better value for money for its investment by widening the usefulness of the research undertaken.

*Source: PC (2011).*

Many dairy industry groups are supportive of the current R&D arrangements. For instance, the QDO said:

… the current investment by the Australian and other levels of Government into research and development is critical for maintaining the industries competitiveness and productivity growth and thereby supporting investment and job creation in the industry … The current dairy RDC structure with direct linkages to peak industry representative bodies provide a sound means of identifying and testing R, D & E priorities, providing that the required governance, transparency and accountability to Government and farmers is maintained. (2014, pp. 18–19)

The ADIC and Dairy Australia said:

the current rural Research and Development Corporation (RDC) model (particularly as it applies to dairy) remains fundamentally sound and effective … The Dairy Futures CRC has taken extremely positive steps towards developing technologies that will potentially double the rate of genetic gain of the Australian dairy herd … Sector-specific, industry-led innovation hubs such as [Dairy Innovation Australia...
Limited] have proved successful in generating and directing R&D investment in areas of market failure, and translating this collectively funded research to commercial outcomes. (sub. 6, pp. 78–9)

However, the AFGC pointed out that food and grocery manufacturing R&D declined by 13 per cent over the period 2009–12 (but did not comment specifically on dairy manufacturing R&D) (sub. 8).

Participants also expressed concern about the adequacy of extension services. In particular, UDV said:

Effective extension is a function of Government, industry and service providers collaborating to make the best possible use of the available funding and resources. However, the Government’s current approach is not meeting farmers’ needs for a more expert, transparent and well-staffed extension presence on the ground. The Government as a matter of urgency needs to review its current approach to, and resources for, extension in conjunction with the dairy industry and other service providers. (sub. 4, pp. 2–3)

The importance of effective R&D arrangements is reinforced by the knowledge that other countries will be seeking to innovate to lower their costs or improve the quality of their dairy products. Dairy Australia has research collaborations in New Zealand, France and Ireland (Dairy Australia 2010). Continued attention to innovation and to opportunities to collaborate with overseas counterparts will help to avoid loss of opportunities and erosion of Australia’s current competitive position in the dairy industry.

In keeping with the views of participants — who did not express specific concerns about current arrangements for R&D in the dairy industry — the Commission considers that dairy industry R&D appears to be operating effectively. However, there may nevertheless remain scope for the dairy industry to further explore opportunities for R&D collaboration with other industries and sectors, both in Australia and overseas. There may also be scope to enhance extension services, particularly given that ‘if there is insufficient public funding support for extension, worthwhile research outcomes are likely to be adopted more slowly, in turn diminishing the benefits from taxpayer funding for [R&D]’ (PC 2011, p. 289).

INFORMATION REQUEST 4.8

How does research and development (R&D) in the dairy industry affect costs for dairy farmers and dairy product manufacturers? Is there scope for improving arrangements for R&D in the industry?
4.9 Other issues

A range of other issues could potentially influence the costs faced by dairy manufacturers. Issues raised by participants include:

- access to foreign markets for Australian dairy exports (ADIC and Dairy Australia, sub. 6; AFGC, sub. 8; Department of Agriculture, sub. 7; UDV, sub. 4)
- various regulations and standards. For example, Accord Australia (sub. 3) expressed concern about current arrangements for the regulation of agricultural chemicals such as dairy cleansers, and suggested that a regulatory model based on the New Zealand system should be adopted instead.

The Commission is seeking information on any such issues to inform its final report.

INFORMATION REQUEST 4.9

Are there other factors affecting the performance and competitiveness of the Australian dairy industry, such as policy inconsistencies across jurisdictions? Are there lessons to be learned from the policy settings in other countries?
A  Conduct of the study

In keeping with its standard practice, the Commission has actively encouraged public participation in this study.

- Following receipt of the terms of reference on 7 April 2014, an advertisement was placed in newspapers and a circular was sent to identified interested parties.

- An issues paper was released on 11 April 2014 to assist those wishing to make written submissions, and 8 submissions were subsequently received (table A.1). These submissions are available online at: www.pc.gov.au/projects/study/business-costs/dairy-manufacturing.

- As detailed in table A.2, meetings were held with a range of stakeholders across Australia. These included government departments, companies, industry associations and other non-government organisations.

The Commission thanks all those who have contributed to the study so far. The Commission is now inviting further submissions on the interim report, including responses to the information requests.
Table A.1  **Submissions**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Submission no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accord</td>
<td>3#</td>
</tr>
<tr>
<td>Australian Dairy Industry Council and Dairy Australia</td>
<td>6</td>
</tr>
<tr>
<td>Australian Food and Grocery Council</td>
<td>8#</td>
</tr>
<tr>
<td>Department of Agriculture</td>
<td>7</td>
</tr>
<tr>
<td>Goat Man Dairies</td>
<td>1</td>
</tr>
<tr>
<td>Margetts, Dr Diane</td>
<td>2#</td>
</tr>
<tr>
<td>Name withheld</td>
<td>5*</td>
</tr>
<tr>
<td>United Dairyfarmers of Victoria</td>
<td>4</td>
</tr>
</tbody>
</table>

*a* An asterisk (*) indicates that the submission contains confidential material NOT available to the public. A hash (#) indicates that the submission includes attachments.

Table A.2  **Visits**

<table>
<thead>
<tr>
<th>Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australian Capital Territory</strong></td>
</tr>
<tr>
<td>Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)</td>
</tr>
<tr>
<td>Department of Agriculture</td>
</tr>
<tr>
<td>Department of Industry</td>
</tr>
<tr>
<td><strong>New South Wales</strong></td>
</tr>
<tr>
<td>Bega Cheese</td>
</tr>
<tr>
<td><strong>Queensland</strong></td>
</tr>
<tr>
<td>Queensland Dairyfarmers’ Organisation</td>
</tr>
<tr>
<td><strong>Victoria</strong></td>
</tr>
<tr>
<td>Dairy Australia</td>
</tr>
<tr>
<td>Dairy Food Safety Victoria</td>
</tr>
<tr>
<td>Department of Environment and Primary Industries</td>
</tr>
<tr>
<td>Fonterra</td>
</tr>
<tr>
<td>Gardiner Foundation</td>
</tr>
<tr>
<td>Murray Goulburn</td>
</tr>
<tr>
<td>Rabobank</td>
</tr>
<tr>
<td>United Dairyfarmers of Victoria (Victorian Farmers’ Federation)</td>
</tr>
</tbody>
</table>
**B Economics of dairy markets**

The integration of the Australian dairy manufacturing industry into world markets means that domestic product prices — and by consequence, raw milk prices — are strongly influenced by international prices. In turn, developments in world dairy markets directly bear on the costs and competitiveness of Australia’s dairy product manufacturing industry, and on the prices paid to dairy farmers. The costs of raw milk production (on-farm) are also relevant for Australian dairy product manufacturers.

This appendix explores the relationships between these markets, illustrating international and domestic influences (and constraints) on dairy product and raw milk prices. A number of simplifying assumptions are made, but these do not affect the fundamental insights.

**B.1 World prices drive domestic dairy prices**

**Dairy product prices**

The Australian dairy industry is highly dependent on world markets, with a large proportion of Australian dairy output exported (in various forms).

Nonetheless, as Australian dairy exports account for 7 per cent of global dairy trade (chapter 2) they are unlikely to affect international prices. As such, domestic dairy manufacturers are essentially ‘price takers’ on world markets. This means that domestic prices for dairy products that are heavily traded (that is, less perishable products such as milk powder and cheese) essentially follow world prices (figure B.1). Indeed, Dairy Australia noted that:

> … local Australian prices are driven by world dairy commodity prices which determine local export returns … around 75% of milk production is exposed to world prices for butter, cheese and milk powders … Hence average Australian milk prices are strongly correlated with export returns and over the last three decades more than 90% of the annual variation in milk prices is explained by movements in average export returns. (2013b, p. 7)

Australian dairy manufacturers will generally not sell into the domestic market at a lower price than can be obtained in export markets, and competition amongst
domestic manufacturers and from imports (noting import barriers such as tariffs are low) will ensure that domestic consumers do not pay more than the world price (notwithstanding there will be some divergence in prices due to quality differences).

Figure B.1  Market for heavily traded dairy products

The properties of fresh (or more perishable) dairy products (such as fresh drinking milk and cream) make them costly to transport long distances, meaning Australia does little trade in these markets. For these products, domestic prices reflect the intersection of domestic supply and domestic demand.

That said, raw milk is an input for both heavily traded and less-traded products. Because world prices for heavily traded dairy products have a significant impact on the raw milk price (discussed below), the supply (and price) of less-traded dairy products in Australia is influenced by world prices through the raw milk price.

Farmgate (raw milk) prices

Manufacturers’ demand for raw milk is based on demand (and expected returns) in domestic and export dairy product markets. So demand for raw milk is a derived demand.
There are multiple manufacturers competing to purchase raw milk from farmers. This competition ensures that the price for raw milk will be equal to the maximum price that the marginal manufacturer is prepared to pay.

For manufacturers of heavily traded products, this will be the residual of the price they receive for output (the world price) minus their manufacturing value adding, other intermediate inputs and transport costs. Hence, for any given ‘other’ manufacturing costs, the world price of heavily traded dairy products and the price of raw milk will move together.

Dairy farmers will supply raw milk to manufacturers so that returns are equalised at the margin — a farmer will not accept a lower price selling into one market than could be obtained in an alternative market. Hence, all manufacturers in a particular region will pay the same price for raw milk, regardless of whether it is destined for heavily traded or less-traded dairy product markets.\(^1\)

As such, world prices of heavily traded dairy products play a significant role in determining the raw milk price paid by all manufacturers.

Lower retail prices for private-label milk in supermarkets should not have a negative impact on farmgate prices. Competition from private-label milk may squeeze manufacturer returns if they were previously receiving a ‘premium’ price for their branded products. However, competition amongst manufacturers to buy raw milk should ensure farmgate prices do not fall. Rather, increased consumption of fresh drinking milk (in response to lower retail prices) could lead to increased demand for raw milk, which will likely cause farmgate prices to rise.

**Farmgate prices are higher outside of export regions**

In some dairy regions (such as in Queensland), it is not cost-effective for manufacturers to produce heavily traded products, as farmgate milk prices are higher than in the southern states. As a result, these regions only supply fresh products to local markets. Farmers in these regions enjoy limited natural protection from distance and transport costs (or perhaps a consumer preference and preparedness to pay extra for local product). However, the farmgate price cannot be so high that farmers in other regions would find it worthwhile to supply the market.

Higher farmgate prices might also make it worthwhile for these local farmers to incur the additional cost of buying feed to smooth seasonal fluctuations in raw milk.

\(^1\) In practice, supply agreements between manufacturers and farmers are complex and include a range of incentives, bonuses and penalties to encourage raw milk supply of a particular quantity, quality, reliability, or at particular times.
B.2 How do changes in demand and costs affect the domestic industry?

Global demand drives growth in Australian dairy output

If global demand for heavily traded dairy products increases, the world price will increase, and both manufacturers and farmers will receive higher prices (all else equal). This will induce an expansion of supply. Lower global demand will have the opposite effect.

Changes in domestic demand for heavily traded dairy products are less important. A fall in domestic demand, for example, is unlikely to affect the world price, and hence will not affect domestic output of traded dairy products (or raw milk). The export market is in effect the ‘residual’ market, with export sales expanding or contracting as domestic sales fall or expand (figure B.2).

Changes in domestic demand for less-traded dairy products, however, may have a moderate effect on output and product prices. A fall in domestic demand, for example, will lead to reduced production and a fall in the price of less-traded dairy products. This will be offset by an expansion of production of heavily traded dairy products.
Dairy manufacturing costs can affect farmgate milk prices

If dairy manufacturing costs increase across the board, manufacturers will decrease supply, causing demand for raw milk to fall and placing downward pressure on raw milk prices. The greater the elasticity of raw milk supply, the greater the reduction in dairy output relative to the reduction in raw milk prices.

If manufacturing costs increase for some products (but not others), manufacturers will decrease supply of these products, placing downward pressure on raw milk prices. However, the fall in raw milk prices will be moderated to some extent as manufacturers respond to the reduction in raw milk prices by increasing production of other products.
Raw milk production costs affect farmer and manufacturer returns

An increase in the costs of producing raw milk, all else equal, tends to increase the farmgate milk price, but by less than the cost increase. The extent to which farmers and manufacturers bear the increased costs will depend on the elasticities of raw milk demand and supply (figure B.3). However, because sales will generally decline, total farm returns could fall.

Manufacturers of less-traded products will be able to pass on some of the increase in their costs to consumers, through higher product prices. However, in the heavily traded dairy goods market, where manufacturers take the world price as given, this is not possible. Here, the only effect will be lower output and commensurately lower total returns for manufacturers.

A reduction in the costs of producing raw milk will have the opposite effect.

Figure B.3  Effect of an increase in raw milk production costs

![Diagram showing the effect of an increase in raw milk production costs on price and quantity]
References


—— 2013b, *Australian Farm Survey Results 2010-11 to 2012-13*, ABARES, Canberra.


—— 2014b, *Counts of Australian Businesses, including Entries and Exits, Jun 2009 to Jun 2013*, Cat. no. 8165.0, Canberra.


ADF (Australian Dairy Farmers) 2014, *Supplementary submission to the Australian Competition Tribunal regarding the application for merger authorisation of Warrnambool Cheese and Butter Factory Company Holdings and Murray Goulburn Cooperative Co Ltd*, Australian Dairy Farmers, Melbourne.


—— 2014, *Submission to the independent review of integrity in the subclass 457 visa programme*.

—— nd, *Inquiry into Australia’s Food Processing Sector*, Submission to the Select Committee, Canberra.


AWPA (Australian Workforce and Productivity Agency) 2013, *Food and beverage workforce study*, October, Canberra.


DAFWA (Department of Agriculture and Food, Western Australia) 2013, *Pre-feasibility Study for the Production and Export of Milk and Milk Powder from Western Australia*, Perth.


2013a, Australian Dairy Manufacturing Environmental Sustainability Report, Melbourne.

2013b, Australian Dairy Industry in Focus 2013, Melbourne.


2014, Dairy Situation and Outlook: May 2014 Update, Melbourne, Australia.


2014a, Milk Prices: UK Farmgate Prices, Kenilworth, UK.


Dairy Connect, Norco and PGS 2014, Dairy Connect, Norco and PGS open a fresh milk ‘pipeline’ to China, Media release, 28 April.


DRET (Department of Resources, Energy and Tourism) 2012, Responses to Questions from the 25 September 2012 Public Hearing, Senate Select Committee on Electricity Prices, Canberra.


Gibbs, C., Harris-Adams, K. and Davidson, A. 2013, Review of Selected Regulatory Burdens on Agriculture and Forestry Businesses, ABARES, Canberra.


IFCN (International Farm Comparison Network) 2012, *A Summary of Results From the IFCN Dairy Report 2012*, IFCN Dairy Research Center, Kiel, Germany.


Murray Goulburn 2013a, ‘*Form S*’ - *Application by Goulburn Murray for Merger Authorisation*, Herbert Smith Freehills.


NFF (National Farmers’ Federation) 2012, *Submission to the Modern Awards Review - Pastoral Award [MA000035]*, Attachment B, 8 March, Canberra.


Parliament of Victoria (Parliament of Victoria Rural and Regional Committee) 2013, Final report - Inquiry into the Impact of Food Safety Regulation on Farms and Other Businesses, March, Melbourne.


— 2013, Application by Murray Goulburn Co-operative Limited (‘Murray Goulburn’) for merger authorisation (the ‘Merger Authorisation’) - ACT 4 of 2013 - Request for submissions from interested parties, Australian Competition Tribunal.


— 2006, Road and Rail Freight Infrastructure Pricing, Inquiry Report no. 41, December.


— 2011, Rural Research and Development Corporations, Final Inquiry Report, no. 52, Canberra.


REFERENCES

—— 2014a, Geographic Labour Mobility, Research Report, April, Canberra.
—— 2014c, Submission to the Agricultural Competitiveness Taskforce.


QDO (Queensland Dairyfarmers’ Organisation) 2014, Submission to the Agricultural Competitiveness Taskforce, April.

Rabobank 2010, Global Dairy Outlook: Enter the Giants, Food and Agribusiness Research and Advisory, Utrecht, Netherlands.
—— 2012, Global Dairy Outlook: Show Me the Money!, Food and Agribusiness Research and Advisory, Utrecht, Netherlands.
—— 2013, Agriculture in Focus: No Longer Low-Cost Milk Down Under, November, Food and Agribusiness Research and Advisory, Utrecht, Netherlands.

RBA (Reserve Bank of Australia) 2014, Statistical Tables: Rural Debt by Lender, Sydney.


Saputo 2014, Saputo Announces Takeover for Warrnambool has Closed, News release, February, Montreal.

SERC (Senate Economics References Committee) 2010, Milking it for all it’s worth — competition and pricing in the Australian dairy industry, Canberra.


Spencer, S. 2004, Price Determination in the Australian Food Industry, A report, Department of Agriculture, Fisheries and Forestry, Canberra.


Tatura Milk 2011, A Proposal to Merge 100% of Tatura Milk Industries Limited with Bega Cheese Limited, Tatura Milk, Tatura.


—— 2014a, Agricultural Prices, United States Department of Agriculture, Washington, D.C.

—— 2014b, Dairy Products 2013 Summary, United States Department of Agriculture, Washington, D.C.

—— 2014c, Production, Supply and Distribution Online, Washington, D.C.