



**Australian Government**  
**Productivity Commission**

# Relative Costs of Doing Business in Australia: Dairy Product Manufacturing

Productivity Commission  
Research Report

September 2014

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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](http://www.pc.gov.au)).

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# Foreword

The dairy industry is Australia's third largest agricultural industry and had output with a wholesale value in excess of \$13 billion in 2012-13. A substantial part of the Australian dairy product manufacturing industry is firmly integrated in global markets, with about 40 per cent of output (in milk equivalent terms) exported. International competitiveness is critical for the industry's prospects in the face of strong global competition.

The Commission was tasked by the Australian Government to undertake a study of the cost structures faced by dairy product manufacturing businesses in Australia, and, where relevant, identify areas of cost advantage or disadvantage relative to international competitors.

An issue that constantly arose during the study was the model offered by Fonterra in the New Zealand dairy market. The Commission has provided comment on the factors involved in establishing Fonterra and their relevance to Australia.

The study has found that some cost pressures on the dairy product manufacturing sector may warrant corrective action by government, but most costs are largely driven by market factors and the commercial decisions of businesses, where policy interventions are not warranted. Manufacturers and farmers will need to continue innovating and improving the efficiency of their cost structures.

The Commission is grateful to the stakeholders who participated in this study, especially those who provided written submissions.

The study was undertaken by a team in the Commission's Melbourne office, led by Clare Sibly and including Genesis Buchanan, Imogen Curtis, Carole Gardner, Peter Garrick, Brad Griffiths, Greg Thompson and Henry Williams. Valuable advice was provided by Lisa Gropp.

**Peter Harris**  
Chairman

September 2014

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# 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]

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# Abbreviations

ABARES/ABARE	Australian Bureau of Agricultural and Resource Economics and Sciences (previously the Australian Bureau of Agricultural and Resource Economics)
ACCC	Australian Competition and Consumer Commission
ADIC	Australian Dairy Industry Council
AFGC	Australian Food and Grocery Council
ASX	Australian Stock Exchange
cpl	cents per litre
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EU	European Union
FIRB	Foreign Investment Review Board
FSANZ	Food Standards Australia New Zealand
FTA	free trade agreement
GM	genetically modified
kt	kilotonne
LHS	left hand side
LNG	liquefied natural gas
MG	Murray Goulburn
NFF	National Farmers' Federation
R&D	research & development
RHS	right hand side
SMP	skim milk powder
UHT	ultra heat treated (to extend shelf life)
UDV	United Dairyfarmers of Victoria
VET	vocational education and training
VFF	Victorian Farmers Federation
WCB	Warrnambool Cheese and Butter
WMP	whole milk powder

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# Glossary

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



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# OVERVIEW

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## Key points

- Australian dairy product manufacturers face some cost pressures (such as energy and labour) relative to their competitors, but also some advantages, including highly competitive raw milk costs (the largest single input cost).
- Some cost pressures may warrant government corrective action, but most costs are largely driven by market factors and the commercial decisions of businesses. Manufacturers and farmers will need to continue innovating and improving the efficiency of their operations in the face of a potential expansion in global supply (for example, once EU milk production quotas are removed in 2015).
- Suggestions that Australian dairy manufacturing should emulate the so-called New Zealand model, with a 'national champion', are often based on an overly simplistic comparison of the export performance of the two countries' dairy industries; tend to gloss over the regulatory arrangements that underpin the New Zealand dairy industry (for example, domestic price regulation); and overemphasise the role of plant scale.
- On-farm investment is crucial to increasing Australia's raw milk supply (and dairy product manufacturing output). Manufacturers may need to share more of the investment risks in order to increase raw milk production.
  - Farmgate price incentives to encourage 'new' milk, or reduce the seasonal variability of milk supply, are already in play where it is commercially desirable.
- 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.
- About 40 per cent of Australia's dairy output (in milk equivalent terms) is exported (predominantly as cheese and milk powder), with China and Japan the largest markets.
  - This level of 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.
- Hourly labour costs in the Australian food, beverage and tobacco manufacturing sector in 2012 exceeded those in New Zealand, the United Kingdom and the United States of America (in common currency terms). In addition, Australia's measured productivity performance in the food, beverage and tobacco manufacturing sector between 2000 and 2011 has been relatively poor.
- Wholesale prices of electricity and natural gas in Australia have risen sharply since 2006. For manufacturers of energy-intensive dairy products such as milk powder, this would have had a relatively substantial bearing on cost-competitiveness.
  - Energy cost increases in recent years are mainly due to spiralling network costs — partly driven by flaws in the regulatory frameworks governing electricity markets — and to a lesser extent, policies designed to reduce carbon emissions and promote renewable energy. While some reforms have occurred, further alterations to incentives in electricity network investment programs would be of value to the dairy and other industries.
- Distortionary forms of drought assistance, biofuel subsidies and genetically modified crop regulations in some states and territories reduce adjustment and innovation, affecting the efficiency of the dairy industry and the rest of the economy.

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# Overview

On 7 April 2014, the Commission received terms of reference that required it to undertake a study into the costs of doing business in the dairy product manufacturing industry. The Commission was 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 was also asked to undertake a study into the costs of doing business in the retail trade industry. A separate report has been prepared for that study.

## **The challenges facing Australian dairy manufacturers are predominantly market-driven and require commercial solutions**

The Commission has found that Australian dairy product manufacturers face some cost pressures (such as energy and labour) relative to their competitors, but also some relative advantages, including lower raw milk costs. Some cost pressures faced by Australian dairy manufacturers (and dairy farmers) arise from inefficient policies, where corrective action by governments could be warranted. However, most costs are largely driven by market factors and the commercial decisions of businesses, where policy interventions are not warranted. Manufacturers and farmers will need to continue innovating and improving the efficiency of their cost structures.

Competitive pressure on the Australian dairy industry will be ongoing — 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), and strong competition for resources (land, capital and skilled labour) among domestic industries is set to persist. There is considerable evidence that many dairy manufacturers and farmers are responding effectively to these challenges; for example, by reducing excess capacity, exploiting scale and scope efficiencies, shifting resources toward higher value dairy products and reducing reliance on labour through greater mechanisation.

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## A ‘national champion’?

In contrast to this assessment, others in the course of this study have put the view that the Australian dairy industry should emulate the so-called New Zealand dairy model, that is, create a ‘national champion’ dairy product manufacturer.

Much of the enthusiasm for an Australian dairy champion is motivated by the recent performance of the New Zealand dairy industry, and rests on the assumption that the Australian dairy sector would be more efficient if it had a New Zealand-like industry structure. In New Zealand, Fonterra processes the vast majority of the country’s raw milk under a regulatory model. Some stakeholders further suggested that government intervention may be warranted to facilitate the emergence of this industry structure.

### New Zealand’s dairy industry structure is of limited policy relevance to Australia

In the Commission’s view, it is overly simplistic to attribute New Zealand’s dairy export performance primarily to the formation of Fonterra, let alone to use this experience to drive policy decisions in Australia. While the formation of Fonterra may well have assisted — at least in part — New Zealand’s recent success on global dairy markets, it is also the case that — relative to Australia — the New Zealand dairy industry has benefited from a number of significant advantages over this period, including:

- a free trade agreement with China, which has provided New Zealand dairy with significantly improved access to the Chinese market (at a time of strong growth in Chinese demand for dairy)
- the absence of drought compared with Australia, which experienced severe drought in 2002-03 and 2006-07
- a lower-valued currency (in contrast Australia has experienced a resources investment boom, which has increased the value of the Australian dollar and adversely affected the export performance of other domestic industries, including dairy)
- competition for land, labour and expertise amongst domestic industries was — more than likely — less intense in New Zealand than in Australia over recent years. While the resources investment boom in Australia drew resources away from dairy and toward higher returning industries, relatively low returns to many non-dairy agricultural industries (such as sheep and forestry) in New Zealand led to a high rate of land conversion towards dairying.

These are all significant elements to the New Zealand dairy story. It is not a story simply of a dominant firm. The relative export performance (and milk supply growth) of the two countries over the last decade must also be seen against the backdrop of the deregulation of milk marketing in the early 2000s in Australia. The removal of price controls led to significant structural adjustment and strong productivity growth in the Australian dairy industry, with many smaller, less-viable (post-deregulation) producers exiting the industry.

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Previous arrangements had more than likely encouraged *overproduction* in the Australian dairy industry and subsidised exports, imposing costs on the Australian economy.

Moreover, while it is superficially appealing to suggest that the performance of the Australian dairy industry could be improved through government intervention to institute a New Zealand-like industry structure, this view overlooks the unique circumstances of the New Zealand dairy industry ‘pre-Fonterra’ (which differ markedly from the present circumstances of the Australian dairy industry), the significant regulatory and legislative arrangements that underpin Fonterra (box 1), and the practicalities of achieving such an outcome given the current industry structure (and the presence of multiple international players in particular).

The principal benefit of Australia having a dairy champion — as claimed by proponents of this model — is that it would allow greater exploitation of scale efficiencies and place Australia in a stronger position in global markets. However:

- the Australian dairy industry is a price taker on global markets and has no capacity to alter this, irrespective of the structure of the industry. A belief that any single Australian dairy company could exert market power is not consistent with market realities
- the emergence of a dominant manufacturer is not a prerequisite for developing distinctive Australian branding for dairy products. There do not appear to be impediments to dairy industry participants working together to develop such a brand, should the expected benefits outweigh the costs
- there are potential risks associated with highly concentrated industry structures if the overall performance of the industry is linked with one company. For example, were Fonterra to suffer reputational damage for any reason, the entire New Zealand dairy industry would be likely to suffer whereas in Australia such an incident may be more easily quarantined to a section of the industry
- Fonterra-like arrangements are not necessary to ensure that scale benefits at the plant level are realised — indeed, there is considerable evidence that Australian dairy manufacturers are taking advantage of scale benefits where it is profitable. Moreover, while scale economies can be significant, they are not a ‘silver bullet’ — there are also costs associated with pursuing scale efficiencies (box 2), and the balance of benefits and costs will vary across locations, businesses and dairy products. Indeed, fundamental differences between the Australian and New Zealand dairy industries (such as the *less* seasonal nature of Australia’s raw milk supply, driven in part by significant domestic demand for dairy products year-round) mean that larger scale plants may be less profitable in Australia (relative to New Zealand) under any industry structure.

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**Box 1      The Fonterra arrangements are complex and reflect New Zealand specific circumstances**

Fonterra was formed in 2001 following a merger between New Zealand's two largest dairy cooperatives and the New Zealand Dairy Board (the cooperatives' export marketing arm, which held a statutory monopoly power over the acquisition and export of all dairy products from New Zealand).

In response to concerns about the degree of market power held by Fonterra (New Zealand's competition regulator had previously indicated it was not supportive of the merger because of domestic competition concerns), the *Dairy Industry Restructuring Act 2001* (NZ) (DIRA) — the legislation that facilitated the merger — contained reforms designed to promote domestic competition, for example:

- Fonterra is obliged to supply specific volumes of milk to independent milk processors, and to charge those processors the reasonable cost of transporting the milk to their factories.
- Fonterra must ensure that at least 33 per cent of milk solids are either supplied under contracts with independent processors, or under contracts with Fonterra that expire or may be terminated by the farmer-supplier at the end of the current season.
- Fonterra's farmer-suppliers can supply up to 20 per cent of their milk output to a competing processor without having to exit Fonterra.
- Fonterra is required to disclose information in relation to its milk price settings.

Fonterra is also subject to a high degree of regulatory oversight. The New Zealand Commerce Commission must review Fonterra's Milk Price Manual and Fonterra's calculation of the base milk price for each season, and report on the extent to which each is consistent with the purpose contained in the DIRA.

The DIRA also contains a 'buyer of last resort' provision, ensuring Fonterra must accept raw milk supply from any new farmer who applies to become a shareholder, or any shareholder who aims to increase supply (subject to some restrictions with regard to size of farm, cost of transporting milk, and milk quality). As shareholders increase their supply to Fonterra, they are required to increase their shareholding, which provides Fonterra with the capital required to process the additional raw milk supplied.

McKinsey Australia — in work recently undertaken for the Business Council of Australia — estimated that Australian dairy is operating at a \$0.20/kg cost disadvantage relative to New Zealand (in terms of landed cost per kilo of skim milk powder) due to the 'lower scale' of dairy processing in Australia, despite 'higher utilisation from volume smoothing'. (McKinsey further suggested that 'purposeful market design' by government may be warranted to 'unlock the underlying export potential of the dairy industry'.)

However, estimates of scale-related cost differences between countries should be treated carefully (box 3), not least because there is significant variation in dryer size and capacity utilisation rates *within* both Australia and New Zealand. Moreover, there are other cost differences between Australia and New Zealand that are likely to be *at least as important as scale*. For example, Victoria has lower costs of raw milk production than New Zealand (figure 5), and Australia has substantially higher wages for dairy employees than New Zealand, and also appears to have higher raw milk collection costs.

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## Box 2      **Scale is not the whole story**

Even where potential scale efficiencies exist, the business case for pursuing larger-scale dairy product manufacturing operations is not clear cut. There are offsetting costs and risks for businesses to consider (for example, the pattern of raw milk supply is an important consideration).

### **Achieving greater scale can increase other business costs**

There are costs involved with transporting raw milk large distances from the farmgate for processing. Where the density of raw milk production in the collection area surrounding a plant is relatively low — due, for example, to the proportion of land devoted to dairying, stocking rates on dairying land and/or milk yield per cow — the transport costs associated with raw milk collection can limit the case for increasing dairy manufacturing scale. Evidence provided to the Commission suggests these costs could often outweigh the benefits from consolidating dairy manufacturing plants in Australia, irrespective of the structure of the industry.

Moreover, if achieving greater scale requires increasing raw milk purchases, this is likely to put upward pressure on raw milk prices, all else equal. In some cases, the efficiency benefits of operating a larger scale manufacturing plant may not justify the increase in input costs.

### **Capacity utilisation and product mix matter**

Whether the benefits of a larger-scale plant are actually realised will also depend on capacity utilisation rates.

- New Zealand's raw milk supply is highly seasonal, reflecting the relatively low cost of pasture-based feeding, a small domestic market and a heavy focus on producing bulk powders for export.
- Australia has *less* seasonal raw milk production by comparison, reflecting the relatively low cost of fodder for Australian dairy farms and a sizeable domestic market with year-round demand for fresh and higher value added (non-commodity) dairy products.

This contrast has important implications for efficient plant scale in the two countries — in New Zealand, it may be most profitable to operate large-scale plants at high utilisation for the short peak raw milk production period, but to take these plants out of operation outside of the peak, while in Australia, smaller-scale plants utilised at a high rate year-round may be more economic.

The importance of *operational flexibility* to dairy manufacturers can also influence the business case for pursuing greater scale. For manufacturers that produce a diverse range of products, or that specialise in tailoring products to particular specifications or servicing niche markets, it may be preferable to operate multiple, smaller-scale plants rather than a single, large-scale plant. This commercial judgment is best left to the market to make, as the preferences of consumers (locally and off-shore) are not a matter in which government has much expertise.

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### Box 3      **Estimates of scale efficiencies should be treated with caution**

While there is a dearth of reliable, publicly-available data on economies of scale in dairy product manufacturing, limited research focused on milk powder plants suggests:

- plant-level scale efficiencies can be significant up until production levels of about 6–8 tonnes per hour
- beyond this, scale-based cost advantages are much smaller — while businesses can still reduce costs by increasing scale, other strategies are likely to be more effective
- some of the gains from scale can be offset by higher capacity utilisation rates. For example, the cost per litre of a ten tonne per hour wholemilk powder dryer running at 50 per cent capacity is estimated to be roughly equivalent to those of a five tonne per hour dryer running at about 65 per cent capacity.

The implication of this evidence for scale-related cost differences between Australia and New Zealand ultimately depends on the size of milk dryers and capacity utilisation rates in the respective countries. However, data available to the Commission suggest that the size of milk dryers varies greatly within both Australia and New Zealand. Milk dryers in New Zealand can produce anywhere between one and 30 tonnes of milk powder per hour. Most new dryers in Australia are capable of producing over five tonnes of milk powder per hour, however some businesses operate dryers of smaller and varying scales.

Furthermore, there is very limited information on the capacity utilisation of milk powder plants in Australia and New Zealand. Available evidence suggests that New Zealand plants operate at about 50–55 per cent utilisation (but this can vary significantly across plants), with Australia somewhere between this and the typical US capacity utilisation rate of 90 per cent.

## Industry structure is best left to markets, not governments

Given the important differences between the Australian and New Zealand dairy industries, and between the economic circumstances of the two countries more generally, there is no *a priori* reason why the dairy industry policy settings in New Zealand would be appropriate for Australia.

In the Commission's view, industry participants are best placed to balance the various tradeoffs and commercial considerations they face (such as between scale and transport costs). Other than where legitimate competition concerns are relevant (discussed below), the most beneficial dairy industry structure for Australia will be determined by the market place. Attempts by governments to 'second guess' market outcomes to achieve a particular industry structure are fraught with difficulty, and likely to impose net costs on the industry and the community more generally. It does not require much imagination — or experience with price setting by government — to envisage highly problematic judgements in setting an Australian price (or prices) for guaranteed domestic milk supply, as occurs today in New Zealand.

Further, while it is likely that industry consolidation will be ongoing, it is important to note that there are many ways for businesses to reduce costs, and/or improve their



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competitiveness. Some manufacturers pursue strategies that entail higher operating costs but proportionately higher revenue; for example, by pursuing greater product differentiation (in terms of quality or branding). Equally, for manufacturers focused on higher-value or niche products, achieving greater scale is unlikely to be a primary concern.

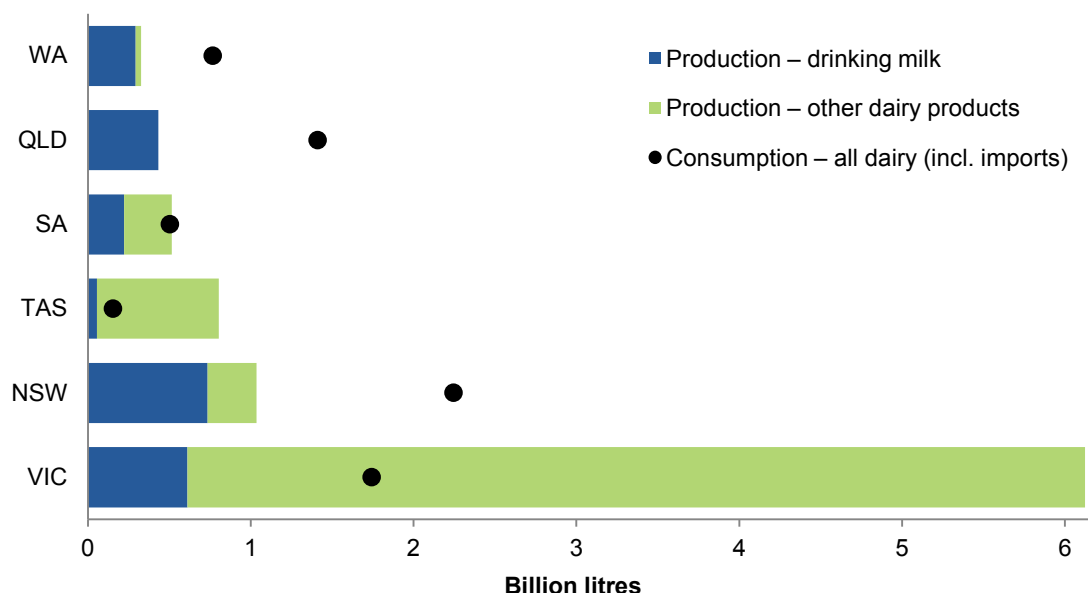
In this context, and due to the focus in the terms of reference, the Commission's approach has been to focus on how public policy can enhance the performance of the Australian dairy product manufacturing industry (and the economy more generally) by reducing or removing unnecessary costs or other impediments to industry performance. The appropriate starting point for devising such a policy response is to understand the particular supply and demand-side pressures facing dairy product manufacturers in Australia.

## **Dairy product manufacturing in Australia**

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, yielding 9.2 billion litres of raw milk (with a farmgate value of production of about \$3.7 billion). Raw milk production occurs in all states but is concentrated in Victoria (figure 1) due to climatic advantages — for example, higher rainfall levels in this region allow dairy farmers to adopt (lower cost) pasture-based production systems.

About one quarter of Australia's raw milk supply is used to manufacture drinking milk (including fresh and long life varieties of white milk and flavoured milks); the remaining three quarters is used to manufacture other dairy products, such as cheese and butter (figure 2). As dairy product manufacturing activity is generally located close to dairy farms, there is a concentration of dairy manufacturing plants in south-eastern Australia (that said, it is usually more economic for fresh drinking milk plants to be in close proximity to local urban markets). 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.

**Figure 1 Production and consumption of dairy goods, by state**  
Milk equivalent terms, 2013-14



### Australia's dairy manufacturing industry is firmly integrated in global markets

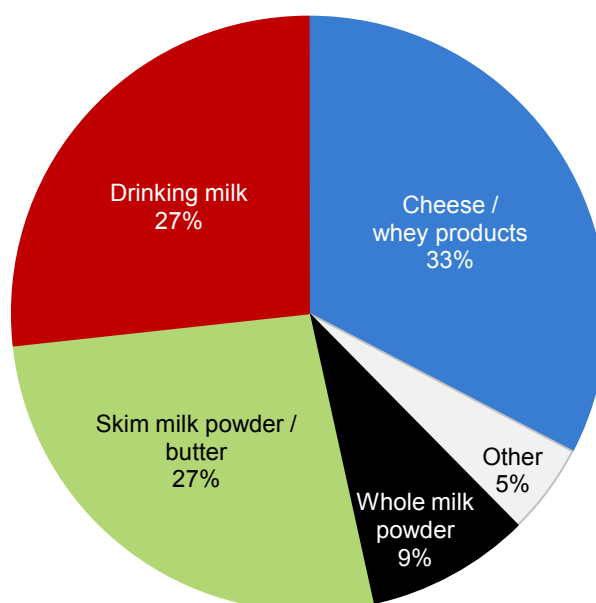
The integration of Australian dairy manufacturers into world markets means that domestic dairy product prices (and farmgate milk prices) are strongly influenced by international markets and prices.

About 40 per cent of Australia's dairy output (in milk equivalent terms) was exported in 2013-14 (and earned \$3.2 billion), with China and Japan the largest markets. China is Australia's fastest growing dairy market; since the 2008 melamine contamination crisis, Australian dairy exports to China have more than doubled.

Despite being a small dairy producer by world standards, Australian dairy exports accounted for about 7 per cent of international dairy trade in 2012 (in milk equivalent terms). Australia's share of global dairy exports has declined over the last decade (down from 15 per cent in 2002), due to factors mostly outside government or manufacturer control, such as drought, the removal of incentives for over-production, dairy farmer demography, strong domestic demand for dairy products and the appreciation of the Australian dollar.

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Figure 2      **Raw milk utilisation in Australia, 2013-14**



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

Consolidation and rationalisation is ongoing in the dairy manufacturing industry as businesses seek to reduce excess capacity, exploit scale economies and secure raw milk supply. While there were over 400 dairy manufacturers in Australia in 2012-13, the six largest firms (Murray Goulburn, Fonterra, Lion, Warrnambool Cheese and Butter, Parmalat and Bega Cheese) processed about 90 per cent of Australia's raw milk supply. Lion and Parmalat predominantly produce drinking milk for the domestic market, whereas the other four major manufacturers are focused on heavily traded dairy products.

There is a high level of foreign ownership in Australian dairy manufacturing: four of the six largest dairy manufacturers are owned by foreign corporations or cooperatives. Australia's proximity to Asia, growing domestic market and strong food safety reputation are key factors attracting foreign investment in dairy manufacturing.

The role of Australian farmer-owned cooperatives has declined over time. In 1999, three of the five largest dairy manufacturers were Australian cooperatives; in 2014, just one of the six largest dairy manufacturers is an Australian cooperative — Murray Goulburn.

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## Dairy product manufacturing businesses are diverse

There is significant variation in the scale and production mix of dairy manufacturing businesses, and this has direct implications for:

- cost structures (box 4), owing to differences in input requirements and manufacturing technologies
- prices, as exposure to export markets varies between products and locations.

### Box 4      **Cost structure analyses**

Cost structure analyses can help establish a broad understanding of the costs of Australian dairy product manufacturers relative to the rest of the world, and the drivers of those costs. They can also provide insight into possible ways to reduce costs in Australia. However, care needs to be exercised in using cost structure analyses for formulating public policy.

- Businesses incur a range of costs. While some of these costs may be amenable to public policy (such as government regulation), most simply reflect the commercial decisions of manufacturers.
- Cost differences will be driven by a range of factors, including the characteristics of individual countries such as climate, natural resources, labour endowments and competition for resources from other sectors. As a result, some countries will have a natural advantage in certain industries, and indeed, it is these natural differences which drive production decisions and the gains from international trade.
- There are non-cost factors that affect competitiveness — such as branding and product differentiation.
- Variations in exchange rates influence international comparisons of cost structures.

The Commission's approach has been to draw on the cost analyses to better understand the drivers of dairy product manufacturing costs in Australia, and the possible reasons for differences in cost structures between countries. In doing so, the Commission has considered which costs (and cost drivers) are potentially amenable to policy action, and which are not.

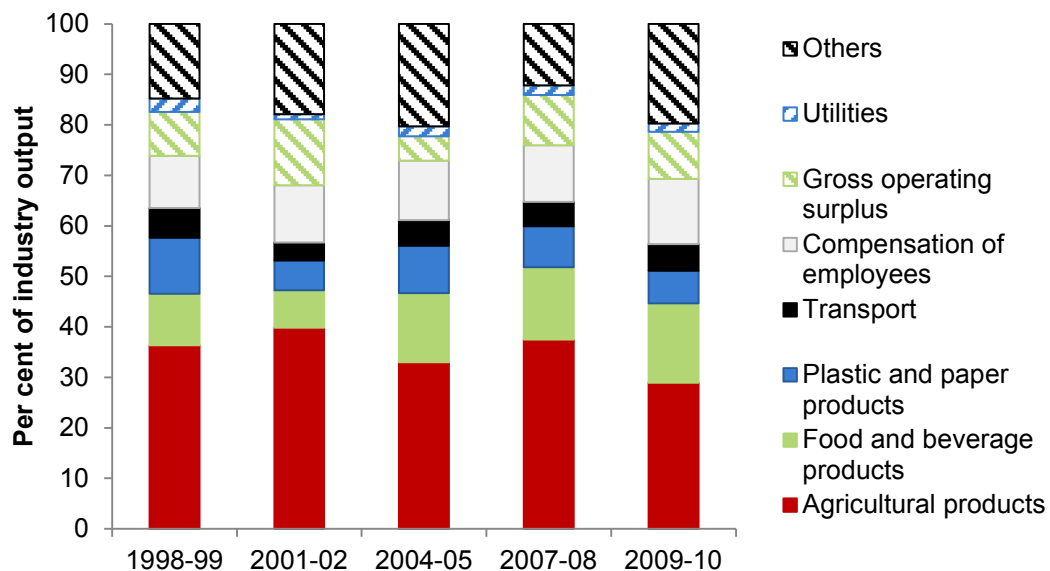
## Dairy product manufacturing costs

### Raw milk is the largest input cost for Australian dairy manufacturers

Raw milk costs (denoted by 'agricultural products', figure 3) averaged 29 per cent of industry output for Australian dairy product manufacturing in 2009-10, but this share varies across dairy products, and some industry participants reported much higher raw milk cost shares (up to 70 to 80 per cent). Other costs include manufactured food and beverage inputs (often milk based) (16 per cent), labour (13 per cent), packaging (6 per cent), transport (5 per cent), energy and water (1.7 per cent) and capital (9 per cent) (figure 3).

Figure 3 **Australian dairy manufacturing cost structure**

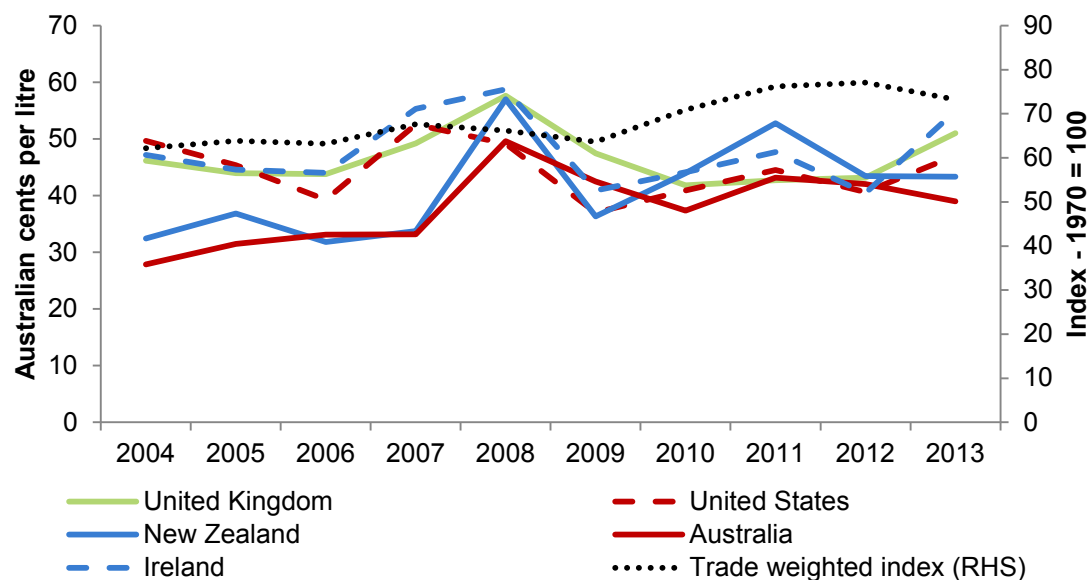
Various years



#### Australian raw milk prices are relatively low

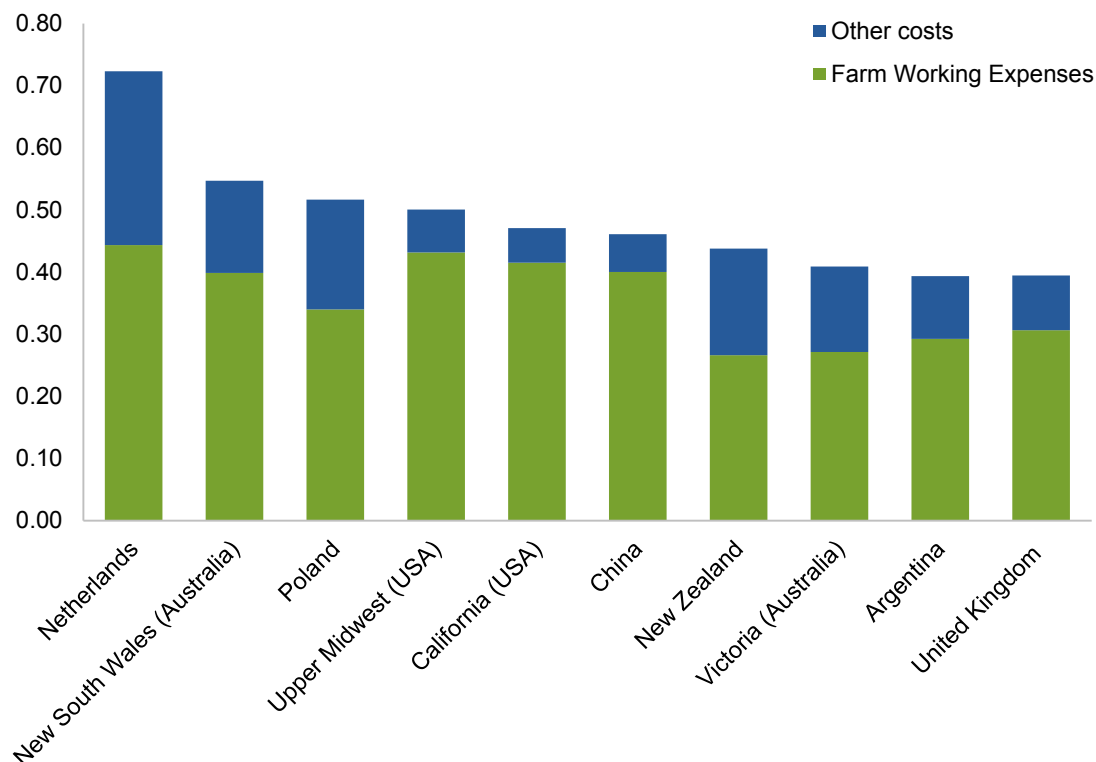
Raw milk prices paid by dairy product manufacturers in Australia appear to be generally lower than those paid in Ireland, the United Kingdom and United States, and broadly on a par with those in New Zealand (figure 4).

Figure 4 **Farmgate prices**  
2004 – 2013



This suggests that Australian dairy manufacturers enjoy a raw milk unit cost *advantage* relative to several of their key competitors. This is largely due to the relatively low cost of raw milk production in major Australian dairying regions (see Victoria, figure 5), and the absence of price support mechanisms for raw milk. Natural climatic advantages, pasture-based feeding systems and continuous on-farm productivity gains over the past two decades are the principal factors supporting relatively low on-farm costs in Australia. That said, raw milk production costs (and farmgate prices) tend to be higher in dairy regions outside of Victoria and Tasmania, reflecting differences in climate and less seasonal production systems (see New South Wales, figure 5).

**Figure 5 Raw milk production costs**  
\$US/Litre, various years



The volume and seasonality of raw milk supply can also affect manufacturers' costs

The Commission has heard that the volume and seasonal variability of Australia's raw milk supply can influence dairy manufacturers' decisions about the size of manufacturing plants, operating scale and capacity utilisation, thereby bearing on the cost and competitiveness of dairy manufacturing businesses.

However, Australian dairy farmers are responsive to farmgate price signals. This means that — provided a sufficient return is on offer — the volume and seasonality of Australia's raw milk supply will adjust to meet the preferences of manufacturers. For a manufacturer that wishes to increase scale, for example, it is therefore a question of whether the processing efficiencies associated with larger-scale operations justify the attendant costs, including the cost of acquiring 'new' milk (either by increasing market share, incentivising existing farmer-suppliers to produce more milk, or encouraging new entrants), building and operating larger plants, transporting raw milk longer distances and so on.

Similarly, while a more consistent (or flat) supply of raw milk throughout the year might increase asset utilisation rates, or allow manufacturers to better meet domestic demand for

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fresh products, this generally involves higher costs for farmers. The commerciality of reducing seasonal variation is therefore also a matter for dairy farmers *and* manufacturing businesses.

There is strong evidence that these market forces are working. Dairy manufacturer focus on ‘new’ milk is strong, with many firms offering farmgate price incentives for increases in raw milk volumes, entering into co-investment schemes with farmers (underpinned by longer-term supply agreements), and seeking third-party capital investment. In addition, seasonal pricing, long a feature of farmgate pricing systems in Australia, is increasingly being used to generate greater volumes of off-peak milk.

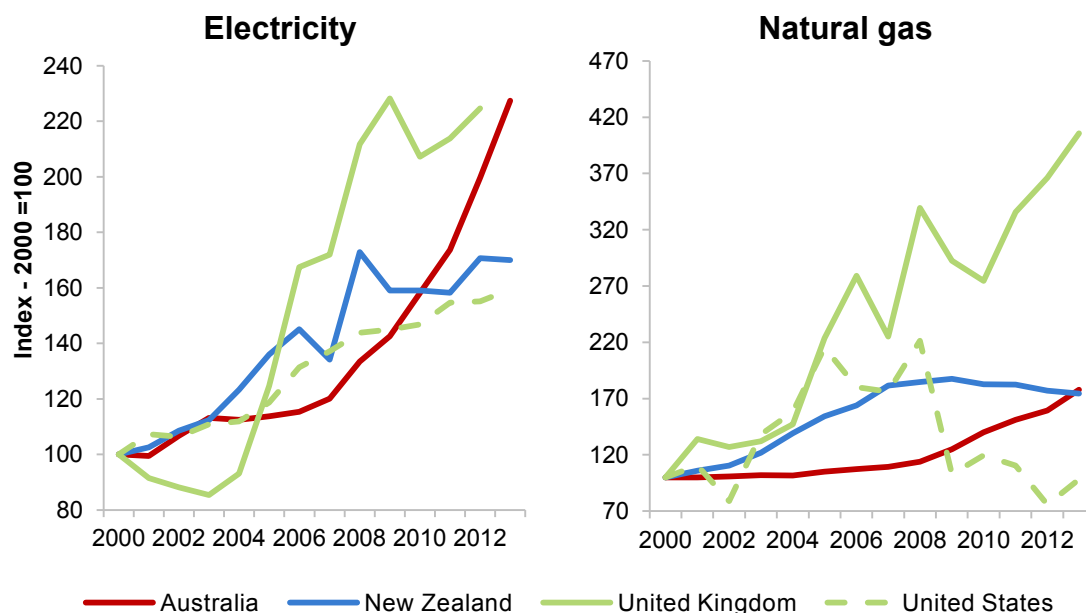
### Australian dairy manufacturers face relatively higher prices for labour and energy

Australian hourly labour costs in the food, beverage and tobacco product manufacturing sector (a proxy for labour costs in the dairy product manufacturing sector), were substantially higher than those in the United Kingdom, United States and New Zealand in 2012 (in common currency terms). In addition, Australia’s measured productivity performance in the food, beverage and tobacco product manufacturing sector between 2000 and 2011 appears to have been relatively poor; possible reasons for this include a change in the composition of output across the sector and lower rates of plant utilisation (due to the impact of drought on agricultural output) rather than lower productivity.

Australia has traditionally been a relatively low energy cost country. However, Australian wholesale electricity and natural gas prices have risen sharply since 2006 (relative to other countries) (figure 6). As of 2011, the Australian retail electricity price was higher than prices in New Zealand, the United Kingdom and the United States. For manufacturers of energy-intensive dairy products such as milk powder, this would have had a relatively substantial bearing on cost-competitiveness.



Figure 6 **Changes in energy wholesale prices**  
National currencies (nominal), 2000–2013.



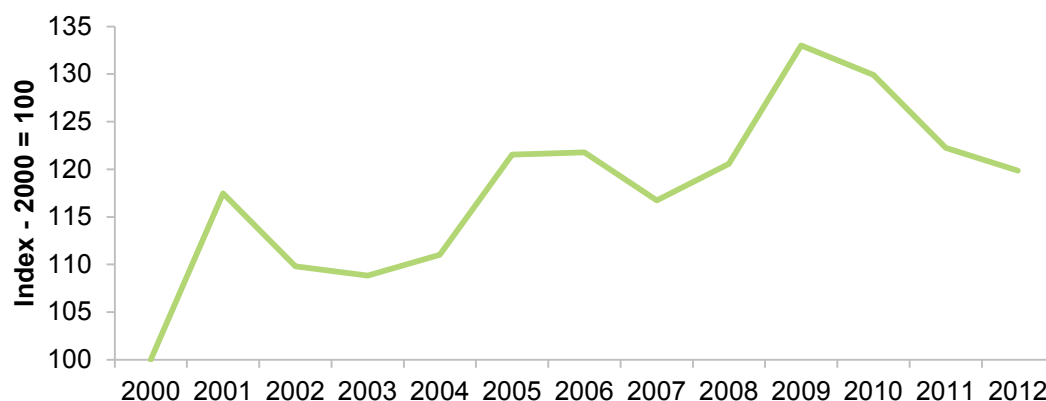
Road transport costs have increased, and are higher than those in New Zealand

Road transport rates in Australia were at the same level in 2012 as in 2005, however there has been considerable volatility from year to year and rates have risen since 2000 (figure 7). There is also evidence that road transport costs in Australia, per litre of raw milk transported, are higher than those in New Zealand.

There have been several drivers of road transport costs in Australia. Australian transport sector wages and petrol prices both increased over the 10 year period to 2012-13 (wages grew steadily at about 4 per cent per year, while petrol prices increased strongly between 2003-04 and 2007-08, before levelling off). On the other hand, improvements in technology have increased fuel efficiency and reduced costs. Other factors, such as the type of dairy product produced, and the locations and concentration of dairy farms and processors, are also important determinants of road transport costs.

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**Figure 7      Australian real short- and medium-haul road transport rates**  
Cost per net tonne kilometre.



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Milk swapping between firms can make raw milk collection more efficient and is being utilised to some extent. A further effective way of offsetting higher transport costs could be to co-operatively operate a transport fleet across a number of firms; or to extend existing outsourcing. Such initiatives should not raise competition policy concerns, where undertaken to increase efficiency.

### **Government action to remove or remedy inefficient policies would alleviate some cost pressures**

Further reform to the regulation of energy markets would offer benefits

Energy cost increases in Australia in recent years are mainly due to spiralling network costs — partly driven by flaws in the regulatory frameworks governing the operation of electricity markets — and to a lesser extent, policies designed to reduce carbon emissions and promote renewable energy.

The Commission has previously found that electricity network reliability standards often provide much greater reliability than consumers are willing to pay for, significantly adding to costs and customer tariffs. Pricing reforms aimed at modifying reliability requirements to promote efficiency, improved demand management and more efficient planning of large transmission investments have the potential to significantly reduce electricity bills for all customers, including dairy product manufacturers and dairy farmers. Importantly, submitters to this study have pointed out that *low* reliability of electricity supply is also an issue, especially in rural areas. This underscores the importance of electricity suppliers achieving reliability outcomes at the local level that reflect local consumer preferences through improved market mechanisms rather than prescriptive standards.

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Emission reduction programs have also placed upward pressure on energy prices in recent years, however overinvestment in transmission and distribution networks has been a more significant factor. A small benefit for dairy production may be found if business cost pressures associated with Australia's emission reduction policies flatten out with the abolition of the carbon tax and other mooted changes to renewables policies.

### Improving trade access

Bilateral and regional trade agreements can facilitate the reduction or removal of international trade barriers for Australian exports, although they are second-best policies. Many study participants considered that an Australia–China agreement would be extremely valuable if it secured more favourable terms and conditions for Australian dairy products (and preferably better terms than achieved under the recent Australia–Japan agreement). In particular, participants urged the Australian Government to seek trade access for Australian dairy that is similar to the arrangements that *currently* apply to New Zealand dairy, as part of the (ongoing) negotiation process.

Improved market access for Australian dairy goods is economically desirable. However, if this is to be achieved through bilateral and regional trade agreements it is critical that any such agreement is only entered into where it has been demonstrated that there would be a net economic benefit to the Australian community as a whole. Bilateral and regional trade agreements are often complex by nature, and can result in potential distortions if trade diversion occurs, or if rules of origin are unnecessarily complicated and restrictive. For these reasons, the Commission has in the past recommended that full and public assessments of proposed trade agreements be made after negotiations have been concluded, and stressed the importance of continued efforts to secure multilateral trade reform.

### Good regulatory outcomes require good processes

In light of the costs of regulation, and the potential for unintended consequences, it is critical that governments consistently follow good policymaking processes. A number of policies directly affecting the dairy industry appear inconsistent with this aim. Examples include:

- front-of-pack labelling regulations, which were approved for implementation in advance of a complete evaluation of the costs and benefits of the requirements (including an assessment of whether the objectives could be achieved at lower cost)
- state-based genetically modified (GM) crop regulations in South Australia, Tasmania and the ACT, which imply a level of concern about GM crop production that is not supported by evidence
- distortionary forms of drought assistance, such as interest rate subsidies and concessional loans, that can impede farm amalgamation and thus impede scale efficiencies

- 
- biofuel subsidies that potentially increase feed costs for livestock industries, including dairy.

These policies are likely to be imposing unnecessary costs on dairy businesses and the economy more generally — removing or otherwise refining these arrangements would benefit the community as a whole.

A number of participants emphasised that efficient transport infrastructure is critical for the dairy industry, and called for governments to invest in upgrading transport networks. Improvements to rural road and rail networks would likely benefit the dairy industry, but can also involve significant expenditure. Transparent and rigorous evaluation through cost–benefit analysis of any proposed investments in infrastructure would be required to ensure they were consistent with efficient infrastructure provision.

### **A policy environment conducive to efficiency and productivity improvements is imperative**

Productivity improvements in the dairy industry depend on effective research and development arrangements

Research and development (R&D) is an important contributor to improvements in the efficiency and productivity of the dairy industry. Many organisations are involved in dairy R&D, and farmers contribute to R&D through the dairy services levy, which is managed by Dairy Australia. In recognition of the spillover benefits of R&D the Australian Government matches farmers’ R&D funding to Dairy Australia, while state governments fund and/or conduct their own research. Dairy product manufacturers also conduct research, both in their own plants and in collaborative facilities.

The current arrangements for dairy R&D appear to be operating relatively effectively. Some manufacturers have suggested that it would be beneficial for them to have a greater role in setting industrywide R&D priorities. However there appear to be no barriers beyond institutional inertia to manufacturers doing this (that is, developing a list of preferred research priorities and building a case for funding to be directed toward those priorities). Drawing lessons from existing and previous collaborations between dairy product manufacturers and research organisations may assist.

Foreign investment is important for innovation and international linkages

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. Current Australian regulatory processes relating to foreign investment are less onerous than in many other countries. The Commission does not see a case for major reform with regard to dairy production. However, these processes do have the potential to dissuade potentially beneficial foreign investment if handled inconsistently.

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## Competition law and further consolidation

Greater consolidation of the dairy product manufacturing industry in search of potential for scale-based economic gains could be expected to improve resource allocation and potentially offer wider community benefits. Regulatory review processes to ensure that the objectives of competition law are being met is consistent with determining whether there is an overall community benefit.

Where dairy products are internationally traded, and domestic suppliers are subject to persistent import competition, the potential for detrimental competition impacts is likely to be lessened. The fresh drinking milk market may not meet these tests, however less-perishable dairy products such as cheese and milk powder most likely would.

## Capital availability

Access to capital is critical to the dairy industry's productivity and competitiveness. There are no regulatory impediments to the supply of capital to Australian dairy farmers or dairy product manufacturers — capital is generally likely to be forthcoming, without government intervention, at prices reflecting the risk to capital providers. Cooperatives may have some limitations in raising capital, but these are matters for the members, not government.

Notwithstanding this, 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).

Farm-based investment is critical to raw milk supply (and manufactured dairy output) increasing. As international opportunities arise, dairy product manufacturers should be interested in encouraging supply growth, but this will require investment by dairy farmers. Dairy farm returns have, however, been volatile over the last decade or so. While individual farm profitability will vary, as a group dairy farmers may not be in a good financial position to manage a significant increase in investment risks alone.

## Access to skilled labour

While the dairy industry faces some challenges in obtaining skilled and experienced labour, the industry is making efforts to address labour shortages. Reviews that are underway (the skilled visa 457 programme) or that have been foreshadowed (a Productivity Commission inquiry into the workplace relations system) will provide an opportunity to consider workplace issues affecting the dairy industry in a broader context. Industry-specific labour market interventions by government have generally not been successful.



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# Findings

## Costs of dairy product manufacturing

### FINDING 3.1

Since 2004 farmgate milk prices in Australia have been lower than those in Ireland, the United Kingdom and the United States (although the gap has narrowed), and at about the same level as those in New Zealand. The competitiveness of Australian dairy manufacturing has not been restricted by the costs of raw milk production. However, raw milk volumes are not growing.

### FINDING 3.2

The cost of raw milk dominates input costs for Australian dairy product manufacturers, but with large apparent differences between firms. Labour costs in the Australian food, beverage and tobacco product manufacturing industry are not out of line with general manufacturing labour costs, but are higher than those in some developed, competitor countries (in common currency terms).

### FINDING 3.3

Australian energy prices have risen sharply since 2006. For manufacturers of energy-intensive dairy products such as milk powder, this would have had a relatively substantial bearing on cost-competitiveness.

## Raw milk production in Australia: costs, volumes and seasonality

### FINDING 4.1

Continuous on-farm productivity growth over the past two decades has been critical for containing dairy farm costs and maintaining the competitiveness of the dairy sector.

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#### FINDING 4.2

Raw milk production costs in Australia are competitive with other major dairy producing regions, including New Zealand. However, Australian dairy farmers face challenges, including the relatively strong Australian dollar, growing farm debt (and the associated interest costs) and a highly competitive global trading environment.

#### FINDING 4.3

Manufacturing plant scale and capacity utilisation are commercial decisions for dairy manufacturers. Differences in plant scale between Australia and New Zealand reflect key differences between the respective countries' dairy industries, including the volume and seasonal pattern of raw milk supply; domestic demand for dairy products; and input costs.

On-farm investment is crucial to increasing Australia's raw milk supply (and dairy manufacturing output). Manufacturers may need to share more of the investment risks in order to encourage increased raw milk production. Farmgate price incentives to encourage 'new' milk, or reduce seasonal variability, are already in play where it is commercially desirable.

## Opportunities and challenges for the dairy industry

#### FINDING 5.1

Decisions about operating scale and industry structure are best left to markets to determine, subject to generally-applying market rules, including competition law. While the benefits of scale economies can be significant, suggestions that Australia should adopt an industry structure similar to that of New Zealand, with one dominant dairy manufacturer, appear to be based on a simplistic comparison of the export performance of the two countries' dairy industries. Such comparisons ignore important industry-specific, regulatory and economywide (including exchange rate) differences.

#### FINDING 5.2

It remains in the market interest for decisions on matters considered by the Foreign Investment Review Board to be announced as soon as possible, rather than choosing the timing of announcements in a manner that may allow speculation about the relative acceptability of bidders.



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#### FINDING 5.3

The current test for examining public benefit of mergers under section 95AZH of the *Competition and Consumer Act 2010* (Cwlth), requiring that a significant increase in the real value of exports and a significant substitution of domestic products for imported products be regarded as public benefits, is flawed. Deeming benefit to lie with increased exports or import substitution has the potential to distort production, waste scarce resources, and ultimately reduce community welfare.

#### FINDING 5.4

Many successful dairy manufacturers are shifting resources towards higher value dairy products and using quality as a point of differentiation. Other manufacturers have successfully differentiated their products based on image, size and ownership.

### Potential policy refinements

#### FINDING 6.1

Poor regulatory frameworks governing electricity markets, policies designed to reduce carbon emissions and promote renewable energy, and the integration of Australian gas markets with global markets have added to spiralling energy costs in Australia, increasing the burden on the dairy industry, in some cases unnecessarily.

Pricing reforms designed to improve the functioning of electricity markets would be desirable, and further examination of supply impediments in gas markets (a matter outside the scope of this study) is worthy of consideration.

#### FINDING 6.2

While the dairy industry faces some challenges in obtaining skilled and experienced labour, it is making efforts to address labour shortages. Reviews that are either underway (the skilled visa 457 programme) or have been foreshadowed (a Productivity Commission inquiry into the workplace relations system) may provide an opportunity to consider issues affecting the dairy industry in a broader context.



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# 1 About the study

## 1.1 The Commission's task

On 7 April 2014, the Commission received terms of reference that required it to undertake a study into the costs of doing business in the dairy product manufacturing industry. The Commission was 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 was also asked to undertake a study into the costs of doing business in the retail trade industry. A separate 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 had a wholesale value of production of in excess of \$13 billion in 2012-13 (Dairy Australia 2013).

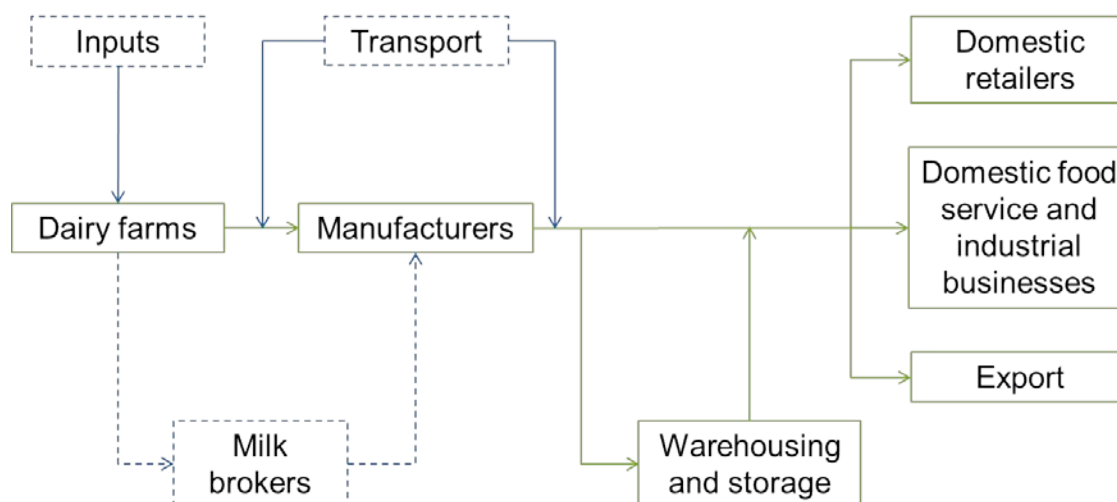
A relatively sophisticated supply chain underpins the Australian dairy industry. The three key elements of this supply chain are raw milk production (dairy farming), dairy product processing and manufacturing<sup>1</sup>, and the sale of dairy products (including products such as drinking milk, cheese, milk powder and butter) to domestic and export customers (figure 1.1).

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<sup>1</sup> Manufacturing is used to refer to processing and manufacturing activities throughout the rest of this report, unless stated otherwise.

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Figure 1.1     **Stylised dairy industry supply chain**



Source: Adapted from Spencer (2004).

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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 have also been examined by the Commission.

## Cost structure analyses

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 can 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. In particular, significant differences in cost structures across countries does not establish a case for government intervention.

## Many costs reflect the commercial decisions of manufacturers

Businesses in the dairy product manufacturing industry incur a range of costs. While some of the costs are amenable to public policy action (for example, costs imposed by 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

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technology, factor use and risk management will have a significant bearing on their unit costs of production.

### Costs are not the whole story

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 strengthening relationships with key customers. Such strategies could entail higher costs (for example, paying higher prices for premium quality milk or greater reliability of supply) 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.

### Intervention by governments in the absence of market failure comes at a cost to the performance of the economy overall

Government intervention is not costless — even if policy interventions could reduce dairy product manufacturing costs, they inevitably reallocate resources from other areas of the economy. 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) will lead to costs, and a net loss for the community overall. Some of these costs could include:

- a misallocation of resources within the economy
- higher input costs for other domestic industries — as the assisted industry is likely to employ and invest more, thus increasing the price of labour and capital for other industries
- increased ‘rent seeking’ — as the provision of assistance to one industry can encourage other industries to seek favourable treatment.

In sum, the role of government in industry policy should be to correct demonstrable market failures, and to remove any regulatory impediments that may exist, where this would have net benefits for the community as a whole. Attempting to offer favourable policy conditions to an industry that is perceived to have a comparative advantage may benefit that industry, but will be costly to other industries in the economy (including those that may also have a comparative advantage) and will not be welfare enhancing.

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## Cost differences across countries are driven by myriad factors

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 Common Agricultural Policy and the US *Agricultural Act of 2014*. 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.

## Exchange rates matter

While exchange rates will not affect the domestic costs of production (except to the extent that tradeable inputs are used), they will affect manufacturing returns for exported goods, and influence international comparisons of cost structures. There has been an appreciation of the Australian dollar against the US dollar and Euro since 2002, which, all else equal, will appear to increase the costs of Australian production at both the farm and manufacturer level relative to other countries (chapters 3 and 4).

## Cost structures can be useful for understanding the policy environment

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 chapters 3 and 4 to better understand the drivers of dairy product 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.

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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.

## **Study process**

The Commission released an issues paper on 11 April 2014, and released its interim report on 6 June 2014. This report represents the final phase of this study.

The Commission has attempted to consult as widely as possible given the compressed timetable for this study. It met with a range of participants, including dairy manufacturers, industry bodies, regulators and government departments both prior to, and following, the release of the interim report. However, the Commission notes that engagement with the study from the majority of the dairy product manufacturing industry has been disappointingly low. The Commission received 8 submissions prior to the release of the interim report, and 2 submissions following the release of the interim report — but did not receive a non-confidential submission from any dairy product manufacturer. The Commission made efforts to obtain greater access to firm-level data, but was unsuccessful. The full list of visits and submissions is provided in appendix A.

As a consequence, the Commission has drawn on submissions to other studies and inquiries, where relevant. These include submissions to the agricultural competitiveness white paper, and to a range of senate inquiries into the dairy and food processing industries.

This 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 and describes how dairy product prices and raw milk prices are determined in Australia (appendix B provides further detail on the operation of raw milk markets).
- Chapter 3 presents data on the costs of dairy product manufacturing in Australia and key competitor countries.
- Chapter 4 examines the drivers of the cost and volume of raw milk production in Australia.
- Chapter 5 identifies opportunities for the dairy industry to improve its competitiveness.
- Chapter 6 examines the potential policy influences on dairy manufacturing costs in Australia.





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## 2 Australia's dairy product manufacturing industry

### Key points

- About 40 per cent of Australia's dairy output (in milk equivalent terms) is exported (predominantly as cheese and milk powder products), with China and Japan the largest markets. Australian dairy exports earned \$3.2 billion in 2013-14.
  - Although Australia is a small dairy producer by world standards, Australian dairy exports accounted for 7 per cent of international dairy trade in 2012 (in milk equivalent terms), making Australia the fourth-largest dairy exporter in the world behind New Zealand, the European Union and the United States.
  - 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.
  - In 2012-13, the six largest manufacturers (Murray Goulburn, Fonterra, Lion, Warrnambool Cheese and Butter, Parmalat and Bega Cheese) purchased about 90 per cent of Australia's raw milk supply.
  - Australian export performance is led by four of these firms.
  - Investment in manufacturing capacity is ongoing, aimed at satisfying both the domestic drinking milk market, and dairy product exports to Asia.
- 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.
  - 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 processed.
- Australian dairy consumption has increased consistently over time.
  - Per capita dairy consumption increased by 10 per cent between 2000 and 2014 (in milk equivalent terms), driven by changing consumer preferences and manufacturer innovations.

This chapter provides a brief overview of each of the main elements of the dairy industry supply chain. While the focus of this study is on dairy product manufacturing, there are important linkages between dairy manufacturing (section 2.1), dairy farming (section 2.2)

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and domestic and export markets (section 2.3). A snapshot of the dairy industry in key competitor countries is also provided (section 2.4).

## **2.1 Dairy product manufacturing**

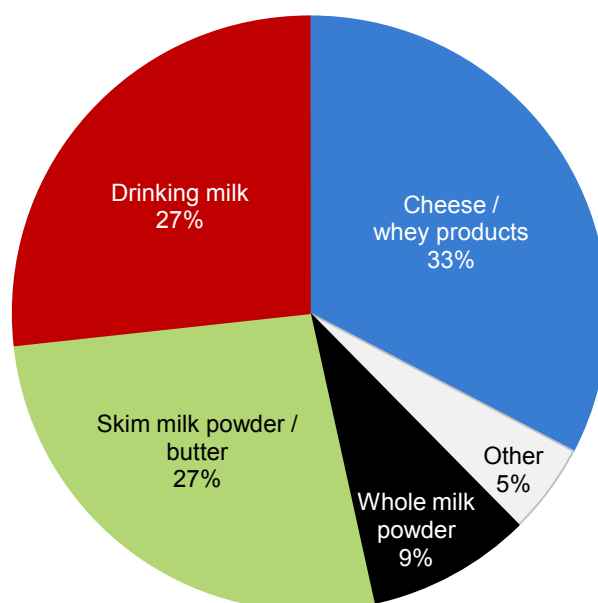
Dairy product manufacturing involves using raw milk (milk that has not been pasteurised or homogenised), and other food and beverage ingredients, to produce a range of products — including drinking milk, cheese, milk powder and butter. Other activities undertaken by dairy product manufacturers include the collection and on-farm testing of raw milk, packaging of dairy products, product distribution and storage, and innovation and branding.

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 (ABS 2014b). In the same year, dairy's share of total farm exports was about 6 per cent, while its share of total merchandise exports was about 1 per cent (ABARES 2013).

### **What do Australian dairy manufacturers produce?**

Australian dairy manufacturers produce a diverse range of products for domestic and export markets. About one quarter of Australia's raw milk supply is used to manufacture drinking milk (including fresh and long life varieties of white milk and flavoured milks); the remaining three quarters is used to manufacture other dairy products (figure 2.1). These shares have remained relatively constant over the last decade, although the absolute volume of dairy output has declined across most product categories (as raw milk supply has fallen) (figure 2.2).

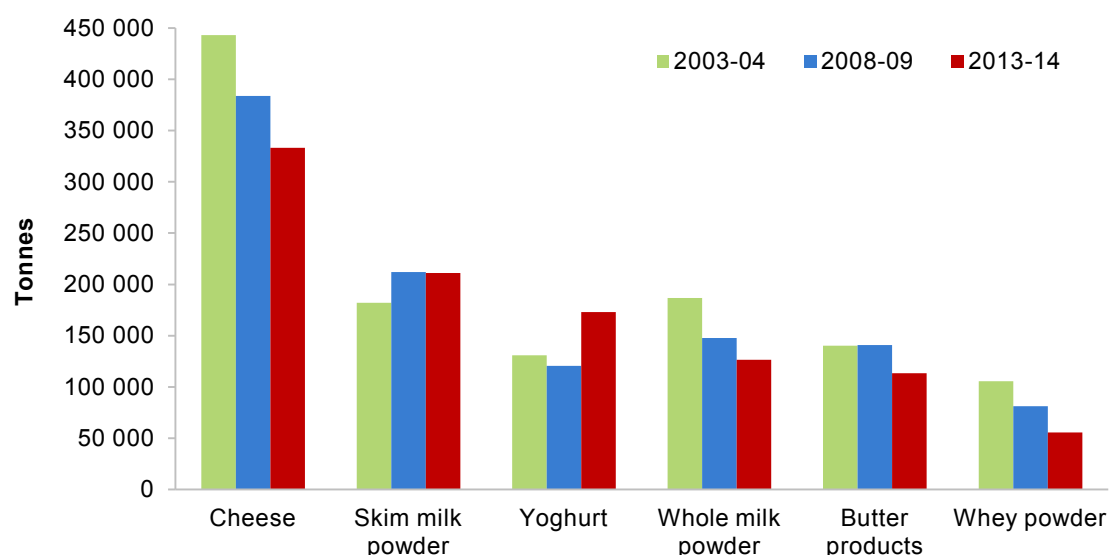
Figure 2.1 **Raw milk utilisation in Australia, 2013-14<sup>a</sup>**



<sup>a</sup> Composite categories reflect interdependencies in production (discussed below). Whey powder is a byproduct of cheese production, used as a nutritional supplement and food additive. Percentages add to more than 100 due to rounding.

Source: Dairy Australia (pers. comm., 28 August 2014).

Figure 2.2 **Australian production of selected dairy goods<sup>a</sup>**



<sup>a</sup> Whole milk powder includes infant formula. Butter products includes butter, butter blends (converted at the rate of 1kg butter blend = 0.7kg butter) and butter oil.

Source: Commission estimates based on Dairy Australia (pers. comm., 2 September 2014).

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## Where are Australian dairy manufacturers located?

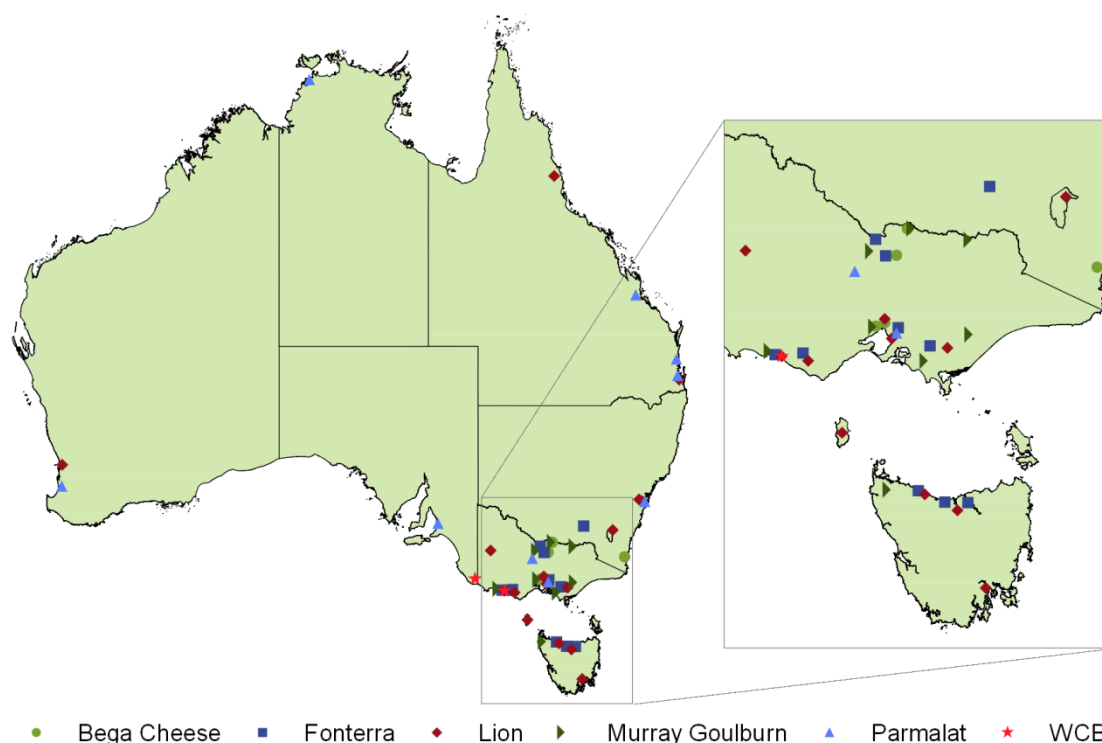
The location of dairy manufacturing plants reflects a range of factors, including the location of dairy farms and domestic customers, access to skilled labour and transport infrastructure. The Australian Dairy Industry Council and Dairy Australia noted:

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 ... Transport of fresh product requires smaller, refrigerated trucks capable of operating in urban distribution areas. (sub. 6, p. 3)

Manufacturing operations focused on less perishable dairy products, such as cheese and butter, tend to locate close to dairy farms, giving rise to a cluster of dairy manufacturing plants producing these products in south eastern Australia (figure 2.3). About 80 per cent of Australia's raw milk is processed in this region.

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**Figure 2.3 Australian dairy manufacturing plant locations, August 2014<sup>a</sup>**  
Manufacturing plants of the six major dairy companies



<sup>a</sup> Parmalat includes Harvey Fresh. WCB stands for Warrnambool Cheese and Butter.

Sources: Bega Cheese (2013); Fonterra (2014c); Lion (pers. comm., 13 May 2014); Murray Goulburn (2014b); Parmalat (2011a); Warrnambool Cheese and Butter (2013).

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## Key activities of dairy manufacturing businesses

### Raw milk collection

Raw milk is initially stored on-farm in refrigerated vats, before being collected, tested to establish milk safety and quality, and then transported by refrigerated tanker to a manufacturing plant (or plants). Raw milk is a highly perishable product: collection occurs every 24 or 48 hours, and milk must be processed soon after collection.

Raw milk collection has become more efficient over time as a result of:

- technological advances (for example, manufacturers often use sophisticated computer models and onboard data capture to optimise collection routes, and improvements in on-farm storage facilities mean that collection need not occur daily)
- cost-saving commercial arrangements (for example, the imposition of minimum volume requirements on farmer-suppliers)
- industry restructuring (fewer, larger farms).

Notwithstanding this, raw milk collection is an important cost for dairy product manufacturing businesses, particularly where dairy farms are geographically dispersed (chapter 3). Manufacturers have sought to reduce these costs by occasionally entering into ‘milk swaps’ with other businesses, or by sharing collection services (where routes overlap). In some cases, however, manufacturers indicated that shared collection arrangements present difficulties for ensuring milk safety and quality, and weaken relationships with farmer-suppliers.

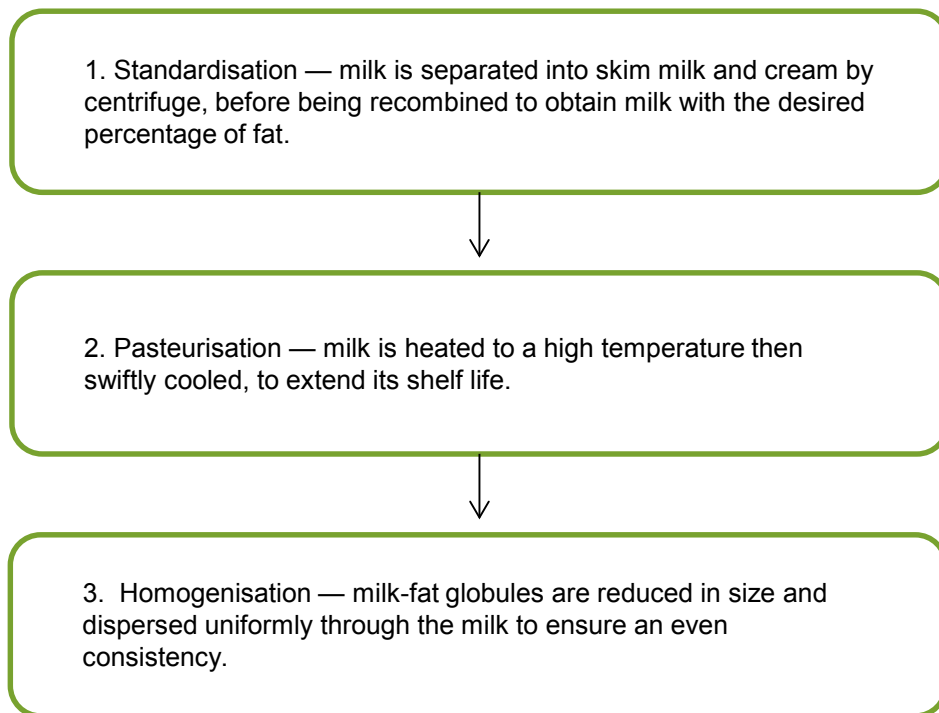
### Manufacturing and packaging

Key dairy product manufacturing inputs include raw milk and other food and beverage ingredients, labour, capital, and plastic and paper products used in packaging (chapter 3). However, input requirements can vary greatly between firms, as manufacturing processes differ significantly between dairy products, and firms employ different methods of production. For example, a small-scale cheese or ice-cream manufacturer employing labour-intensive production methods would have relatively low capital costs in comparison to Bega Cheese — whose core business involves manufacturing, cutting and wrapping cheese using highly automated production methods.

The manufacture of drinking milk is a relatively simple process, typically involving three key steps (figure 2.4).

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Figure 2.4    **Key steps in manufacturing drinking milk**



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Other dairy products require a number of other manufacturing processes. For example, cheese production generally involves combining pasteurised 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).

There are interdependencies between certain dairy product manufacturing processes, and this can influence the output mix of individual businesses. For example, milk that has been separated into skim milk and cream is used to make both skim milk powder and butter. The skim milk is evaporated and spray dried to produce skim milk powder; the cream is churned to make butter (Dairy Australia 2013a).

Packaging requirements can vary significantly depending on whether the product is destined for further processing (in which case it may be packaged in bulk), or for retail markets. Packaging requirements are also influenced by regulations (including country-specific labelling requirements, such as those related to the presentation of nutritional information), and by customer preferences in domestic and export markets. Packaging occurs either at the point of manufacture or off-site. A large part of Bega Cheese's business is cutting and packing bulk cheese made by other manufacturers (Business Spectator 2013).

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## Product distribution and storage

Manufactured dairy products are initially transported to other plants for packaging (if required), on- or off-site cold storage facilities, or distribution centres. After sale, products for the domestic market are then transported directly to customers (or in the case of major supermarkets, to their centralised warehousing systems) (Phillips 2013). Key domestic customers of dairy products include retailers (most notably supermarkets), cafes, restaurants, fast food companies and food manufacturers.

While manufacturers are largely responsible for product distribution, they often contract or franchise specialist milk distributors to deliver dairy products to customers. In 2011 there were an estimated 745 milk distributors in Australia employing about 2200 staff (SERC 2011).

Dairy product distribution is complicated by the perishable nature of fresh drinking milk, and to a lesser extent other dairy products, which imposes additional logistical and refrigeration costs. Further, as dairy product manufacturing is concentrated in south eastern Australia, dairy products must often be transported significant distances from manufacturing plants to customers.

Dairy products destined for export markets are generally warehoused in storage facilities, prior to being trucked to port and shipped as containerised sea freight. Exports from Tasmania must be shipped to Melbourne first, unloaded and warehoused, before being reloaded and shipped to export markets. Murray Goulburn CEO Gary Helou recently called for the establishment of a direct shipping route from Tasmania to Asia to support dairy exports (Ryan 2014). Dairy products may be subject to quarantine or treatment procedures, depending on the destination.

## Innovation and branding

Dairy manufacturers are regularly offering new and innovative products, or offering existing products in new ways, in order to appeal to consumers. For example, manufacturers have increased the range of sizes and packaging options (with a greater focus on convenience and snack products), and have responded to consumers' health concerns by introducing low-fat varieties and other innovations (box 2.1).

Dairy products are sold either as branded product (that is, under a manufacturer's brand, such as 'Bega Cheese') or as 'private label' (that is, under a retailer's brand, such as 'Coles Smart Buy'). Private label penetration varies considerably across different dairy products. In 2012, private label accounted for more than half of drinking milk sales, about a third of sales of cheese and of butter and butter blends, and just 3 per cent of yoghurt sales (Dairy Australia 2013b). Branded dairy products typically sell for more than their private label counterparts, in part reflecting higher marketing costs and higher manufacturer margins.

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### Box 2.1      **A2 milk**

New Zealand company A2 has been particularly successful in innovating to appeal to health-conscious consumers. A2 milk contains only A2 beta-casein protein; it comes from cows that produce milk free of the A1 beta-casein protein contained in regular milk. The A2 milk company claim that their milk ‘may assist with your digestive wellbeing’ (A2 Milk Company nd, p. 1) and market it as a premium product: as at July 2014, it was retailing for about two and half times the price of private label milk.

A2 is the fastest growing dairy brand in Australia. Since its launch in Australia in 2007, A2 milk’s share (by value) of the Australian drinking milk market has grown to 8 per cent. The company’s Australian sales for the first half of 2013-14 were 28 per cent higher than the year before.

Other dairy manufacturers in Australia have responded to A2’s success. For example, Lion has relabelled its Pura brand milk with ‘naturally contains A2 protein’ (Lynch 2014a, p. 1).

A2 have recently expanded into yoghurt (in conjunction with Jalna), cream, and infant formula. In the six months to December 2013, 97 per cent of A2’s sales were in Australia, although they also have operations in New Zealand, the UK and China, and recently announced plans to enter North America.

*Sources:* A2 Milk Company (2014, nd); The National Business Review (2014).

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## **Structure of the Australian dairy product manufacturing industry**

### **A long period of consolidation**

There are six major dairy product manufacturing firms in Australia: Bega Cheese, Fonterra, Lion, Murray Goulburn, Parmalat, and Warrnambool Cheese and Butter (table 2.1). Together, these firms purchase nearly 90 per cent of Australia’s raw milk supply. Lion and Parmalat predominantly manufacture drinking milk for the domestic market. The other four major manufacturers produce a combination of drinking milk and other dairy products, such as cheese and butter.

The present industry structure reflects sustained consolidation activity in Australian dairy product manufacturing (box 2.2). This notwithstanding, Australian dairy manufacturing operations are not large on a global scale. In 2012, the largest dairy firms worldwide — based in Europe, New Zealand and the United States — purchased over five times more raw milk than Murray Goulburn, Australia’s largest manufacturer (IFCN 2012; Murray Goulburn 2013).

A large number of medium-scale (for example, Burra Foods and Norco) and small-scale dairy manufacturers purchase the remainder of Australia’s raw milk supply (about 13 per cent of the total in 2012-13). The ABS estimates that over 400 dairy product manufacturing businesses operated in Australia in 2013, with over 80 per cent of these firms employing fewer than 20 people (ABS 2014c).



**Table 2.1 Major dairy product manufacturing companies in Australia, 2012-13<sup>a</sup>**

<i>Company</i>	<i>Quantity of raw milk purchased</i>	<i>Share of total raw milk purchased</i>	<i>Revenue</i>	<i>Employees</i>	<i>Major dairy products</i>	<i>Major dairy brands</i>	<i>Collection States<sup>b</sup></i>						<i>Number of plants<sup>b</sup></i>
	Million litres	Per cent	A\$ million				NSW	Vic	Qld	SA	WA	Tas	
Murray Goulburn	2 990	33	2 385	2 268	Cheese, butter, milk powder, drinking milk, cream	Devondale, Liddells	✓	✓		✓		✓	8
Fonterra	1 600	17	2 500	2 000	Cheese, butter, milk powder, drinking milk, yoghurt	Mainland, Western Star, Nestle Ski	✓	✓				✓	10
Lion	1 000 <sup>c</sup>	11	2 536 <sup>d</sup>	2 300 <sup>d</sup>	Drinking milk, cheese, yoghurt	Pura, Coon, Dairy Farmers, Yoplait	✓	✓	✓	✓	✓	✓	16
Warrnambool Cheese and Butter	890	10	497	424	Cheese, butter, milk powder, drinking milk	Sungold Milk, Warrnambool Cheddars, Great Ocean Road		✓		✓			2
Parmalat	850 <sup>c</sup>	9	1 233 <sup>e</sup>	1 847	Drinking milk, yoghurt, custard, cream	Pauls, Vaalia, Harvey Fresh	✓	✓	✓	✓	✓		9
Bega Cheese	641	7	1 010	1 700	Cheese, drinking milk	Bega Cheese	✓	✓					6
Other	1 229 <sup>c</sup>	13	3 271 <sup>c</sup>	7 013 <sup>c</sup>	..	..	..	..	..	..	..	..	430 <sup>c</sup>
<b>Total</b>	<b>9 200</b>	<b>100</b>	<b>13 432</b>	<b>17 552</b>	..	..	..	..	..	..	..	..	<b>481<sup>c</sup></b>

<sup>a</sup> Data are for 2012-13 except where specified. <sup>b</sup> As at August 2014. <sup>c</sup> Estimate. <sup>d</sup> Lion 'Dairy & Drinks' business (includes juice and soy products). Year ended 30 September 2011. <sup>e</sup> Total sales in Australia. 2013.

Sources: ABS (2014b, 2014c); Bega Cheese (2012, 2013); Binsted (2014); Fonterra (2013b, 2014a); IBISWorld (2014); Lion (2011, 2014a); Murray Goulburn (2013, 2014a); Parmalat (2011b, 2014); Warrnambool Cheese and Butter (2013, 2014).

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## Box 2.2      **Consolidation in the Australian dairy product manufacturing industry**

The Australian dairy product manufacturing industry has undergone an extended period of consolidation, beginning with the first stages of industry deregulation in the 1980s. Some of the major acquisitions since 2000 are outlined below.

### *Key dairy acquisitions*

<i>Year</i>	<i>Activity</i>
2001	Fonterra purchases 25 per cent of Bonlac
2003	Fonterra purchases a further 25 per cent of Bonlac
2006	Fonterra completes its acquisition of Bonlac
2007	Bega Cheese acquires 70 per cent of Tatura Milk
2008	National Foods acquires Dairy Farmers Group
2011	Bega Cheese completes its acquisition of Tatura Milk
2013	Fonterra purchases Tamar Valley Dairy
2014	Canadian firm Saputo assumes majority ownership of Warrnambool Cheese and Butter
2014	United Dairy Power purchased by private investor
2014	Parmalat acquires Harvey Fresh

One of the most significant recent events to have occurred in the Australian dairy manufacturing industry concerns the competing 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 a majority of Warrnambool Cheese and Butter shares.

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

## Ownership structures have evolved

Prior to 2000, four of the largest dairy manufacturers in Australia (Dairy Farmers Group, Murray Goulburn, Bonlac and Bega Cheese) were Australian farmer-owned cooperatives (box 2.3). However, over time the role of Australian farmer-owned cooperatives in the Australian dairy manufacturing industry has declined:

- Between 2001 and 2006, Bonlac was gradually acquired by Fonterra — a New Zealand-based cooperative.
- In 2008, Dairy Farmers Group was acquired by National Foods (now Lion) — a private multinational.
- In 2008, Bega Cheese changed its structure from a cooperative to a publicly listed company.

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### Box 2.3      **Farmer-owned dairy cooperatives**

A dairy cooperative is a dairy manufacturing business that is owned and controlled by the dairy farmers who supply milk to the cooperative. Farmer-members receive dividend income according to their ownership share, as well as income from selling milk to the cooperative.

As Keogh observed of the differences between cooperatives and 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)

Farmers who supply milk to a cooperative are typically required to become members through the purchase of shares in the cooperative. Nonetheless, because cooperatives are owned by their farmer-suppliers, and rely on these farmers for equity, they may have difficulty raising capital. This consideration was central in Bega Cheese's decision to change its structure from a cooperative to a publicly listed company in 2008.

#### *Murray Goulburn*

Murray Goulburn is Australia's largest dairy cooperative. Currently, it is entirely owned and controlled by its farmer-suppliers. Murray Goulburn's 'primary goal' is to maximise the raw milk price it pays to its suppliers.

All Murray Goulburn suppliers are required to hold at least 500 shares (at \$1 a share). Additionally, Murray Goulburn deducts 0.65 cents per litre from milk payments to its suppliers and issues them shares in lieu. Although shares may be sold with board approval, in practice this scheme means that farmer-members' shareholdings tend to increase the longer they supply Murray Goulburn.

With a goal of raising additional equity capital, Murray Goulburn has recently proposed changes to its capital structure to allow access to equity from non-suppliers (without diluting supplier control).

#### *Fonterra*

Fonterra is a New Zealand-based dairy cooperative, with significant operations in Australia. In 2012, it was the largest dairy company in the world (by raw milk intake), and accounted for a third of international dairy trade (in milk equivalent terms).

In 2012, Fonterra changed its capital structure to allow the creation of units listed on the New Zealand Exchange (distinct from the shares held by farmer-members) with the holders of the units receiving the same dividend as members, but without voting rights. Fonterra also established a share trading platform for its members. As at 14 August 2014, units were priced at NZ\$6.16 (up 12 per cent on the issue price), and shares at NZ\$6.15. Fonterra requires that its New Zealand suppliers hold a minimum of one share for each kilogram of milksolids they supply.

The raw milk price Fonterra pays to its New Zealand suppliers is set according to a formula, based on world dairy commodity prices less 'reasonable costs' associated with raw milk collection, manufacture, freight and capital investment. Fonterra's raw milk price is subject to regulatory oversight by the New Zealand Commerce Commission.

*Sources:* Fonterra (2012); Keogh (2013); Murray Goulburn (2014d); Smith and Hemphill (2014).

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Murray Goulburn — an Australian farmer-owned cooperative and Australia’s largest dairy manufacturing company — purchased a third of Australia’s raw milk supply in 2012-13. Murray Goulburn is seeking member support for changes to its capital structure to provide additional access to equity capital (box 2.4). Other Australian cooperatives — led by Norco, Australia’s second largest dairy cooperative — purchased a further 2 per cent of Australia’s raw milk supply in the same year (Dairy Australia 2013a; Norco 2014a).

#### **Box 2.4 Murray Goulburn’s proposed capital restructure**

Murray Goulburn is currently consulting its members on a proposed capital restructure, with plans for a vote on a finalised proposal in early 2015. Murray Goulburn hopes to raise \$500 million in equity capital over the next three to five years to fulfil its investment plans. In May 2014, Murray Goulburn stated 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’ (2014d, p. 3).

The capital structure proposed by Murray Goulburn is similar to that implemented by New Zealand cooperative Fonterra in 2012: it would result in the creation of publicly listed units (distinct from the shares held by farmer-members) with the holders of the units receiving the same dividend as members, but without voting rights. Additionally, Murray Goulburn would require that its suppliers hold a minimum of one share for each kilogram of milksolids they supply (as Fonterra requires of its New Zealand suppliers), although they would be able to build up to this level over time through deductions from milk payments of at least 0.65 cents per litre.

Murray Goulburn’s proposed restructure would not alter supplier control of the cooperative. In contrast to Fonterra, Murray Goulburn has indicated that its primary goal will continue to be to maximise the farmgate milk price paid to farmers, and that it will not adopt a Fonterra-style milk price formula (chapter 5). Further, Murray Goulburn intends to give existing cooperative members the opportunity to purchase additional shares at the market price, prior to the listing of any units on the Australian Securities Exchange, to reduce the quantity of external equity required by the cooperative.

*Sources:* Fonterra (nd); Murray Goulburn (2014d).

Foreign-owned corporations and cooperatives have a strong presence in the Australian dairy product manufacturing industry, for example:

- Fonterra is a New Zealand-based cooperative
- Parmalat is a subsidiary of French company Lactalis
- Lion is a subsidiary of Japanese company Kirin
- Warrnambool Cheese and Butter is controlled by Canadian company Saputo (with an 88 per cent share); a further 10 per cent is owned by Lion.

In terms of turnover, Fonterra, Lactalis and Saputo were among the largest ten dairy manufacturing firms worldwide in 2012 (IFCN 2012).

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## Investment in manufacturing capacity is ongoing

A number of the major dairy manufacturers in Australia have recently announced significant new investments in dairy manufacturing facilities (box 2.5). Some of this activity reflects new private label drinking milk contracts between supermarkets and manufacturers (box 2.6, table 2.2).

### **Box 2.5      Some recently announced investments in Australian dairy product manufacturing**

#### *Fonterra*

- In April 2014, Fonterra announced a \$30 million investment in a milk processing plant at Cobden in Victoria, to fulfil a 10-year contract to supply Woolworth's private label drinking milk in Victoria.

#### *Lion*

- In June 2012, Lion announced a \$140 million investment to expand production at its cheese plant at Burnie in Tasmania.
- In November 2012, Lion announced a \$50 million investment to double the capacity of its dairy product plant at Morwell in Victoria.

#### *Murray Goulburn*

- In August 2012, Murray Goulburn announced a \$200 million investment program to expand capabilities in UHT processing, butter and cheese production to capitalise on export opportunities in Asia and the Middle East.
- In April 2013, Murray Goulburn announced a \$120 million investment in two new milk processing plants, in Sydney and Melbourne, to fulfil a 10-year contract supplying Coles' private label drinking milk in New South Wales and Victoria.

*Sources:* Dairy Australia (2013b); Fonterra (2014b); Preece (2012).

## Box 2.6 Private label drinking milk contracts

Supermarkets typically contract with manufacturers to supply their private label dairy products, including drinking milk. Recently, there has been a trend towards longer-term drinking milk supply contracts:

- In July 2014, Coles commenced a 10-year contract with Murray Goulburn (to supply Coles stores in Victoria and southern New South Wales) and a 5-year contract with Norco (to supply Coles stores in southern Queensland and northern New South Wales).
- In July 2014, Woolworths commenced a 10-year contract with Parmalat (to supply Woolworths stores in Queensland) and a 7-and-a-half-year contract with Brownes (to supply Woolworths stores in Western Australia).
- In February 2015, Woolworths will commence a 10-year contract with Fonterra (to supply Woolworths stores in Victoria).

Coles has dedicated considerable marketing effort to raising customer awareness of its contracts with Murray Goulburn and Norco (both farmer-owned cooperatives), reflecting the growing consumer interest in food provenance (section 2.3). As part of the Murray Goulburn deal, Coles will also stock Murray Goulburn's Devondale brand drinking milk in its stores in Queensland, New South Wales and Victoria.

Sources: Coles (nd); Dairy Australia (2013b); Langley (2014); Norco (2014b).

Table 2.2 Major private label drinking milk contracts, July 2014

	Woolworths	Coles
Northern Queensland	Parmalat	Lion
Southern Queensland	Parmalat	Norco
Northern New South Wales	Parmalat	Norco
Southern New South Wales	Parmalat	Murray Goulburn
Victoria	Lion (Fonterra from Feb 2015)	Murray Goulburn
South Australia	Lion	Parmalat
Western Australia	Brownes	Harvey Fresh (owned by Parmalat)
Tasmania	Lion	Lion
Northern Territory	Lion	Parmalat

Sources: Coles (nd); Dairy Australia (2013b); Langley (2014).

## 2.2 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 2013a), yielding 9.2 billion litres of raw milk (with a farmgate value of production of about \$3.7 billion) (ABARES 2013).

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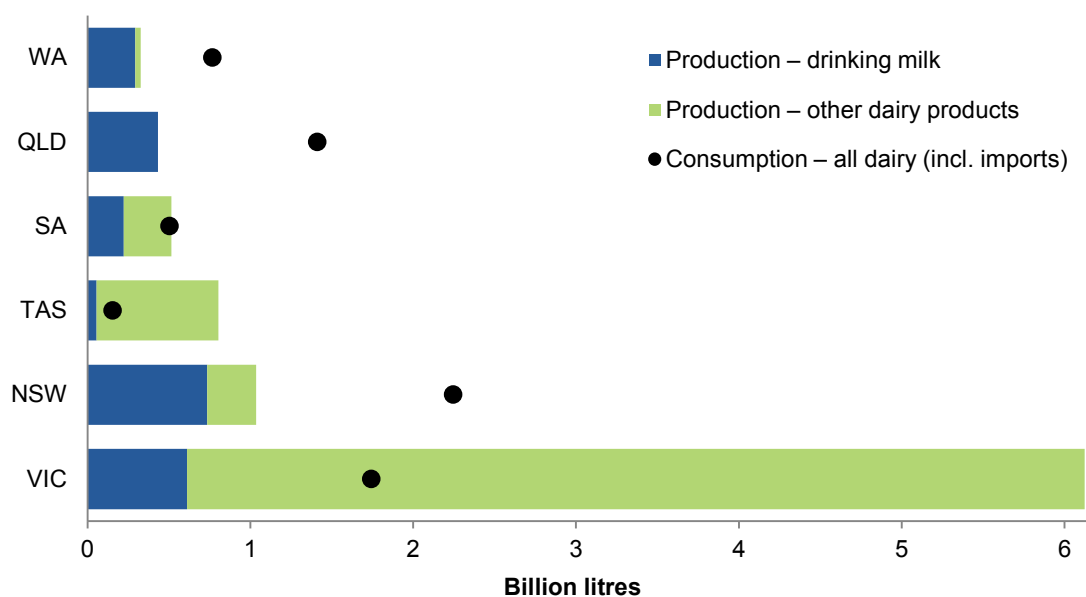
## Production systems vary between regions

Raw milk production occurs in all states, but is concentrated in south eastern Australia, and principally Victoria (figure 2.5). 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.

To produce milk, a cow must have delivered a calf. The most common production systems in the Australian dairy industry is ‘seasonal production’, whereby calving occurs and milk production peaks during spring, when pasture is most available. 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 2.5).

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**Figure 2.5 Production and consumption of dairy goods, by state<sup>a</sup>**  
Milk equivalent terms, 2013-14



<sup>a</sup> Production estimates assume all raw milk is used for manufacture in the state in which it is produced. Consumption estimates assume dairy consumption is 301 litres per capita (milk equivalent) in all states.

Source: Commission estimates based on ABS (2014a); Dairy Australia (pers. comm., 2 September 2014).

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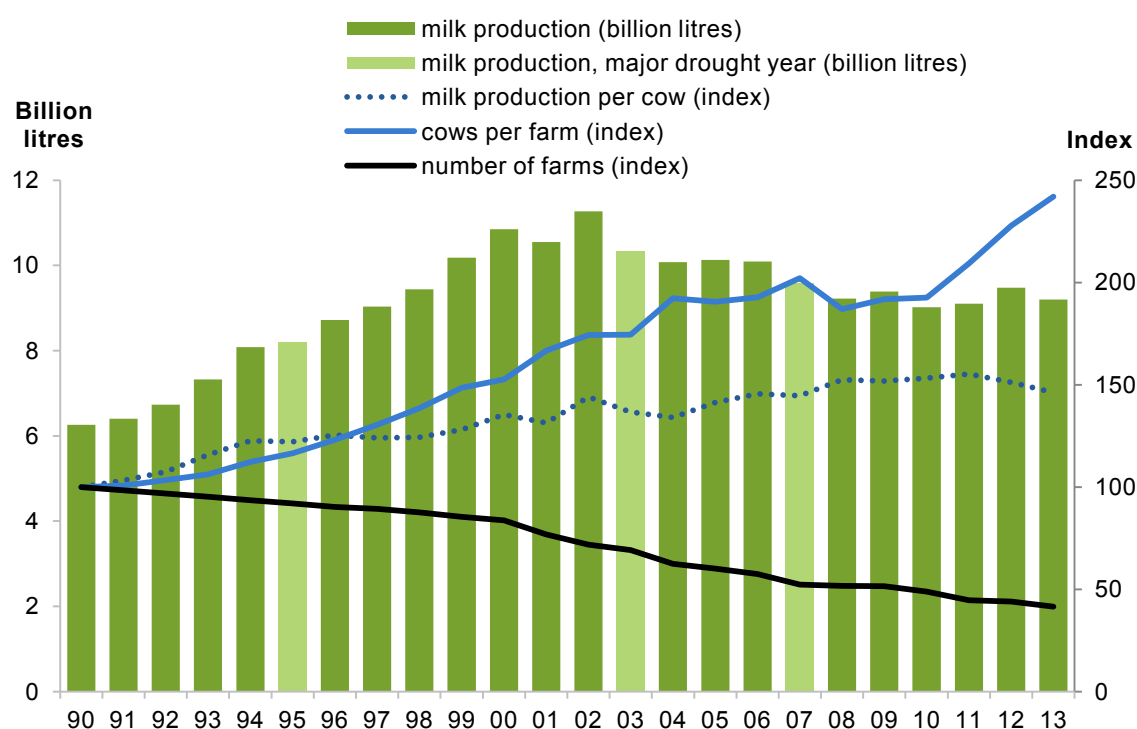
The alternative (but less common) production system in Australia is ‘year-round production’, where calving is distributed throughout the year to achieve more stability in raw milk volumes. Purchased feed requirements tend to be higher for year-round production systems, imposing additional costs on dairy farmers (all else equal). However manufacturers may be willing to pay a higher farmgate price for this milk if the benefits (in terms of meeting domestic demand for fresh dairy products year-round, or achieving better rates of asset utilisation) outweigh the associated costs. Year-round raw milk production is most prevalent in New South Wales, Queensland and Western Australia, where the

majority of raw milk is used to produce fresh drinking milk for the domestic market (figure 2.5) (Dairy Australia 2013; PwC 2011). Chapter 4 provides a more detailed discussion of on-farm production decisions.

## Raw milk production has fallen in recent years ...

Raw milk production in Australia increased dramatically through the 1990s until the early 2000s (around the time of deregulation — box 2.7), and reached a historic peak of 11.3 billion litres in 2001-02 (figure 2.6). Raw milk output declined after this time, reflecting the adjustment pressures associated with industry deregulation, and major droughts in 2002-03 and 2006-07. In 2013-14, Australia produced 9.2 billion litres, 18 per cent below the 2001-02 peak (Dairy Australia, pers. comm., 2 September 2014). (Chapter 4 examines trends in Australia's raw milk supply in more detail.)

**Figure 2.6 Australian raw milk production vs indices of milk production per cow, cows per farm, and number of farms**  
1989-90 to 2012-13 (for indices, 1989-90=100)



Sources: Commission estimates based on ABARES (2013); Dairy Australia (2007, 2013a); PC (2009).



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### **... but dairy farms are larger and more productive**

There has been a long-term trend towards fewer, but larger and more productive, dairy farms in Australia (figure 2.6). Between 1989-90 and 2012-13:

- the number of dairy farms decreased from 15 400 to 6400 (Dairy Australia 2013a)
- the average number of cows per farm increased from 110 to 267 (ABARES 2013)
- average annual milk production per cow increased from 3700 litres to 5400 litres (ABARES 2013).

The largest 1000 dairy farms — representing 16 per cent of dairy farms by number — now account for about half of Australia's raw milk production (Dairy Australia, pers. comm., 10 September 2014).

A number of Australian studies have found that larger dairy farms tend to be more efficient (where farm size is defined either in terms of area farmed (Kompas and Che 2006) or herd size (DPI 2011)). However, some participants suggested that farm productivity peaks at 700–800 cows. There are a number of reasons why larger farms may perform better than smaller farms, including that larger farms have:

- a greater ability to spread fixed costs (such as the cost of farm machinery) over a greater quantity of production, reducing costs per unit
- more bargaining power in the purchase of inputs
- benefits in marketing, such as greater ability to establish strategic relationships and enter into long-term supply arrangements with customers
- greater separation of labour and management roles, resulting in enhanced specialisation
- superior ability to shift resources and adopt improved production technologies (Hooper et al. 2002; Sheng, Zhao and Nossal 2011).

Owner-operated dairy farms continue to predominate in Australia, although farms operate under a range of structures. In 2012-13, 79 per cent of Australian dairy farms were owner-operated, 18 per cent were sharefarmed (sharefarmers farm land they do not own in return for some percentage of the profits) and 3 per cent were corporate farms (owned by shareholders, with management of the company carried out through a board of directors) (Dairy Australia 2013a).

The average age of dairy farmers has been increasing: up from 48 in 1990 to 53 in 2014 — by contrast, the average age of all Australian farmers was 55 in 2008 (Dairy Australia, pers. comm., 2 September 2014; Hicks et al. 2012; Lane 2010). While some in the dairy industry have responded by actively trying to encourage young farmer entry — for example, Murray Goulburn's Herd Start program provides young dairy farmers with access to credit to build their dairy herd — others have downplayed the significance of rising farmer age, suggesting it is the natural result of an ageing population and farm inheritance practices in which children do not inherit the farm until the farmer retires.

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## **Box 2.7      Deregulation of the Australian dairy industry**

Prior to 1 July 2000, the Australian and state governments regulated the pricing and supply of milk in Australia. A key element of the regulatory structure was the distinction drawn between raw milk used to make drinking milk ('market milk') and raw milk used to make other dairy products ('manufacturing milk').

### **Regulation of the Australian dairy industry**

In each state, market milk was purchased from dairy farmers at prices determined by state governments. The interstate milk trade was restricted, allowing for different prices between states. State governments licensed dairy farms and regulated production levels and milk quality. Market milk prices were set higher than manufacturing milk prices, leading to the creation of systems in each state which rationed the access of farmers to the market, to prevent excess supply of milk. These regulations limited the ability of farmers to choose who could purchase their milk: in all states except Queensland and South Australia, ownership of milk was passed to the state's statutory marketing authority.

The Australian Government regulated the manufacturing milk sector, using a range of policies to support domestic prices, restrict imports and subsidise exports. Particularly significant 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.

### **Gradual deregulation**

From the 1980s, the Australian Government began to gradually dismantle its dairy industry regulations. 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 deregulate. The other states followed. Since 1 July 2000, Australian milk prices have primarily been set by market forces, not government regulations (notwithstanding an 11c per litre levy imposed on the retail sale of drinking milk between 2000 and 2009, to fund the Dairy Structural Adjustment Program).

### **Reduction in assistance to the dairy farming industry**

The Commission has estimated that the effective rate of assistance to dairy farming has fallen from more than 50 per cent prior to 2000 to 2.1 per cent in 2012-13. (The effective rate of assistance measures the total net assistance provided to an industry — including budgetary, tariff and agricultural pricing assistance — in proportion to its (unassisted) value added.) This fall reflects the removal of pricing assistance, the cessation of payments under the Dairy Structural Adjustment Program, and a decline in exceptional circumstances drought payments. The present level of assistance to dairy farming is comparable to the level of assistance provided to the primary production sector as a whole (which was 2.6 per cent in 2012-13).

*Sources:* ABS (2004); ACCC (2001); DAFF (2012); Edwards (2003); PC (2001, 2014).

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## **The market for raw milk is competitive**

Raw milk is purchased from farmers by dairy product manufacturers or by milk brokers, who then on-sell milk to manufacturing companies. Since deregulation the market for raw

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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)

## Raw milk supply agreements

Raw milk supply agreements between manufacturers and farmers can vary considerably. Most agreements include a ‘base price’ (quoted in dollars per kilogram of milksolids), which is the base payment for all milk supplied through the season (corresponding to the financial year). The large manufacturers tend to operate ‘step-up’ supply agreements, where during the season manufacturers may announce step-ups in the base price which apply to all milk supplied that season, including retrospectively to milk already collected (Phillips 2013). Supply agreements typically contain a number of additional incentives (and penalties), including:

- seasonal/off-peak incentives — price premiums may be paid for raw milk delivered ‘out of season’, where manufacturers determine that the benefits justify the additional costs (chapter 4 considers the relationship between seasonality and manufacturing costs in more detail)
- tier 2 pricing — a price significantly below the (tier 1) base price, paid for raw milk that is surplus to the manufacturer’s required volume. Tier 2 pricing is mainly used in markets such as Queensland, where the majority of raw milk is used to produce fresh drinking milk for the domestic market, and there are limited options for using surplus milk
- quality adjustments — price premiums or deductions depending on the quality of the milk supplied
- charges levied for raw milk collection, typically based on the volume collected
- ‘new milk’ payments to encourage expansion of raw milk supply
- farmer loyalty bonuses, often paid upon contract renewal, to discourage ‘switching’ activity (discussed below)
- non-pecuniary incentives, such as on-farm energy audits, herd testing or assistance with accessing capital.

While there can be significant variation in payment systems between manufacturers (and many manufacturers offer multiple payment options), the raw milk price offered by Murray Goulburn tends to guide the prices offered by other manufacturers:

All other processors use the [Murray Goulburn] milk payment system and annual base price as a benchmark for their own offer to farmers. (Dairy Australia 2013c, p. 24)

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Both Murray Goulburn and Fonterra have sought to simplify their payment systems in recent years in response to farmer-supplier concerns about the complexity of these arrangements (Murray Goulburn 2014c; Smith 2014).

While manufacturers often make public offers to secure raw milk supply, farmers are also able to negotiate private contracts with manufacturers. Negotiations between farmers and manufacturers can be facilitated by cooperatives or collective bargaining groups (box 2.8), or occur on an individual basis. Farmer Power noted that some supply agreements include confidentiality provisions that restrict farmers' ability to share information (sub. IR9).

### **Box 2.8      Collective bargaining by dairy farmers**

In 2002, the Australian Competition and Consumer Commission (ACCC) granted authorisation to farmers wishing to bargain collectively with manufacturers in negotiating the sale of raw milk. In 2011, the ACCC extended authorisation for a further 10 years, remarking:

... 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)

There are currently 19 dairy farmer collective bargaining groups in Australia. Australian Dairy Farmers have stated that:

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

Dairy companies are able to choose whether or not to negotiate with collective bargaining groups.

*Sources:* ACCC (2011); ADF (2014b); Department of Agriculture (sub. 7).

## **Switching**

A number of participants considered that the ability of Australian dairy farmers to 'switch' manufacturing companies is important and underpins the competitive nature of the raw milk market.

That said, Australian Dairy Farmers estimated that less than 3 per cent of dairy farmers switch manufacturers each year (2014b, p. 4). Possible reasons for low switching rates include:

- manufacturers offering competitive prices (and terms and conditions of supply) such that farmer-suppliers have no reason to switch
- incentives provided by some manufacturers for 'farmer loyalty' that increase the costs of switching (Farmer Power, sub. IR9)
- historical ties between farmer suppliers and manufacturers
- administrative costs borne by farmers

- 
- in some cases, switching ability may be restricted by the number of manufacturers operating in a region, and/or the capacity of the manufacturing facilities. The Queensland Dairyfarmers' Organisation considered that Queensland dairy farmers' ability to switch is limited as only two significant manufacturers operate in that state (2014, p. 10).

Low switching rates notwithstanding, the Commission agrees that the ability of dairy farmers to switch manufacturing companies, while more limited in some regions than others, imposes an important competitive counterbalance to the raw milk prices (and other aspects of supply agreements) offered by manufacturers.

## **2.3 Domestic and export markets**

Dairy products manufactured in Australia are sold in a range of domestic and export markets. In 2013-14, about 60 per cent of Australia's dairy output (in milk equivalent terms) was sold domestically, including the vast majority of domestically produced drinking milk (Dairy Australia, pers. comm., 2 September 2014).

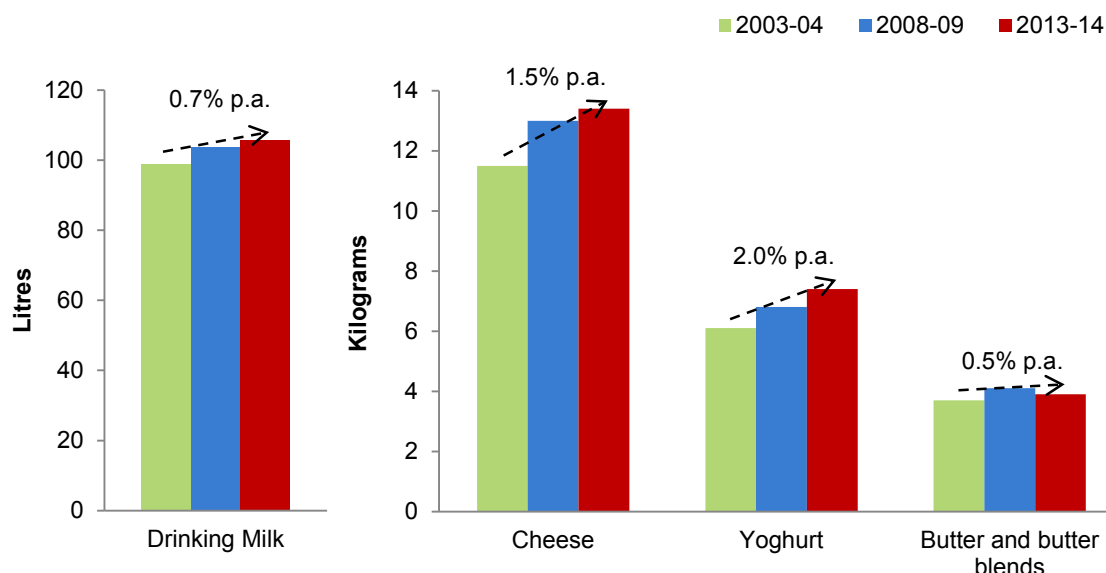
### **Australians are consuming more dairy**

Total Australian dairy consumption (including imports) has increased consistently over time, as per capita consumption has risen — by 10 per cent between 2000 and 2014 in milk equivalent terms — and Australia's population has increased (Dairy Australia 2013a; pers. comm., 2 September 2014). Some product categories, such as cheese and yoghurt, have grown particularly strongly in recent years (in per capita consumption terms) (figure 2.7).

One key trend driving changing dairy consumption is an increased health-consciousness among consumers (Dairy Australia 2013b). Between 2000 and 2014, the share of low fat varieties in fresh white milk sales in Australia increased from 31 per cent to 40 per cent (Dairy Australia, pers. comm., 2 September 2014).

Another key trend, facilitated by innovations in the packaging of dairy products, is towards more convenient products. For example, supermarket sales show a steady trend towards sliced cheese in preference to block cheese, while increased yoghurt consumption has been driven by convenience and healthy snacking (Dairy Australia 2013b).

**Figure 2.7 Australian annual per capita consumption (and growth) of key dairy products<sup>a</sup>**



<sup>a</sup> Growth rates are compound annual growth rates between 2003-04 and 2013-14.

Sources: ABARES (2013); Dairy Australia (2007).

There is an emerging interest among Australian consumers in their food's provenance, and a growing preference for food that has been produced locally (Dairy Australia 2013b). Parts of the dairy industry are already capitalising on these trends, including through 'direct source' contracts between supermarkets and farmers (box 2.9).

### Box 2.9 Drinking milk 'direct from the farmer'

In October 2013, Woolworths began selling 'Farmer's Own' milk sourced from Manning Valley dairy farmers in eight stores in the region. The range includes full cream unhomogenised milk with the cream on top, marketed as 'just the way the farmers like it' (Woolworths nd, p. 1). The brand is now stocked in 105 Woolworths stores across New South Wales.

Since October 2013, the South Australian Dairyfarmers' Association (SADA) has sold its own branded milk, 'SADA Fresh', in Coles supermarkets across South Australia. SADA Fresh is owned by farmers, and the milk is packaged and processed under contract by Parmalat. Forty cents from the sale of every 2 litre bottle goes to a fund, the aim of which is to 'finance projects that directly benefit [South Australia's] dairy farmers and ensure the industry's viability' (Lawson 2014, p. 1).

Sources: ADF (2013); Lawson (2014); Woolworths (nd, nd).

Supermarket chains account for the majority of domestic sales of all dairy products (Dairy Australia 2013a). In recent years, supermarkets' expanded use of private label lines has led to a significant number of consumers switching away from higher-margin branded

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products in the drinking milk, cheese and butter markets (Dairy Australia 2013b). The impact on the drinking milk market has been particularly profound. Since January 2011, private label milk has consistently been priced at \$1 per litre (for 2 and 3 litre bottles) by the major supermarket chains. This has led to a fall in the total value of milk retail sales, despite a rise in per capita consumption of 2.4 per cent between 2010-11 and 2012-13 (Dairy Australia 2013a, 2013b).

Outside supermarkets, the most important domestic sales routes for Australian-manufactured dairy products are:

- drinking milk (including flavoured milk) sales through convenience retailers
- drinking milk sales to cafes
- cheese sales to fast food restaurants
- butter and cream sales to food service establishments (Dairy Australia 2013b).

## **Australia imports a range of dairy products**

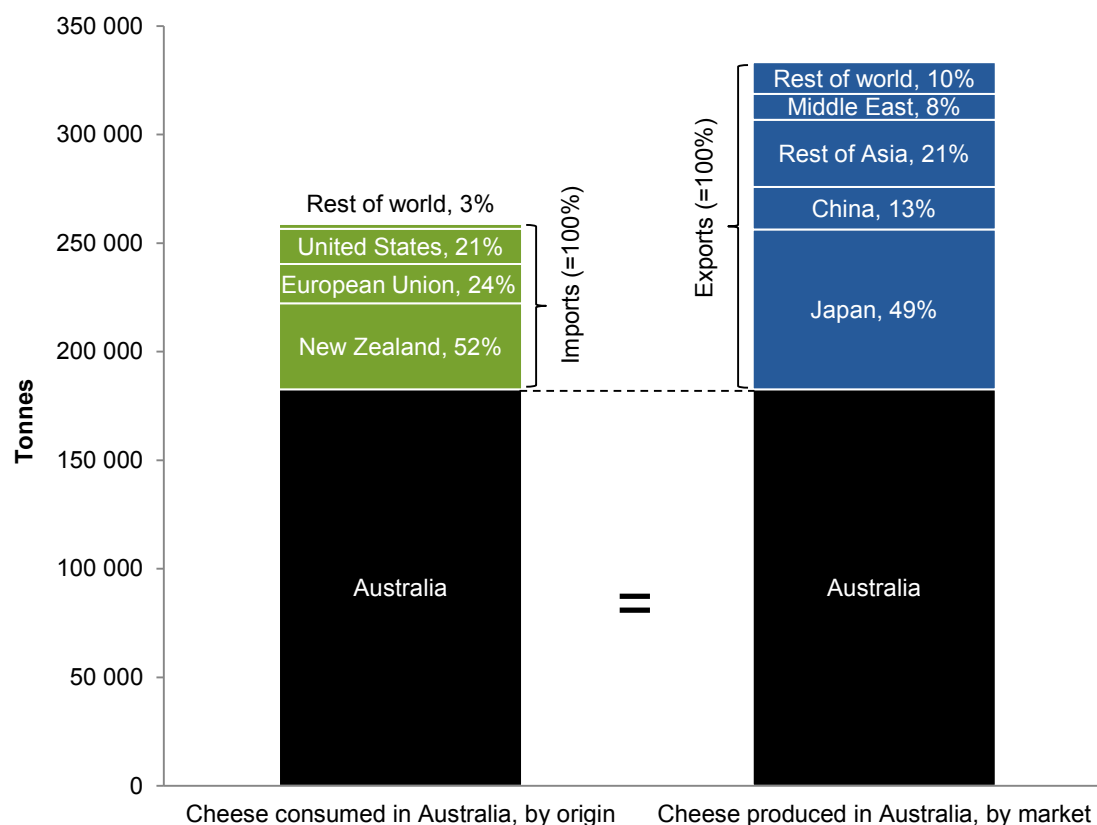
In 2012-13, Australia's most significant dairy imports were cheese (74 000 tonnes, equal to 24 per cent of domestic cheese consumption), milk powders (19 000 tonnes, 20 per cent), and butter and butter oil (18 000 tonnes, 20 per cent) (Dairy Australia 2013a). In the same year, Australia imported smaller quantities of a large variety of other dairy products, including whey products and ice cream. By weight, a little over half of Australia's total dairy imports came from New Zealand (Dairy Australia 2013a).

Australia's cheese imports come mostly from New Zealand, the European Union and the United States (figure 2.7). Most of the cheese imported from New Zealand and the United States is cheddar, while cheese imported from the European Union is mostly specialty cheeses such as parmesan and feta.

Restrictions on dairy imports are generally low, however import restrictions remain on some products. For example, there is a 4 per cent tariff on imports of dairy spreads, including butter and butter blends (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).

Food Standards Australia New Zealand (FSANZ) has indicated that food standards for raw milk cheese have led to an 'unlevel playing field' between foreign and domestic cheese makers. Specifically, 'several imported raw milk cheeses had previously been assessed by FSANZ and permitted in the [Food Standards] Code ... [though] domestic production of such cheese was not permitted' (FSANZ 2014, pp. 18–19). In 2014, FSANZ proposed changes to food standards that would allow for the safe production of some raw milk cheese domestically.

**Figure 2.8 Cheese consumption and production in Australia<sup>a</sup>**  
2013-14



<sup>a</sup> Figure assumes no changes in inventories, and that no imported cheese is re-exported.

Source: Commission estimates based on Dairy Australia (pers. comm., 2 September 2014).

## Australia's dairy exports are chiefly to Asia

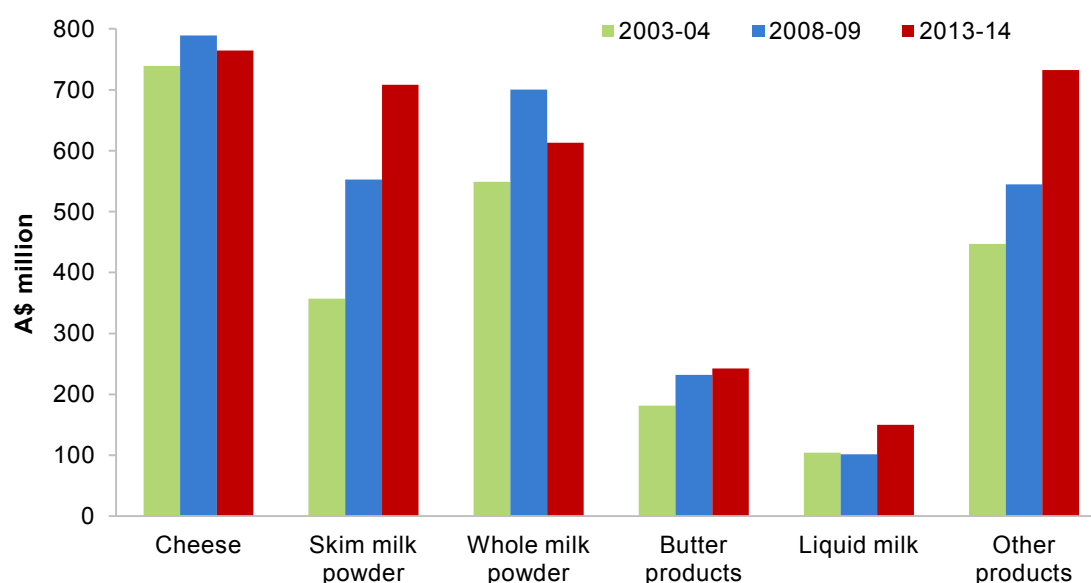
About 40 per cent of Australia's dairy output (in milk equivalent terms) was exported in 2013-14, earning \$3.2 billion (Dairy Australia, pers. comm., 2 September 2014). Dairy exports accounted for about 6 per cent of Australia's total agricultural exports in 2012-13, down from about 10 per cent in 2007-08 (ABARES 2013).

Although Australia is a small dairy producer by world standards, Australian dairy exports accounted for about 7 per cent of international dairy trade in 2012 (in milk equivalent terms), making Australia the fourth-largest dairy exporter in the world behind New Zealand, the European Union and the United States (Dairy Australia 2013a). Australia's share of global dairy exports has declined over the last decade (down from 15 per cent in 2002 (ADIC and Dairy Australia 2013)), due to factors mostly outside government or manufacturer control, such as drought, the removal of incentives for over-production, dairy farmer demography, strong domestic demand for dairy products and the appreciation of the Australian dollar.



Cheese and milk powders have been Australia's key dairy product exports over the last decade (figure 2.9). However within these product categories there have been some noteworthy compositional shifts. For example, there has been a long-term trend away from cheddar cheese exports and towards exports of other styles of cheese (Dairy Australia 2013a).

**Figure 2.9 Value of Australian dairy exports by product<sup>a</sup>**



<sup>a</sup> Whole milk powder includes infant formula.

Source: Commission estimates based on Dairy Australia (pers. comm., 2 September 2014).

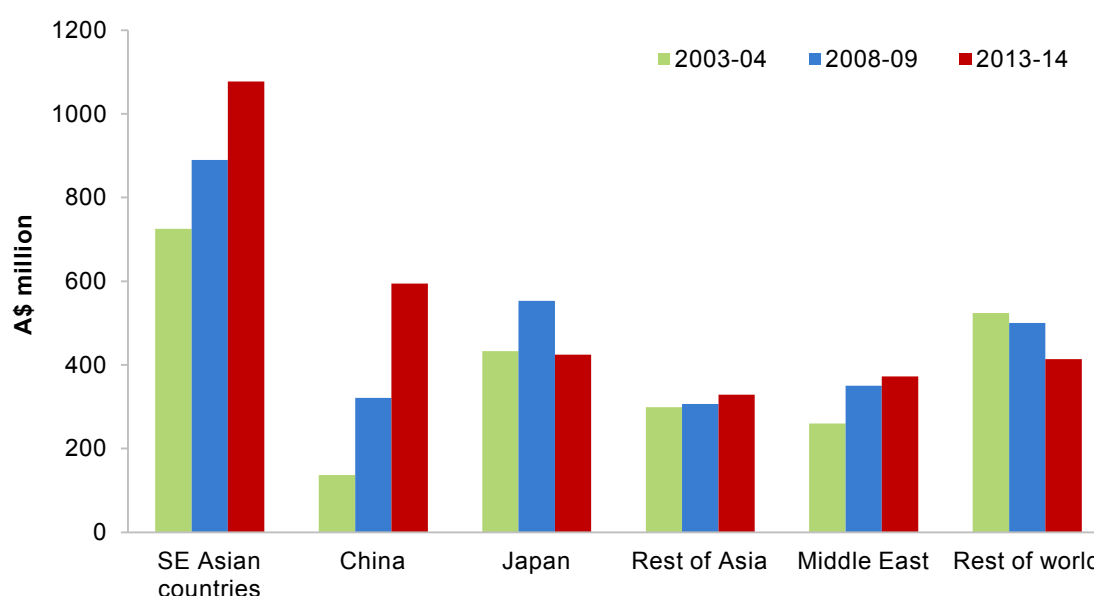
In 2013-14, more than three quarters of Australia's dairy exports were to Asia, with China and Japan the largest markets (figure 2.10).

China is Australia's largest, and fastest growing, dairy export market — accounting for 19 per cent of dairy exports (by value) in 2013-14 (Dairy Australia, pers. comm., 2 September 2014). Australian dairy exports to China have more than doubled since the 2008 melamine contamination crisis (box 2.10). However in the short run, growth in China's dairy imports is likely to be slower, following a buildup of milk powder inventories in 2013 (Beckford and Wong 2014). The dairy cooperative Norco recently began exporting fresh milk to China, signalling a possible avenue for further growth in dairy exports (box 2.11).

Japan is Australia's second largest dairy export market, accounting for 13 per cent of dairy exports (by value) in 2013-14 (Dairy Australia, pers. comm., 2 September 2014). It is primarily a market for Australian cheese exports: 45 per cent of Australia's cheese production in 2013-14 was exported, and half of this went to Japan (figure 2.8), primarily bulk cheese for use by Japanese food manufacturers. Japan has relatively high import

barriers on dairy: tariff charges on Australian dairy exports to Japan equated to 22 per cent of their value in 2011-12 (ADIC and Dairy Australia 2013). The Australian Dairy Industry Council has criticized the Japan–Australia Economic Partnership Agreement announced in April 2014 as making ‘minimal progress ... in reducing a range of trade barriers’ (ADF 2014a, p. 1).

Figure 2.10 Value of Australian dairy exports by destination<sup>a</sup>



<sup>a</sup> China includes Hong Kong and Macau.

Source: Commission estimates based on Dairy Australia (pers. comm., 2 September 2014).

### Box 2.10 2008 Chinese melamine crisis

In 2008, at least six infants died, and a further 300 000 were taken ill, after consuming melamine-tainted milk powder products (including infant formula) manufactured in China. Milk had been adulterated with melamine to make it appear to have a higher protein content.

The crisis caused Chinese dairy consumption to fall by 30–40 per cent in the second half of 2008, and consumption did not recover to pre-crisis levels until 2010. However, Chinese dairy imports boomed in the wake of the crisis, almost doubling (in volume terms) between 2008 and 2012, as consumers substituted towards foreign dairy products perceived as safer. Over the same period, the share of imports in the Chinese dairy product market grew from 5 per cent to 15 per cent.

Sources: ADIC and Dairy Australia (2013); Branigan (2008); Rabobank (2013).

Outside China and Japan, other key dairy export markets in 2013-14 were South East Asian countries — including Singapore (9 per cent by value), Malaysia (7 per cent),

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Indonesia (7 per cent) and Thailand (6 per cent) — and the Middle East (12 per cent) (Dairy Australia, pers. comm., 2 September 2014).

#### **Box 2.11 Norco exporting fresh milk to China by air**

In May 2014, dairy cooperative Norco began exporting commercial quantities of fresh milk to China by air. By September 2014, Norco was delivering 30 000 litres a week, set to increase to 80 000 litres a week under a new distribution agreement. Norco has indicated that deliveries could grow to 20 million litres a year.

Previously, fresh milk exports had been deterred by lengthy testing and quarantine procedures, resulting in an export lead time of 14 to 21 days. This is longer than the standard shelf life of fresh milk. Norco's partner, export consultancy PGS, negotiated changes to import clearance procedures such that Norco can now get milk from the farm in Australia to the supermarket shelf in China in eight days.

As at September 2014, one litre of Norco's fresh milk was retailing for about A\$9 in China, while one litre of Chinese milk retails for about A\$2. Following Norco's success, other Australian dairy companies have been exploring fresh milk exports to China.

*Sources:* Dairy Connect, Norco and PGS (2014); Grigg and Murray (2014); Lynch (2014b); Tay (2014).

### **Outlook for Australia's dairy exports**

Rabobank (2010, 2012) expects strong dairy consumption growth in the developing world in the medium term — driven by population growth, urbanisation, higher incomes and westernisation of diets — including in key export markets for Australia such as China, South East Asia, and the Middle East. Long-term expectations are similarly optimistic: the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) forecasts that global demand for dairy products will grow faster than any other agrifood category to 2050, driven by demand growth in India (Lineham et al. 2012). The real value of Australia's dairy exports is forecast to increase substantially over this period as a result.

### **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 2.12) — are strongly influenced by international prices. This is particularly true for dairy products that are heavily traded: less perishable products such as milk powder and cheese.

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### Box 2.12      **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 added, other intermediate inputs and transport costs. Hence, 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 approximately 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. Dairy Australia noted:

... 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. (2013a, p. 7)

Source: Dairy Australia (2013a).

Australian dairy manufacturers will 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, will ensure that Australian customers generally do not pay more than the world price (notwithstanding there will be some divergence in prices due to transport costs). The Australian Dairy Industry Council 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. (2011, p. 2)

The properties of more perishable dairy products (such as fresh drinking milk and cream) make it costly to transport over long distances, meaning Australia does little international trade in these products. Accordingly, domestic prices for these products are determined by domestic supply and 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 (box 2.12), the supply (and price) of less-traded dairy products in Australia is influenced by world prices *through the raw milk price*.

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

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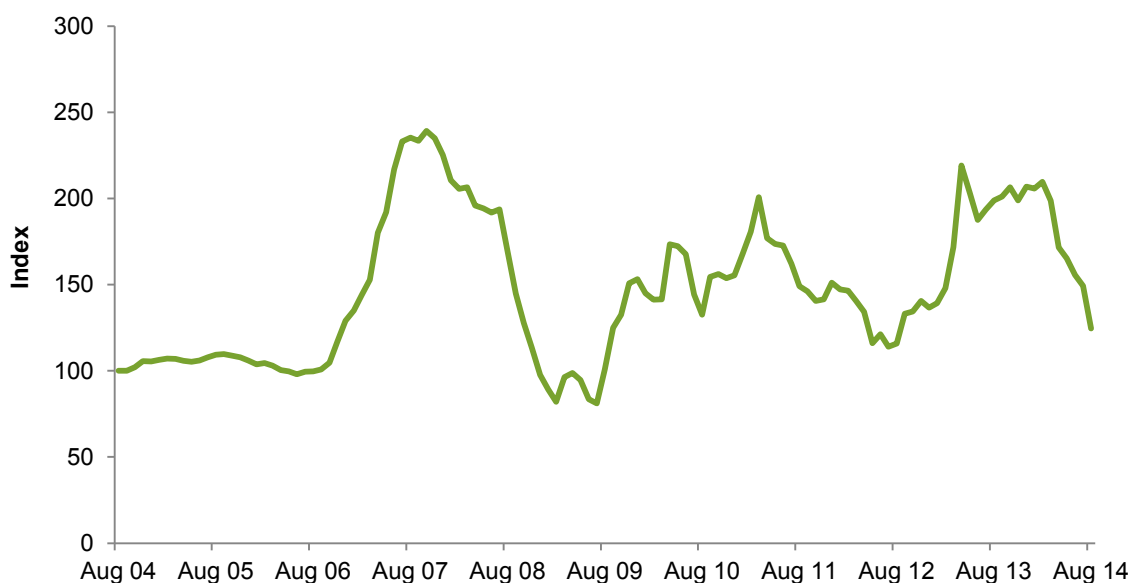
## Prices of traded dairy products are volatile

Over the last decade, there has been significant volatility in prices of traded dairy products, including milk powders and butter products (figure 2.11). This volatility occurs because only a relatively small share of world dairy production is traded — about 5 per cent in milk equivalent terms (USDA 2012) — and small changes in production or consumption of dairy products in the major dairying countries can lead to significant movements in world dairy product prices (ABARES 2010).

In the six months to August 2014, prices for traded dairy products fell by 40 per cent (figure 2.11). This has been driven by a significant reduction in Chinese demand for milk powder, following a buildup of inventories in the second half of 2013 (Beckford and Wong 2014).

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**Figure 2.11 Global Dairy Trade price index<sup>a</sup>**  
2004 – 2014 (August 2004=100)



<sup>a</sup> The Global Dairy Trade (GDT) price index is a weighted-average price index of all products traded on the GDT platform at a particular date. As at August 2014, the index included butter oil, butter, butter milk powder, cheddar cheese, rennet casein, skim milk powder and whole milk powder. Prior to April 2010, the index has been constructed using data from other sources, and includes butter oil, skim milk powder and whole milk powder.

Source: Global Dairy Trade (2014).

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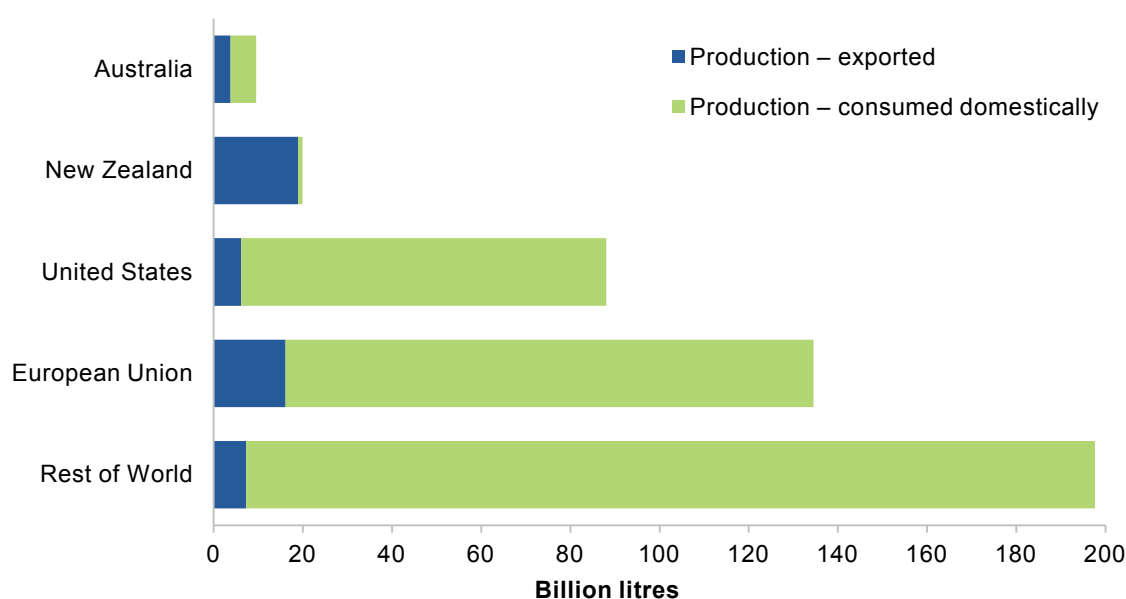
## 2.4 Key dairy producing countries

The Commission has been asked to compare dairy manufacturing cost structures in Australia with those in other significant dairy manufacturing nations. The Commission has

primarily focused on New Zealand and the United States (both significant dairy exporters and competitors — figure 2.12), and the United Kingdom (which has a domestically focused dairy industry, of a similar size to Australia's). As discussed below, each of these countries uses raw milk in different ways and is subject to a different policy environment.

**Figure 2.12 Major dairy exporters' production and exports, 2012<sup>a</sup>**

Milk equivalent terms



<sup>a</sup> Includes dairy made from cows' milk only.

Sources: Commission estimates based on CIAT (nd); Dairy Australia (2013a); DCANZ (2014); US Dairy Export Council (2013); USDA (2012, 2014a).

## New Zealand

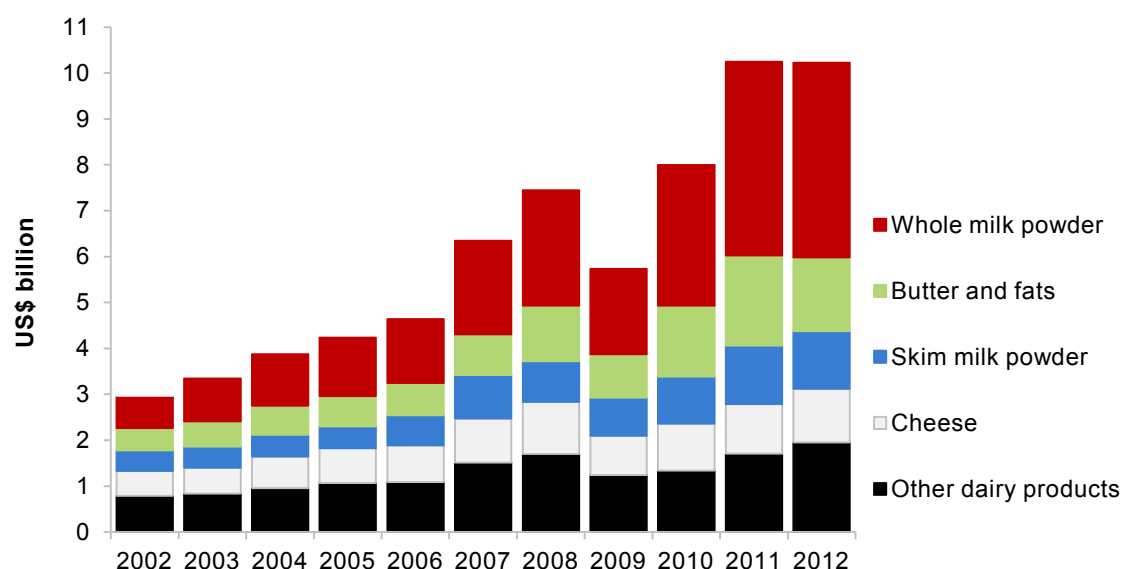
In 2012, New Zealand dairy output was worth more than A\$10 billion, and dairy exports accounted for 26 per cent of New Zealand's total export value (Coriolis 2014; Statistics New Zealand 2013b).

New Zealand is the world's largest exporter of dairy products, accounting for 37 per cent of global exports in 2012, despite producing less than 5 per cent of global dairy output (about 20 billion litres of raw milk) (figure 2.12). In milk equivalent terms, about 95 per cent of New Zealand's dairy production is exported (DCANZ 2014).

New Zealand's dairy exports are predominantly whole milk powder (41 per cent of total exports in 2012), butter and fats, skim milk powder and cheese (Coriolis 2014). Its most important export market is China, which accounted for just under a quarter of New Zealand exports in 2012 (Statistics New Zealand 2013a). Recent growth in New Zealand

dairy exports has been dramatic, growing from US\$3.0 billion in 2002 to US\$10.2 billion in 2012 (figure 2.13).

Figure 2.13 **New Zealand dairy product exports, 2002–2012**



Source: Coriolis (2014).

The bulk of dairy manufacturing in New Zealand is undertaken by Fonterra. 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 raw milk intake) (IFCN 2012). It was formed in 2001 by a merger between the New Zealand Dairy Board, and New Zealand's then two largest dairy cooperatives (New Zealand Cooperative Dairy Company and Kiwi Cooperative Dairies). The New Zealand Parliament passed the *Dairy Industry Restructuring Act 2001* to obviate competition laws so that the merger could occur. The Act contained reforms designed to promote domestic competition (chapter 5).

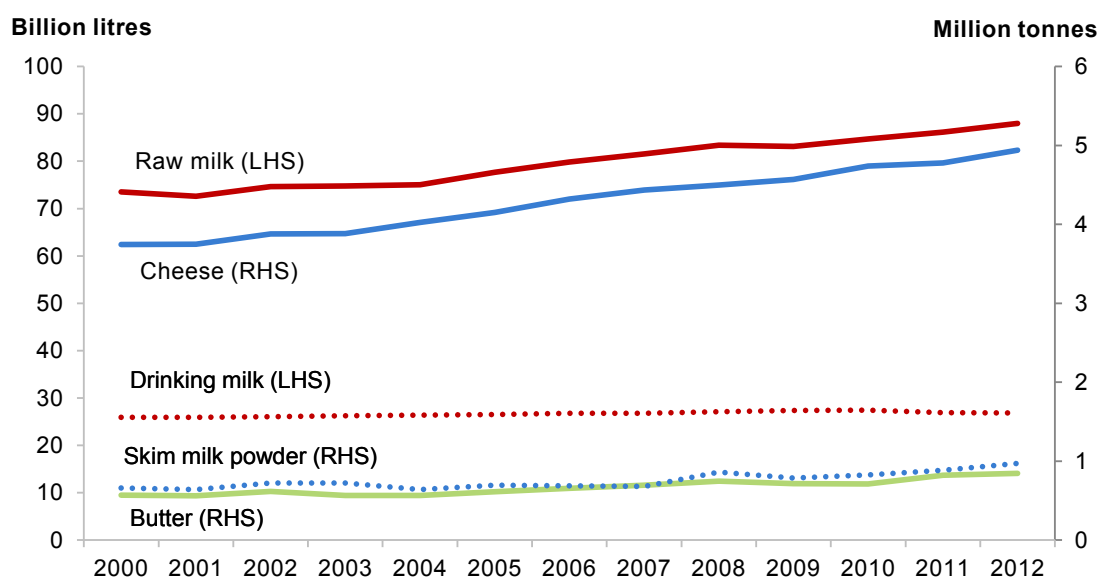
Other dairy manufacturers in New Zealand include Tatura Cooperative Dairy Company and Westland Milk Products (both cooperatives), and Open Country Dairy and Synlait.

## United States

The United States is the largest dairy producing nation in the world (in terms of cows' milk) — it produced about 90 billion litres of raw milk in 2012 (representing about 20 per cent of global raw milk production) (USDA 2014a). In 2013, about a quarter of US raw milk supply was used to manufacture drinking milk; cheese, whey and ice cream products also account for significant portions of US raw milk supply (USDA 2014b).

The United States accounted for 11 per cent of global dairy exports in 2012 (Dairy Australia 2013a). US dairy exports have grown rapidly in recent years — with a compound annual growth rate of 18 per cent from 2009 to 2013 (Australian Dairy Industry Council and Dairy Australia, sub. 6) — reflecting sustained growth in US dairy output (figure 2.14).

**Figure 2.14 US dairy production<sup>a</sup>**  
2000–2012



<sup>a</sup> Figure assumes US drinking milk production is equal to US drinking milk sales. Raw milk and drinking milk have been converted at a rate of 1 tonne = 968 litres.

Sources: USDA (2013a, 2013b).

Some of the largest dairy product manufacturers in the world are based in the United States. Dairy Farmers of America (the second largest dairy manufacturer in the world in terms of milk intake, after Fonterra), processed 2.4 per cent of global raw milk supply in 2012, while Dean Foods processed 1.7 per cent (IFCN 2012). Other major dairy manufacturers in the United States include Nestlé, Kraft, Saputo, Land O'Lakes and Agropur Cooperative.

While there is dairy farming in every US state, California accounts for the largest share of US raw milk supply (about 20 per cent in 2013). Other major dairy producing states include Wisconsin (14 per cent), Idaho (7 per cent) and New York (7 per cent) (USDA 2014c).

The US Government has provided substantial assistance to the US dairy industry over a long period (direct budgetary assistance alone measured US\$450 million in 2012 (EWG nd)). In 2014, the US Government passed the Agricultural Act of 2014, which



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redesigned its dairy subsidy schemes (box 2.13). In addition to these subsidies, the US Government also maintains tariffs and tariff rate quotas on dairy imports.

### **Box 2.13      The Agricultural Act of 2014**

In 2014, the Agricultural Act of 2014 was passed into law. The law repealed some dairy subsidy programs and introduced others. The repealed programs included:

- the Dairy Product Price Support Program, which mandated a minimum farmgate price, and mandated that the US Government would purchase dairy products at a set price required to support the farmgate price
- the Milk Income Loss Contract Payment scheme, which provided payments for farmers if the farmgate price fell below a specified threshold
- the Dairy Export Incentive Program, which granted subsidies for dairy exports.

These schemes were replaced by two new programs:

- the Margin Protection Program for Dairy Producers, which provides a subsidy to dairy farmers if the margin of the farmgate milk price over feed costs falls below a specified level
- the Dairy Product Donation Program, which requires the US Government to procure and distribute dairy products when the dairy margin falls below a specified level.

*Source:* Bozic et al. (2014).

## **United Kingdom**

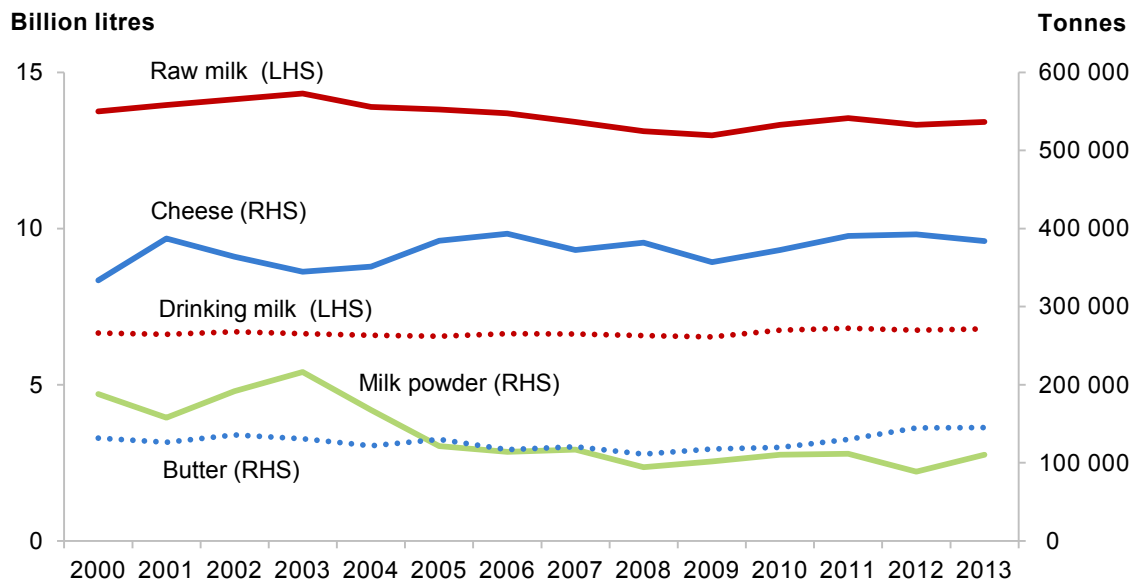
The United Kingdom is the third largest dairy producer in the European Union (behind France and Germany) (DairyCo 2014). The UK produced 13 billion litres of raw milk in 2012, equivalent to about 10 per cent of EU raw milk supply, and about 2 per cent of global raw milk supply (Eurostat 2012). UK dairy production has been relatively stable over time (figure 2.15).

In 2012, there were about 400 dairy manufacturing companies in the United Kingdom. In the same year, about 70 per cent of raw milk supply was purchased by the eight largest dairy manufacturing companies, including Arla Foods, which alone purchased a quarter of raw milk supply (DairyCo 2013). Other major dairy manufacturers in the United Kingdom include Dairy Crest, First Milk and Meadow Foods.

Unlike New Zealand and the United States, the UK dairy product manufacturing industry is predominantly focused on:

- servicing the domestic market (as compared to export markets). Only about 12 per cent of UK dairy production (by value) was exported in 2012 (Dairy Co 2013; ONS 2013)
- the manufacture of drinking milk products (about 50 per cent of UK raw milk was used to manufacture drinking milk in 2013) (USDA 2013a, 2013b).

**Figure 2.15 UK dairy production**  
2000–2013



Source: Defra (2014).

The United Kingdom is currently covered by the EU-wide regulatory system of raw milk production quotas, whereby countries pay a penalty if national production exceeds the quota amount. The UK Government is responsible for allocating the quota to individual dairy farmers.

These arrangements are scheduled to end in 2015. This is anticipated to lead to a fall in farmgate milk prices throughout the EU (as the quota system is likely to have artificially increased raw milk prices), and an increase in total EU raw milk (and manufactured dairy product) output. A redistribution of production from less efficient dairy regions to more efficient dairy regions is also expected — the Institute for Prospective Technological Studies (2009) has predicted that dairy production will increase substantially in Spain, Ireland and the Netherlands, but decline in a number of other EU countries, including the United Kingdom.

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## 3 Costs of dairy product manufacturing

### Key points

- 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 Ireland, the United Kingdom and United States (although the cost gap has narrowed), and broadly on a par with those in New Zealand.
  - The price of raw milk in Australia will reflect market considerations. In particular, the relatively low price of raw milk in Australia reflects the low cost of raw milk production in major dairying regions.
- Average weekly salaries in the dairy product manufacturing industry appear to have grown at a similar rate to the broader manufacturing industry between 2006 and 2011. Total hours worked in the dairy product manufacturing sector in 2012-13 were at about the same level as in 2001-02.
  - 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 (in common currency terms).
- 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.
- 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.
- There is evidence that road transport costs in Australia, per litre of raw milk transported, are higher than those in New Zealand.
  - Road transport costs will be affected by factors such as labour and fuel prices, the type of product produced, the scale and location of dairy farms and processors, and transport technology.

This chapter presents 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). The cost structure data are presented in section 3.1, followed by a discussion of some of the factors that affect costs in this industry (section 3.2).

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## 3.1 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 industry 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 3.1):

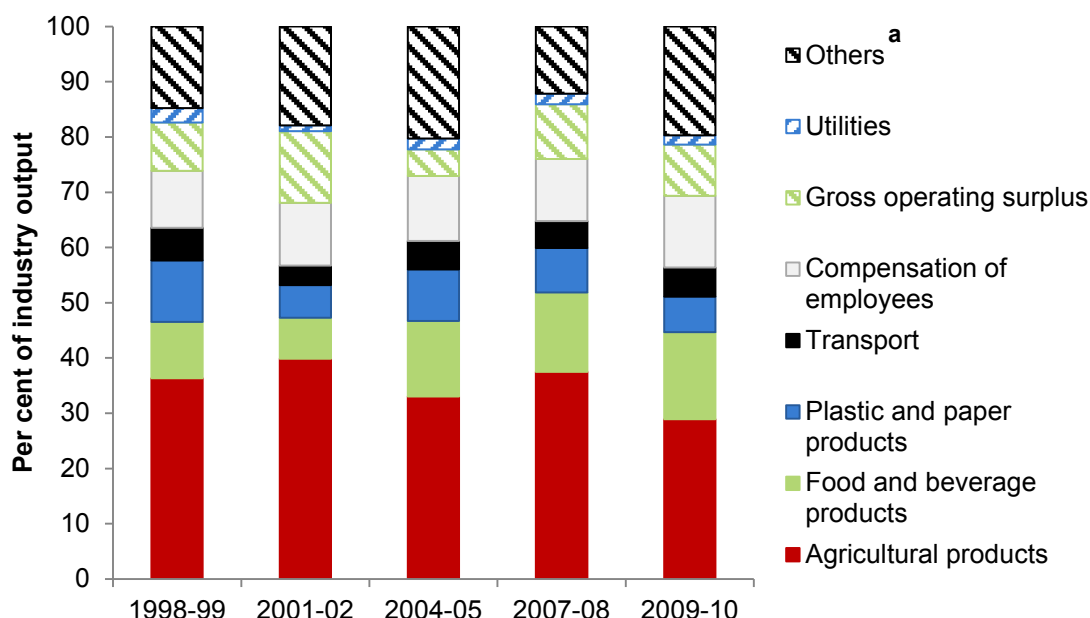
- agricultural products — predominantly raw milk (about 29 per cent of industry output)
- manufactured food and beverage products (about 16 per cent) (box 3.1).
- labour costs (compensation of employees) (about 13 per cent)
- operating surplus (likely to predominantly reflect returns to capital) (about 9 per cent)
- plastic and paper products, predominantly used for packaging (about 6 per cent)
- transport costs (about 5 per cent)
- utilities costs (about 1.7 per cent — including both energy (about 1.4 per cent) and water (about 0.2 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. At a sectoral level, 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 changes in the output produced or technology used. Some of the factors underlying these costs structures are considered in section 3.2.

Figure 3.1 **Australian dairy manufacturing cost structure**

Various years



<sup>a</sup> 'Wholesale trade', which represents margins on products sold wholesale to dairy product manufacturers, is a substantial proportion of the 'others' 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).

### Box 3.1 **Manufactured food and beverage inputs**

In 2009-10, around 80 per cent of manufactured food and beverage inputs into the Australian dairy product manufacturing industry were *dairy* products. Other food and beverage inputs included bakery products (about 3 per cent) and sugar and confectionary products (about 2 per cent).

Examples of the dairy products used as inputs in the Australian dairy product manufacturing industry include:

- cheese and curd products (24 per cent of dairy inputs used in dairy manufacturing)
- fats and oils derived from milk, casein and butter (18 per cent)
- ice cream, sour cream and yoghurts (10 per cent)
- processed liquid milk (7 per cent).

As these products also use raw milk as an input, the effective amount of raw milk used in the Australian dairy product manufacturing industry is higher than the 29 per cent included in the agricultural products category.

Source: ABS (2013a).

## 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 and location of the plant, and the production techniques used in manufacturing. There are clear differences between individual firms (table 3.1, based on annual report information) and the ABS input–output tables covering the dairy manufacturing industry. A small part 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 individual company reports.

However, a larger proportion of the variation is likely to lie with differences in the extent of value adding undertaken by dairy manufacturers. For businesses that primarily produce 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 (box 3.2). For example, 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. Data available for the United States provides an indicator of the relative shift in the significance of raw milk costs in higher value add products (box 3.2).

**Table 3.1 Estimates of business-level cost structures<sup>a</sup>**  
Per cent of revenue. Based on annual report data, various years.

<i>Input</i>	<i>Murray Goulburn (2012-13)<sup>b</sup></i>	<i>Warrnambool Cheese and Butter (2012-13)<sup>c</sup></i>	<i>Bega Cheese (2013)</i>	<i>Norco (2008-09)<sup>d</sup></i>	<i>Parmalat (Australian operations) (2013)</i>
	%	%	%	%	%
Raw milk	50.3	72.4 <sup>e</sup>	24.7 <sup>e</sup>	39.6	26.8 <sup>e</sup>
Labour costs	9.7	9.6	13.5	na	na
Distribution expenses	6.6	4.9	4.4	na	na
Administration expenses	3.3	na	4.3	na	na
Depreciation	2.5	2.5	2.1	na	na
Finance costs	1.3	0.9	0.8	na	na

<sup>a</sup> The list of costs included in this table is not exhaustive, and does not add to 100 per cent for each company. <sup>b</sup> Revenue does not include revenue from MG Trading. <sup>c</sup> Revenue does not include revenue from sources other than commodity and consumer goods. <sup>d</sup> Revenue does not include revenue from Norco's rural retail business segment. <sup>e</sup> 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); Warrnambool Cheese and Butter (2013).

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### Box 3.2      **The production of dairy products**

The manufacturing techniques and ingredients used vary across dairy products. Thus it would be expected that the costs of production vary across the range of dairy products manufactured.

Many basic dairy products are manufactured predominantly from raw milk, and in these cases it would be expected that raw milk would be the largest input cost. For example:

- drinking milk is processed by standardising, pasteurising (heating) and homogenising raw milk
- milk powders are manufactured by removing moisture from milk, via an evaporator and a spray dryer
- cream is manufactured by separating milk fat from the liquid milk, and then pasteurising the cream.

For businesses that produce primarily these products, and other relatively low-value add dairy commodities such as cheese and butter, raw milk can represent up to 75 per cent of costs (table 3.1).

On the other hand, high value-add dairy products include numerous additional ingredients. In these cases, significantly lower raw milk cost shares would be expected. For example, the manufacture of infant formula involves combining raw milk-based dairy ingredients (including milk powder, whey protein and lactose) with non-dairy ingredients (such as vegetable oil, and numerous vitamins and minerals). According to Coriolis (2014), the cost of dairy ingredients represents around 17 per cent of revenue for infant formula manufacturers.

Other dairy products that are likely to have relatively lower raw milk cost shares include flavoured milk (which includes the addition of sugar and flavourings), yoghurts (which can include ingredients such as sugar, gelatin, starch, fruits and flavouring) and ice cream (which can include ingredients such as sugar, flavourings and vegetable fats). For example, according to the US input–output tables for 2007, while raw milk costs represent about 45 per cent of output for drinking 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).

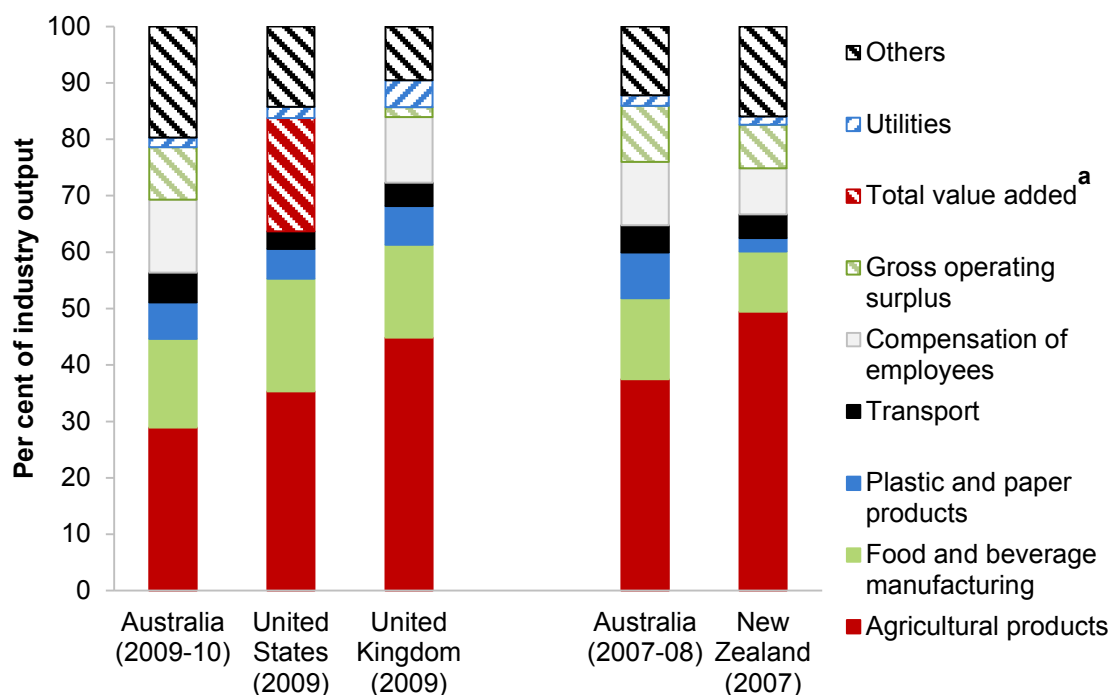
## **International comparison of cost structures**

The Commission has also drawn on input–output data to identify dairy manufacturing cost structures in comparator countries (chapter 2). 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 3.2).

- 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 can represent a higher proportion of costs in Australia than the input–output data suggest).
- The cost share of labour and transport is somewhat higher in Australia.

Figure 3.2 **Country comparison of overall cost structures**

Various years



<sup>a</sup> 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.

Sources: ABS (Cat. no. 5209.0.55.001, *Australian national accounts: input-output tables, 2009-10*); BLS (2013a); ONS (2013); Statistics New Zealand (nd).

Section 3.2 considers some of the potential drivers of these cost share differences across countries.

## 3.2 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. Chapters 5 and 6 will consider whether any of these drivers are amenable to policy intervention.



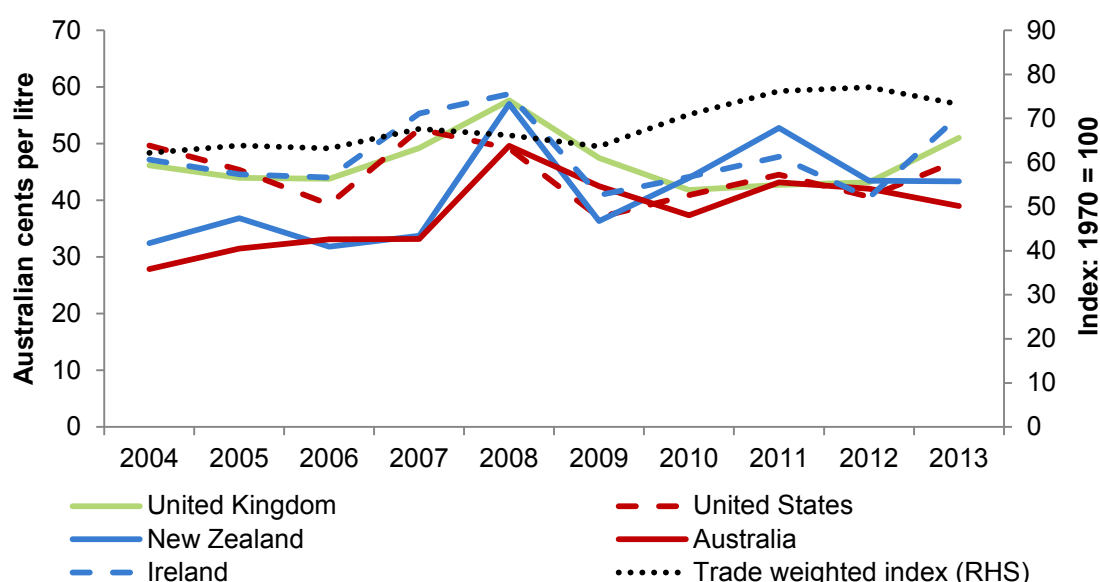
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## Raw milk costs

Farmgate milk prices in Australia have been at the lower end of the range when compared to other milk producing countries — below Ireland, the United States and the United Kingdom (although the price gap has narrowed, in part due to increases in the Australian exchange rate) and at about the same level as New Zealand (figure 3.3). These prices are set according to the demand and supply of raw milk (appendix B), and reflect the relatively low cost of raw milk production in Australia (chapter 4). This suggests that Australian dairy manufacturers enjoy a raw milk unit cost *advantage* relative to several of their key competitors.

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Figure 3.3    **Farmgate prices<sup>a</sup>**  
2004–2013



<sup>a</sup> Australian and New Zealand data are for financial years ending in that year. For the United States a conversion rate of one hundredweight to 43.8L has been assumed. For New Zealand a conversion rate of 1kg of milk solids to 11.5L has been assumed. Currencies converted using the average of daily exchange rates for the year or financial year.

Sources: ABARES (2013); CSO (2014a, 2014b, 2014c); Dairy Co (2014); Dairy NZ (2013); UDSA (2014).

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Manufacturers nevertheless need to be aware that growth in raw milk supply will be affected by farmer expectations of price and net returns, particularly when considering whether to undertake new on-farm investment. The supply of raw milk in Australia has not increased in the last decade. While drought, industry deregulation and dairy farmer demography (chapter 2) will have been relevant factors, low farmgate returns could also have been a factor. Dairy farm returns have been more volatile since deregulation, and there is some evidence of low returns to dairy farmers as a cohort over this period (relative to other activities), however, dairy farm profitability varies significantly (chapter 4).

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Manufacturing costs are also affected by other (non-price) characteristics of raw milk supply, such as the seasonal variability of milk supply which will influence the capacity utilisation of manufacturing plants and the scale of these plants, and the reliability and quality of milk (chapter 4).

**FINDING 3.1**

Since 2004 farmgate milk prices in Australia have been lower than those in Ireland, the United Kingdom and the United States (although the gap has narrowed), and at about the same level as those in New Zealand. The competitiveness of Australian dairy manufacturing has not been restricted by the costs of raw milk production. However, raw milk volumes are not growing.

## **Labour costs**

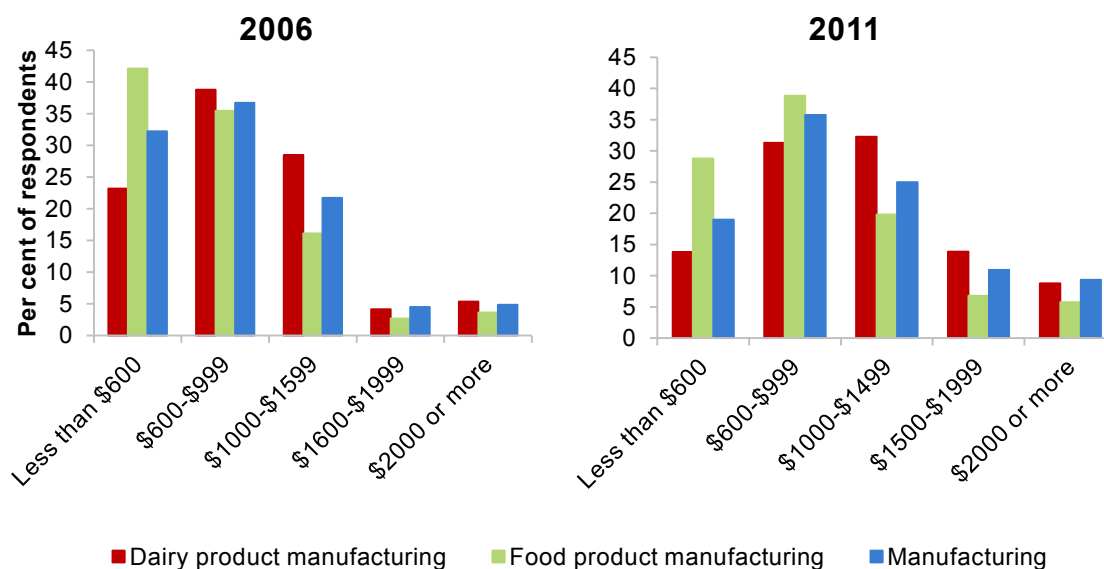
The input cost share of labour into Australian dairy product manufacturing has increased over time. Moreover, labour represents a greater proportion of input costs for Australian dairy product manufacturers than for manufacturers in New Zealand, the United States and the United Kingdom. Possible reasons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

### **Salaries compared to other Australian industries**

In 2011, average salaries in the Australian dairy product manufacturing industry were broadly comparable with those in the manufacturing sector more generally — about 15 per cent of dairy product manufacturing workers reported earning less than \$600 a week, and about 9 per cent reported earning more than \$2000, compared to about 19 per cent and 9 per cent of the manufacturing sector respectively (figure 3.4). Growth in salaries in the dairy product manufacturing industry between 2006 and 2011 appears to have been broadly in line with that in the manufacturing sector.

On the other hand, salaries in dairy product manufacturing appear to be substantially above those in the food product manufacturing industry. This is largely due to the impact of industries such as bakery product manufacturing — around 50 per cent of bakery product manufacturing workers reported earning under \$600 per week in 2011, which is likely to reflect the greater prevalence of part-time workers in this industry (ABS 2011).

**Figure 3.4 Average weekly salaries in selected sectors**  
2006 and 2011



Source: ABS (Cat. no. 2072.0, *Tablebuilder Basic*, 2011).

## Use of labour

In 2012-13 total hours worked in the Australian dairy product manufacturing sector were at about the same level as in 2000-01 (figure 3.5). Real value added in the sector has been reasonably stagnant over the same period, and as a result labour productivity in the sector has been relatively flat, following a period of decline in labour productivity from 1998-99 to 2000-01.

## Labour costs compared to international competitors

While international 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 international trends. Dairy product manufacturing contributed about 9.5 per cent of food, beverage and tobacco manufacturing value add in 2012-13 in Australia (ABS 2014) — although, as noted above, average weekly wages in the Australian dairy product manufacturing industry are higher than those in the food product manufacturing industry.

**Figure 3.5 Hours worked and labour productivity in the dairy product manufacturing sector<sup>a</sup>**  
1998-99 to 2010-11



<sup>a</sup> Labour productivity is estimated as the real value added per hour worked.

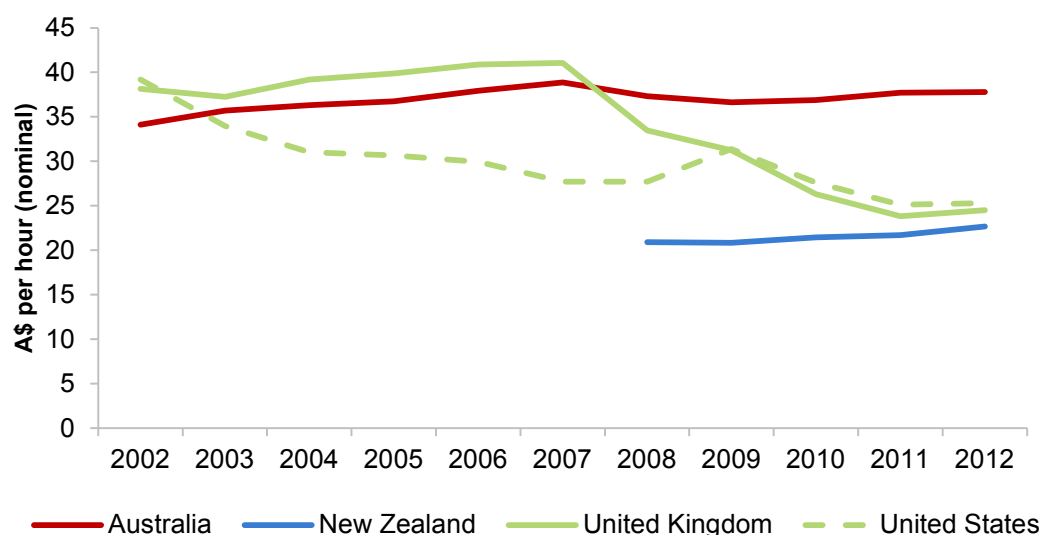
Sources: ABS (Cat. no. 6291.0.55.003, *Labour Force, Australia, Detailed, Quarterly, May 2014*; Cat. no. 8155.0, *Australian Industry, 2012-13*; Cat. no. 8159.0, *Experimental Estimates for the Manufacturing Industry, 2009-10*; Cat. no. 8221.0, *Manufacturing Industry, Australia, 2006-07*; Cat. no. 6427.0, *Producer Price Indexes, Australia, March 2014*).

Hourly labour costs in the Australian food, beverage and tobacco processing industry have increased relative to international competitors (in common currency terms)<sup>2</sup>. 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 3.6).

Anecdotal evidence from the Australian Dairy Industry Council and Dairy Australia (sub. 6) and United Dairyfarmers of Victoria (sub. 4) also suggested that Australian dairy product manufacturing wage rates are higher than those in New Zealand. A New Zealand entry-level dairy product manufacturing worker 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.

<sup>2</sup> Increases in wage rates would, all else equal, lead to an increase in the costs of dairy production. However, in any individual country, such an increase may be offset by other factors, such as an increase in the productivity of labour, or a decrease in labour utilisation. While, ideally, labour costs would be compared on a unit labour cost basis, which accounts for these factors, these data were not available for food, beverage and tobacco product manufacturing on an international basis. The following section looks at trends in multifactor productivity across the comparator countries.

Figure 3.6 **Hourly labour costs in the food, beverage and tobacco product manufacturing industry<sup>a</sup>**  
2002–2012



<sup>a</sup> 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. Labour costs include direct payments, social insurance expenditures and labour-related taxes.

Sources: BLS (2012, 2013b).

#### FINDING 3.2

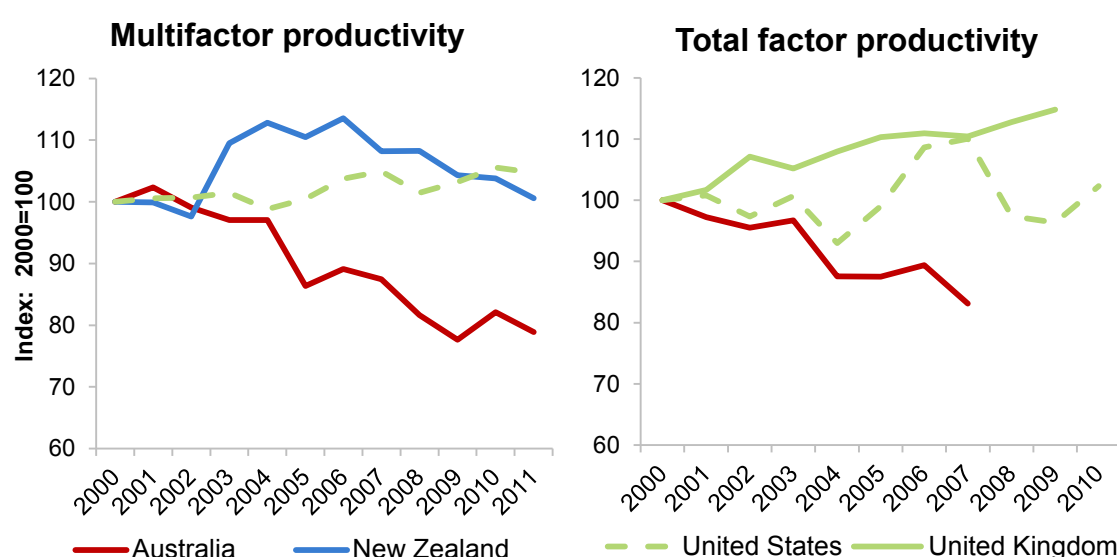
The cost of raw milk dominates input costs for Australian dairy product manufacturers, but with large apparent differences between firms. Labour costs in the Australian food, beverage and tobacco product manufacturing industry are not out of line with general manufacturing labour costs, but are higher than those in some developed, competitor countries (in common currency terms).

## Productivity performance

An improvement in productivity means that 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 3.7). 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 be relevant.

**Figure 3.7 International comparison of productivity in the food, beverage and tobacco product manufacturing sector<sup>a</sup>**  
2000–2011



<sup>a</sup> 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) suggested 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 agricultural output due to drought, which may affect the capacity utilisation of manufacturing plants.

Specific to the dairy product manufacturing sector, participants noted some factors that may have negatively affected the productivity of the sector.

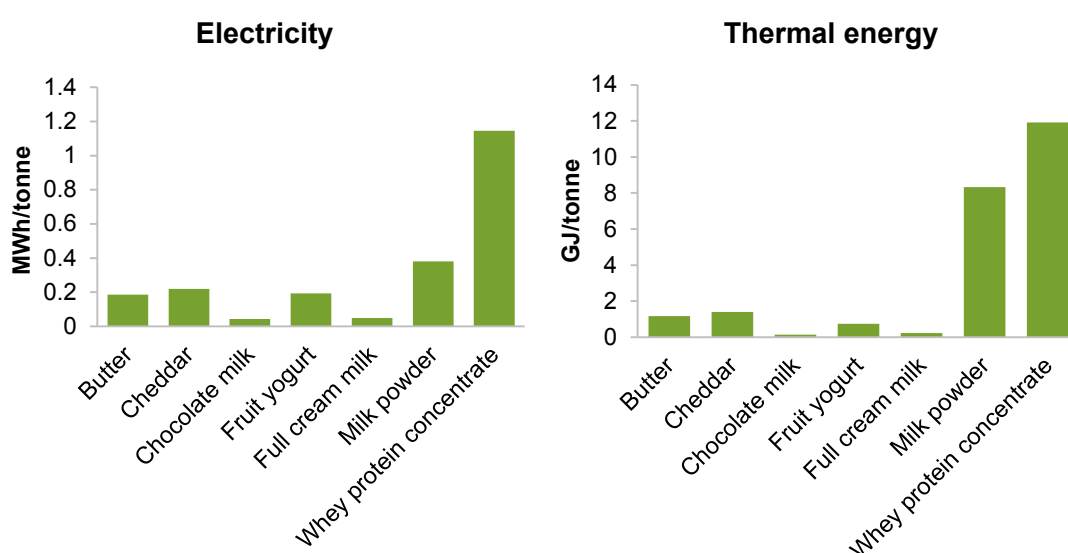
- The Australian Dairy Industry Council and Dairy Australia (sub. 6) and United Dairyfarmers of Victoria (sub. 4) noted difficulties in attracting and retaining skilled workers (chapter 6).
- Reductions in raw milk production in Australia over the past decade (chapter 2) may have resulted in some manufacturing plants and machinery having excess capacity, which reduces measured productivity (chapter 4).

## 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 (including energy sources such as gas, coal and biomass) 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 use can vary markedly across products (figure 3.8).

Figure 3.8 **Use of energy in dairy products in Australia**  
2013



Source: Australian Dairy Industry Council and Dairy Australia (sub. 6).

There is a high degree of variation in the energy intensity of production across countries — likely to be due to differences in production techniques, technology and the scale of

production (table 3.2). For comparison, Fonterra New Zealand's overall energy use in 2010 of just under 10GJ/MT of product (2777 kWh/MT — likely to be dominated by milk powder production) (Fonterra (nd)a) is similar to Australia's energy use in milk powder production.

**Table 3.2 Energy use in dairy processing across countries**  
kWh/MT of product

<i>Product</i>	<i>Australia (2013)</i>	<i>Ireland (2009)</i>	<i>Netherlands (2011)</i>
Butter	511	363	580
Cheese	607	814	1 360
Milk powder	2 694	4 012	3 550
Whey	4 456	4 613	2 050

*Sources:* Australian Dairy Industry Council and Dairy Australia (sub. 6); Geraghty (2011).

## Energy prices

There have been substantial increases in Australian natural gas and electricity prices in recent years (relative to other countries) (figure 3.9). While in 2004 Australia's wholesale electricity prices were similar to those paid by New Zealand, the United Kingdom and the United States (IEA 2014), as of 2011, the Australian retail electricity price was higher than prices in these countries (DRET 2012).

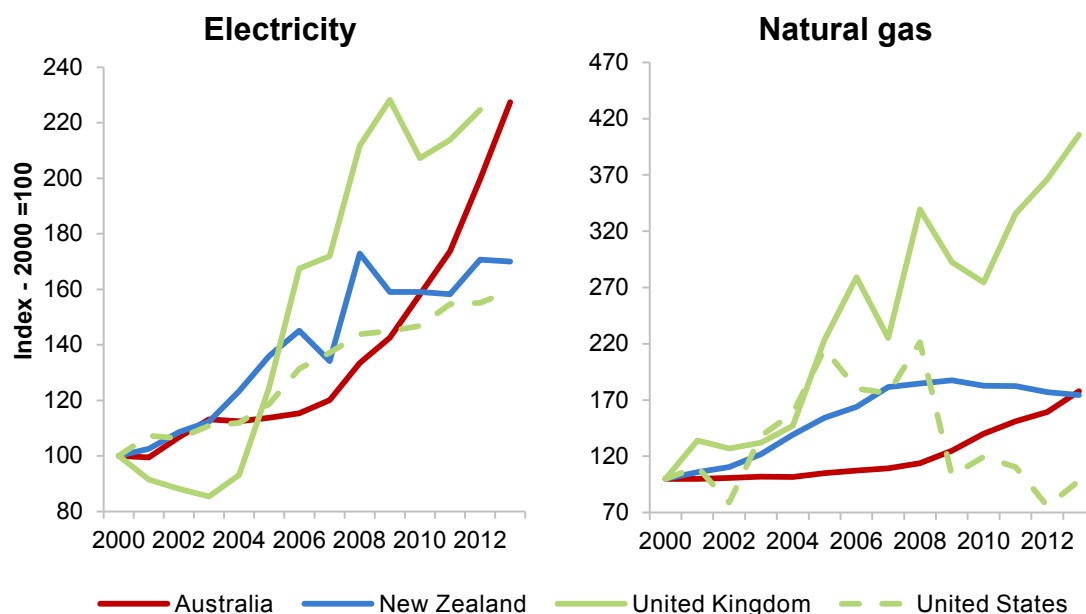
Market factors and government policies underpin the recent growth in Australian energy prices. Much of the increase was driven by network costs, such as increased investment in electricity networks (to replace, upgrade and expand network assets) (PC 2013). Environmental policies, including the carbon 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 Market 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 3.9 **Changes in international energy wholesale prices**  
National currencies (nominal), 2000–2013



Source: IEA (2014).

#### FINDING 3.3

Australian energy prices have risen sharply since 2006. For manufacturers of energy-intensive dairy products such as milk powder, this would have had a relatively substantial bearing on cost-competitiveness.

## 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 — although other modes of transport, such as rail and shipping, are also relevant to the dairy sector.

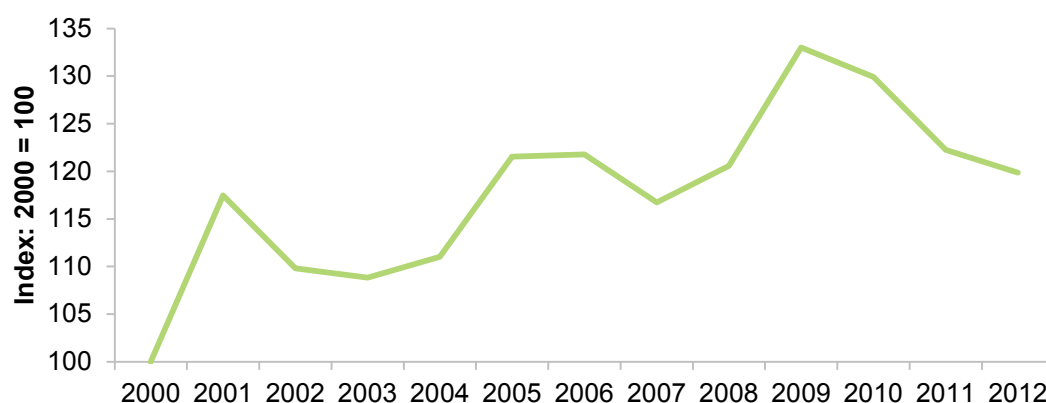
While road transport rates in Australia were at the same level in 2012 as in 2005, there has been considerable volatility from year to year and rates have risen since 2000 (figure 3.10). There is also some evidence that dairy transport costs in Australia are higher than in New Zealand. In 2012-13, Fonterra reported that its total cost of collecting raw milk from farms in New Zealand was NZ\$336 million — about NZ\$0.02 per litre (A\$0.016 per litre) (Fonterra 2013). On the other hand, in Australia, the Australian Dairy Industry Council

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suggested that farm milk collection charges average 2.5–3c per litre in Australia (ADIC 2012).

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**Figure 3.10 Australian real short- and medium-haul road transport rates**  
Cost per net tonne kilometre, 2000–2012



Source: SKM (2013).

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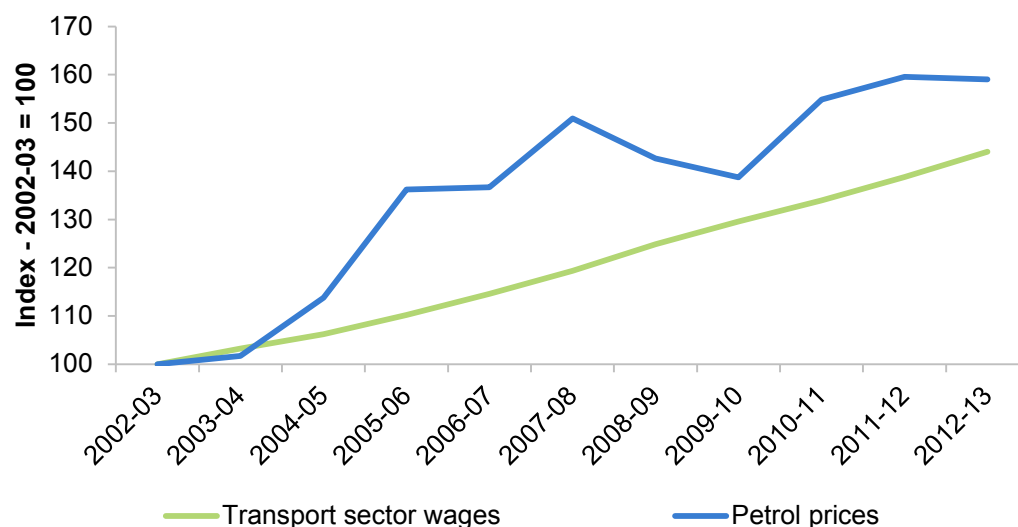
While, in general, publicly available data on dairy-specific transport costs are not available, this section considers some of the drivers of transport costs in the economy, such as labour, fuel and technology, as well as the distance travelled by dairy tankers. Chapter 6 considers further some of the policy-relevant issues relating to transport costs.

### Factors affecting the unit cost of transport

Two of the largest contributors to overall road transport costs are labour and fuel costs. According to the ABS input–output tables, labour costs represented around 25 per cent of road transport output in 2009–10, and it has been noted that ‘the largest component of Murray Goulburn’s transport costs are the wages of transport personnel, in particular, drivers of trucks’ (McDonald 2013, p. 11). Fuel costs were about 10 per cent of the road transport industry’s output in 2009–10 (ABS 2013b).

The unit cost of both labour and petrol grew between 2002–03 and 2012–13 (figure 3.11). Wages in the transport sector grew steadily at about 4 per cent per year over the period, while petrol prices increased strongly between 2003–04 and 2007–08, before levelling off. Both of these factors would have contributed to the increase in overall transport costs over the period (figure 3.10).

Figure 3.11 **Wages<sup>a</sup> and petrol prices<sup>b</sup> in the transport sector**  
2002-03 to 2012-13



<sup>a</sup> Wage rates refer to the wage price index for the transport, postal and warehousing industry. <sup>b</sup> Fuel costs refer to the price of unleaded petrol. Diesel prices have generally closely followed the unleaded fuel price (AIP 2014).

Sources: ABS (Cat. no. 6345.0, *Wage Price Index, Australia, March 2014*); AIP (2014).

On the other hand, improvements in technology may have reduced the unit cost of transport. The Bureau of Infrastructure, Transport and Regional Economics (BITRE 2011) noted that increases in the use of larger heavy vehicle combinations have contributed to increased road freight productivity. Changes in technology have led to an increase in the fuel efficiency of Australia's heavy vehicle fleet — from fuel consumption of 3.7 litres per 100 tonne kilometres in 2002 to 1.9 litres per 100 tonne kilometres in 2011-12 (Productivity Commission estimates based on ABS 2003, 2013c). The increase in truck size would have also led to a decrease in labour use for a given level of freight in the sector.

However, it should be noted that the potential for productivity improvements is contingent on local infrastructure being able to support the larger vehicles. The Australian Dairy Industry Council and Dairy Australia (sub. 6) suggested that improvements in infrastructure are needed to facilitate the increased use of B-double trucks in the dairy industry. Infrastructure issues are considered in chapter 6.

### Factors that affect transport distances in dairy

Factors that contribute to the total freight distance travelled in dairy product manufacturing operations include:

- the distance from dairy farms to the manufacturer

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- the size of dairy farms. McDonald (2013) noted that ‘collecting milk in western Victoria tends to be more efficient in comparison to the north [of Victoria] or the Gippsland regions due to the large size of farms in western Victoria. A large farm is able to provide more milk which can fill more space in a tanker’. The increase in average herd sizes over time (chapter 2) is likely to have reduced overall transport costs
  - the distribution of dairy farms. The Australian Dairy Industry Council and Dairy Australia (sub. 6) noted that, due to the geographical spread of dairy farms in some regions, building high throughput factories requires milk to be transported longer distances
  - the number of dairy manufacturers collecting milk in a specific region. For example, Murray Goulburn (2013a) suggested that there would be a reduction in transport costs associated with its proposed takeover of Warrnambool Cheese and Butter. However, it should be noted that, while there may be potential for a reduction in transport costs as a result of increased company scale, milk swap arrangements can achieve similar levels of efficiency (chapter 2). These swaps can capture some of the scale benefits, and are estimated to reduce transport costs in Australia by around \$50–60 million per year across the industry (Mentiplay 2013). Alternatively, a further effective way of offsetting higher transport costs could be to co-operatively operate a transport fleet across a number of firms; or to extend existing outsourcing. Such initiatives should not raise competition policy concerns, where undertaken to increase efficiency.

The transport distance travelled can vary depending on the product mix. For example, drinking milk manufacturers are generally located close to the domestic markets they (predominantly) service, reducing the transport costs associated with product distribution. By contrast, manufacturers of less perishable dairy products, such as cheese and milk powder, often transport their products to interstate customers or to ports for export.

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## 4 Raw milk production in Australia: costs, volumes and seasonality

### Key points

- Raw milk production costs in Australia are competitive with other major dairy producing regions (including New Zealand), reflecting continuous on-farm productivity gains over the past two decades, natural (including climatic) advantages and Australia's commitment to dairy industry deregulation.
  - Fodder and labour represent the most significant recurrent costs for Australian dairy farms. Over time, dairy farms have used proportionally less labour and more fodder to produce a given volume of milk.
- Australian dairy farmers face a number of challenges, including the relatively strong Australian dollar, growing farm debt (and the associated interest costs), and a highly competitive global trading environment.
- The annual volume of raw milk produced in Australia has not grown in recent years, and relative to the early 2000s (when farmgate price controls were removed), the total national milk pool has declined. Drought, the removal of incentives for overproduction, a strong Australian dollar and dairy farmer demography are the primary reasons for this.
- The volume and seasonal variability of Australia's raw milk supply can influence dairy manufacturer decisions about the size of manufacturing plants, operating scale and asset utilisation rates, thereby bearing on the cost and competitiveness of manufacturers.
  - For relatively high fixed cost dairy manufacturing processes, such as milk powder production, an increase in operating scale is expected to reduce the unit cost of production, all else equal. Likewise, dairy manufacturing costs are generally lower where installed productive capacity is highly utilised throughout the year.
  - However, there are offsetting costs and risks associated with larger-scale manufacturing operations and higher capacity utilisation rates, and the balance of benefits and costs will vary across locations, businesses and dairy products.
- On-farm investment is crucial to increasing Australia's raw milk supply (and dairy product manufacturing output). Manufacturers may need to share more of the investment risks in order to increase raw milk production.
  - Farmgate price incentives to encourage 'new' milk, or reduce the seasonal variability of milk supply, are already in play where it is commercially desirable.

This chapter seeks to unpack the drivers of, and trends in, raw milk production costs in Australia, and compares those costs to other (established and emerging) dairy producing regions (section 4.1). The (non-price) conditions of raw milk supply, including total

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volumes and seasonal variation, can also impact on dairy manufacturing costs, as discussed in section 4.2.

## 4.1 Raw milk production costs

While cost structures can vary significantly between businesses, chapter 3 highlighted that raw milk is the single largest input cost for Australian dairy product manufacturers, measuring about 30 per cent on an industry average basis and as high as 70–80 per cent for particular firms. Since deregulation in 2000, raw milk prices in Australia have been set by market forces. As such, the cost of raw milk production (dairy farming) has a significant bearing on the costs and competitiveness of Australia's dairy product manufacturers.

### Australian dairy farm costs

'Total costs' is a comprehensive measure of all farm costs (as measured by the Australian Bureau of Agriculture and Resource Economics and Sciences as part of the annual Australian Dairy Industry Survey). It includes cash costs — all payments made by the farm business for materials, services and hired labour — depreciation and the imputed cost of the owner's labour.

#### Average total costs have increased over time but unit production costs have fallen

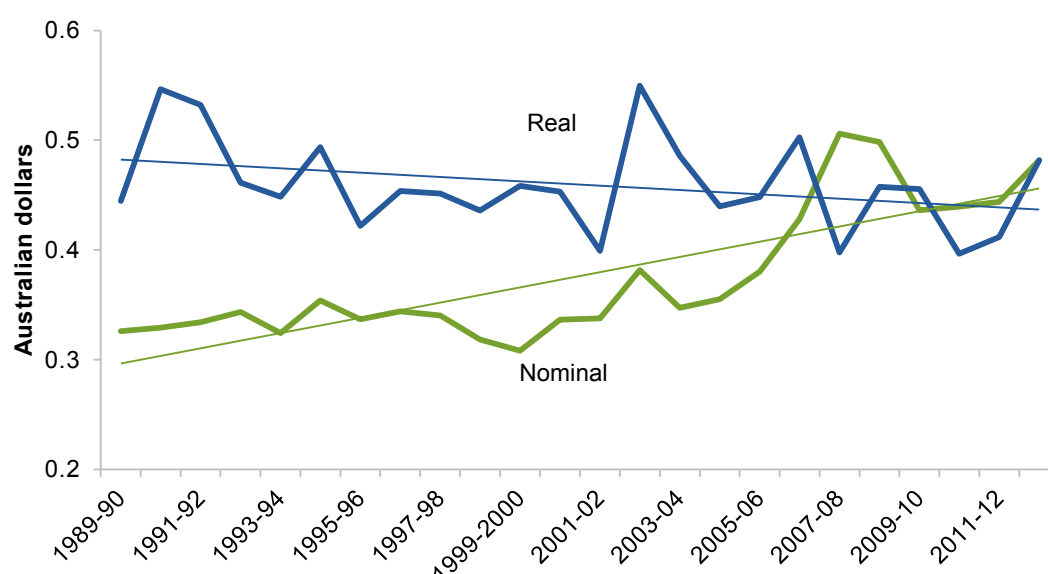
In 2012-13, average annual total costs for Australian dairy farms measured \$629 274. Average farm costs have increased significantly (in nominal terms) over recent decades — in 1989-90 for example, Australian dairy farms incurred average total costs of \$139 198. While some of this increase can be attributed to growth in key input prices, it also reflects the ongoing structural shift in the sector toward larger dairy farming operations (chapter 2) and the consequent increase in volumes of inputs purchased per farm (ABARES 2014b).

Given this, to understand how unit production costs in Australia have changed over time it is more instructive to consider dairy farm costs *per litre of raw milk produced*. Notwithstanding some significant year on year fluctuations, over the 24 year period to 2012-13, raw milk production costs per litre have increased in nominal terms (an average annual increase of about 2 per cent) but declined in real terms (that is, relative to Australian farmgate milk prices) (figure 4.1).

Importantly, while real unit production costs have fallen over time on a national basis, this is not the case in all Australian dairy regions (and certainly not for all dairy farms). In practice, unit raw milk production costs depend on a host of commercial, climatic and regulatory conditions, as well as the various decisions made by dairy farmers regarding the system of farming used, the scale of farming operations, operator expertise, herd genetics and so on. The confluence of all these factors can give rise to significant variation in raw milk production costs. The interstate variation in dairy farm cash costs (per litre of raw

milk) illustrates this; for the period 1989-90 to 2012-13, average annual cash costs (nominal terms) measured 33 cents in New South Wales, 27 cents in Victoria, 36 cents in Queensland, 30 cents in South Australia, 33 cents in West Australia, and 29 cents in Tasmania (ABARES 2014b).

**Figure 4.1 Dairy farm costs, per litre of raw milk<sup>a,b</sup>**  
1989-90 to 2012-13



<sup>a</sup> Trend lines are linear estimates of 'line of best fit'. <sup>b</sup> Real costs are Commission estimates, deflating nominal values with a price index of annual farmgate milk prices, reported in ABARES (2013a).

Sources: ABARES (2013a, 2014b).

## Strong growth in dairy farm productivity has been critical for containing costs

Continuous on-farm productivity growth over the past two decades has been critical for containing dairy farm costs and maintaining the competitiveness of the dairy sector. The nature of these productivity improvements has varied over time. Specifically, for the period 1989-90 to 1999-2000, growth in dairy farm inputs (partly associated with consolidation in the sector) was outpaced by growth in the volumes of raw milk produced, while for the period 2000-01 to 2010-11, falls in the quantity of inputs used in raw milk production (largely in response to drought) more than offset falls in raw milk output (table 4.1).

**Table 4.1      Average annual growth in dairy farm productivity**  
Per cent

	Productivity growth	Output growth	Input growth
1989-90 to 1999-2000	1.2	4.8	3.6
2000-01 to 2010-11	2.0	-2.1	-4.1

*Source:* Dharma and Dahl (2013).

Productivity growth in the Australian dairy farm sector exceeded that for all broadacre Australian agricultural industries over the 10 years to 2011 (ABARES 2014a). Dharma and Dahl (2013) primarily attribute this to four drivers:

- improved scale through the consolidation of dairy farms, with many smaller, less viable producers exiting the industry (post deregulation), and the production share of small operations gradually declining (chapter 2)
- a shift toward greater production mechanisation
- 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.

Farmer Power Australia (sub. IR9) considered that productivity gains in the dairy sector have also been driven by the closure of farms on 'sub-optimal' land, and the practice of culling older, less productive cows (thereby forgoing upkeep costs, but shrinking herd sizes).

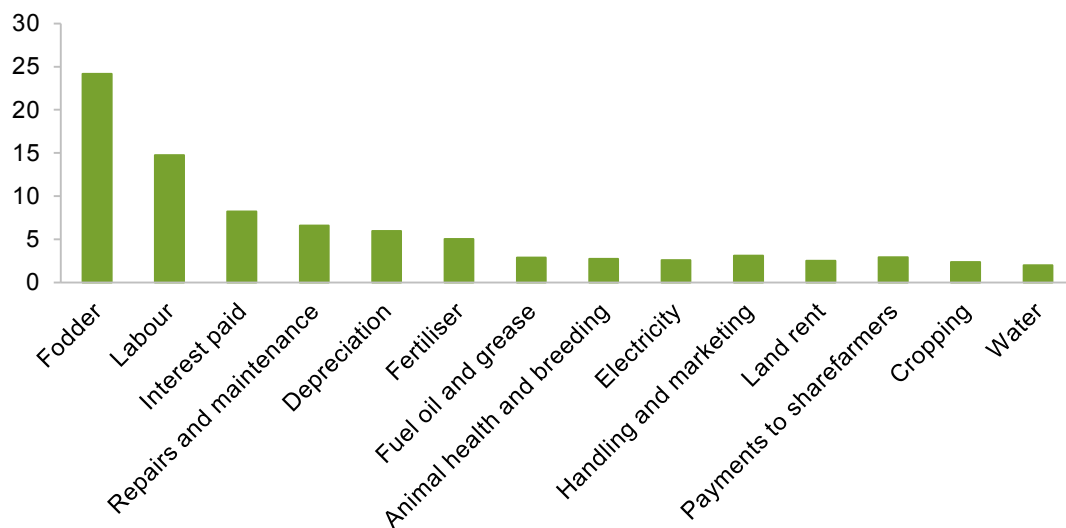
## **Fodder and labour dominate raw milk production costs**

Fodder (purchased livestock feed such as hay or grain) and labour represent the most significant costs for Australian dairy farms (figure 4.2), accounting for 24 and 15 per cent of total raw milk production costs respectively in 2012-13.

Over the period 1989-90 to 2012-13, fodder costs per litre of raw milk more than tripled in nominal terms (from 3.1 cents per litre to 11.6 cents per litre) (figure 4.3). For other key dairy farming inputs (such as labour, repairs and maintenance, fertiliser and water), costs per litre have remained relatively stable since 1989-90 (in nominal terms).



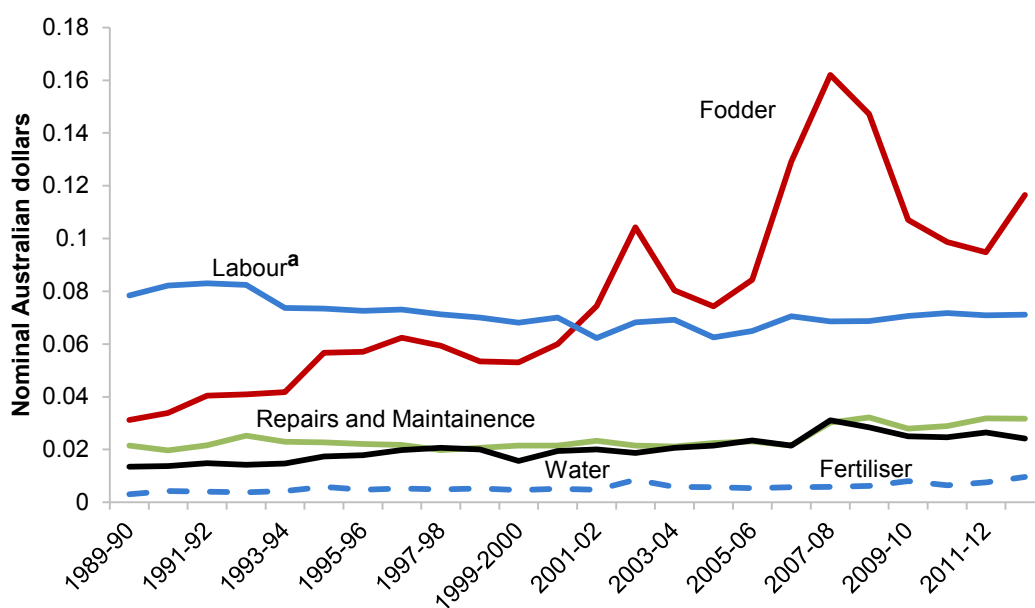
**Figure 4.2 Australian dairy farm cost structure<sup>a</sup>**  
Per cent of average total costs per farm, 2012-13



<sup>a</sup> Includes labour of owner/manager and family.

Source: ABARES (2014b).

**Figure 4.3 Dairy input costs, per litre of raw milk**  
1989-90 to 2012-13



<sup>a</sup> Includes labour of owner/manager and family.

Source: ABARES (2014b).

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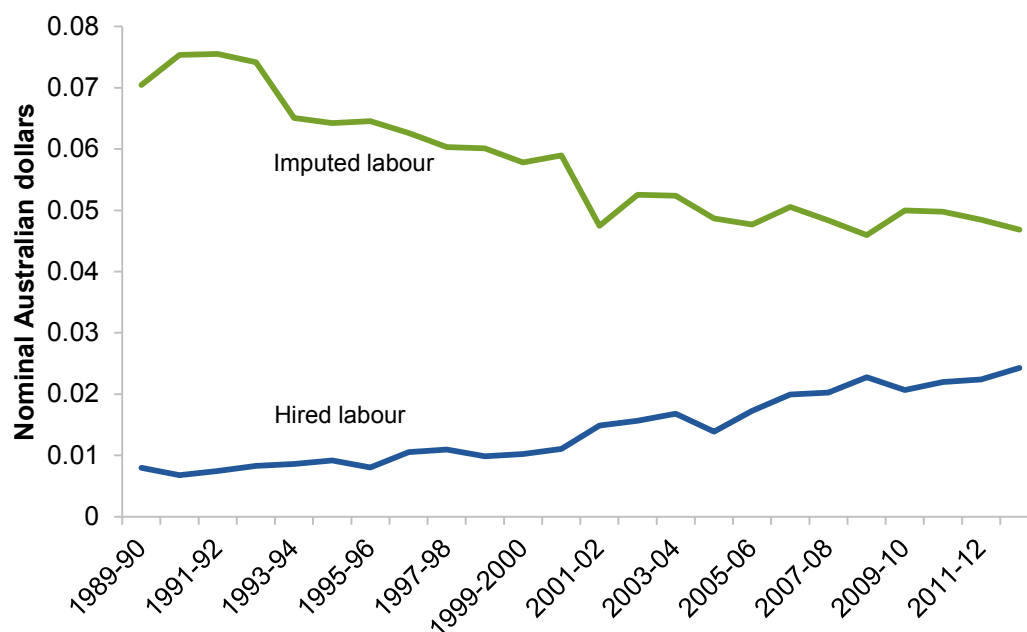
## More productive dairy farmers have helped contain labour costs

The relatively flat cost of labour (per litre of raw milk) over the last two decades has predominantly been driven by a decline in imputed labour costs (figure 4.4). The imputed labour cost is an estimate of the cost of the time spent in the business by people with a share in the business, such as the owner, the owner's family, or a sharefarmer that owns assets in the business (as compared to hired labour).

Unit imputed labour costs have fallen by about 34 per cent (in nominal terms) to 4.7 cents per litre over the period 1989-90 to 2012-13 (ABARES 2014b). In contrast, the cost of *hired* labour per litre of production has increased slightly (figure 4.4), reflecting an increase in nominal wages for dairy farm employees over this period — the Department of Agriculture estimates that the average weekly full-time wage paid to dairy farm employees has risen by about 55 per cent since 1998-99 (sub. 7).

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**Figure 4.4 Dairy farm labour costs, per litre of raw milk**  
1989-90 to 2012-13



Source: ABARES (2014b).

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## An increasing reliance on fodder over pasture is driving up fodder costs

Although most Australian dairy farmers rely on pasture for the bulk of herd feeding requirements, fodder is often used as a supplementary source of feed (to varying degrees). Reliance on fodder tends to be greatest in drier areas (where climatic conditions limit

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pasture availability) and on dairy farms that adopt year-round production systems (chapter 2).

The increase in fodder costs for Australian dairy farmers over time (per litre of raw milk produced — figure 4.3) predominantly reflects an increase in the *volume* of fodder purchased by farmers. The Rural Industries Research and Development Corporation noted that, given there is scope for substitution between fodder and certain other dairy farm inputs (such as water), growth in the real prices of these other inputs has driven up fodder use:

... during the 1990s utilisation of fodder increased as ... dairy farms began to use intensive feeding practices for cows, taking advantage of relatively low feed-grain prices. Increased volumes of hay and silage were also used for dairy feed as more intensive management was adopted in the face of rising land prices and increasing competition for irrigation water. (RIRDC 2009, p. 4)

A high number of drought years over the last decade, and an increasing shift towards year-round production systems, have also contributed to the increase in fodder use by Australian dairy farmers.

- Figure 4.3 shows that fodder costs per litre peaked during the 2002-03 and 2006-07 droughts, as farmers sought to retain income despite poorer pastures and the lower availability of irrigation water. The effect of drought on unit fodder costs can last for several seasons, as farms gradually replenish their stocks of fodder, and water storages are replenished.
- Dairy farmers who elect to produce flatter (or less seasonal) raw milk volumes — for example, in response to seasonal incentives offered by dairy product manufacturers (section 4.2) — tend to rely more heavily on purchased fodder to support their year-round production system.

#### FINDING 4.1

Continuous on-farm productivity growth over the past two decades has been critical for containing dairy farm costs and maintaining the competitiveness of the dairy sector.

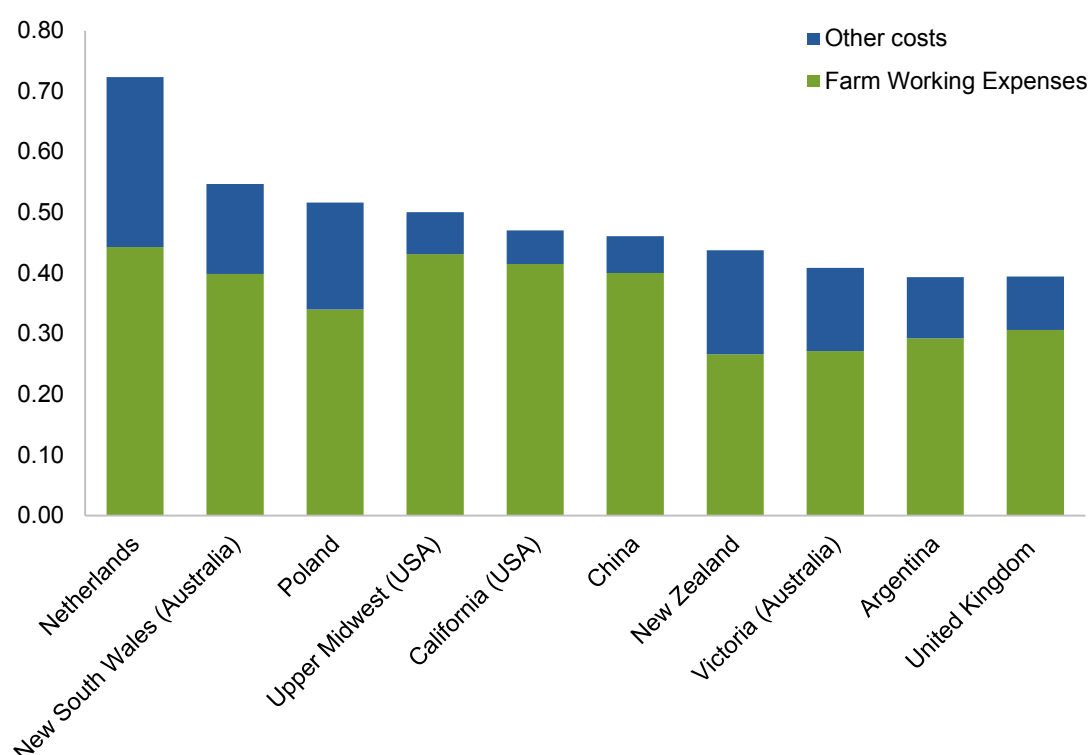
## Australia is a low-cost raw milk producer by world standards

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). This partly reflects the various natural (including climatic) advantages enjoyed by Australian and New Zealand dairy farmers, including the ability to adopt a lower cost pasture-based production system (Rabobank 2012). Australia's significant and long standing (by world standards) commitment to dairy industry deregulation has also played a role (chapter 2).

That said, the costs of raw milk production in Australia vary considerably between states. In particular, dairy regions that are predominantly focused on servicing domestic fresh drinking milk markets (such as New South Wales, Queensland and Western Australia) exhibit substantially higher raw milk production costs.

Recent analysis by Rabobank (figure 4.5) shows that the cost of producing raw milk in Victoria (which accounts for about two thirds of Australian milk production and the bulk of dairy exports) is very competitive relative to other dairy producing nations, with farm working expenses particularly low by world standards.

**Figure 4.5 Raw milk production costs<sup>a,b,c</sup>**  
\$US/Litre, various years



<sup>a</sup> Data for Netherlands, Poland and China are for 2011, data for the United States and Argentina are for 2012 and data for Australia, New Zealand and the United Kingdom are for 2011-12. <sup>b</sup> Other costs include interest and principal repayments, depreciation, owner remuneration, land rental and tax. <sup>c</sup> Estimates reported differ from Rabobank reporting, which deducts an estimate of the subsidies paid, per litre of raw milk produced, in the Netherlands and the United Kingdom.

Sources: Dairy Australia (2013b); Rabobank (2013a, pers. comm., 23 May 2014).

### ... but the cost-gap is narrowing

The international market for dairy has become increasingly competitive in recent years, and the cost-gap between low-cost producers, such as Australia, and regions with

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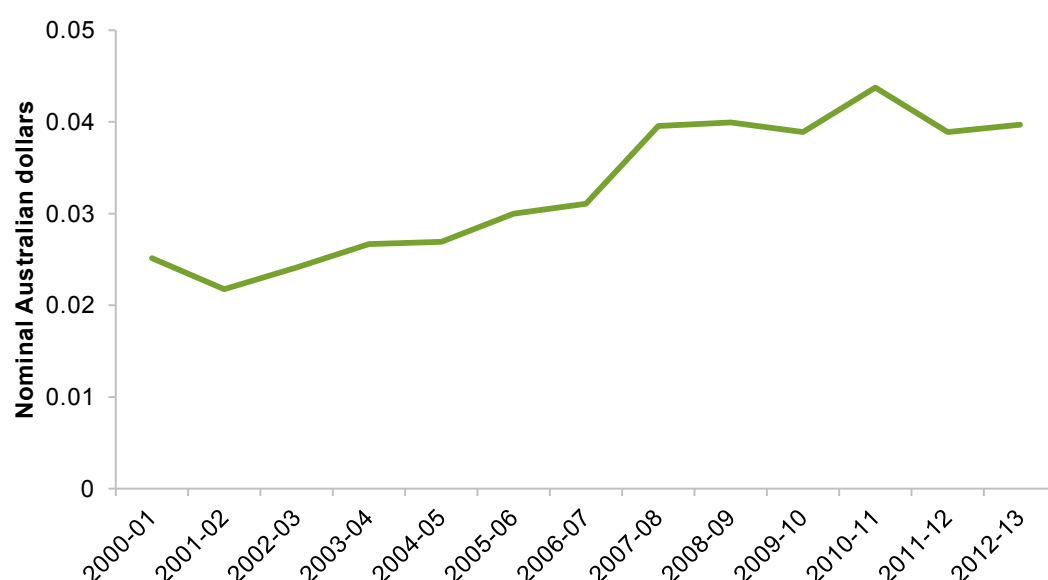
traditionally higher on-farm costs, such as Europe and the United States, has narrowed (Rabobank 2012). This is largely attributable to rising debt costs in southern hemisphere dairy regions (associated with increasing land costs), and the weaker US dollar.

### Debt costs have risen in Australia

The average Australian dairy farm business debt rose, in nominal terms, from about \$289 000 in 2001-02, to about \$780 000 in 2012-13 (ABARES 2014b). The interest cost of servicing dairy farm debt per litre of raw milk produced has risen over the same period (figure 4.6). Much of this rise is attributable to consolidation in the industry and the increased average size of dairy farms.

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**Figure 4.6 Interest paid by Australian dairy farmers, per litre of raw milk**  
2000-01 to 2012-13



Source: ABARES (2014b).

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### International competition is strong

International comparisons of dairy costs require the conversion of national cost data into a common currency (usually the US dollar) using exchange rates. Accordingly, the appreciation of the Australian dollar against the US dollar (chapter 1) has narrowed the gap, in a comparative sense, between the cost of raw milk production in Australia and in many competitor countries. Furthermore, since most international dairy trade is carried out in US dollars, the appreciation of the Australian dollar against the US dollar has made Australian dairy products comparatively more expensive.

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The competitive pressure on the Australian dairy industry is expected to persist in the short to medium term. A number of impending developments in other dairy producing nations are particularly relevant, including:

- the removal of EU production quotas in 2015, which is widely expected to drive efficiency gains and increase dairy production in the European Union (chapter 2)
- the continued growth of exports from the United States (the US dairy industry is seeking to increase its export presence and has experienced a fourth consecutive year of record exports by volume) (ADIC and Dairy Australia 2013)
- expected growth in raw milk production volumes in competitor countries (ADIC and Dairy Australia 2013).

Although these developments will maintain the competitive pressure on Australian dairy farms, the continued competitiveness of the Australian dairy sector is not solely contingent on containing costs at the farm level. The manufacturing sector's ability to add value and earn the highest possible return on raw milk (chapter 5), and to gain access to international markets (chapter 6), is also vital.

#### FINDING 4.2

Raw milk production costs in Australia are competitive with other major dairy producing regions, including New Zealand. However, Australian dairy farmers face challenges, including the relatively strong Australian dollar, growing farm debt (and the associated interest costs) and a highly competitive global trading environment.

## 4.2 Raw milk volumes and seasonal variability

While dairy manufacturers in Australia are able to take advantage of comparatively low raw milk prices (chapter 3), a number of participants considered that the cost (and international competitiveness) of dairy product manufacturing is also affected by the *non-price* characteristics of raw milk supply, including:

- the total volume of raw milk produced in Australia in a given year (and in individual dairy regions) — that is, the size of the milk pool
- the variation in milk volumes across the seasons.

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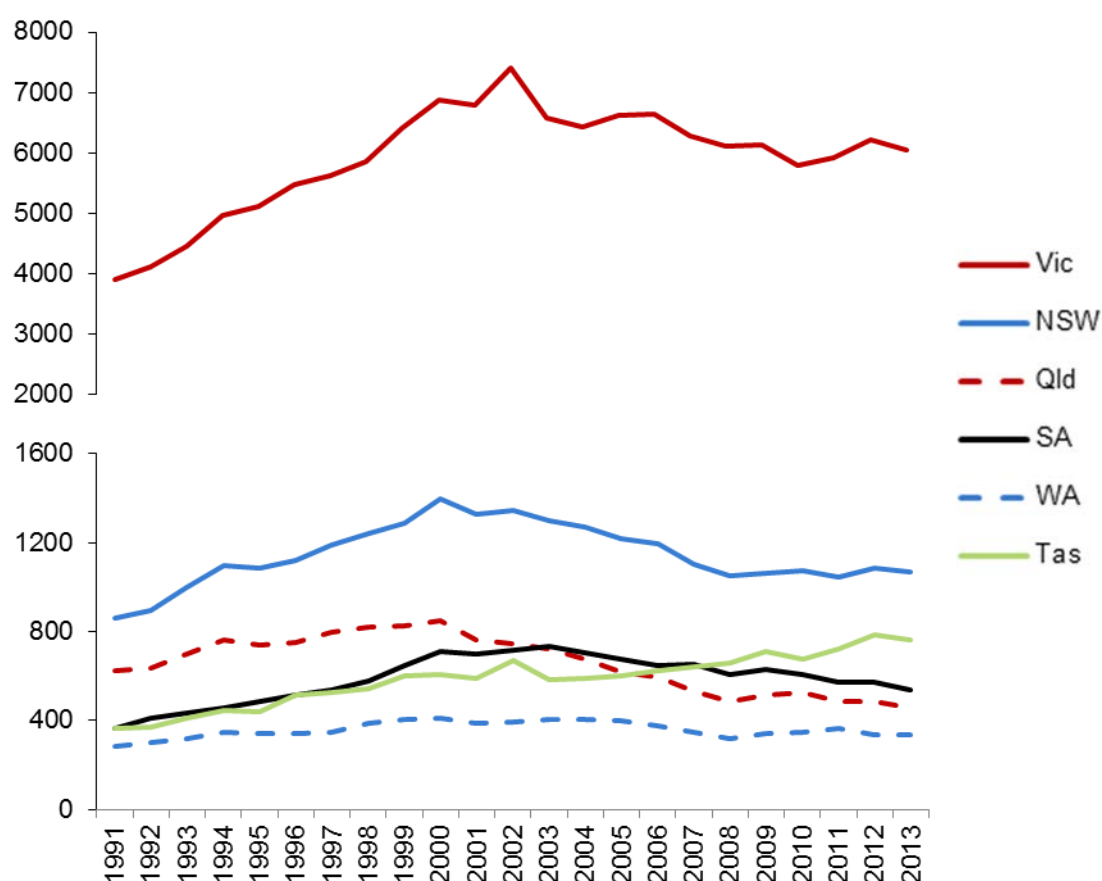
## What has been happening to raw milk volumes and seasonal variation in Australia?

### Volumes have declined

The annual volume of raw milk produced in Australia has not grown in recent years, and relative to the early 2000s (when farmgate price controls were removed), the total national milk pool has declined (figure 2.3, chapter 2). New South Wales, Queensland and South Australia have experienced (proportionately) the most significant drop off in raw milk volumes post-deregulation (figure 4.7), although the rate of decline has slowed in recent years. In contrast, Tasmania's raw milk supply has grown steadily, while output in Victoria and Western Australia has been relatively flat since the mid-2000s.

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**Figure 4.7 Production of raw milk<sup>a</sup>**  
Million litres, 1990-91 to 2012-13



<sup>a</sup> Years are for financial year ending.

Source: ABARES (2014b).

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The lack of growth in Australia's raw milk supply in recent years can be attributed to:

- the structural adjustment associated with industry deregulation. The removal of incentives for overproduction in 2000 encouraged dairy farms to become more productive (to ensure viability in the absence of government assistance). In some cases, the land, capital and labour previously used in dairy farming was reallocated to more productive uses. These developments have led to fewer, but larger and more productive, dairy farms in Australia
- the impact of severe droughts in the southeast of Australia (2002-03 and 2006-07), and cyclone and flood events in northern Australia (2006-07), on water availability, pastures and fodder
- the resources investment boom, which resulted in an appreciation of the Australian dollar and had a significant impact on the competitiveness of agricultural exports (including dairy) (Grundnoff 2013). Moreover, strong competition for resources (such as labour) from the mining sector has implications for other domestic industries, including the dairy product manufacturing sector
- farmer demography. As noted in chapter 2, the average age of Australian dairy farmers has been increasing: up from 48 in 1990 to 53 in 2014. There is some evidence that dairy farmers approaching retirement prefer to repay farm debt (Westbrooke 2013), which can contribute to lower levels of investment in herd numbers
- to a lesser extent, the relative attractiveness of exporting live dairy heifers (box 4.1).

#### **Box 4.1      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. This growth was driven by demand from China, with exports to that country rising from about 15 000 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 more than double the domestic price (Rogers 2014).

Some participants considered that stagnant raw milk volumes over the last decade can also be attributed to 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) (Farmer Power Australia, sub. IR9).

Dairy farm business profitability (total cash receipts less total cash costs, depreciation and imputed labour costs) has been more volatile since industry deregulation (ADIC and Dairy Australia, sub. 6), and the average Australian dairy farm did not return a business profit for

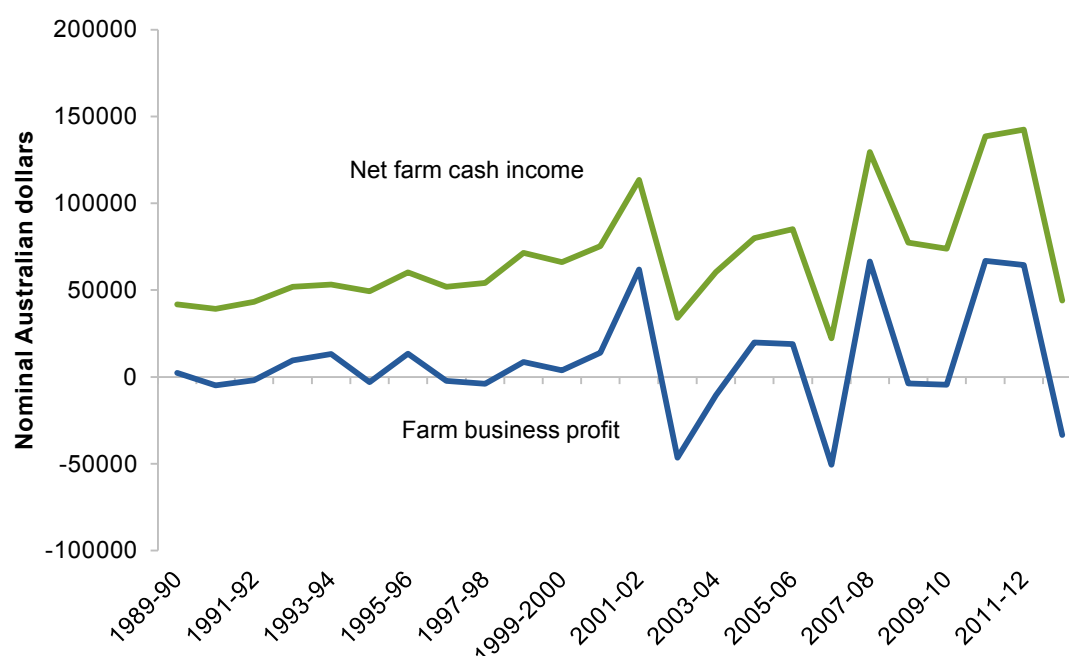


six of the last ten years (figure 4.8). However, when viewed across the decade as a whole, the average dairy farm has been profitable (and more profitable than in the ten year period immediately prior to deregulation) owing to near record returns in profitable years, despite the effects of severe droughts. Moreover, dairy farms are, on average, more profitable than the average Australian broadacre farm. Over the period 2008-09 to 2012-13, average dairy farm business profit was about 80 per cent higher than average farm business profit for all broadacre industries — this equates to an average annual rate of return, excluding capital appreciation, of about 2.5 per cent for dairy farms and about 1.4 per cent for all broadacre farms (ABARES 2011, 2013b).

It is important to note that these averages mask that, in any given year, a significant portion of Australian dairy farms will fail to cover cash costs or make a profit — for example, although the average Australian dairy farm recorded a nominal farm business profit of about \$64 000 in 2011-12, about 5 per cent of dairy farms did not earn enough revenue to cover their cash costs that year (Department of Agriculture, sub. 7). On balance, however, it appears that dairy farm confidence (and investment) has improved in recent years (box 4.2).

**Figure 4.8 Net dairy farm cash income and farm business profit<sup>a</sup>**

Average per farm, 1989-90 to 2012-13



<sup>a</sup> Net farm cash income is the difference between total cash receipts and total cash costs. Business profit equals net farm cash income plus buildup in trading stocks, less depreciation and imputed labour.

Source: ABARES (2014b).

## Box 4.2 Trends in dairy farm confidence and investment

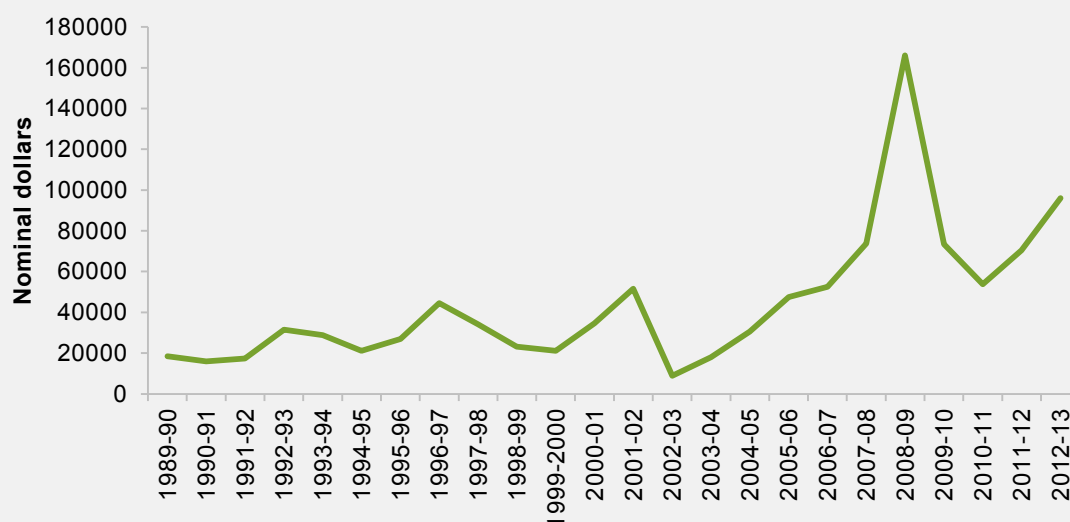
### Confidence

The latest National Dairy Farmers Survey shows that confidence is high, with 75 per cent of Australian dairy farmers positive about the future of the industry, and 51 per cent planning to make further investments in the next 12 months (Dairy Australia 2014). With the exception of 2013, farmer confidence has been persistently high since 2008 (Dairy Australia 2014).

### Investment

Net capital additions (the total purchases of land, buildings, structures, plant and equipment, less sales of these items) have increased substantially since 2002-03. The sharp increase in investment in 2008-09 (a historic high, illustrated below) has been attributed to a combination of low interest rates and investment incentives provided by the Australian Government through its grants to irrigators in the Murray–Darling Basin; and the investment allowance offered to businesses between December 2008 and December 2009 as part of the government’s stimulus package in response to the global financial crisis (Mackinnon, Oliver and Ashton 2010). Most of the investment since 2002-03 reflects purchases of new land, and an increase in debt to fund the working capital required for larger farms (Dharma and Dahl 2013).

Net capital additions, average per farm



There is a trend toward less seasonal variation in raw milk volumes

Dairying in Australia has traditionally followed a seasonal production curve, with peak to trough ratios (the ratio of the highest month of raw milk production to the lowest month of raw milk production) of about 3:1, but as high as 4:1 in some regions of Victoria (Hauser 2010). This reflects economic considerations — seasonal, pasture based feeding systems are generally lower cost than alternative dairy farming systems.

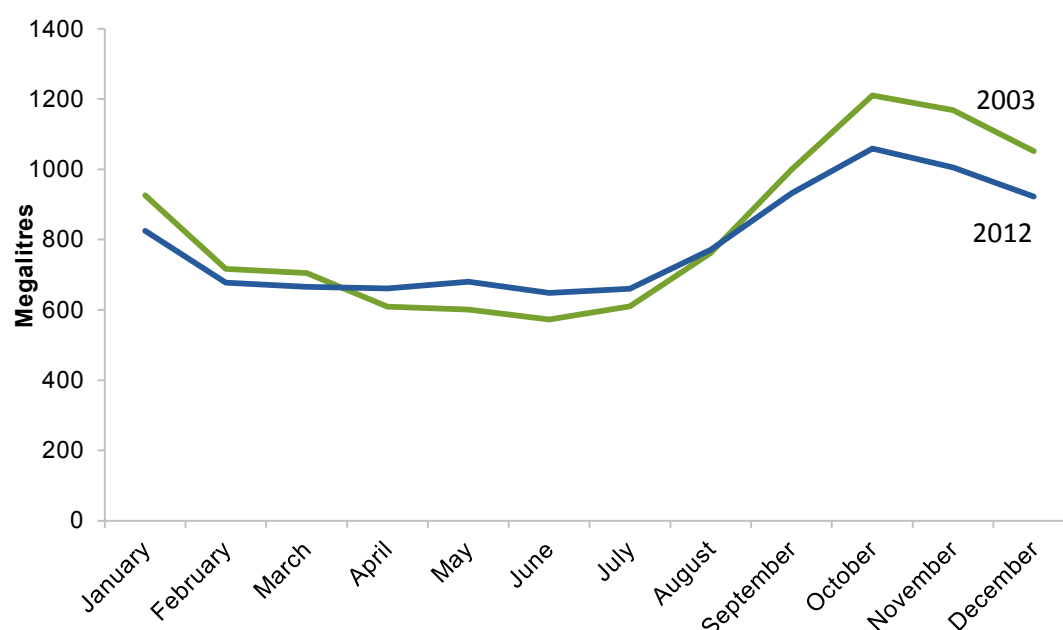
However, over the past decade many dairy farmers in Australia have progressively adapted their farming activities to generate a ‘flatter’ milk production pattern (figure 4.9). In 2012

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the peak to trough ratio was 1.6:1 for Australia and 1.7:1 for Victoria (Dairy Australia, pers. comm., 22 July 2014).

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**Figure 4.9 Raw milk production, by month**  
2003 and 2012



Source: Dairy Australia (pers. comm., 22 July 2014) .

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Higher off-peak raw milk production is generally achieved through a combination of an extended calving period and more intensive use of supplementary feeding systems (fodder) (Dairy Australia 2013e). That said, research conducted by Dairy Australia on Victorian farms found that some farms (particularly irrigated farms) were able to make the transition to supplying off-peak milk while maintaining high levels of pasture in the cows' diet (Dairy Australia 2013e).

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Hauser and Lane (2013) argue that the shift away from highly seasonal production systems has been driven by a range of factors, including:

- increases in the prices offered by manufacturers for off-peak milk (many dairy product manufacturers are willing to pay a higher farmgate price for out-of-season milk to increase capacity utilisation, or to meet customer demand requirements)
- the promotion of supplementary feeding as ‘good practice’ by industry agencies, agricultural scientists and consultants
- drier climatic conditions, which are more favourable to winter pasture growth
- an increased range of available pasture species options
- changes in the management of pasture growth and grazing practices
- a shift in the genetic characteristics of dairy herds affecting fertility and duration of lactation
- the financial circumstances of farms, necessitating a more stable cash flow.

## **Implications for scale, capacity utilisation and manufacturing costs**

Participant commentary about the ‘low’ volume and (relatively) seasonal nature of Australia’s raw milk supply primarily stems from a concern that these features contribute to inflated dairy product manufacturing costs in Australia. The specific issues raised by participants varied — some considered that available economies of scale (box 4.3) are not being exploited, while others suggested that seasonal variability makes it difficult for manufacturers to achieve high capacity utilisation rates (that is, the extent to which a business uses its installed productive capacity).

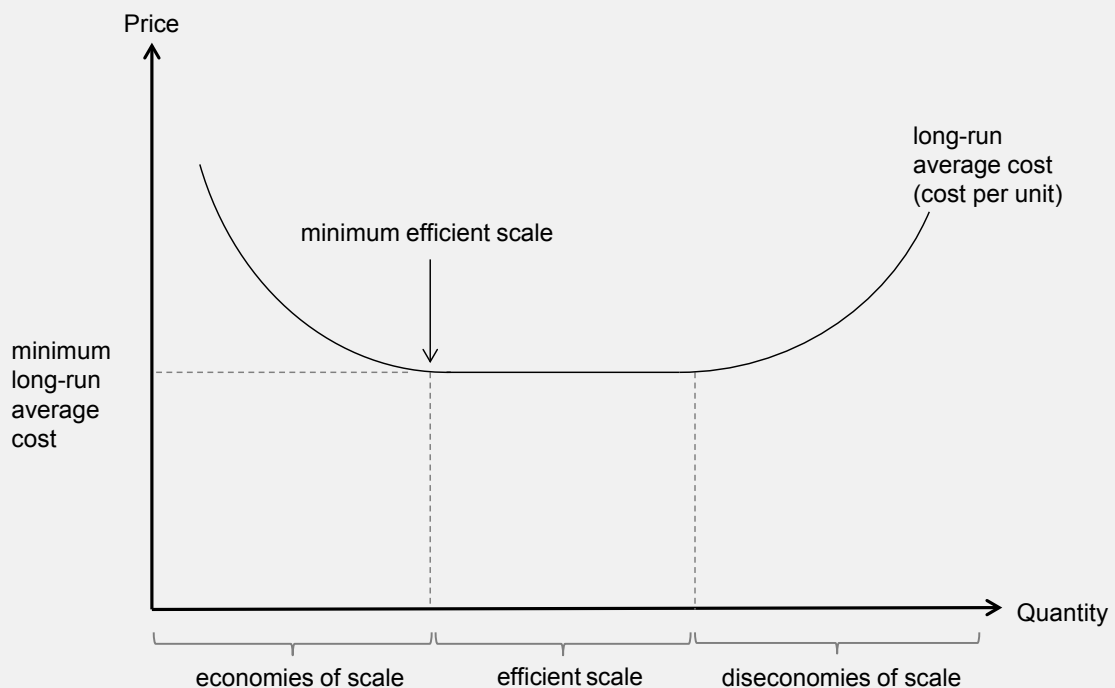
### **Operating scale can affect manufacturing costs**

The upfront investment required to construct a dairy product manufacturing plant varies depending on the type of product produced, the scale of the plant, technology choice, location and so on. In general, however, plants that produce highly processed dairy products tend to be more expensive to build than fresh drinking milk plants (table 4.2).

### Box 4.3 Economies of scale

Economies of scale are the cost advantages that firms obtain due to operating scale. Economies of scale are present when the cost per unit of output decreases as the volume of output increases. In economic theory this equates to the range of production on the downward sloping section of a firm's long-run average cost curve (depicted below). Potential sources of economies of scale include spreading fixed costs over more output, employing more volume-efficient equipment, and/or employing work organisation techniques that are more efficient with larger scale (for example, specialisation of labour) (PC 2006c).

However, the gains from economies of scale are limited up to the point of minimum efficient scale, and producing volumes of output above the efficient scale can result in diseconomies of scale. Diseconomies of scale are present when the cost per unit of output increases as the volume of output increases. Potential sources of diseconomies of scale include greater demand for limited inputs forcing up input prices, and management and communication problems within firms (PC 2006c).



**Table 4.2 Estimates of the cost required to build a dairy product manufacturing plant<sup>a</sup>**

<i>Product</i>	<i>Annual production</i>	<i>Cost</i>
Liquid drinking milk	250 million litres	\$60 million
Standard milk powders	50 000 – 60 000 tonnes	\$100 million
Special milk powders (such as infant formula)	50 000 – 60 000 tonnes	\$150 million
Butter and cream	10 000 tonnes	\$50 million
Fresh dairy (such as yoghurt)	50 000 – 60 000 tonnes	\$50 million

<sup>a</sup> These cost estimates are in addition to infrastructure costs associated with building on a greenfield site.

Source: Mentiplay (2013).

While there is a dearth of reliable, publicly-available data on economies of scale in dairy product manufacturing, limited research focused on milk powder plants suggests that plant-level scale efficiencies can be significant, but decline as plant size increases (box 4.4).

McKinsey Australia — in work recently undertaken for the Business Council of Australia — estimated that Australian dairy is operating at a \$0.20/kg cost disadvantage relative to New Zealand (in terms of landed cost per kilo of skim milk powder) due to the “lower scale” of dairy processing in Australia, despite “higher utilisation from volume smoothing”. However, estimates of scale-related cost differences between countries should be treated carefully, not least because there is significant variation in dryer size and capacity utilisation rates *within* both Australia and New Zealand. For example, milk dryers in New Zealand can produce anywhere between 1 and 30 tonnes of milk powder per hour, while in Australia most new dryers are capable of producing more than 5 tonnes of milk powder per hour — however, some businesses operate dryers of smaller and varying scales (Cole 2012; Rockwell Automation 2014; Tatura Milk nd).

A number of study participants considered that the ability of Australian dairy manufacturers to take advantage of scale efficiencies is currently constrained by the ‘low’ volume of raw milk produced in Australia.

A decline in raw milk production over the past decade has constrained Australian dairy manufacturers’ capacity to invest operations in a period when many international competitors are aggressively pursuing such outcomes. (Department of Agriculture, sub. 7, p. 19)

At the processor level, lack of [raw milk] volume growth and the resulting lack of scale efficiencies has resulted in a lack of infrastructure expenditure leading to little or no productivity gains. Consequently, Australia’s share of international trade has trended down as local milk production has contracted over the past decade. (ADIC and Dairy Australia, sub. 6, p. 36)

#### Box 4.4 Estimates of scale efficiencies in dairy manufacturing

A number of studies have attempted to estimate the cost savings associated with larger scale milk powder manufacturing plants.

##### Donnellan et al. (2014)

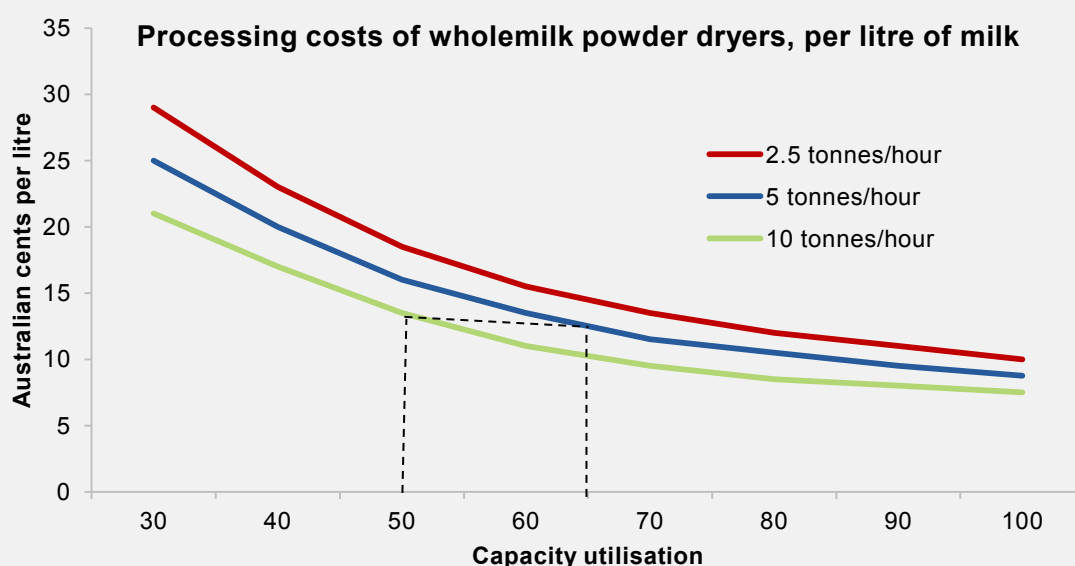
Donnellan et al. sought to estimate the scale-based cost savings associated with Irish wholemilk powder manufacturing plants operating at about 45 per cent capacity. The study found:

- a 5 tonne per hour dryer provides a cost saving of 1.4 Eurocents per litre (relative to a 3 tonne dryer). However the savings are smaller when comparing a 7.5 tonne dryer to a 5 tonne dryer (0.52 Eurocents per litre) and smaller again for a 15 tonne dryer relative to a 7.5 tonne dryer (just under 0.5 Eurocents per litre).
- much of the cost advantage of installing a 15 tonne dryer could be captured by two 7.5 tonne dryers, and Irish manufacturers have demonstrated a preference for 7.5 tonne dryers due to operational flexibility advantages.

##### Hauser (2013)

Hauser examined Australian wholemilk powder dryers and found:

- the minimum size for viable powder plants in Australia is about 5 tonnes per hour
- scale-based cost advantages diminish as plant size increases beyond this
- plants in New Zealand typically operate at about 50–55 per cent utilisation, with Australian plants operating somewhere between this and the rate typical in the US (about 90 per cent)
- some of the gains from scale can be offset by higher capacity utilisation rates. For example, the costs per litre of a 10 tonne per hour wholemilk powder dryer running at 50 per cent capacity, are roughly equivalent to those of a 5 tonne per hour dryer running at about 65 per cent, as depicted below (Hauser 2013).



**Cole (2012)** observed that, internationally, new dairy processing companies tend to favour dryers in the 6–8 tonne per hour range. Cole considered that 8 tonnes per hour is the minimum size required for a processor in New Zealand to be competitive.

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Moreover, participants suggested that the scale of dairy manufacturing operations in Australia puts domestic businesses at a disadvantage in global markets, and relative to New Zealand in particular:

... Australia's relatively small scale operations have affected its cost competitiveness in the global dairy commodity market. (Department of Agriculture, sub. 7, p. 19)

The New Zealand milk supply profile provides New Zealand dairy companies with the scale required to efficiently invest in more and larger equipment ... the majority of dairy companies in New Zealand tend to use 20 tonne dryers, as this is the only way in which they are able to process the large quantities of raw milk. This is in comparison to the majority of Australian companies who use dryers with a capacity of about 5 tonnes. (Mentiplay 2013, p. 30)

New Zealand became the world's leading exporter of milk and added \$7.5 billion annual export growth. Their success was underpinned by a whole of system approach where New Zealand farms got bigger, processing scale and efficiency increased, and investment in branding and technology was scaled up. (McKinsey Australia 2014, p. 35)

Operating a large-scale milk powder plant for a few months may well be more efficient than operating multiple smaller-scale plants on a year-round basis. However, if plant size reflects the volume and seasonal pattern of raw milk supply (and domestic demand for fresh dairy products) in individual countries, as seems to be the case in Australia and New Zealand, then a stronger case than 'larger-is-better' is required to justify commercial or policy strategies to pursue scale.

### There is no binding constraint on raw milk volumes

Industry concerns about the volume of Australia's raw milk supply are understandable. However, the Commission has not received any evidence to suggest that dairy farmers do not respond to price signals (quite the contrary), or that the Australian raw milk market is not operating efficiently. The only constraint facing a manufacturer seeking more raw milk, therefore, is their willingness to pay for it — either in the form of a sufficiently high farmgate price, or by investing in on-farm productivity improvements to reduce raw milk production costs.

Moreover, there is considerable evidence that manufacturers are acting to increase raw milk supply, where the benefits outweigh the costs. As noted by Dairy Australia, '... the focus [of manufacturers] 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 2014b). Similar price incentives have been offered by other manufacturers, and some of these businesses are also entering into co-investment schemes with farmers (underpinned by longer-term supply agreements), or seeking third-party capital investment in dairy farming operations.



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Notwithstanding this, some industry participants considered that further work is required to encourage on-farm investment. Rory Macleod, managing director of Freedom Foods (part owner of Pactum Dairy), recently observed:

For me and the business, what we don't want to be doing across the industry is trading each other's existing supply ... Growth is key. We are doing a lot of work on that and the rest of the industry is doing a lot of work on that too and I'm not lacking confidence about the market's ability to grow. But I just think we are probably a little bit behind the pace and we need to step it up. (Lynch 2014d)

Farm-based investment is critical to raw milk supply (and manufactured dairy output) increasing. As international opportunities arise, dairy product manufacturers should be interested in encouraging supply growth, but this will require investment by dairy farmers. Dairy farm returns have, however, been volatile over the last decade or so. While individual farm profitability will vary, as a group dairy farmers may not be in a good financial position to manage a significant increase in investment risks alone.

### Scale is not the whole story

Even where potential scale efficiencies exist, the business case for pursuing larger-scale dairy product manufacturing operations is not clear cut. There are offsetting costs and risks to consider (for example, the pattern of raw milk supply is an important consideration).

In particular, strategies that involve greater scale can lead to increases in other business costs. For example, there are costs involved with transporting raw milk large distances from the farmgate for processing. Where the density of raw milk production in the collection area surrounding a plant is relatively low — due, for example, to the proportion of land devoted to dairying, stocking rates on dairying land and/or milk yield per cow — the transport costs associated with raw milk collection can limit the case for increasing dairy manufacturing scale. (In contrast, where the density of raw milk production is very high — for example, Fonterra's Darfield processing plant includes a 30.8 tonnes per hour milk powder dryer and the required raw milk is sourced from within a 65 kilometre radius (Cronshaw 2013) — the additional transport costs associated with increased scale will be less of a consideration). Evidence provided to the Commission suggests these costs could often outweigh the benefits from consolidating dairy manufacturing plants in Australia, irrespective of the structure of the industry.

Moreover, if achieving greater scale requires increasing raw milk purchases, this is likely to put upward pressure on raw milk prices, all else equal. In some cases, the efficiency benefits of operating a larger-scale manufacturing plant may not justify the increase in input costs.

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Whether the benefits of a larger-scale plant are actually realised will also depend on capacity utilisation rates.

- New Zealand's raw milk supply is highly seasonal, reflecting the relative low cost of pasture-based feeding, a small domestic market and a heavy focus on producing bulk powders for export (Hauser 2012b).
- Australia has *less* seasonal raw milk production by comparison, reflecting the relatively low cost of fodder for Australian dairy farms and a sizable domestic market with year-round demand for fresh and higher value added (non-commodity) dairy products.

This contrast has important implications for minimum efficient scale in the two countries. In New Zealand, it may be most profitable to operate large-scale plants at high utilisation for the short peak raw milk production period, but to take these plants out of operation outside of the peak, while in Australia, smaller-scale plants utilised at a high rate year-round may be more economic.

The importance of *operational flexibility* to dairy manufacturers can also influence the business case for pursuing greater scale. For manufacturers that produce a diverse range of products, or that specialise in tailoring products to particular specifications or servicing niche markets, it may be preferable to operate multiple, smaller-scale plants rather than a single, large-scale plant. This commercial judgment is best left to the market to make, as the preferences of consumers (locally and offshore) are not a matter in which government has much expertise.

It is also important to note that there are many ways for businesses to reduce costs, and/or improve their competitiveness, other than through increased scale. Indeed, some manufacturers pursue strategies that entail higher operating costs but proportionately higher revenue; for example, by pursuing greater product differentiation (in terms of quality or branding) (chapter 5). Equally, for manufacturers focused on higher-value or niche products, achieving greater scale is unlikely to be a primary concern.

### Seasonal variation presents challenges for Australian dairy manufacturers

Notwithstanding a reduction in seasonal variability over time (discussed above), Australia's relatively seasonal (by international standards) raw milk supply can present various challenges for manufacturers.

For example, if seasonal variability means that capacity utilisation rates fall significantly outside of the peak raw milk production period, this may increase dairy manufacturing costs, all else equal. This is true for manufacturing plants of various scale, but is especially the case for small plants, where overhead and investment costs typically form a higher proportion of total costs.

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The Commission has also heard that seasonal variability may be encouraging dairy manufacturers to opt for smaller-scale plants (to reduce the costs associated with low capacity utilisation rates), thereby foregoing potential scale efficiencies:

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. (ADIC and Dairy Australia, sub. 6, p. 3)

The seasonal variation in Australia's raw milk supply can also make it costly for manufacturers to 'match' supply with year-round demand requirements. This is especially true for manufacturers focused on producing highly perishable dairy products for the domestic market.

Seasonal variation is also a feature of New Zealand's raw milk supply. However, seasonality is regarded as less of an issue for New Zealand's manufacturers due to the small domestic market and the heavy focus on producing milk powders for export (a less perishable product). In combination, these factors provide a strong incentive to invest in large-scale plants, but to take these plants off-line outside of the peak:

... New Zealand processing and manufacturing facilities are more commonly wound up and down to cater for the steeper fluctuations in milk supply. Indeed, much of the equipment in New Zealand sits idle for about six months of the year. This adds to the overall efficiency of the New Zealand dairy industry as companies are able to reduce overhead expenses during periods of low milk production. (Mentiplay 2013, p. 30)

### **Manufacturers can encourage less seasonal milk, where the benefits outweigh the costs**

The flatter raw milk production curve desired by many dairy product manufacturers is not a natural feature of dairying in Australia, and will generally come at a higher cost to dairy farmers.

However, seasonal pricing has long been a feature of raw milk payment systems in Australia, and manufacturers understand and accept that they need to pay a premium for off-peak supply (Hauser 2012a). In some regions these premiums have progressively increased over the past decade. For example, Murray Goulburn offered a June price premium of about 6 cents per litre in 1998-99, 8 cents per litre in 2005-06, 13 cents per litre in 2008-09 and 17 cents per litre in 2011-12 (Hauser 2012a).

It is therefore for manufacturers to weigh up whether the higher farmgate price required to prompt off-peak milk is justified by the potential benefits on offer, such as higher capacity utilisation rates.

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#### FINDING 4.3

Manufacturing plant scale and capacity utilisation are commercial decisions for dairy manufacturers. Differences in plant scale between Australia and New Zealand reflect key differences between the respective countries' dairy industries, including the volume and seasonal pattern of raw milk supply; domestic demand for dairy products; and input costs.

On-farm investment is crucial to increasing Australia's raw milk supply (and dairy manufacturing output). Manufacturers may need to share more of the investment risks in order to encourage increased raw milk production. Farmgate price incentives to encourage 'new' milk, or reduce seasonal variability, are already in play where it is commercially desirable.

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## 5 Opportunities and challenges for the dairy industry

### Key points

- As a trade-exposed industry, it is critical that dairy manufacturing operates as efficiently as possible. The need for cost-efficiencies is made more imperative by the recent trend of increasing input prices, and the relative cost disadvantages for Australian producers, highlighted in earlier chapters.
- Some participants have suggested that Australia should adopt an industry structure similar to that of New Zealand, with one dominant ('national champion') dairy manufacturer. Such suggestions are often based on an overly simplistic comparison of the export performance of the two countries' dairy industries. They also gloss over the inherent regulatory structure in New Zealand (for example, domestic price regulation).
- It is important for competition regulators to be cognisant of scale benefits when considering merger proposals. However, criticism of the Australian Competition and Consumer Commission regarding a recent proposed merger between Murray Goulburn and Warrnambool Cheese and Butter seems misplaced. The regulatory process was able to take account of scale issues in considering the merger.
- Access to capital is critical for the sector's productivity and competitiveness. Regulation does not appear to impede access to capital for dairy farmers or dairy product manufacturers. Cooperatives may have some limitations in raising capital, but these are matters for the members, not government.
- In addition to containing costs, the performance of the dairy manufacturing sector ultimately depends on the success of companies in innovating, responding to changes in consumer preferences, and taking advantage of higher value or niche markets. Many successful dairy manufacturers are shifting resources towards higher value dairy products, and using quality and other product attributes as a point of differentiation. Other manufacturers have successfully differentiated their products based on image, size and ownership.

Chapters 3 and 4 highlighted some of the cost pressures facing dairy product manufacturers and dairy farmers in Australia. This chapter focuses on how the industry is dealing with these challenges and finding ways to improve efficiency and competitiveness. Chapter 6 concentrates on the impact of government policy, and considers whether policy changes would be beneficial to the dairy industry and community more generally.

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## 5.1 Achieving dairy manufacturing efficiencies

As for other trade-exposed industries, it is critical that the dairy manufacturing industry operates in an efficient manner. The need for cost-efficiencies is made more imperative by the recent trend of increasing input costs, and the relative cost disadvantages for Australian producers, highlighted in chapters 3 and 4.

### Consolidation offers scale benefits, but there are tradeoffs

Chapter 4 highlighted that operating scale can affect dairy product manufacturing costs and competitiveness, but that there are no regulatory impediments to Australian manufacturers scaling up their operations by purchasing more raw milk from existing farmer suppliers, incentivising other farmers to ‘switch’ to supplying them, or investing in larger manufacturing plants.

Notwithstanding this, a number of stakeholders have suggested that an alternative (and potentially more desirable) way to achieve economies of scale in dairy product manufacturing is by increasing industry consolidation, either through merger and acquisition activity amongst incumbent manufacturers, or by some sort of deliberate, government-led action to facilitate the formation of a single, dominant manufacturer (box 5.1).

In particular, comparisons have been made between the relatively fragmented structure of Australia’s dairy product manufacturing industry and the more concentrated industry structure in New Zealand, where Fonterra (box 5.2) processes the vast majority of the country’s raw milk, under a regulatory model.

### What are the arguments for a dairy ‘national champion’?

Supporters of a significantly more concentrated industry structure in Australia argue that a large ‘national champion’ manufacturer would place Australia in a stronger position in global markets. A number of study participants and other commentators expressed support for the recent proposed takeover bid by Murray Goulburn for Warrnambool Cheese and Butter (WCB) (discussed below) on the basis that it represented a move in this direction.

For example, Australian Dairy Farmers said:

ADF has a policy that supports Australian farmer-owned co-operatives as the foundation for a strong Australian dairy industry that grows through exports. This is because the member states of ADF agree there is strength in unity through farmer ownership of processing capacity via an efficient farmer-owned co-operative model which offers farmers improved returns from the whole supply chain. A strong farmer co-operative also offers farmers increased market power. ... ADF also is of the view that the merger will give MG enhanced opportunities in the international market place and provide MG with increased opportunities for growth through exports – the key to dairy industry growth in Australia. (ADF 2013, p. 5)

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### Box 5.1      **Should there be an ‘Aussie Fonterra’?**

A number of stakeholders have looked at the relative export performance of the Australian and New Zealand dairy sectors in recent years and concluded that the Australian dairy sector would be more efficient if it had a New Zealand-like structure, with a dominant (‘national champion’) dairy manufacturer.

For example, Philip Tracy, the Chairman of Murray Goulburn, Australia’s largest dairy manufacturer, said in November 2013:

Australian dairy needs a strong farmer-owned business, at its core, that can compete globally. We consider this scale is necessary to compete against the other giant dairy co-operatives like Fonterra, Dairy Farmers of America, Friesland Campina and Arla — not to mention the multi-national giants like Nestle and Kraft. If our underlying goal is to improve farmgate returns — and it is — then we need a national dairy co-operative, with the scale, capacity and capability to compete on the global stage. (Tracy 2013, p. 4)

McKinsey Australia, in work undertaken for the Business Council of Australia, recently suggested:

New Zealand very deliberately enabled its dairy processors to achieve scale and capture global export share. The Dairy Industry Restructuring Act allowed the two largest dairy co-operatives to merge to form Fonterra. The Act was passed to increase international competitiveness, but also included safeguards to prevent abuse of monopoly power in the domestic market. Fonterra now controls approximately 95 per cent of milk production in New Zealand and approximately 40 per cent of global dairy exports, and has enjoyed a decade of double-digit growth while Australia’s dairy industry has flat-lined. (McKinsey Australia 2014, p. 45)

McKinsey suggested Fonterra was an example of how ‘purposeful market design’ (p. 45) could unlock the underlying export potential of an industry.

However, a belief that any single Australian company could exert market power on global markets is not 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 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.

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### Box 5.2      **The formation of Fonterra**

Fonterra Co-operative Group Limited (Fonterra) was formed in 2001 following the passing of the *Dairy Industry Restructuring Act 2001* (NZ) (DIRA) through the New Zealand Parliament. The DIRA enabled the merger of New Zealand's two largest dairy cooperatives, New Zealand Co-operative Dairy Company Ltd ('Dairy Group') and Kiwi Co-operative Dairies Ltd, and the New Zealand Dairy Board (the cooperatives' export marketing arm then with a statutory monopoly power over the acquisition and export of all dairy products from New Zealand).

New Zealand's competition regulator had previously indicated it was not supportive of such a merger because of domestic competition concerns. In view of these concerns, the DIRA also contains reforms designed to promote domestic competition. Under the DIRA:

- Fonterra cannot discriminate between existing shareholder suppliers and new entrant suppliers in the same circumstances.
- Farmer suppliers may freely enter and leave Fonterra.
- Fonterra is obliged to supply 250 million litres of milk per year to Goodman Fielder's milk, cheese, butter and yoghurt factory and up to 50 million litres of milk per year to each other independent milk processor ('DIRA milk'). It may charge those processors the reasonable cost of transporting the milk to their factories.
- Fonterra must ensure that 33 per cent or a greater percentage of the milk solids produced within a 160 kilometre radius of any point in New Zealand:
  - Is supplied under contracts with independent processors; or
  - Is supplied under contracts with Fonterra that expire or may be terminated by the supplier at the end of the current season without penalty to the supplier.
- Fonterra's suppliers can supply up to 20 per cent of their milk output to a competing processor without having to exit Fonterra.
- Fonterra is required to sell, at market value, any milk vat located on an exiting shareholder's farm to the shareholder when required by the shareholder.
- Fonterra is required to disclose information in relation to its milk price setting.

The DIRA also contains a 'buyer of last resort' provision, ensuring Fonterra must accept supply from any new participant who applies to become a shareholder, or any shareholder who aims to increase supply (subject to some restrictions with regard to size of farm, cost of transporting milk, and milk quality). As shareholders increase their supply to Fonterra, they are required to increase their shareholding, which provides Fonterra with capital required to process the additional milk provided.

Sources: *Dairy Industry Restructuring Act 2001* (NZ); New Zealand Commerce Commission website.

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



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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, attachment B, p. 22)

The Commission sees no impediments to the dairy industry working together to develop such a brand should they see the benefits of doing so outweighing the costs. However, in practice, it appears most dairy industry participants see more value in continuing to promote their own established brand names and do not see distinctive Australian branding as a priority. This is appropriately a commercial decision for each company.

### Is the Fonterra experience relevant for Australia?

Given that much of the enthusiasm for a single, dominant manufacturer in Australia is motivated by the performance of Fonterra in New Zealand (chapter 2), and rests on the assumption that Australia can (and should) seek to emulate this, it is worth considering the relevance to Australia of the Fonterra experience in New Zealand.

There are significant natural factors supporting New Zealand's performance, quite separate to the historical decision to merge the two largest processors with the New Zealand Dairy Board. New Zealand has higher rainfall and relative absence of drought. As competing uses of land (such as forestry and sheep farming) have performed less attractively, there has been a high rate of land conversion towards dairying (PJP 2012). Parmalat has 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. (Parmalat 2013, p. 4)

Favourable trade agreements are also likely to have played a major role. Burra Foods has questioned whether the Fonterra model has been as successful as often portrayed:

[The New Zealand dairy] industry has grown on the back of a low currency, favorable climatic conditions, good access to farm labor and superior trade access (i.e. FTA and bilateral access agreements). If Australia had enjoyed conditions similar to these the industry would have seen a growth phase similar to NZ. ... There is no evidence that Fonterra provides a greater economic value add to milk (USD basis) than Australian processors so it is not possible to conclude that the growth in NZ is attributable to Fonterra. (Burra Foods 2014, p. 1)

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Australian Trade and Investment Minister Andrew Robb also recently highlighted the importance of New Zealand's trade deal with China:

In dairy, New Zealand ... gained a major advantage on account of the Free Trade Agreement they concluded with China back in 2008. The inability ... to conclude an agreement with China during six years undermined our competitive position against our friends across the Tasman. (Robb 2014, p. 2)

Moreover, Fonterra has noted many of the features of the current structure of the New Zealand dairy industry were in place before its formation, suggesting caution is required when drawing parallels between Australia's situation now and New Zealand 'pre-Fonterra':

The primary motivation for the Fonterra merger was to achieve better vertical integration between the collection, processing and marketing of New Zealand dairy product. ... Economies of scale had already largely been met and the pre-requisites necessary to take advantage of scale benefits were already in place (wide-reaching well established sales network, significant R&D capability, customer relationships, diverse manufacturing footprint). However, the structure of the industry, with the New Zealand Dairy Board and two large co-operatives together accounting for around 95% of production and sales, was resulting in duplicated overheads and driving complex allocation rules which were destroying significant value. (Fonterra 2013, pp. 2-3)

The relative export performance of the two countries over the last decade must also be seen against the backdrop of deregulation of milk marketing in the early 2000s in Australia. The Commission has estimated that the effective rate of assistance to dairy farming has fallen from more than 50 per cent prior to 2000 to 2.1 per cent in 2012-13 (chapter 2). The removal of subsidies from the industry saw significant falls in milk production in most states, except Tasmania where it has significantly increased (chapter 4). Previous arrangements almost certainly encouraged *overproduction*, and subsidised exports. In 1991, the Industry Commission noted:

To assist manufacturing milk production, Commonwealth legislation enables the industry to impose compulsory levying of all milk production; the funds are paid into a market support fund and are used to raise the returns for exported dairy products. This increases exports and results in higher domestic prices. For example, some Australian cheese may be exported at a price of approximately \$2500 per tonne, on top of which the Australian exporter receives a market support payment (export subsidy) of approximately \$500 per tonne, increasing total export returns to \$3000 per tonne. Domestic prices must rise to \$3000 per tonne (\$500 above the world price) or else there would be an incentive for all cheese of this type to be exported. The increase in product prices attracts additional resources to milk production which decreases the availability, and increases the cost, of resources for other activities. (IC 1991, p. xviii)

It should also be noted that Australia experienced a resources investment boom in recent years which increased the value of the Australian dollar and adversely affected the export performance of other industries, including dairy. Resources such as labour, capital and land would have also been drawn into higher-returning industries such as mining, construction

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and petroleum, and away from industries like dairy (contrasting with the shift of resources toward dairying in New Zealand).

As discussed in chapter 4, the business case for further plant consolidation in Australia may also be limited by the geographically diverse location of dairy farms (and, more specifically, the low raw milk density in the collection areas surrounding plants), and the transport and storage costs involved with carrying milk large distances from the farmgate for processing.

Given all of these other factors at play, it is overly simplistic in the Commission's view to put New Zealand's relative increase in dairy exports primarily down to the formation of Fonterra, let alone to use this experience to drive policy decisions in Australia.

The recently released draft report of the Competition Review Panel (the 'Harper review') also questioned the relevance to Australia of the Fonterra experience:

Some recent commentary has suggested that Australia should seek to emulate the formation of Fonterra and our competition policy and laws should be amended to facilitate this outcome. The Panel considers that important differences between the circumstances surrounding Fonterra's formation and those applying in Australia mean that this conclusion is not soundly based. (CPR 2014, p. 196)

#### FINDING 5.1

Decisions about operating scale and industry structure are best left to markets to determine, subject to generally-applying market rules, including competition law. While the benefits of scale economies can be significant, suggestions that Australia should adopt an industry structure similar to that of New Zealand, with one dominant dairy manufacturer, appear to be based on a simplistic comparison of the export performance of the two countries' dairy industries. Such comparisons ignore important industry-specific, regulatory and economywide (including exchange rate) differences.

### Regulatory difficulties associated with creating a Fonterra-like structure

A move to support concentration may have implications for domestic competition. Unlike New Zealand, where less than 10 per cent of production is used domestically (chapter 2), the majority of Australian dairy produce is still sold domestically. The Australian Competition and Consumer Commission (ACCC) Chairman Rod Sims has cautioned that greater consolidation does not necessarily or automatically give rise to efficiency and competitiveness improvements:

We are seeing a return to calls for 'national champions' in Australia. It is, of course, terrific when companies out compete their rivals and take on the world. The concern is when they call for restrictions on competition at home so they can better compete on the world stage. The argument is a contradiction: if you cannot beat your rivals at home how can you hope to do so

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overseas? Firms involved in cosy duopolies or oligopolies in Australia are unlikely to succeed on the world stage. (Sims 2014)

Yet despite the relatively small percentage of milk used domestically in New Zealand, concerns about farmgate pricing and domestic competition also loom large in that country, where Fonterra's domestic market power is widely recognised (box 5.2).

The New Zealand Commerce Commission must review Fonterra's Milk Price Manual for each season and make a report on the extent to which it is consistent with the purpose set out in the *Dairy Industry Restructuring Act 2001* (NZ) (DIRA). The New Zealand Commerce Commission must also review Fonterra's calculation of the base milk price for each season and report on the extent to which it is consistent with the purpose set out in the DIRA (New Zealand Commerce Commission website). Fonterra's 2014 Pricing Manual runs for 83 pages. Implementation of such a regulatory regime in Australia could be highly problematic were Australia to choose to copy the New Zealand industry structure.

Further, simply limiting the application of competition laws to dairy manufacturing is unlikely to achieve any aspiration for increasing mergers between firms. A number of international players have an Australian presence because they see Australia as a springboard to growth within the Asia Pacific region, and presumably they will compete to maintain their presence. It would seem impractical to achieve a major consolidation of the industry by altering competition laws unless a government was prepared to take the further step of preventing foreign investment as well. This seems untenable under various international trade and investment agreements.

Finally, there are also potential risks associated with highly concentrated industry structures if the overall performance of the industry is linked with one company. For example, were Fonterra to suffer reputational damage for any reason, the entire New Zealand industry would be likely to suffer, whereas in Australia such an incident may be more easily quarantined to a section of the industry.

### **Available scale economies can be achieved in other ways (and a diverse manufacturing sector brings other benefits)**

The relatively fragmented nature of Australia's dairy product manufacturing industry does not preclude the achievement of scale efficiencies. There is considerable evidence of manufacturers using commercial arrangements (between themselves and other multinational dairy manufacturers) to take advantage of scale economies and improve their competitiveness, where the benefits outweigh the costs. For example, Bega Cheese has a number of supply agreements with local and overseas producers to take advantage of economies of scale, increase capital utilisation and assist in shifting production to higher value added products (box 5.3). Use of milk swaps (chapter 2) and shared use of transport (chapter 3) are also methods employed to improve operational efficiency.

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Further, while Australian dairy manufacturers might not have the scale of Fonterra, there are other benefits associated with Australia's present industry structure, namely:

**Box 5.3      Building relationships to improve efficiency: the example of Bega Cheese**

Bega Cheese has a product supply agreement with Fonterra under which Bega Cheese supplies retail cheese products to Fonterra under both the 'Bega' and other brands. Under the terms of the agreement:

- Bega Cheese will supply cheese products to Fonterra in accordance with the ordering and planning procedures set out in the Agreement.
- Fonterra is required to source all Bega branded cheese products from Bega Cheese for the duration of the Trade Mark Licence.
- The prices payable by Fonterra to Bega Cheese for products supplied are calculated under a formula that involves the reimbursement of costs incurred in producing the products plus an agreed margin (Bega Cheese 2012).

Bega Cheese also has supply agreements with Ingredia (a French dairy nutritionals company), an infant formula manufacturing agreement with Mead Johnson (one of the world's largest infant formula companies), a cheese supply agreement with Coles and long term business relationships with companies including Kraft, Woolworths, Lacto Japan, Snow Brand, Aldi and Morinaga (Bega Cheese 2013).

Bega operates 6 production plants with a 'commercial ethos of fully utilising all dairy solids contained in the liquid milk stream' (Bega Cheese 2013, p. 9):

- A bulk cheddar, cheese snacks and whey powder plant at Lagoon Street, Bega (New South Wales)
- A bulk cheddar and mozzarella plant in Coburg (Victoria)
- A cut, pack and processed cheese plant at Ridge Street, Bega
- A cut, pack and processed cheese plant in Strathmerton (Victoria)
- An infant powders, cream cheese, milk powders, milk protein concentrate, lactoferrin, frozen cream and butter plant in Tatura (Victoria) (Bega Cheese 2013).
- An infant formula blending and packing facility in Derrimut (Victoria) (Bega Cheese 2014a).

Bega completed a takeover of 100 per cent of Tatura Milk in 2011 (a company in which it previously had an approximately 70 per cent shareholding) to better integrate the production at Tatura with the other Bega plants.

Bega is also part of Capitol Chilled Foods (Australia) Pty Ltd, a joint venture company between Bega and Lion Dairy & Drinks, set up 'to establish an efficient and economical processing and distribution business for fresh milk and other chilled products in the ACT and southern NSW' (CCF nd).

- smaller-scale plants can provide manufacturers with the flexibility to produce for a number of customers according to different specifications (chapter 4)
- diverse industry knowledge and capabilities within the sector. The Australian Dairy Industry Council (ADIC) and Dairy Australia noted:

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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)

In the Commission's view, the most beneficial industry structure will generally be determined by the market place, with industry participants best placed to balance the aforementioned tradeoffs and other commercial considerations. The current structure of the industry is basically market determined, notwithstanding the controversy over the proposed Murray Goulburn-WCB merger (discussed below). The trend in recent years has been for companies to seek to improve capacity utilisation by downsizing and rationalising plants, developing commercial arrangements between manufacturers, and flattening milk supply patterns throughout the year (chapter 4).

The Commission does not consider that it is wise for governments to seek to 'second guess' market outcomes and determine an industry structure (subject to legitimate competition concerns in some circumstances). The New Zealand decision to form Fonterra was made under the specific circumstances of determining the future of the New Zealand Dairy Board. Such a choice is not confronting governments in Australia.

Industry structures have been evolving in dairy manufacturing – for example, the Bega relationship with Fonterra.

## **Competition law may influence consolidation activity**

It is worth considering the specific circumstances of the competition laws as they interact with merger activity.

### **When does competition law come into play?**

Competition law stems from a general recognition that competitive markets are likely to be the most effective mechanism for promoting efficient production, innovation and maximising community welfare. However, in the presence of economies of scale or scope (chapter 4) there are also efficiency benefits from having relatively concentrated production of an output.

Competition policy therefore seeks to strike a balance between the benefits to be obtained from domestic competition and those obtained from consolidation and scale. As the ACCC recently put it, competition law 'should prohibit anti-competitive conduct but should also permit conduct which is pro-competitive or more efficient' (ACCC 2014a, p. 8).

Where products are internationally traded, domestic suppliers are subject to import competition, and are price takers in export markets, lessening the potential for detrimental

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competition impacts. Notwithstanding this, if proposed merger activity has the potential to materially lessen domestic competition (including in upstream markets such as at the farmgate), it is appropriate that it is subject to merger review processes.

### The proposed Murray Goulburn — WCB merger triggered considerable debate

The proposed Murray Goulburn — WCB merger (box 5.4) has been a major part of the catalyst for the debate within the dairy sector about whether competition policy and its enforcement are inhibiting the sector's efficiency.

As noted earlier, many supporters of the 'export champion' model were disappointed when Murray Goulburn withdrew its bid for WCB after competition concerns were raised.<sup>3</sup> At the request of the Australian Competition Tribunal, the ACCC prepared an issues paper (released on 23 December 2013) which 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 (box 5.5), 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 the 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

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<sup>3</sup> The Canadian dairy company Saputo ultimately bid successfully for WCB.

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way, the absence of WCB could make Fonterra's coordination with Murray Goulburn easier, more complete, and more sustainable. (ACCC 2014b, p. 62)

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**Box 5.4      Attempted 2013 Murray Goulburn takeover of Warrnambool Cheese and Butter**

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 2013).

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.

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 WCB 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 2014).

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### How significant was the WCB merger process in flagging the direction of merger policy?

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). 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)



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### Box 5.5      **The importance of farmgate competition**

In its Issues Paper, the Australian Competition and Consumer Commission raised concerns about the proposed Murray Goulburn — Warrnambool Cheese and Butter merger lessening competition in the market for the acquisition of raw milk:

The ACCC considers that, in light of the issues [raised in the issues paper] there is potential for the proposed acquisition to have the effect of lessening competition in the acquisition of raw milk. While the proposed acquisition is more likely to have this effect if the relevant acquisition markets are more limited in their geographic scope, the proposed acquisition could also raise competition issues in a broader geographic market, such as the South East Region which Murray Goulburn contends. (ACCC 2014b, p. 64)

Murray Goulburn itself noted with regard to raw milk acquisition:

Under the acquisition, concentration in the supply and acquisition of raw milk in Victoria, South Australia and the Riverina region of New South Wales will increase significantly, as compared with the status-quo, or an acquisition by a rival bidder such as Saputo. This increase in concentration warrants close examination of the competitive constraints in this market, and in particular, whether there will continue to be effective constraints on Murray Goulburn's ability to exercise monopsony power as against dairy farmers when acquiring raw milk, or market power as against downstream buyers of raw milk. However ... there will continue to be effective competitive constraints on Murray Goulburn in this regard post-acquisition. (Murray Goulburn 2013, p. 95)

These constraints were described as the 'large number' of other potential milk buyers in the region, the presence of milk brokers, strong competition from Fonterra in the region, and the cooperative status of Murray Goulburn which was 'likely to have a protective influence on the price Murray Goulburn offers to dairy farmer suppliers, particularly given its stated business objective of increasing the farm gate milk price, and the control that farmer suppliers have over Murray Goulburn' (Murray Goulburn 2013, p. 96).

Were there to be a lack of competition between raw milk buyers, there would be a risk that the raw milk price at the farmgate could deviate from the efficient price that would prevail in a competitive market. This was one of several concerns that Farmer Power expressed about the impact of the merger on dairy farmers had it proceeded:

Many of Farmer Power's members are concerned that an expanded Murray Goulburn would have been able to put further downward pressure on milk prices, and point to the company's past record in that regard. There were also concerns about Murray Goulburn's debt levels (now and following any takeover) and how this would impact on the company's ability to pay farmers a fair price. This could have led to a complete collapse of the company, following the path previously taken by Bonlac in over-reaching in its revenue raising. Farmer Power issued a press release urging the industry bodies to keep out of the takeover debate as it was in the interest of farmers to have greater competition for their milk. (sub. IR9, pp. 4-5)

The Productivity Commission cannot speak for the regulatory authority, but drawing from its issues paper the ACCC in this particular case was not convinced that the claimed synergy and scale benefits associated with the attempted merger were particularly large (from the 'national benefits' perspective that is the focus of the merger authorisation process). Many of the purported benefits were considered by the ACCC to have been speculative (for example, higher farmgate milk prices leading to increased production) or able to be achieved in the absence of the merger. This is a distinctly different position from opposing a merger in all circumstances.

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The Australian Competition Tribunal *was* able to consider these questions. As such, the law does not appear deficient (other than in one aspect, discussed below, relating to the importance placed on exports and import competition). Much of the data related to the claimed synergies are confidential. The Productivity Commission is not in a position to speculate on what the decision of the Australian Competition Tribunal might have been had the case proceeded.

The Competition Review Panel also expressed the view in its recent draft report that current procedures were adequate for dealing with these questions:

The [*Competition and Consumer Act 2010*] has sufficient flexibility to allow public benefit issues to be adjudicated and determined by the ACCC or the Tribunal. The merger authorisation process ... applies a public benefit test that covers all potential benefits and detriments, including economies of scale. There may be occasions where it is in the public interest to allow a particular merger in order to achieve efficient scale to compete globally, notwithstanding that the merger adversely affects competition in Australia. ... The Panel considers that issues concerning the creation of ‘national champions’ can be addressed under the existing [*Competition and Consumer Act 2010*] framework. (CPR 2014, pp. 196-197)

## Other competition law issues

### *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.

It remains in the market interest for all bids considered by the FIRB to be cleared (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 the relative acceptability of bidders.

The Competition Review Panel reached a similar conclusion in its recent draft report:

The various approval processes are not related. While it is desirable that decision-makers be cognisant of other processes, to require that each decision-maker delay its decision until all approval processes have been completed for all bidders would impose an unwarranted burden on bidders and sellers. Bidders and sellers are aware of the various approvals that may be required under various Australian laws and have some understanding of the time that could be

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taken. Sellers have incentives to ensure that competition between potential bidders is maximised in any sales process. (CPR 2014, p. 200)

#### FINDING 5.2

It remains in the market interest for decisions on matters considered by the Foreign Investment Review Board to be announced as soon as possible, rather than choosing the timing of announcements in a manner that may allow speculation about the relative acceptability of bidders.

#### *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 section 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.

#### FINDING 5.3

The current test for examining public benefit of mergers under section 95AZH of the *Competition and Consumer Act 2010* (Cwlth), requiring that a significant increase in the real value of exports and a significant substitution of domestic products for imported products be regarded as public benefits, is flawed. Deeming benefit to lie with increased exports or import substitution has the potential to distort production, waste scarce resources, and ultimately reduce community welfare.

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## 5.2 Achieving ongoing productivity growth

Chapters 3 and 4 highlighted the significance of raw milk as an input for Australian dairy product manufacturing and the relative low raw milk costs faced by Australian manufacturers. This means that while productivity growth in the dairy manufacturing sector is important, sustained on-farm productivity improvements are also crucial to maintaining Australia's dairy competitiveness. This section examines some of the key enablers of productivity growth in the dairy sector, and the various ways that industry participants can drive (and are driving) efficiency gains in manufacturing and at the farm-level.

### Research and development

For both dairy farmers and manufacturers, research and development (R&D) is an important contributor to improvements in efficiency, productivity and competitiveness. For example:

- at the farm level, herd testing and genetic improvements mean that the average dairy cow now produces 30 kilograms more protein per year than its 1983 equivalent (ADHIS 2013). ADIC and Dairy Australia noted:  
... dairy industry output [has] expanded 90 per cent over the past 30 years and milk production on a per hectare basis [has] increased by nearly 200 per cent ... These gains have been largely due to increased pasture production and utilisation, feed supplements and genetic improvement leading to more efficient cows. (sub. 6, p. 22)
- at the factory level, Dairy Innovation Australia predicts that advances in spray-drying technology will improve yields by 18 per cent over the five years to 2017 (The Australian Dairyfarmer 2012).

Dairy R&D can also yield benefits in other elements of the supply chain, such as higher quality and lower priced dairy products for consumers, and enhanced animal welfare and environmental outcomes on-farm. The importance of effective R&D arrangements is reinforced by the knowledge that other countries will be seeking to innovate to lower their costs and/or improve the quality of their dairy products.

### Industry participants and governments have a role in dairy R&D

A large number of organisations are involved in dairy R&D in Australia (box 5.6). Farmers contribute through the dairy services levy, which is managed by Dairy Australia (the research and development corporation for the dairy industry). As Group B members of Dairy Australia, the Australian Dairy Products Federation and Australian Dairy Farmers must be consulted in the development of Dairy Australia's strategic and operational plans. In recognition of the public benefits of R&D, the Australian Government matches farmers'

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R&D funding to Dairy Australia, while state governments fund and/or conduct their own research.

#### **Box 5.6 Organisations involved in dairy research and development**

Dairy research and development in Australia is funded and conducted by a large number of organisations.

- 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)b).
- 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).
- Large dairy processing and manufacturing firms conduct their own research and development 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.
- The involvement of state departments of agriculture or primary industries 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) 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).
- The Gardiner Foundation invests in a range of projects designed to benefit the dairy industry and dairy communities in Victoria.

Dairy product manufacturers also conduct research, both in their own plants and in collaborative facilities. Australian researchers are also involved in a range of international collaborations, with researchers in New Zealand, France and Ireland (Dairy Australia 2010).

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Existing arrangements appear to be working adequately

### *Participants' views*

While participants did not provide extensive commentary on R&D matters, dairy farmers appear to be broadly satisfied with the existing arrangements for dairy R&D. For instance, the Queensland Dairyfarmers' Organisation 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 [research and development corporation] structure with direct linkages to peak industry representative bodies [provides] 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. (QDO 2014, pp. 18–19)

The ADIC and Dairy Australia considered that the research and development corporation model 'remains fundamentally sound and effective' (sub. 6, p. 21). They were also supportive of other aspects of the dairy R&D system:

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. 23–24)

That said, some participants 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)

Some dairy product manufacturers suggested to the Commission that it would be beneficial for them to have a greater role in setting industrywide R&D priorities, particularly given the sharp commercial incentive that manufacturers have for improvements in on-farm productivity. While the AFGC did not comment specifically on dairy manufacturing R&D, it did point out that food and grocery manufacturing R&D declined by 13 per cent between 2009 and 2012 (sub. 8).

### *The Commission's view*

In keeping with the views of participants, the Commission considers that the current arrangements for dairy R&D appear to be operating relatively effectively. This does not

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mean that these arrangements could not be improved (box 5.7), or that the industry is necessarily exploiting the full benefits of R&D activity.

There appear to be no barriers beyond institutional inertia — not necessarily an unimportant matter — to dairy product manufacturers developing a list of preferred research priorities and building a case for funding to be directed toward those priorities. Governments could choose to proactively support such research via prioritisation of existing funding, if the case is compelling. Drawing lessons from existing and previous collaborations between dairy product manufacturers and research organisations may assist.

Further, as the Commission has previously noted, ‘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). This reinforces the importance of regularly reviewing public funding arrangements for R&D activities, including extension services.

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**Box 5.7      Productivity Commission inquiry into 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).

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## Access to capital

### Productivity growth depends on access to capital

Access to capital is critical to improving productivity for both dairy farmers and manufacturers. 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)

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 cooperative structures which can limit opportunities for raising capital (chapter 2). Profit margins also tend to be relatively thin.

Many participants raised capital constraints as a factor increasing financing costs and limiting investment, and there have been calls for government intervention to improve access to capital (particularly for farmers). For example, Farmer Power stated:

[Establishment of] a National Rural Reconstruction Bank to buy back bad farm debts is supported by Farmer Power. ... it was a State Premier by the name of Henry Bolte who had a vision for the industry and established low interest rates to encourage a massive growth opportunity for the industry and the broader community which saw Victoria grow into the biggest dairying state. (sub. 9, p. 20)

### Rural debt

Notwithstanding 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). Farmer Power suggested:

Following deregulation, farmers were encouraged to borrow to make capital investments including drought proofing their farms. It was expected that farmers would maintain their share of dairy industry costs and earnings as a result of deregulation, and on this basis debts could have been repaid. What has happened since then is:

- the cost of debt servicing has increased



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- earnings have been pegged (estimated now to be at the same level as in the 1960s)
  - further debt has occurred as farmers have borrowed to maintain liquidity
  - banks have downgraded the value of dairy farms because of their falling profitability, so that some farm values now offer insufficient security against current debts
  - foreclosures are taking place as a result. (sub. 9, p. 19)

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 2013).

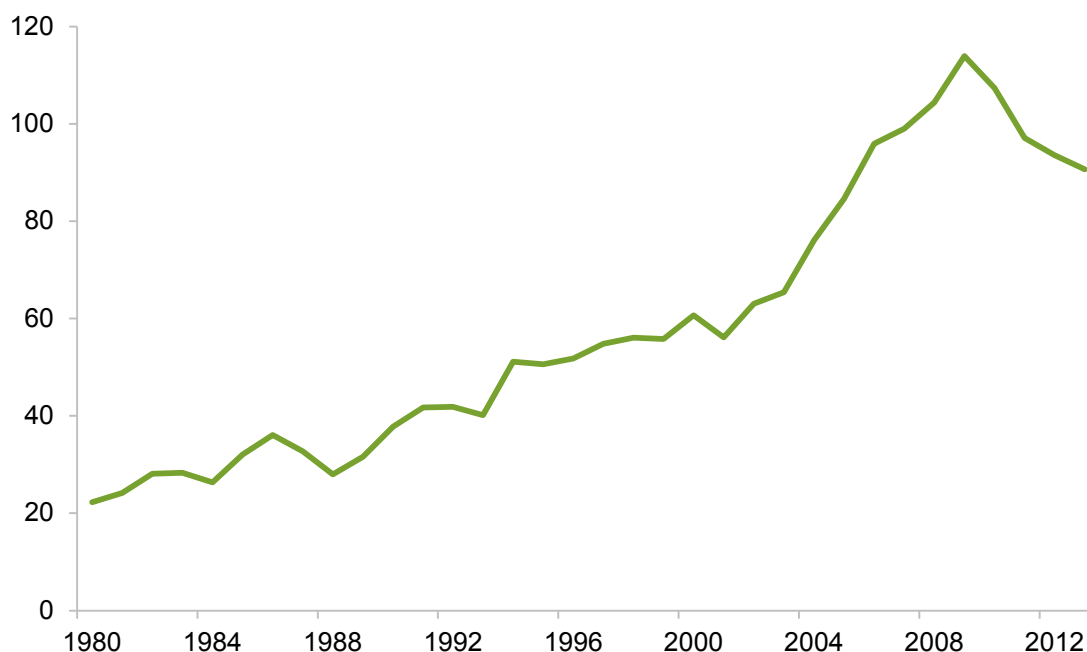
As discussed in the Commission's 2014 submission to the Agricultural Competitiveness White Paper (PC 2014), the availability of capital for the rural sector has increased significantly since financial deregulation. Between 1980 and 2013, rural debt grew from 22 to 91 per cent of *annual* agricultural production (peaking at 113 per cent in 2009, then falling in the years following the global financial crisis) (figure 5.1).

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.

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**Figure 5.1 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).

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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 interim report of the Financial System Inquiry (widely known as the Murray review) recently concluded that:

Submissions [to the Financial System Inquiry] do not identify significant structural issues related to rural finance ... Despite ... challenges, the sector has a long history of servicing debt, albeit with government support. Currently, less than 1.5 per cent of loans to the rural sector are more than 90 days in arrears and bank losses on the portfolio of rural loans are less than 0.5 per cent. Many lenders work closely with farmers in times of financial hardship, often accommodating arrangements such as repayment holidays and using independent mediators to help resolve issues with their customers'. (Australian Government 2014, pp. 2.66-2.67)

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 corporate landlord model (where an investor injects capital into the land assets of a farm) and the corporate farming model (where farm ownership takes a corporate structure) (Horizon 2020 Working Group 2013). Dairy manufacturers increasingly recognise that risk sharing with farmers has a role in growing the milk supply to the benefit of the entire industry. These risk sharing

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arrangements are likely to become more common if manufacturers perceive there to be increasing export opportunities.

### Manufacturing access to capital

In addition to there appearing to be no impediments to farmers accessing capital, it also appears unlikely that there are major impediments to capital availability for the dairy product manufacturing sector. Any difficulties here may lie more with the ability of management to convince owners of the value of an investment, an issue not limited to unlisted companies.

Nevertheless, the cooperative 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, of which the Commission could find no evidence.

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 2014).

### Alternative sources of capital are important for the dairy industry

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, attachment 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.

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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 2014).

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, attachment 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

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applies to the United States and New Zealand – currently set at around \$1.1 billion – to private sector investors from all other countries. (BCA 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 that 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 not particularly onerous, 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, poor explanation of these processes has the potential to dissuade potentially beneficial foreign investment and it is important for governments to be cognisant of this. The reaction of investors to the rejection of the Archer Daniels Midland merger proposal for GrainCorp highlights the attention that these decisions can receive, and many potential foreign investors will not always be aware of the full context of decisions.

## **5.3 Getting more value from raw milk**

While this study focuses on the costs associated with dairy manufacturing, costs are only part of the story (chapter 1). Naturally, the focus of dairy manufacturers is on maximising profits rather than cost containment *per se*, and sometimes the most profitable uses for raw milk are associated with increased processing or marketing costs. The performance of the manufacturing sector ultimately depends on the success of companies in innovating, responding to changes in consumer preferences, and taking advantage of higher value or niche markets.

### **Manufacturers are successfully achieving higher returns**

It has been suggested that Australian dairy manufacturers have traditionally been excessively focused on exporting bulk commodity products with relatively low levels of value adding, with exports generally requiring further processing in foreign markets, or being used as food ingredients. Many successful dairy manufacturers are now more cognisant of the preferences of overseas buyers, and are shifting resources towards higher

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value dairy products, and using quality as a point of differentiation. Other manufacturers differentiate based on image, size and ownership.

Examples of these strategies being successfully employed include:

- *The shift to A2 drinking milk* — The promotion of drinking milk containing only A2 beta-casein protein (based on herd selection of cows that produce such milk) has seen the New Zealand-listed A2 Milk Company gain about an 8 per cent share of the drinking milk market in Australia (chapter 2), promoting their brand as more easily digestible and more suitable for some consumers than milk containing both A1 and A2 beta-casein protein. In response, rivals initially questioned whether there were any health benefits associated with A2 milk, and have recently also highlighted that their own products also contain A2 beta-casein protein (despite, of course, the absence of A1 beta-casein in A2 milk being the real point of differentiation between the products).
- *Promotion of ‘permeate free’ drinking milk* — In response to the growth of supermarket branded milk (or so called \$1 milk), some branded products looking for a point of differentiation highlighted their products as free of permeate. Permeate is a by-product of dairy production after ultrafiltration extracts fat and protein from raw milk (usually for the production of cheese). It consists of lactose, vitamins and minerals and can be used to standardise fat and protein levels in milk. The inclusion of permeate is likely to make drinking milk cheaper to produce. Several brands, including many supermarket brands, now promote their drinking milk as being ‘permeate free’. There are no known health risks associated with permeate consumption, and all drinking milk sold in Australia must meet food standards with regard to minimum fat and protein content.
- *Fresh drinking milk exports to China* — Dairy Connect NSW, Norco Co-operative Limited and Peloris Global Sourcing have recently started transporting fresh drinking milk to China. Previous quarantine and testing requirements had undermined such fresh milk exports, but the development of quality assurance protocols with Chinese agencies now enables milk to be available to Chinese consumers within seven days of leaving Australian farms. Norco Co-operative hopes to transport 20 million litres of fresh milk to China in the first 12 months of exports. The milk retails in China for between \$7 and \$9 dollars (Dairy Connect, Norco and PGS 2014); (Joyce 2014).
- *Shifts to higher value products* — Australian dairy companies have increasingly sought to move into higher value products in recent years. One noteworthy example is lactoferrin, a nutrient found in milk which is used as an ingredient in a range of products. The major producer of lactoferrin in Australia is Bega Cheese at its Tatura plant in northern Victoria. Bega has stated that when it first began producing lactoferrin in the early 2000s, the product fetched \$200 to \$300 a kilogram, but increasing demand means it now sells for as much \$1000 a kilogram (McAloon 2013). It reportedly takes between 50 000 and 100 000 litres of milk to extract one kilogram of lactoferrin (Neales 2013).
- *‘Local is better’ marketing* — Some manufacturers have chosen to highlight their presence in local communities, often combined with their relatively small size or

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farmer-based ownership, to differentiate their products and extract additional margin. The Camperdown-based Aussie Farmers Dairy highlights that it works ‘hand in hand with local Aussie dairy farmers and local dairies across Australia to ensure the best quality, Aussie milk ... is delivered to customers’ doorsteps. Aussie milk that is not only affordable for everyone but also guarantees a fair and sustainable price and future for all our Aussie dairy farmers’ (Aussie Farmers Dairy 2014). Similarly, the Dubbo-based Little Big Dairy pasteurises, homogenises, bottles and markets a proportion of milk produced on farm, while distributing the rest of their milk to a local processor (Townsend 2013), and the Tamrookum-based Scenic Rim Dairy emphasises it provides its 4Real brand milk to stores and cafes within two hours of its farm to ‘keep the milk farm gate fresh and minimally processed’ (Scenic Rim Dairy 2014). Even Murray Goulburn, the largest processor in Australia, has emphasised its cooperative status (‘Proudly owned by Aussie farmers’) in its recent advertising campaigns for Devondale milk.

- *Image marketing* — Some companies have grown significantly through promoting an image that resonates with particular consumers. For example, as a producer of organic yoghurts, Melbourne based five:am (recently purchased by the UK-listed PZ Cussons) (PZ Cussons 2014) promotes the concept of ‘Conscious Deliciousness’, marketing towards health and environmentally conscious consumers. The company website highlights that the management and staff enjoy surfing, yoga and meditation sessions (five:am website 2014).

#### FINDING 5.4

Many successful dairy manufacturers are shifting resources towards higher value dairy products and using quality as a point of differentiation. Other manufacturers have successfully differentiated their products based on image, size and ownership.

Australia’s reputation for reliable and safe food production also assists considerably in developing export markets, and represents a major source of advantage for Australian dairy product manufacturers.





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## 6 Potential policy refinements

### Key points

- Energy cost increases in recent years are mainly due to spiralling network costs, partly driven by flaws in the regulatory environment, and to a lesser extent policies designed to reduce carbon emissions and promote renewable energy.
- While some reforms have occurred, further alterations to incentives in electricity network investment programs would be of value to the dairy and other industries. Details are addressed in the Productivity Commission's 2013 Report on Electricity Networks Regulation.
- Profit margins for retail electricity prices in Victoria should remain under scrutiny.
- Bilateral and regional trade agreements can facilitate the reduction or removal of international trade barriers for Australian exports, including dairy, however they are second-best policies. The recent Japan–Australia trade agreement disappointed the dairy industry. Transparent analysis of the net benefits of potential trade agreements is needed before such agreements are adopted.
- Improvements to rural road and rail networks would likely benefit the dairy industry, but can also involve significant expenditure. Reform of road pricing, aimed at allowing heavy vehicle firms to prioritise and pay for beneficial projects, has the capacity to assist the dairy industry.
- Water is an essential input into dairy product manufacturing and dairy farming. The dairy industry actively participates in water trading and water saving initiatives. Continued improvements in the scope, operation and participation in water markets would help the dairy industry to maintain or increase output and better manage climatic variability.
- The industry is making efforts to develop its workforce and address labour shortages. Reviews that are either underway (the skilled visa 457 programme) or have been foreshadowed (a Productivity Commission inquiry into the workplace relations system) will provide an opportunity to consider workplace issues affecting the dairy industry in a broader context.
- When designing regulations, governments should adhere to the principles of good policy making. This includes ensuring that the expected benefits of a policy change are demonstrably greater than the costs of the change from the perspective of the economy as a whole. Regular review of regulations and effective consultation with affected parties are also essential to good-practice policy making.

Earlier chapters highlighted that dairy product manufacturing costs — and dairy farming costs — are predominantly driven by market factors and the commercial decisions made by businesses. Businesses must adapt (and are adapting) to changes in the competitive landscape, both in Australia and overseas.

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That said, many government policies and regulations affect the costs and competitiveness of the Australian dairy industry, both directly and indirectly. This chapter draws on principles of good practice policy making (section 6.1) to highlight specific policy areas where corrective action by government could benefit dairy manufacturers and dairy farmers, and the community as a whole (sections 6.2 to 6.6).

## **6.1 Good practice policy making**

### **Policy intervention can have unintended costs and consequences**

Government policies and regulations affect individuals, businesses and community organisations on a daily basis. Many of these policies and regulations serve important purposes, including to maintain public order, facilitate economic transactions, manage risk and potential harm to the community and economy, and address a range of worthwhile social and environmental goals. For example, food labelling standards ensure that consumers are provided with information on the country of origin of, and the nutrients and allergens that are present in, their food (FSANZ nd).

However, regulations also impose costs on the people and business they affect, and in many cases the community as a whole (ANAO 2014). In addition to the direct paperwork burden and related compliance costs, government regulations can cause businesses to adjust their processes in ways that add to costs, can make some commercial pursuits unviable or less attractive, and can divert management attention from a company's core business (Regulation Taskforce 2006). Government policies and regulations can also have a range of unintended consequences — both for targeted businesses and for the economy more generally.

In a similar vein, government intervention that involves targeting particular firms or industries for grants or other forms of assistance is not good policy practice. If firms and industries are competitive, they can operate profitably without government support.

### **Drought assistance can impede efficient adjustment in the farm sector**

Certain forms of government assistance for drought-affected farmers illustrate how well-intended policies can have unintended and costly consequences. These measures can constrain the productivity and competitiveness of the farming sector (including the dairy farming sector, with direct consequences for downstream producers) by discouraging unviable farms from exiting the industry and preventing land and other inputs from moving to higher value uses.

The Commission conducted an inquiry into government drought support in 2009 (box 6.1). Since that time, and following a drought reform pilot program in Western Australia based largely on the Commission's recommendations, a number of changes have been made to government drought policy. Notably, exceptional circumstances interest rate subsidies

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ceased in June 2012. However, in February 2014 the Australian Government announced that it had made provision for \$320 million of drought assistance to farmers in 2013-14 and 2014-15, including \$280 million in concessional loans. Recipients of loans will be able to either restructure a proportion of their existing debt at a lower interest rate, or use loans to meet operating expenses and recovery costs (Department of Agriculture 2014a). Given the availability of credit to farm businesses (chapter 5), these measures do not appear to be justified by a market failure rationale, and risk preventing adjustment and enhanced efficiency within the farming sector.

**Box 6.1      Productivity Commission inquiry into government drought support (2009)**

In its 2009 inquiry into government drought support, the Commission determined that certain forms of drought assistance for farmers could have the effect of providing a disincentive for unviable farms to exit the industry. This, in turn, might prevent more efficient farm businesses from buying land and other assets, and thereby expanding their operations. Some forms of business support provided to farmers during times of drought were revealed to have shortcomings. In particular the Commission found that interest rate subsidies — made available to those farms dubbed to be in ‘exceptional circumstances’ — were ineffective, antithetical to the promotion of farm businesses’ self-reliance, and should be terminated. A number of participants to the drought inquiry also raised the potentially inequitable nature of such subsidies.

The inquiry concluded that removing drought-triggered business support for farms would likely result in some exits from farming, but that many of those farms would subsequently be purchased by more successful farmers with greater resources. The likely effect, in the Commission’s assessment, would be a small net increase in overall agricultural production.

*Source:* PC (2009).

## **Good policymaking processes can help, but are too often ignored**

In light of the costs of regulation and the potential for unintended consequences, it is important that governments consistently follow the principles of good regulatory process (box 6.2). Adhering to these principles can avoid imposing unnecessary regulatory burdens on all businesses, including dairy manufacturers and dairy farmers, and ensure that relevant policy objectives are achieved at least cost to the community.

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## Box 6.2 Principles of good regulatory process

Good regulatory process requires governments to apply six key principles whenever regulations are being considered.

1. Governments should not act to address ‘problems’ through regulation unless a case for action has been clearly established. This should include evaluating and explaining why existing measures are not sufficient to deal with the issue.
2. A range of feasible policy options — including self-regulatory and co-regulatory approaches — need to be assessed within a cost–benefit framework (including analysis of compliance costs and, where relevant, risk).
3. Only the option that generates the greatest net benefit for the community, taking into account all the impacts, should be adopted.
4. Effective guidance should be provided to regulators and regulated parties to ensure that the policy intent of the regulation is clear, as well as what is needed to be compliant.
5. Mechanisms such as sunset clauses or periodic reviews need to be built in to legislation to ensure that regulation remains relevant and effective over time.
6. There needs to be effective consultation with regulated parties at the key stages of regulation making and administration.

Source: Regulation Taskforce (2006).

However, study participants suggested that various policies directly affecting the dairy industry do not reflect good practice policy making, including:

- front-of-pack labelling requirements (box 6.3), which were approved for implementation in advance of a complete evaluation of the costs and benefits of the requirements (including an assessment of whether the objectives could be achieved at lower cost).
- state-based genetically modified (GM) crop regulations in South Australia, Tasmania and the ACT, which imply a level of concern about GM crop production that is not supported by evidence. The Australian Dairy Industry Council (ADIC) and Dairy Australia highlighted the problems the current regulatory environment for GM crops 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)

Further, Accord Australia considered that the regulatory arrangements applying to agricultural chemicals (such as dairy cleansers) are not ‘best practice’, and suggested that the regulatory model adopted in New Zealand would be preferable (sub. 3). Accord noted

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that ‘more needs to be done to support regulatory agencies and policy makers to adopt minimum effective regulation’ (sub. IR10, p. 1).

**Box 6.3      Front-of-pack nutrition labels on foods: endorsement in advance of a complete evaluation of costs and benefits**

One food labelling issue that has become increasingly prominent in recent years is front-of-pack labelling (FOPL). FOPL is designed to provide nutrition information in an easy-to-understand format and can take range of forms, including:

- symbols (such as the Heart Foundation Tick or glycaemic index (GI) symbol)
- traffic light systems (where fat, sugar and salt content is ranked and colour coded as either high (red), medium (amber) or low (green))
- percentage daily intake systems (where the nutrient content of a serve of a given food is expressed as a percentage of average daily requirements for each nutrient).

Statements of support for FOPL have snowballed over recent years:

- In 2009, the Australia and New Zealand Food Regulation Ministerial Council found that ‘there are indications that FOPL can contribute to consumer understanding of the nutritional content of foods and make it easier for consumers to make healthy choices’ (2009, p. 1).
- In 2011, an independent review of food labelling law and policy noted that the Ministerial Council had ‘supported’ FOPL in 2009, and recommended the adoption of a colour-coded multiple traffic lights FOPL system (Blewett et al. 2011).
- Acting on the recommendation of the Blewett review, in 2012 and 2013 the Legislative and Governance Forum on Food Regulation (comprising representatives of the Australian, state and territory governments) approved various stages of the development of a front-of-pack health star rating system. In June 2014, the Forum agreed that the health star rating system should be implemented voluntarily over the next five years (2014).

However, a cost–benefit analysis of the health star rating system was not performed until 2014. Even then, the published analysis does not include ‘an analysis of the effectiveness of the [health star rating] system relative to other policy interventions’ and the report’s ‘conclusions are not meant to suggest that the proposed [health star rating] system is necessarily the most effective government response’ (PwC 2014, p. i).

## **6.2      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 2013a, pp. 5-6)

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Although energy costs represent a relatively small component of overall dairy manufacturing costs (around 1.5 per cent), they are more significant for relatively energy-intensive product segments such as milk powders, and can vary depending on the energy source used (chapter 3). Moreover, energy accounts for about 3 to 5 per cent of costs for dairy farmers (chapter 4).

Chapter 3 noted a number of pressures on energy costs in Australia in recent years, including overinvestment in electricity networks, emission reduction policies, and pressures on gas prices stemming from the development of the export liquefied natural gas (LNG) industry.

## **Electricity network regulation**

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 (PC 2013a).

Catering for relatively brief peak demand periods was found to add significantly to costs which, in the absence of peak pricing, increased average tariffs and thus were borne by all users. For example, in New South Wales peak demand events occurring for less than 40 hours per year (or less than 1 per cent of the time) were found to account for around 25 per cent of retail electricity bills.

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).

Reforms in these areas have the potential to significantly reduce electricity bills. The cost of using transmission and distribution networks to transport electricity is the largest component of retail bills (ranging across jurisdictions from around 36 to 57 per cent of the total, based on estimates from the Australian Energy Regulator). Wholesale energy costs represent between 21 and 27 per cent of total retail electricity bills, and retailer operating costs (including margins) contribute 10 to 15 per cent (AER 2013). (Issues surrounding retail pricing in Victoria are considered below.)

The Australian Government responded to the Commission's report in June 2013, supporting most recommendations, at least in part or in principle (Australian Government 2013). In its response, the Australian Government noted there was an ongoing

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reform process in the electricity sector, and described the report as ‘a contribution to a long running and broad energy market reform program, which has been substantially redefined during the course and conclusion of [the] inquiry’ (Australian Government 2013, p. 1).

Amongst other recent developments, the New South Wales Government has announced it intends to lease 49 per cent of the State’s electricity ‘poles and wires’ network businesses (excluding Essential Energy) for 99 years, with the remaining 51 per cent to be held in a NSW Future Fund, an independently governed fund designed to potentially fund the State’s future liabilities (Baird 2014).

## **Impact of emission reduction programs**

Emission reduction programs have also placed upward pressure on energy prices in recent years (although overinvestment in transmission and distribution networks has been a more significant factor). The carbon pricing scheme, introduced in July 2012 and abolished in July 2014, represented between 3 and 12 per cent of retail electricity bills, with the lowest impact occurring in South Australia and Tasmania (which have higher levels of renewable generation). Costs associated with other government programs to reduce carbon emissions and promote alternative energy sources are estimated to make up between 3 and 8 per cent of retail bills. These costs most significantly relate to the Renewable Energy Target (RET) and feed-in tariffs for solar photovoltaic installations (AER 2013).

## **Renewable Energy Target**

The Australian Government’s RET seeks to ensure that an equivalent of at least 20 per cent of Australia’s electricity will come from renewable sources by 2020. Under the scheme, renewable energy producers create certificates for the renewable electricity they produce, which other entities (generally electricity retailers) are required to purchase. The scheme was recently reviewed by a panel chaired by businessman Dick Warburton. The panel found:

... the RET is a high cost approach to reducing emissions because it does not directly target emissions and it only focuses on electricity generation. It promotes activity in renewable energy ahead of alternative, lower cost options for reducing emissions that exist elsewhere in the economy. In the presence of lower cost alternatives, the costs imposed by the RET are not justifiable. (Australian Government 2014b, p. i)

When the current scheme commenced in January 2010 it was assumed that electricity demand would increase to around 300 000 GWh in 2020 and, based on this projection, a target of 45 000 GWh for additional renewable generation in 2020 was fixed in legislation to ensure that at least a 20 per cent share of renewables would be achieved. Electricity demand has actually fallen, however, from around 198 000 GWh in 2009-10 to around 184 000 GWh in 2013-14. Modelling for the recent RET Review suggests the RET, as currently legislated, would therefore deliver around a 26 per cent share of renewables by 2020 (Australian Government 2014b).

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The review noted that, in the short term, by stimulating investment in generation at a time of falling demand for electricity, the RET was likely to be putting downward pressure on wholesale electricity prices, but only by distorting the market in a manner that was not sustainable in the long run:

Analyses suggest that, overall, the RET is exerting some downward pressure on wholesale electricity prices, largely because it is contributing to an increase in the supply of electricity when electricity demand has been falling. However, the net impact of the RET on retail electricity prices and electricity bills appears to be small and does not diminish the economic costs associated with the scheme. Also, it does not represent an increase in wealth in the economy, but a transfer of wealth among participants in the electricity market. In addition, artificially low wholesale electricity prices can distort investment decisions in the electricity market and are unlikely to be sustained in the long term. (Australian Government 2014b, p. iii)

The Australian Energy Market Commission has also commented on the relationship between wholesale and retail prices under the RET:

Although the [RET] may contribute to low wholesale spot market prices, this does not necessarily translate into lower residential electricity prices. This is because the cost of the [RET], which retailers face directly, is also recovered from consumers via retail electricity prices. (AEMC 2013, p. 30).

The review recommended two options to the Government for the major program under the RET, the Large-scale Renewable Energy Target (LRET). One was to allow it to continue to operate until 2030 for existing and committed renewable generators, but to close it to new entrants. Alternatively, the review suggested the LRET could be modified to increase in proportion with growth in electricity demand, by setting targets one year in advance that correspond to a 50 per cent share of new growth. Based on current forecasts of electricity demand, the latter option would result in renewables making up a 20 per cent share of forecast electricity demand in 2020 (Australian Government 2014b). The Australian Government is yet to respond to the recommendations of the review.

Following the release of the review, the Victorian Farmers Federation (VFF) called for the abolition of RET. VFF president Peter Tuohey recently said:

The RET is simply unsustainable as it forces all of us to pay millions more for electricity to subsidise everything from solar hot water systems to windfarms and solar power stations ... VFF analysis has shown ... producers are paying up to 10 per cent more for electricity as a result of these changes. (VFF 2014a, p.1)

## Feed-in tariffs for solar photovoltaic installations

Feed-in tariffs were introduced by all state and territory governments between 2008 and 2010 to encourage solar photovoltaic installations. Customers installing solar photovoltaic systems are paid for the electricity they produce (or 'feed in' to the grid), often at tariffs set considerably higher than the wholesale price of electricity. The costs of most schemes are recovered via the distribution network charges faced by all consumers, meaning the schemes involve cross subsidies between customers.



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The programs led to considerably higher rates of installations than anticipated and therefore significant cross subsidies from consumers without solar photovoltaic systems (Australian Government 2014b). Moreover, as solar energy is a relatively high cost form of energy to produce, the feed-in tariff schemes were a high cost way of reducing carbon emissions (PC 2011b). In recent years, feed-in tariff programs have generally been wound back and closed to new entrants, although some will continue to provide a stream of payments to existing participants for many years to come (AEMC 2013).

### **The impact of emission reduction programs varies**

The manner through which these emission reduction programs increase business costs varies, depending on their design.

- Implicit subsidies to low-emissions producers (for example through the prices they receive) will generally be passed on via higher prices to consumers and user industries, reflecting higher average costs of production.
- Explicit carbon taxes or trading schemes will directly increase product costs according to their emissions intensity, with these costs being passed on to consumers and user industries.
- Explicit budget subsidies to low-emissions producers decrease their costs and enable them to be competitive at prevailing market prices. While businesses using these products will not have to pay for the subsidies via higher prices, taxes will need to be higher (or government spending lower elsewhere), with ramifications throughout the economy (PC 2011b).

Previous work by the Commission (and others) suggests that programs such as the RET and feed-in tariffs are unlikely to be the most efficient or effective way of reducing carbon emissions (PC 2011b).

If business cost pressures associated with Australia's emission reduction policies ease with the abolition of the carbon tax and other mooted changes to renewable policies, this could benefit dairy manufacturing. Of course, this should not be the only consideration in implementing or amending emission reduction policies. Governments should ensure that policies implemented for the purpose of reducing emissions achieve their objectives in a least cost manner.

### **Reliability of electricity supply**

As noted above, the Commission has expressed concern that reliability standards often exceed consumer willingness to pay for them. However, the Commission is also aware that, in some rural areas, the poor reliability of electricity supply is a major concern for the dairy industry, and can be a significant factor in decisions to invest in manufacturing plants.

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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)

The VFF has also pointed to reliability issues in Victoria:

Household electricity prices have risen 59 per cent over the past four years, mainly due to significant investment ... to ensure reliability of supply ... Yet, the reliability and capacity of power supply in many regional areas remains inadequate. Farmers regularly lose thousands of dollars' worth of milk when power failures or brownouts affect heating and cooling systems ... Similarly, most dairy manufacturing plants are located in the regions. Power failures and brownouts can force companies to dump thousands of dollars of product due to quality issues. The lack of capacity in the power delivery network in some regional areas is restricting the potential for growth among dairy farms, and at some major Australian dairy processing sites. (2014b, p. 14)

In highlighting the importance of linking reliability performance with customer willingness to pay, the Commission's 2013 report on Electricity Network Regulatory Frameworks 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).

The introduction of such a system of incentives would also help alleviate the temptation for governments to subsidise network enhancements on an *ad hoc* basis to attract manufacturers to particular areas where regional power supplies are considered otherwise unsatisfactory.

## **Victorian retail electricity prices**

A competitive and efficient energy sector in Victoria is critical for the dairy industry given around two thirds of the industry is contained within that state. In 2009, price controls were removed from the Victorian retail electricity market, following a finding by the Australian Energy Market Commission (AEMC) the previous year that the market was effectively competitive.

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However, recent events have seen some participants raise concerns about the performance of the retail electricity market in Victoria.

- In a November 2011 study of possible electricity retail price movements, the AEMC estimated that the retailer gross margin in Victoria was 34.4 per cent, compared to 7.3 per cent in New South Wales, 9.5 per cent in Queensland and 1.7 per cent in South Australia. The AEMC emphasised that the results should be treated with caution due to overall lack of data on which they were based, and due to comparability issues. Moreover, the margins were calculated on the basis of standing offer prices rather than market offers, while the majority of Victorian customers are on market offer tariffs (AEMC 2011).
- Subsequent analysis undertaken by SKM-MMA for the Victorian Essential Services Commission suggested there had been an increase in retailer gross and net margins in the years following the removal of price controls. The analysis suggested that gross retailer margins increased by between 20 per cent (market offers) and 60 per cent (standing offers) in the five years to 2011-12, with this increase accounting for between 20 and 30 per cent of the higher prices observed in market and standing offers. Over this period, host retailer standing offer prices (single rate) typically increased by more than 70 per cent while the increase in market offer prices (single rate) was typically between 55 and 60 per cent (ESC 2013). The Essential Services Commission noted that caution had to be exercised in drawing conclusions about the competitiveness of the Victorian electricity market on the basis of the study findings, based on the relatively short time frame considered (2013).

A submission to the 2014 AEMC review of retail competition in energy markets by the Victorian Department of State Development, Business and Innovation noted:

The available empirical evidence raises important questions about the extent to which Tier 1 retailers are able to realise elevated margins in Victoria and the extent to which certain customers, including those who remain on standing offers are able to fully realise the benefits of competition. These questions require careful analysis to verify the nature and level of any retail margins and whether there are additional policy initiatives that should be undertaken in Victoria to further drive the benefits of competition. (DSDBI 2014, p. 5)

The submission also highlighted a number of measures undertaken in Victoria seeking to ensure strong retail competition, including the roll out of ‘smart meters’ and the subsequent introduction of optional flexible pricing, the launch of a website providing information designed to facilitate consumer choice, the launch of a price comparator tool, and the introduction of a program of grants aimed at educating consumers unlikely to otherwise be reached by information campaigns (DSDBI 2014).

The final report of the 2014 AEMC review found effective competition was still present in Victorian energy markets, with a wide range of plans on offer to consumers. The review noted that retail margins in Victoria appeared higher than in other jurisdictions, but suggested there could be a number of reasons for this including:

- errors in estimating margins (which is a complex task)

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- higher administration costs in Victoria due to a stronger consumer protection regime
  - costs relating to the rollout of ‘smart meters’ in Victoria
  - higher wholesale market hedging costs, particularly during summer
  - increased costs associated with higher rates of consumer switching relative to other jurisdictions (AEMC 2014).

It was also noted that prices in Victoria might be more cost reflective than those in other jurisdictions, with retailers considering that regulators keep prices artificially low.

In view of uncertainty about why Victorian retail margins appeared higher, the AEMC urged caution:

In a market that exhibits effective competition, retailer margins will fluctuate over time. An analysis of retailer margins therefore needs to be carried out over a sufficiently long period to understand the profitability of the industry through multiple business cycles and changes in market conditions. When examining the competitiveness of a market, one of the most important indicators is whether firms are entering and competing and/or whether there is a legitimate threat of new entry. If this is the case, as it is in Victoria, then competitive pressure can be expected to lead to efficient outcomes for customers. Intervening in a competitive market based on inconclusive evidence can lead to unintended outcomes and reduce the effectiveness of competition. (AEMC 2014, pp. 179–80)

The Commission shares the view that caution is appropriate given the relatively short time in which higher margins in Victoria have been observed. However, retailers would be well advised to take heed of this scrutiny. Were these trends to continue over time, there would be merit in formal investigation.

## **Gas prices**

The development of the export-LNG industry has seen pressure on domestic gas prices as opportunities emerge to export gas at (typically much higher) international prices. In response to these developments, some domestic producers (not necessarily in dairy) have suggested that regulatory measures are warranted to stem the increase in gas prices facing Australian businesses. The Western Australian Government has implemented a gas reservation policy for that state, in an attempt to curtail increases in domestic gas prices.

However, such policies may reduce the incentives to explore and develop local gas reserves, which is the process by which some rebalancing of higher prices may occur. If substantial in its scope, such a policy construct could even mean some projects will likely not proceed, with the economic benefits associated with these projects (including significant export revenue) being foregone. From a communitywide perspective, this form of policy intervention is unlikely to improve national welfare by comparison with allowing further exploration to occur.

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A number of broader regulatory arrangements can also have the effect of deterring or delaying the development of Australian gas reserves. In its 2013 report on Major Project Development Assessment Processes, the Commission made a number of recommendations that would potentially assist in bringing more gas projects to fruition, increasing gas supply and reducing pressure on gas prices. These recommendations included:

- establishment of a ‘one project, one assessment, one decision’ framework by restarting negotiations on bilateral approval agreements between the Australian Government and the states and territories, ensuring that the new agreements did not compromise environmental standards
- undertaking and publishing a regulatory impact statement of the ‘water trigger’ amendment to the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act), and repealing the amendment if the assessment shows no net benefits from the amendment
- ministers to be decision makers for major project primary approvals
- states and territories establishing major projects coordination offices (PC 2013b).

In May 2014, the Australian Government introduced to Parliament draft legislation seeking to facilitate the implementation of bilateral approval processes, and draft bilateral approval agreements have been released for New South Wales, Queensland, the ACT and the Northern Territory. The legislation also seeks to allow the Federal Environment Minister to accredit state and territory approval decisions relating to the ‘water trigger’ (Department of the Environment 2014).

The Commission’s 2013 report on Mineral and Energy Resource Exploration also made recommendations that could assist in this area including:

- governments ensuring that their regulators set target timeframes for their assessment and decision-making processes for exploration licensing and related approvals with reporting against these timeframes
- governments ensuring that the development of coal seam gas exploration regulation is evidence based and is appropriate to the level of risk
- making greater use of strategic assessments under the EPBC Act
- ensuring regulatory agencies only set requirements relating to exploration that are the minimum necessary to meet their policy objectives, and are proportionate to the impacts and risks associated with the nature, scale and location of the proposed exploration activity (PC 2013c).

In early 2014, the Australian Government’s Department of Industry and Bureau of Resources and Energy Economics, undertook the Eastern Australian Domestic Gas Market Study. The study identified a number of potential gas market reforms for consideration, including better administration of titles, improved pre-competitive geoscience, enhanced capacity trading and improved information provision (DoI and BREE 2014).

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The study also noted:

Rising prices do not automatically mean the market has failed or that intervention is necessary. While price discovery has been difficult for some time, the linkage to international markets has been coming for a number of years. All users will need to adjust to prices being set in a more dynamic and higher cost environment, particularly those domestic gas users who have had to adapt quickly after decades of fairly steady market fundamentals. Supply will respond to price and there are early signs of this starting to occur in eastern Australia. (DoI and BREE 2014, p. 3).

The Commission sees merit in further consideration being given to the measures proposed in the Eastern Australian Domestic Gas Market Study. A study into supply impediments in domestic gas markets may add value, and the Productivity Commission is developing a research project in this area. Increasing gas supply will, however, be the most effective longer-term measure to offset pricing pressures from the linkage to the international gas price created by east coast LNG plants. Accordingly, government intervention via gas price restriction or volume reservation is not likely to enhance the long-term competitiveness of Australian dairy production.

#### FINDING 6.1

Poor regulatory frameworks governing electricity markets, policies designed to reduce carbon emissions and promote renewable energy, and the integration of Australian gas markets with global markets have added to spiralling energy costs in Australia, increasing the burden on the dairy industry, in some cases unnecessarily.

Pricing reforms designed to improve the functioning of electricity markets would be desirable, and further examination of supply impediments in gas markets (a matter outside the scope of this study) is worthy of consideration.

## 6.3 Trade access

About 40 per cent of Australia's dairy output (in milk equivalent terms) was exported in 2013-14. Cheese and milk powder make up the majority of Australia's dairy exports. Roughly three-quarters of Australia's dairy exports were to Asia, with China and Japan being Australia's two largest export markets (chapter 2).

Notwithstanding Australia's strong presence in foreign markets, the Commission has heard that dairy exports are constrained by the prevalence of trade barriers (in various guises) in key dairy-importing countries. Participants considered that removing or reducing these restrictions would deliver significant benefits to the Australian dairy industry and urged the Australian Government to do further work in this area.

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## Trade barriers can limit export volumes and add to costs

Trade barriers in foreign markets can influence the volume, destination and cost (faced by foreign customers) of Australian dairy exports. The nature and magnitude of trade restrictions are diverse and include:

- import tariffs (which directly increase the price of Australian goods in foreign markets) and quotas (which set restrictions on the quantity of Australian goods that can be sold in overseas markets)
- subsidies for domestic producers in foreign countries, which, in the absence of market failures, artificially expand domestic dairy production in those countries, reducing export opportunities for Australian goods
- non-tariff barriers, such as overly complex and restrictive quarantine requirements.

Non-tariff (or technical) barriers to trade can vary in their type and implementation. For example, the Department of Agriculture underlined that Australian dairy exporters selling into Indonesia face significant product labelling and registration requirements. Similar requirements apply to exports destined for India (though the Australian dairy industry is seeking changes to these arrangements as part of the Comprehensive Economic Cooperation Agreement between Australia and India, which is currently under development) (sub. 7). In some instances, global political developments can also result in restrictions to trade. For example, in August 2014, Russia imposed trade sanctions on fruit, vegetable, meat and dairy imports from Australia, and a number of other industrialised economies. The sanctions are scheduled to last for one year (Department of Agriculture 2014b).

Research commissioned by Dairy Australia in 2013 and 2014 found that — across the more than 100 countries that purchase Australian dairy goods — over 350 technical barriers to trade apply, and about 140 of these have a ‘significant’ impact on trade activity (Dairy Australia, pers. comm., 7 August 2014). Examples of technical barriers include port-of-entry inspection and product sample tests, certificate of analysis tests, and maximum entry ages for products (table 6.1). Technical barriers were found to be particularly onerous in Indonesia, China, India, Iraq, Sri Lanka, and Russia. The research — conducted by David Harris and Associates for Dairy Australia — considered that many of these restrictions could be remedied through either memoranda of understanding between governments, or multilateral reform (Dairy Australia, pers. comm., 7 August 2014).

**Table 6.1 Technical barriers to trade highlighted by Dairy Australia<sup>a</sup>**

<i>Country</i>	<i>Description of barrier</i>	<i>Potential impact of barrier</i>
Indonesia	Product testing and CoA for all dairy product consignments	Increases cost of supplying market
	Non-standard packaging requirements for UHT milk	Results in loss of export activity
	Maximum market entry age for milk powders and whey products	Restricts sales from seasonal milk
China	Batch-level CoA test results for all consignment stock keeping units	Increases cost of supplying market
	Port-of-entry inspection and product sample tests	Increases cost of supplying market and reduces demand via port clearance delays
China (Hong Kong)	CoA test results for all UHT milk consignments	Increases cost of supplying market
Sri Lanka	Batch level coliform count product tests for all consignments	Increases cost of supplying market
Iraq	Pre-shipment CoC from Bureau Veritas required for all consignments	Increases cost of supplying market
	Maximum market entry age for cheese	Restricts sales from seasonal milk
Russia	Establishment listing audit requirement and approval delays	Restricts the number of facilities with market access rights

<sup>a</sup> CoA refers to Certificate of Analysis and CoC to Certificate of Conformity.

Source: Dairy Australia (pers. comm., 7 August 2014).

## Dairy product regulation in China

New arrangements — motivated by a number of food safety incidents in China, including the tainting of infant formula with melamine in 2008 — led to the introduction of new food safety laws in 2009. Administrative measures for the registration of overseas manufacturers of imported food are being progressively introduced. They are overseen by China's Administration of Quality Supervision, Inspection, and Quarantine (AQSIQ). AQSIQ's administrative measures require foreign companies producing particular types of foods to register with the Certification and Accreditation Administration of the People's Republic of China (box 6.4).

Roughly 20 Australian companies exported infant formula to China prior to the announcement and introduction of the new regulatory regime in 2013 and 2014. As of September 2014, only five Australian companies — Murray Goulburn, Tatura Milk (owned by Bega Cheese), Blend and Pack, Australian Dairy Park and Viplus Dairy (the latter two are owned by Chinese investors) — are registered under the amended Chinese regulatory framework (Locke 2014).



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Food safety regulation has obvious benefits in principle; it also imposes costs on manufacturers. As long as the regulation is not used discriminatorily — and no evidence to this effect has emerged — the only query will be over its efficacy.

The Australian Government Department of Agriculture indicated that it is currently working with Australian manufacturers and Chinese authorities to enable more Australian companies to be granted approval to export infant formula in the future (Department of Agriculture, pers. comm., 12 August 2014).

#### **Box 6.4      Changes to dairy food regulations in China**

As part of its more general reforms to food safety laws and regulations, China has introduced a number of new regulatory requirements and standards applying to dairy foods. Measures relating to the inspection, quarantine and supervision of imports and exports of dairy products took effect on 1 May 2013. These measures specified that:

- dairy products could only be imported from countries and manufacturers that are approved and listed by AQSIQ
- dairy products exported to China must have health certificates issued by the competent authorities in the exporting country
- importers must ensure that imported dairy products comply with China's national food safety standards.

The implementation of the registration requirements for these administrative measures was delayed until 1 May 2014, with additional requirements for infant formula manufacturers. Manufacturers of infant formula intended for export to China are required to provide product information (including brand names) as well as processing information to the government of the exporting country, which then provides this information to the Certification and Accreditation Administration of the People's Republic of China.

*Sources:* Department of Agriculture (pers. comm., 12 August 2014); USDA (2013).

## **Can bilateral and regional trade agreements help?**

### **Participants' views**

Bilateral and regional trade agreements (BRTAs) can improve foreign market access for Australian exports, including dairy products. For this reason, a number of study participants favoured further developments in this area. The ADIC and Dairy Australia emphasised the importance of trade agreements for the Australian dairy industry:

... Australia's ability to negotiate significant [free trade agreements] with commercially meaningful outcomes will be critical to maximising returns for the [dairy] industry. The bilateral agreements negotiated by competitor countries will also have an important bearing on trade flows, access to, and profitability in markets of choice. (ADIC and Dairy Australia 2014b)

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ADIC and Dairy Australia considered that BRTAs offer particular advantages compared with multilateral agreements because they can:

- deliver economic benefits more quickly
- be more comprehensive in scope
- enable specific issues to be examined in more depth (ADIC and Dairy Australia 2013).

United Dairyfarmers of Victoria (UDV) also expressed support for BRTAs, provided they deliver:

... genuine liberalisation of all dairy products and commercially meaningful opportunities for Australian dairy to reduce its comparative disadvantage to its major global competitors. (sub. 4, p. 4)

Similarly, the Australian Food and Grocery Council submitted:

The Australian Government needs to continue securing free trade agreements that deliver real commercial outcomes, particularly for agribusiness sectors such as dairy and beef and extending to packaged foods, to drive higher returns for the whole food sector, from farmers to food processors. (sub. 8, attachment B, p. 8)

The Victorian Department of Environment and Primary Industries considered that:

Our food exporters are disadvantaged in some Asian markets relative to competitors that have secured free trade agreements with these markets. For example, New Zealand's [free trade agreement] with China has contributed to a dramatic increase in New Zealand dairy exports to China since the agreement came into force in 2008. (DEPI 2014, p. 12)

## Recent BRTA developments in Australia

As participants to this study have alluded, BRTAs often do not result in the immediate and/or complete withdrawal of trade barriers by trading partners, and industries regarded as 'sensitive' may be excluded from the negotiation of trade agreements altogether. Moreover, by definition they remain discriminatory in their effect and so are less effective in aligning trade with comparative advantage. Indeed, Australia concluded the terms of a bilateral trade agreement with Japan — the Japan-Australia Economic Partnership Agreement (Japan FTA) — in April 2014, but increases in market access varied across dairy goods. Salient outcomes of the agreement include:

- Australia-only duty-free quotas for natural cheese for processing, increasing from 4000 tonnes to 20 000 tonnes over 20 years, and cheese for shredding increasing from 1000 tonnes to 5000 tonnes over 10 years
- immediate elimination of tariffs of up to 8.5 per cent on casein, lactose, albumen and milk protein concentrates
- preferential Australia-only quotas for grated/powdered cheese, processed cheese, ice-cream and yoghurt

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- preferential access for blue-vein cheese with no volume restrictions (DFAT 2014a).

The Japan FTA does not provide specific preferential access for milk powders, drinking milk, butter, or dairy spreads. (Together, these products constituted more than half of the quantity of Australian dairy goods exported (by value) in 2012-13.) The Japan FTA does however, make provision for market access for these goods to be automatically reviewed five years after the agreement comes into force (DFAT 2014a).

Many organisations in the dairy industry expressed disappointment regarding the degree of additional access offered to the Australian dairy industry under the Japan FTA. UDV submitted that:

Under the terms of the Japan FTA, the Australian dairy industry will save just \$4.7 million in the first year of its implementation rising to an estimated \$11.6 million by 2031, out of a total export market of \$511 million. This is just 0.1 of a cent per litre for Australian farmers in 20 years' time. There was also no movement ... on fresh cheese — the number one objective for Australian dairy. (sub. 4, p. 4)

Similarly, the ADIC and Dairy Australia said:

While the industry acknowledges that there are some minor gains for dairy from the recently completed Japan FTA, overall, the ADIC has been extremely disappointed by the outcome with this key trading partner. (sub. 6, p. 30)

Also in April 2014, Australia concluded the terms of a bilateral trade agreement with South Korea (the Korea FTA). The Korea FTA will see the elimination of a 36 per cent tariff on cheese over 13 years, and the elimination of an 89 per cent tariff on butter across 20 years (sub. 7). Thus, although the Korea FTA will result in reduced trade barriers for Australian exporters, it will take time for the benefits of lower barriers to be realised. In relation to the Korea FTA, the ADIC and Dairy Australia concluded:

The Australian dairy industry is pleased that the Australian Government has managed to secure a trade deal with the Republic of Korea in recent months. Once ratified, this deal will help to minimise the competitive disadvantage that Australian dairy exporters have faced in the market since the United States and European Union secured their own FTAs with Korea. (sub. 6, p. 30)

## An Australia–China FTA?

Significant attention within the dairy industry has focused on the possibility of a bilateral agreement with China. The proposed agreement has been under negotiation since 2005, and the Australian Government has stated its intention to conclude negotiations by the end of 2014 (DFAT 2014b).

Participants considered that it is important to achieve a 'New Zealand plus' outcome for Australian dairy exports as part of a possible FTA with China. This would see tariffs on Australian products immediately fall to the same levels as those applying to products of New Zealand origin (box 6.5). Dairy Australia has suggested that if such an agreement commenced on 1 January 2016, it could deliver cumulative savings of between

\$300 million and \$630 million over the period 2016–25 for the Australia dairy industry (pers. comm., 7 August 2014). These estimates, however, depend on assumptions about who ultimately pays the tariff, the growth in demand for dairy products, the mix of products exported to China, and the tariff rates that would have applied had the FTA not been negotiated. The Commission has not verified these assumptions, or computed its own estimates of gains under a possible bilateral agreement.

### Box 6.5 The New Zealand–China FTA and dairy

New Zealand's bilateral trade agreement with China, enacted in 2008, provides New Zealand dairy exporters with favourable tariff rates on a range of dairy goods, with remaining tariffs set to fall to zero by 2019. By contrast, the tariff rates currently applied to dairy goods from Australia (and other exporters who do not have preferential arrangements with China), attract the higher most-favoured nation (MFN) rates. MFN rates apply to members of the World Trade Organisation, and ensure that a country with MFN status cannot be treated less advantageously in international trade than any other country granted MFN status by the promising country.

The ADIC and Dairy Australia have remarked:

It has been well reported that the New Zealand–China FTA has given New Zealand, one of Australia's largest competitors in dairy products trade, preferential market access in China ... This advantage grows annually as the NZ-China FTA tariff reduction schedule matures each year. (sub. 6, p. 57)

### Chinese tariff rates on dairy goods

Per cent

	<i>MFN rates</i> 2014	<i>China–NZ FTA rates</i> 2014	<i>China–NZ FTA rates</i> 2019
Skim milk	15	0	0
Milk and cream	15	5	0
Milk powders	10	4	0
Butter	10	3	0
Cheese	12	4	0
Infant formula	5	0	0

Since the New Zealand–China FTA came into force, New Zealand's dairy exports have grown at an annual average (compound) growth rate of more than 50 per cent. Growth in Australian dairy exports to China averaged almost 12 per cent (in compound terms) between 2008 and 2013.

Sources: Dairy Australia (pers. comm., 7 August 2014); USDA (2014).

## BRTAs have benefits and pitfalls

Preferential BRTAs have the potential to improve market access for Australian dairy exports and may also help dairy manufacturers build brands and establish business relations in foreign markets (and in some cases, to do so ahead of competitors entering those markets). In certain instances, they could lead to a reduction in costs for Australian

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dairy product manufacturers (for example, if key imported inputs can be purchased at a lower price).

This form of trade liberalisation is, however, not the most effective, for both exporter and importing nations. Pursuit of BRTAs can, perversely, create incentives to delay unilateral reforms as well as entailing administrative and compliance costs (PC 2010).

BRTAs also have a range of other risks: any trade agreement entered into by Australia will affect a range of domestic industries, and the impact on any one industry (or indeed, individual businesses) will vary — some industries will be better off, but other domestic industries may find that their competitiveness is reduced. Importantly, it is the net impact on the economy as a whole that should inform and guide Australia's decisions to enter into BRTAs, not the impact on particular industries (discussed below). Furthermore, BRTAs are complex by nature, and their operation can have a number of 'less obvious' consequences and distortionary effects for the countries (and industries) involved.

### *Trade diversion*

Trade diversion happens when goods from lower-cost suppliers are displaced by goods from higher-cost suppliers, due to the latter group being granted more favourable access to markets. This distorts the international allocation of resources, reducing efficiency. Whether trade diversion will occur depends on the nature of the trade agreement signed, and the parties to the agreement. If, for example, an agreement is signed with a country that is a relatively high-cost producer of goods for which trade barriers are reduced, trade diversion is possible. If, however, the party to an agreement is the lowest-cost producer of goods for which barriers are reduced, trade diversion will not occur (PC 2010). A case can be made that China's decision to give preferential access to New Zealand reflected such a perspective.

### *Rules of origin*

Where a trade agreement is in place, rules of origin are usually necessary to ensure that imported goods are from the relevant partner country (and thus qualify for preferential access). However rules of origin impose costs, and are often unnecessarily complex and restrictive. This can curb the increase in trade activity achieved under the trade agreement. In its latest Trade and Assistance Review (PC 2014d), the Commission highlighted the considerable variation that exists in the way rules of origin requirements are structured under the nine bilateral trade agreements Australia has entered into. This complexity has costs. It may well impede competition. The Commission suggested that while effort could be expended simplifying and unifying rules of origin across agreements, the simplest and most beneficial approach would be to unilaterally reduce tariff barriers on a most favoured nation basis (PC 2014d).

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## What should trade policy aim to achieve?

BRTAs should only be entered into where there is expected to be a net benefit for the Australian community as a whole. To help ensure that trade agreements met this aim, the Commission has previously recommended that:

- pre-negotiation modelling be overseen by an independent body and include alternative liberalisation arrangements to those proposed in agreements
- full and public assessments of proposed agreements be made after negotiations have been concluded (PC 2010).

## Export facilitation programs

Not all improvements in market access for Australian dairy exports need necessarily be obtained through trade agreements, significant as they can be. Improvements in businesses' familiarity themselves with different languages, customs, laws and institutional arrangements can also facilitate international trade.

Information on export markets and the exporting process, once obtained, could potentially be made available to other exporting businesses or prospective exporters at a low cost. If individual exporting businesses tend to under-invest in information gathering and promotional and marketing activity, overall exporting activity may be lower than what is socially optimal (IC 1992). In recognition of the distinct costs associated with exporting, many governments provide services such as information and advice to assist businesses in gaining access to international markets. Some of the government services provided in Australia are described below.

However, the existence of costs associated with exporting do not automatically justify a role for government — for example, exporters could pool their resources to obtain the required information on markets and institutions without the assistance of government. Where governments do offer export facilitation assistance, the greater the benefit to individual exporters, as opposed to the community as a whole, the stronger the case that governments should price the benefit received. Furthermore, provision of export facilitation assistance (as with many other forms of government assistance) carries the risk that businesses may become reliant on the assistance, even after they have developed their export operations and become experienced in exporting (PC 2012).

## Agricultural counsellors

The Australian Government's Department of Agriculture has over 30 staff working in missions in overseas markets — referred to as agricultural counsellors. Australia currently has agricultural counsellors based in Bangkok, Beijing, Brussels, Dubai, Jakarta, New Delhi, Rome, Paris, Seoul, Tokyo, and Washington D.C. These staff facilitate visits and inspections to progress market access requirements, take part in discussions, and respond

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to requests for information. They also play a role in negotiating for access to international markets and rectifying any problems arising with Australian agricultural exports upon entry to foreign markets (Department of Agriculture 2013). Agricultural counsellors can therefore assist exporters to overcome non-tariff barriers to trade.

ADIC and Dairy Australia called for additional agricultural counsellors to be based in the three emerging markets of Vietnam, the Philippines, and Saudi Arabia. They suggested that this would enable counsellors to:

... more effectively engage directly with local officials/government representatives to address access issues as they arise, and work proactively to identify and prevent non-tariff barriers affecting dairy imports. (ADIC and Dairy Australia 2014b, p. 31)

The ADIC and Dairy Australia suggested having agricultural counsellors in key competitor countries is also helpful, as it can enable trade issues to be addressed before they further develop (ADIC and Dairy Australia 2014b).

## Trade missions

Foreign trade missions provide a means by which exporters, including those in dairy, can expand their business opportunities and engage with potential customers in new or expanding markets. A number of governments provide administrative and logistic support to businesses for such missions. For example, the Victorian Government operates a Trade Mission Program, which takes Victorian business to key overseas markets and introduces them to potential buyers, investors, and trading partners. These missions prioritise the markets of India, China, South East Asia, and the Middle East, and tend to be industry specific (Business Victoria 2014). The Victorian Government has completed trade missions to China in 2012, 2013 and 2014, and to Japan in March 2014.

Other governments in Australia also undertake trade missions. For example, the New South Wales Government hosted a trade mission (with the National Australia Bank) for agribusiness and food companies in August 2014. This particular mission visited Malaysia and Singapore (Business NSW 2014). In April 2014, the Australian Government conducted a trade mission to Chengdu, in the Sichuan province of China, which included over 700 business people from an array of industries (Robb 2014).

## Austrade

The Australian Trade Commission (Austrade) provides a number of programs and services designed to facilitate the export of Australian goods and services. For example, Austrade offers general information and advice on exporting, such as information on local commercial practices and requirements, marketing and promotional advice, and referrals to specialist legal, tax, and business advisory firms, both in Australia and overseas (Austrade 2014). Austrade also offers a number of tailored services to exporters, especially

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in the areas of market-entry and expansion, which could be of particular relevance to the dairy industry.

The structure of charging for exporter support via Australian Government agencies may be another area worthy of external policy review. Dairy manufacturing, as an area with a long history of exporting, may be less affected by charges than some other, newer export sectors such as services. The case for a review might best be made under the general upsurge in interest in Australian services exports to a developing Asian middle class (Parkinson 2014).

## **6.4 Urban and rural water supply**

A number of participants considered that the regulatory arrangements for urban and rural water supply in Australia have a direct bearing on the cost and competitiveness of the dairy industry. The Victorian Farmers Federation noted that ‘a secure, safe water supply for dairy wash-down and irrigation is essential if the Victorian dairy industry is to grow and prosper’ (2014b, p. 15). ADIC and Dairy Australia observed 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 use in the Australia dairy industry**

Water is an essential input for dairy product manufacturing and dairy farming. While water comprises only a small proportion of operating costs (chapters 3 and 4), the availability and reliability of adequate water supplies are vital for the day-to-day operations of dairy product manufacturing plants and dairy farms. In addition to water supplies, facilities that enable the appropriate treatment and disposal of waste water are also essential.

#### **Dairy product manufacturing**

In dairy product manufacturing, water is used for washing, cleaning, cooling and waste water treatment. In 2010-11, dairy product manufacturers used an average of 1.75 litres of water per litre of raw milk processed (ADIC 2013). 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 (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)



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Because adequate and consistent water supplies are critical to dairy product manufacturing, manufacturers have been investing in infrastructure to improve water efficiency and enable water recycling. For example:

Burra Foods has made considerable progress towards increasing its water reuse, and recovers more than 90 per cent of water extracted from milk during the drying process ... [Burra Foods] reduced its on-site water usage by 25 per cent, despite [a] new factory delivering a fivefold increase in the volume of milk solids processed. [A] grant also enabled the company to cut the amount of trade waste sent to a nearby water treatment plant from 100 per cent to 52 per cent. The remaining 48 per cent is now treated before being discharged into a nearby creek, or recycled and used on site. (DIIS RTE 2011, p. 26)

Initiatives such as these, while costly, help to ensure reliable water supplies and minimise the impact of the industry on the environment. However, such initiatives also reflect the absence of alternative methods of securing urban water supply, such as purchasing water from irrigation districts (see below).

## Dairy farming

Dairy farmers require water for irrigating pasture, dairy shed operations and cleaning, and as drinking water for dairy cattle. During periods of lactation, pasture-fed dairy cows can drink up to 100 litres of water per day (Markwick 2007). Although the volume of water used on a dairy farm is correlated to herd size, differences in dairy type (rotary or herringbone) and water recycling practices can also significantly influence water requirements (DPI 2009).

The dairy farming 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).

ADIC and Dairy Australia highlighted that dairy farmers have flexibility in the way in which they use water. ‘For example, dairy can substitute irrigated home-grown pasture when water is short, with bought-in feed — often paid for by selling its water allocation at high prices to orchards that may take seven years to return to full production if the trees die’ (2014a, p. 4).

## Efficient water markets are critical for the dairy industry

Water markets operate in many areas of regional Australia and enable participants to trade statutory water access rights within and/or between regions. Where trade is well developed, water markets allocate scarce water resources between competing uses in an efficient and effective manner.

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## Dairy farmers are taking advantage of rural water markets

Because dairy farmers are large users of water, they are active participants in water markets. The National Water Commission has observed that ‘dairy farmers are proficient water traders and make trading decisions that benefit their farm business’ (NWC 2011, p. 11). Farmers, particularly those in the Murray–Darling Basin, are using water markets to improve their business operations. To illustrate this, the National Water Commission gave the example of:

... one dairy farmer [who] had debts of about \$1 million. During the year, the operator’s bank convinced them to sell 250 ML of water entitlements. While it was not their preferred choice, the decision reduced their interest commitments and increased their equity position. As a consequence, they have been more active in the allocation market. For example, they both bought and sold water on the allocation market [the following year]. They sold water early in the season for \$700 per ML, buying back later in the season, following rains, for \$200 per ML. The outcome has produced a stronger balance sheet as well as cash flow benefits and improved risk management. (2011, p. 10)

Water trading can also help dairy farmers during times of drought. In a study examining the impact of the ‘millennium drought’ (2000–2010) on irrigators in the Murray–Darling Basin, Kirby et al. found that:

Input substitution in dairy, where purchased feed was substituted for on farm irrigated production, more than made up for the lower water availability. In addition some water was sold. Thus despite much less water, gross value declined relatively little. Less obvious and less easily gleaned from readily available statistics are a range of capital, labor and management substitutions for water that underlie the trend toward increased water use efficiency. (2012, p. 24)

... but the benefits of water trading are yet to be fully realised

Despite the uptake and success of water trading in many regions, its spread has been uneven. The VFF noted that:

In southern Victoria, access to water is a major barrier to the dairy industry reaching its production potential. The issue is not a lack of water, but underuse of the licensed volumes. Many farmers are reluctant to permanently or temporarily trade underused water, or unsure how to contact prospective sellers and buyers. Freeing up this unused water would enable dairy production to increase. (2014b, p. 15)

Similarly, the Australian Academy of Technological Sciences and Engineering (ATSE) considered that ‘increasing water trading is a significant emerging issue that requires greater impetus and attention. Commonwealth and state environmental water holders and managers generally seem to not be taking advantage of water trading opportunities’ (2013, p. 3).

In addition to encouraging greater participation by environmental water holders, there also remains scope to encourage dairy farmer participation. One reason for some farmers’

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reluctance to participate in water trading has been uncertainty about water policies and regulations. For instance, the National Water Commission found that uncertainty regarding the Murray–Darling Basin Plan affected the investment and water trading decisions made by dairy farmers (2011). Other potential barriers to water trading include restrictions on the use and trade of water, and investment in irrigation infrastructure.

### *Restrictions on the use and trade of water*

While progress has been made in removing unnecessary barriers to trade in rural water, some obstacles remain. For example, some irrigation infrastructure operators can prevent the trade of water outside their irrigation networks, either by imposing prohibitive fees or withholding consent (where their consent is required).

Some study participants supported such restrictions, considering that they help to maintain irrigation infrastructure. For instance, ADIC and Dairy Australia cautioned that water trading mechanisms may have an adverse effect on the commercial viability of shared irrigation districts (sub. 6).

However, restrictions on the trade of water outside of an irrigation network constrain trade in water entitlements and decrease economic efficiency (PC 2006b). They ‘effectively “lock” water into a particular geographical area, preventing it from reaching higher value uses’ (ACCC 2014, p. 55). The Australian Competition and Consumer Commission (ACCC) also expressed concern that:

... restrictions on the use and trade of water according to the identity of the water access right holder, or the purpose for which the water is used, remain widespread. Restrictions of this type include restrictions on the ability to trade for non-land owners, for environmental water holders or urban water authorities ... (2014, p. 57)

Similarly, the assumption that certain uses of water (including perennial plantings such as orchards) are inherently more valuable than other uses can prevent water from being put to other, higher value uses. ADIC and Dairy Australia considered that:

Dairy is unique in its flexibility, resilience, high return, local processing, and strong demand ... This dynamic is not captured in simplistic higher-value measures of returns per megalitre used based on types of plantings. (2014a, p. 4)

The ACCC found that water trading restrictions such as these ‘are inimical to the efficient allocation of water resources and operation of water markets’ (2014, p. 57).

The Commission concurs. Moreover, in its 2011 inquiry into Australia’s urban water sector, the Commission found that allowing trade in water between the rural and urban sectors generally provides benefits for irrigators, urban water users (including dairy product manufacturers) and the community more broadly. As with other trades that are freely entered into, both the buyer and seller are made better off. The community benefits because trade allows water to move from lower to higher value uses (where value is

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expressed through willingness to pay). Removing restrictions on rural–urban trade could potentially provide further benefits (PC 2011a, p. 90).

## **Government investment in irrigation infrastructure has benefits and costs**

Study participants suggested that investment in irrigation infrastructure is necessary in order for the dairy industry to achieve growth. For example, 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). Dairy Australia said:

[On-farm irrigation efficiency] upgrades cost the Australian Government about \$3700/ML for the environment’s share of water savings ... Buyback tenders for irrigator entitlements for the environment cost the Government around \$2000/ML, but are associated with reduced regional farm productivity. (Dairy Australia (nd)a)

This suggests that compared to water buybacks, government investment in irrigation infrastructure is almost twice as costly to the wider community for a given level of water saving. The objective of investment, of course, may not be simply saving water — for example, where a system is beyond its operational life, or where operational savings are gained across irrigation systems.

Government subsidies for rural water storage and delivery infrastructure can have a range of other undesirable effects. For example, Adamson and Loch found that investing in fixed capital projects with the aim of achieving water savings could have two negative effects.

First, farm capital investments may encourage inflexible production systems that fail to respond to future water scarcity, exposing that investment to increased risk. Second, technical efficiency gains may reduce return flows leading to perverse policy outcomes to achieve environmental objectives. (2013, p. 1)

The Commission notes that the question of return flows is controversial.

In light of these concerns, careful consideration of the communitywide costs and benefits of proposed investments in irrigation infrastructure should be undertaken prior to any such investment taking place.

## **6.5 Workforce issues**

After raw milk, labour is one of the largest costs facing dairy product manufacturers in Australia (chapter 3). Labour costs — and difficulties attracting skilled labour — also present challenges for Australian dairy farmers. In addition to the workers directly employed in dairy product manufacturing and dairy farming (such as production workers, farmers, food scientists and tradespeople, amongst others), a range of other professions

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also provide essential skills to the dairy industry (including veterinarians, agronomists, engineers, refrigeration experts, drivers and electricians).

### **Dairy businesses are concerned about the availability of skilled labour**

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. (2014, p. 1)

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)

Others have reported that skilled workers could not be found in Australia.

Many larger companies are forced to recruit staff from overseas because the employees they require, with desired skill sets, either do not exist in Australia or will not relocate to regional areas. An example of the magnitude of this issue is a major corporate dairy farm which needed skilled herd managers. After a long search, the company concluded that these people simply do not exist in Australia and they ended up recruiting vets from the Philippines to fill these roles ... (McKinna 2010, p. 220)

The limited supply of skilled labour in part reflects the rural and regional locations of many businesses, and the limited effectiveness of government policies aiming to influence where people live and work (box 6.6).

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**Box 6.6      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).

## **Efficient policy settings are critical**

The cost and availability of skilled dairy workers is directly affected by Australia's workplace regulations framework, training and education system, and regulations pertaining to the employment of overseas workers.

Broader economic conditions are also relevant, including labour demand and wage levels in other domestic industries. However, although strong competition for labour can make it more difficult and costly for businesses (including dairy manufacturers) to attract workers, policy intervention to curtail wage growth (where that wage growth reflects market forces) or to otherwise advantage particular sectors, invariably comes at a cost to the community overall. Indeed, the special assistance currently being provided to select domestic industries (such as the Victorian Government assistance to SPC Ardmona), is likely to drive up wages and increase the cost of labour to industries that do not receive such assistance (such as the dairy industry).

## **Workplace regulation**

Relatively high wages and high labour costs can be justified where they are matched by commensurately higher productivity. However, some industry participants expressed concern that current industrial relations regulatory 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

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remedied by, those parties. Similarly, disputes arising during the enterprise bargaining process are a product of the decision to engage in that process, and are open to resolution by the 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 farm 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 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. (2012, p. 6)

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)

Nevertheless, unilateral increases in industrial standards may be undesirable. Where award restrictions have a particular impact on one industry or sector of the economy, it is important that those impacts are considered alongside any broader benefits. Review of the workplace relations framework will be undertaken as part of an inquiry into workplace relations that the Commission will soon be asked to undertake (Abbott 2013).

## Training and higher education

The dairy industry is heavily reliant on the vocational education and training (VET) and higher education systems to provide skills to current and future workers. Training and education for the dairy industry workforce are provided by a range of universities, VET providers and centres. One major provider is the National Centre for Dairy Education Australia (NCDEA), which was established by Dairy Australia in collaboration with Goulburn Ovens Institute of TAFE. NCDEA delivers nationally accredited courses in agriculture and dairy manufacturing from Certificate II through to Advanced Diploma (NCDEA 2010).

Through AgriFood Skills Australia (the relevant industry skills council), industry representatives oversee the content of the training packages, to ensure that training meets the needs of industry. This includes many units that cover dairy-specific skills and competencies.

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Several study participants considered that the dairy industry would benefit from increased funding for VET. For example, ADIC and Dairy Australia (sub. 6) suggested that skills shortages in the dairy industry mean that the industry should receive priority VET funding. They also suggested that current funding restrictions that apply to all workers who are retraining should be relaxed. Others have suggested that:

Improved pasture performance, grazing strategies and feed management are a notable feature of the change in farming practises. The increased complexity of feed management decisions have required farmers to improve their management skills. (Harris 2011, p. 35)

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, and there does not appear to be a case for particular assistance for the dairy industry in this regard.

### Foreign worker regulations

Despite efforts to attract Australian students and workers to the industry, the ADIC considers that ‘a labour shortage exists that can only be filled by overseas labour’ (2014, p. 2). A variety of channels are used to bring in foreign workers. DairyTas said:

There are a range of migration pathways for dairy farmers including business migration, skilled migration and employer sponsored migration ... Applying to migrate can be a lengthy and complex process but if applicants understand the requirements in advance and how to fulfil them, the pathway to permanent residence is straightforward. (2012)

In contrast to this relatively positive view of migration opportunities, the ADIC has expressed concern about the mismatch between the skills and qualifications required for migration and those required on the farm, considering that ‘the skill rating for farmers [for skilled migration 457 visas] is not reflective of the actual skill level required for farming, where much training is done on-the-job, and experience is valued higher than tertiary qualifications’ (2014, p. 3). In response to this discrepancy, Dairy Australia has applied for a labour agreement, which is a formal arrangement negotiated between an employer and the Australian Government which lets an employer recruit an agreed number of skilled workers from outside Australia. Through the agreement, it hopes to improve the industry’s access to skilled overseas workers (ADIC and Dairy Australia 2014b).

The Commission notes that an independent review of the skilled visa 457 programme is underway, and is intended to consider whether current requirements ‘balance the needs of business with the integrity of the programme’ (DIBP 2014, p. 1). The review should therefore provide an opportunity to address any objectively established disconnect between skill needs and visa requirements for workers on dairy farms.



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## **The industry is responding to workforce challenges**

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)

In addition to paying higher wages, some dairy product manufacturers have invested in automation technologies. ADIC and Dairy Australia commented that ‘the use of robotics in dairy processing factories is increasing. Currently robots are used in packaging systems, palletising and the movement of materials including driverless forklifts’ (sub. 6, p. 23). Such automation can considerably reduce the demand for labour. For example, Murray Goulburn’s new pasteurised liquid milk plant at Laverton in Melbourne is ‘up to ten times more labour efficient than [its] other facilities’ (Murray Goulburn 2014, p. 2).

The dairy industry is also making significant efforts to address current and future workforce needs.

The dairy farming sector has one of the most advanced approaches to workforce planning across agriculture, primarily because Dairy Australia has prioritised, and allocated resources to, people issues ... Dairy Australia has committed 15 per cent of its annual expenditure to people capacity building, making it one of its four key strategies. (NRAC 2013, pp. 28–9)

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).

Efforts to attract workers and promote dairy career paths are underway at the national, regional and local levels, and include programs aimed at primary, secondary and tertiary students, and at adults. For example in Tasmania, DairyTas has published a careers guide called Stepping Stones, which ‘provides information on the different types of careers on a dairy farm and explores the different [career] pathways available’ (Dairy Australia 2014, p. 1). The increasing size of dairy farms (chapter 2) may assist in attracting workers, as larger farms tend to provide more opportunities for career progression.

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#### FINDING 6.2

While the dairy industry faces some challenges in obtaining skilled and experienced labour, it is making efforts to address labour shortages. Reviews that are either underway (the skilled visa 457 programme) or have been foreshadowed (a Productivity Commission inquiry into the workplace relations system) may provide an opportunity to consider issues affecting the dairy industry in a broader context.

## 6.6 Transport issues

Chapter 3 highlighted that transport costs represent one of the more significant cost elements for the dairy manufacturing industry. A number of participants have also identified transport as an area where government policy impedes the performance of the dairy manufacturing sector. The main issues identified relate to roads, and ports and shipping.

### Road transport

#### Road provision

Participants have noted that there would potentially be efficiency benefits from being able to use bigger tankers to transport milk when collecting it from farms. The main impediment to this, however, has been the quality of rural roads rather than specific regulatory barriers. For example, Murray Goulburn has publicly stated that the condition and terrain of roads in South Gippsland has added to the costs of maintaining its fleet of about 30 dairy tankers which collect milk from roughly 700 farms in the region (Carter 2014).

Many participants suggested governments increase investment to improve rural roads, and some suggested improvements to rural rail lines. While improvements to the rural road and rail networks would likely provide benefits to the dairy industry, these improvements would involve significant expenditure. Any proposed investments in infrastructure would need to be transparently and rigorously evaluated through cost–benefit analysis to ensure they were justified.

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. Similar issues would apply to rural rail lines. However, expenditure on some rural roads or rail lines might score highly from a cost–benefit perspective but, in the absence of thorough systematic cost–benefit analysis, be prioritised below more high-profile projects.

The Commission’s 2014 report on Public Infrastructure noted governments should primarily play a role in the provision or funding of infrastructure where net social benefits

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can be clearly demonstrated 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 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).

Improving the allocation of resources to roads has the potential to improve the productivity of not only the dairy industry, but also the wider economy. Enhancing the efficiency of resource allocation in roads therefore has the potential to increase community wellbeing.

Participants have specifically noted problems with the grain supply chain that, given the importance of grain as an input to the dairy industry (particularly in some states) also potentially reduce the competitiveness of Australian dairy producers. Improvements in the efficiency of grain supply chains therefore have the potential to reduce input costs for dairy farmers. There are a number of legacy issues stemming from the inefficiencies imposed in the days of ‘single desk’ marketing and the accompanying suppression of price signals. For example, the recently announced plans of GrainCorp to rationalise the number of receival sites under its Project Regeneration program (GrainCorp 2014) should improve the efficiency of transporting grain on the east coast.

### Heavy vehicle regulation

The Commission has previously noted there are significant potential productivity benefits from allowing larger vehicles on roads, subject to appropriate road pricing (PC 2006a). Recent road transport reforms have focused on regulatory access for heavy vehicles. February 2014 saw the commencement of the Heavy Vehicle National Law in New South Wales, Victoria, Queensland, South Australia, Tasmania, and the ACT. The Heavy Vehicle National Law covers access management, compliance and enforcement, and vehicle standards. Heavy vehicle licensing laws and road rules remain the responsibility of individual jurisdictions. While the Commission understands there have been implementation issues surrounding these reforms, in the long run they have the potential to deliver community benefits by, for example, reducing the number of individual permits road users are required to carry in order to gain access to roads situated in different jurisdictions.

### Road user charging

In addition to streamlining regulatory processes and structures, a system of more comprehensive and direct road user charging over the long term would enhance the efficiency of resource allocation with respect to road transport (PC 2014b).

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If efficiently designed, road user charging would provide signals about the cost of road provision to road users, and provide signals to suppliers on where changes in capacity would be most desirable.

The Commission recently recommended in its Public Infrastructure report that, as an initial step towards a unified system of user charging for all road vehicles, the Australian Government should encourage the state and territory governments to undertake pilot studies on possibilities for vehicle charging. Specifically, it recommended that studies look at how vehicle telematics could be used for distance and location charging of cars and other light vehicles. It also suggested that trials for heavy vehicles could be developed on a similar basis (PC 2014b).

Further, the Commission recommended the establishment of Road Funds by state and territory governments. Under the scheme, state and territory and local governments would integrate the tasks of road funding and allocation of funds towards road-user preferred projects into a single entity, which would allow road provision and road charging to be considered more effectively on a regional basis (PC 2014b).

The intent of these changes is not simply to charge for road use, but to link investment preferred by road users — such as heavy vehicle improvements to key dairy traffic routes — to an ability to pay for the additional benefits such investments are designed to deliver.

## **Coastal shipping**

In the Commission's recent inquiry into Tasmanian Shipping and Freight (PC 2014c), 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. Tasmania is home to a number of dairy product manufacturers, and Murray Goulburn has identified a lack of direct international shipping options from Tasmania as reducing the potential to export from the state, with products needing to be shipped to Melbourne initially and then re-loaded on to another ship for export (Lynch 2014b).

The Commission's 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 Tasmanian Shipping and Freight 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 and higher costs for users of domestic shipping services. Noting that the Australian Government has foreshadowed a review of the coastal trading regulatory framework, the Commission

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emphasised that it was important that this work be expedited, and that the objective of the review should be to achieve the most efficient coastal shipping services feasible for Australia (PC 2014c). The Government has indicated it will consider the outcomes of its coastal shipping review together with the recommendations from the Commission's Tasmanian Shipping and Freight inquiry and the Harper review of competition policy (Australian Government 2014a).

## **Port of Melbourne privatisation**

The Victorian government has announced its intention to privatise the Port of Melbourne via a medium-term lease (O'Brien and Hodgett 2014). The Port of Melbourne is of particular importance to the dairy industry given the high proportion of dairy exports from Victoria and Tasmania. Some stakeholders have raised concerns about the possibility of higher access charges at the Port of Melbourne following its proposed privatisation. The VFF has said:

The port is a vital asset for farmers and the State of Victoria. The VFF's key concern is the sale of the government-owned port to the private sector could lead to higher port charges ... The Port of Melbourne is effectively a government-owned monopoly, given the high cost of transporting ... to alternative container ports in Adelaide, Sydney or Brisbane. Consequently the VFF believes there should be strong independent oversight of port access and charges. Currently the Essential Service Commission's role is restricted to monitoring, rather than setting ... charges. The VFF is concerned that a simple monitoring role is insufficient to guarantee ... producers won't face hefty hikes in port charges and loss of access following privatisation. (2014b, pp. 10–11)

The Commission is supportive of governments selling major ports, where the objective is to improve efficient service delivery and effective regulatory regimes covering any identified continuing public interest aspects of the business are in place. In its recent Public Infrastructure report, the Commission noted privatisation of public enterprises has the potential to increase economic efficiency and be in the public interest where:

- user charges make commercial operation feasible
- private ownership can be made compatible with legitimate public policy objectives, through structural separation, regulation, sale conditions and government payment for appropriately valued community service obligations
- sale proceeds exceed the value of the assets under continued government ownership (PC 2014b).

With these conditions addressed, privatisation of a port is likely to improve commercially relevant decision making and support major export commodities such as dairy.

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## 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 ADIC and Dairy Australia have also recognised this possibility:

Demand for natural resources to support increased food production will also be affected by the increasing use of resources for non-food crops such as biofuels. Policies that mandate and/or subsidise biofuels production will increase feed grain prices, and may decrease the capacity of the Australian dairy industry to adapt to increased climate variability. (sub. 6, p. 84)

In the 2014 budget, reforms to the excise arrangements for ethanol were announced, 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.

In response to this policy change, the Independent Pricing and Regulatory Tribunal (IPART) has said:

While recent changes in the Commonwealth budget are an improvement, there will remain a significant differential excise between domestic and imported ethanol. The differential will fall from the current 38 cents per litre to 26 cents per litre by 2021. We welcome this improvement, but consider that a further reduction would increase competition in the supply of ethanol, delivering benefits to customers. (2014, p. 27)

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The Commission is of a similar view. These changes in the budget will gradually reduce the effective subsidisation of domestic ethanol production, but will not eliminate it, and the potential for distortion of the fuel and grain markets remains.

The NSW Government policy mandating that 6 per cent of petrol sold in New South Wales must be ethanol also has the potential to distort grain markets (particularly when operating in conjunction with the Commonwealth excise arrangements) and disadvantage industries such as dairy. The policy has achieved little in the way of creating a viable biofuels industry, and the 6 per cent figure has never been reached. In addition to its potential to distort grain markets, the ACCC has found it has distorted fuel markets by reducing the availability of regular unleaded petrol and therefore sometimes forced those NSW motorists unable or unwilling to use ethanol-blended fuel into purchasing higher-cost premium unleaded (2014). Careful consideration should be given to whether the costs of such a policy outweigh the benefits.





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## 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 eight submissions were subsequently received.
- The interim report was published on 6 June 2014, and a further two submissions were received.
- Submissions are listed in table A.1 and available online at: [www.pc.gov.au/projects/study/business-costs/dairy-manufacturing](http://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 contributed to the study.

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**Table A.1 Submissions<sup>a</sup>**

<i>Participant</i>	<i>Submission no.</i>
Accord Australasia Ltd	3#, 10
Australian Dairy Industry Council and Dairy Australia	6
Australian Food and Grocery Council	8#
Department of Agriculture	7
Farmer Power Australia Incorporated	9
Goat Man Dairies	1
Margetts, Dr Diane	2#
Name withheld	5*
United Dairyfarmers of Victoria	4

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

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**Table A.2 Visits and consultations**

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*Participant*

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**Australian Capital Territory**

Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)  
Department of Agriculture  
Department of Industry  
National Farmers' Federation

**New South Wales**

Bega Cheese

**New Zealand**

Dairy New Zealand  
New Zealand Productivity Commission

**Queensland**

Queensland Dairyfarmers' Organisation

**South Australia**

South Australian Dairyfarmers' Association

**Tasmania**

Dairy Tasmania  
Van Diemen's Land Company

**Victoria**

Australian Competition and Consumer Commission  
Australian Trade Commission (Austrade)  
Burra Foods  
Coles  
Dairy Australia  
Dairy Food Safety Victoria  
Department of Environment and Primary Industries  
Fonterra  
Fresh Agenda  
Gardiner Foundation  
Goulburn Murray Water  
Murray Dairy  
Murray Goulburn  
National Transport Commission  
Rabobank  
Tatura Milk  
United Dairyfarmers of Victoria (Victorian Farmers Federation)  
Warrnambool Cheese & Butter

**Western Australia**

WA Farmers

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## 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 chapter 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).

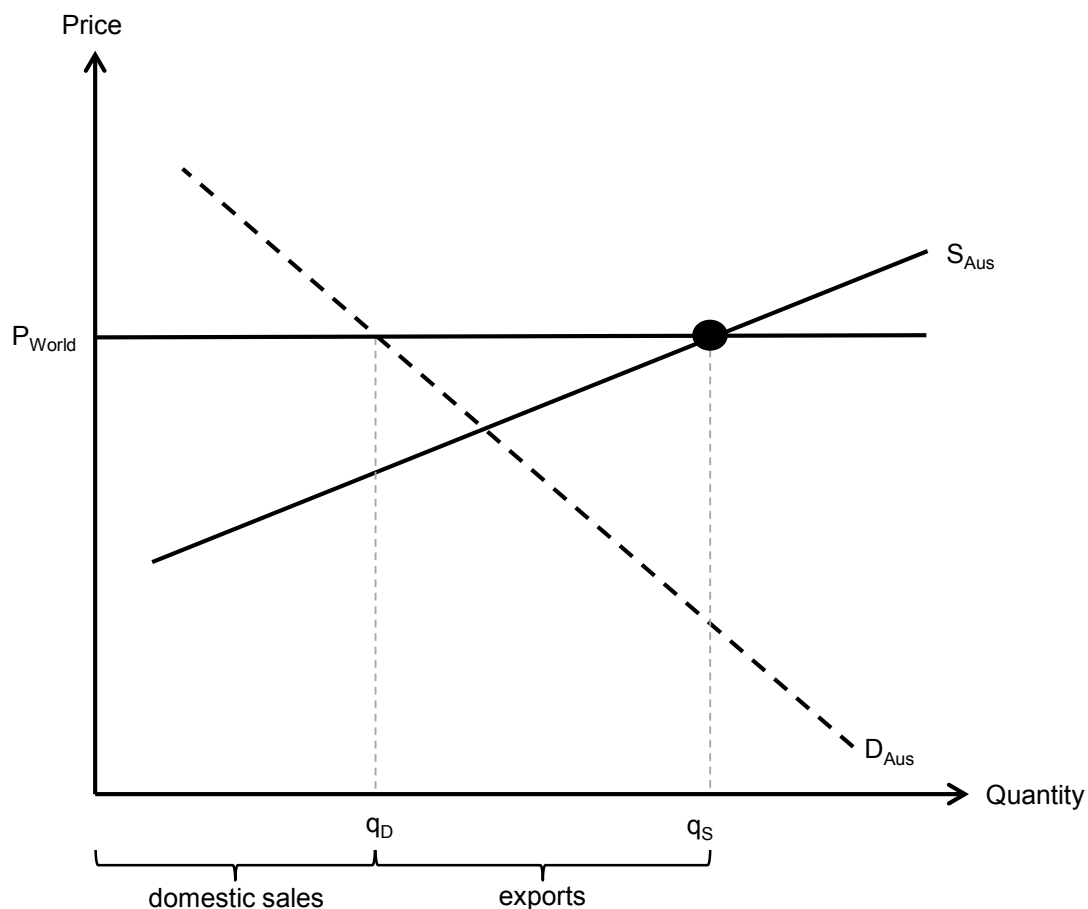
Nonetheless, as Australian dairy exports accounted for 7 per cent of global dairy trade in 2012 (chapter 2), they are unlikely to affect international prices. As such, domestic dairy manufacturers are essentially 'price takers' on world markets. This means that domestic prices for dairy products that are heavily traded (that is, less perishable products such as milk powder and cheese) essentially follow world prices (figure B.1). Indeed, Dairy Australia stated:

... local Australian prices are driven by world dairy commodity prices which determine local export returns ... around 75 per cent 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 per cent of the annual variation in milk prices is explained by movements in average export returns. (2013, 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).

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Figure B.1    **Market for heavily traded dairy products**



The properties of more perishable dairy products (such as 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*.

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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 value added, 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 tend to 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, manufacturers in a particular region will generally pay the same price for raw milk, regardless of whether it is destined for heavily traded or less-traded dairy product markets. As such, world prices of heavily traded dairy products play a significant role in determining the raw milk price paid by all manufacturers, given the degree of trade exposure of the Australian industry. (In practice, however, supply agreements between manufacturers and farmers are complex. They include a range of incentives, bonuses and penalties to encourage raw milk supply of a particular quantity, quality, reliability, or at particular times, and can therefore lead to some differences in prices offered by manufacturers to farmers for raw milk.)

### Farmgate prices and \$1 milk

Lower retail prices for private-label milk in supermarkets have caused concern among some sections of the dairy farming community, especially where dairy production is more highly oriented towards drinking milk products, such as in Queensland and Western Australia.

Competition from private-label milk at the retail level may squeeze dairy manufacturer returns (for example, if manufacturers were previously receiving a ‘premium’ price for their branded products). Some farming groups argued that part of this margin pressure is being passed through to dairy farmers in the form of lower farmgate prices:

... these market pressures on processors have been passed back to dairy farms through the reduction and ongoing suppression of farmgate prices ... (QDO 2014 , p. 3)

However, competition amongst manufacturers to purchase raw milk limits the ability of any individual manufacturer to reduce farmgate prices to recover lost margins. While there are comparatively few dairy manufacturers competing to purchase raw milk in some dairy regions, the potential for entry, or threat of entry, by other dairy manufacturing companies (including farmer-owned cooperatives) can also act as a competitive discipline in the market for the acquisition of raw milk.

For example, if incumbent manufacturers were earning above-normal profits by suppressing the price paid to farmers for raw milk, other manufacturers would have an incentive to enter the market. As new manufacturers entered the industry, they would take market share from incumbent firms and increase the competition for the purchase of raw

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milk, likely resulting in higher raw milk prices. It is possible that the threat of entry by new manufacturers can result in the same outcome as actual entry, although this would require low sunk costs — that is, few expenditures which cannot be recovered by an unsuccessful manufacturer in the event that they actually entered the industry.

It is also important to note that, at the other end of the supply chain, lower *retail* milk prices represent a benefit to consumers (and supermarkets). Moreover, price competition in drinking milk amongst supermarkets is not a phenomenon that is confined to Australia. For instance, in March 2014, three large UK supermarket chains — Tesco, J. Sainsbury, and Co-operative Food — all cut their retail price of two-litre drinking milk to £1 (Burgess 2014).

### Farmgate prices are higher outside of export regions

In some dairy regions (such as in Queensland and Western Australia), it is not cost-effective for manufacturers to produce heavily traded products, as farmgate milk prices are higher than in south eastern Australia. As a result, manufacturers in these regions generally only produce more perishable dairy products for local markets. Farmer-suppliers enjoy limited natural protection from distance and transport costs (and could benefit from 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 milk production. In other words, the cost of extra feed may be less than the costs of transporting milk from other regions.

## **B.2 How do changes in demand and costs affect the domestic industry?**

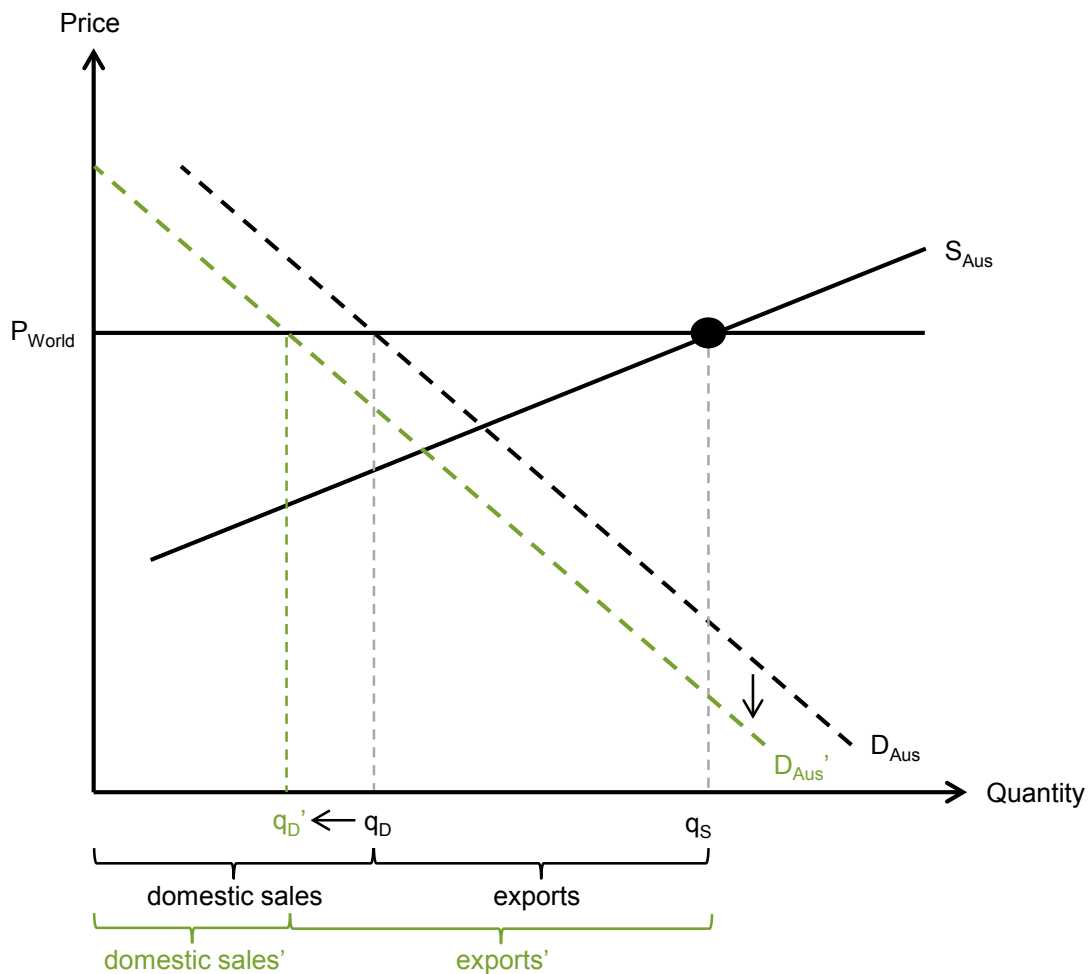
### **Global demand drives growth in Australian dairy output**

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.

**Figure B.2 Effect of a decrease in domestic demand for 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.

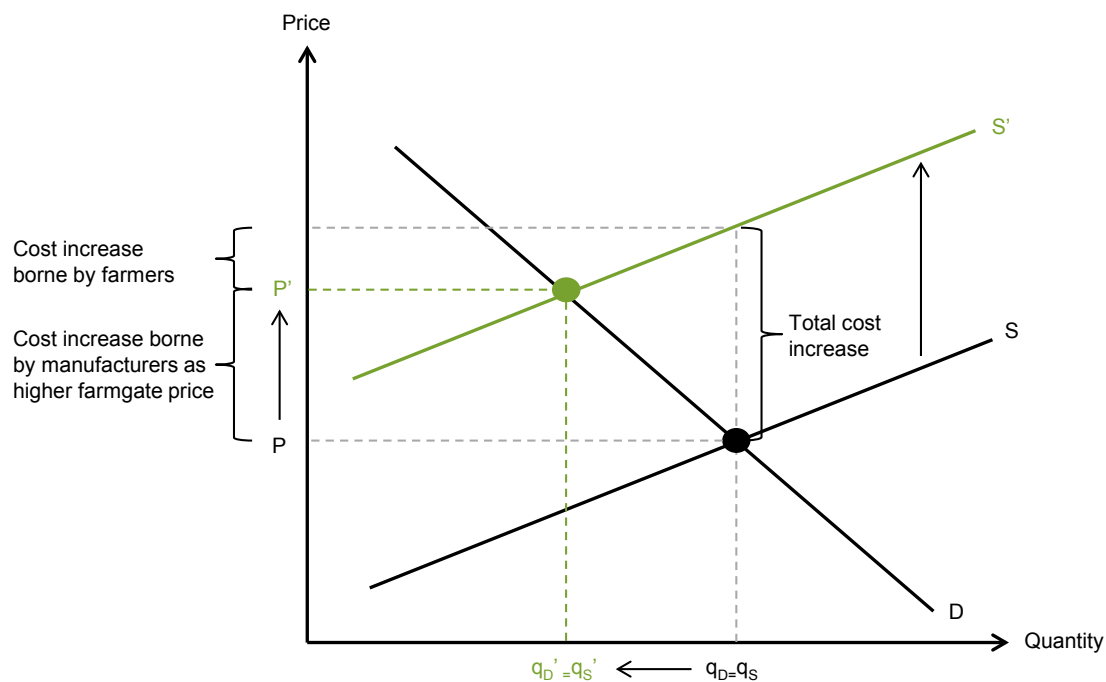
## Raw milk production costs affect farmer and manufacturer returns

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





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