

Policy and Technical Factors Affecting the Evolution of Australia's Dairy Supply Chain

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David Harris

D. N. Harris & Associates

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Early supply chain development

A presentation on:

- early development of Australia's dairy supply chain
- technical & policy factors
- insights for policy development in a DDS?

Evolution brought supply chain efficiency gains:

- from local sales from small scale mixed farms to
- factory based system

Initial changes were simple chain developments:

- change was slow – but periods of rapid change
- adoption of new technology – farm & processing level
- policy measures shaped the change & pace of change

Technical factors in chain development

Changes in chain efficiency began in late 19th century:

- small herds, mixed farms
- localised sales of loose milk by individuals
- transport constraints, no cold storage facilities
- variability in farm hygiene, milk quality, product handling

Fresh milk, hand-made butter & cheese:

- food safety contamination risks
- consumed quickly – home storage issue

Rudimentary change to factory based production:

- central milk collection point – a shed
- for hand-made cheese & butter

Technical factors in chain development

Fresh milk based on milk collectors:

- direct distribution – farm to consumer
- milk cans to household milk pails

Shift to factory system accelerated by new technology:

- separators, mechanical churning – initially farm based
- then bigger scale at milk collection points
- wider commercial sales opportunities
- improved product quality – less variability
- reduced contamination risks

Rapid growth in butter ‘factories’, some cheese operations:

- private operators but many local farmer co-operatives

Technical factors in chain development

Farmers paid for deliveries of milk, cream:

- introduction of milk fat testing
- paid on fat content – not volume
- eliminated ‘watering’ of milk – quality gains

Spoilage a constraint on fresh milk sales:

- cold chain distribution introduced
- deliveries cooled, distributed in iced cooled vehicles
- but no on-farm cooling

Beginning of fresh milk processors – still just a shed:

- non-mechanised handling, milk cans for storage
- hand deliveries to households

Technical factors in chain development

More change from pasteurisation, bottled milk deliveries:

- investment in fresh milk processing facilities
- equipment – milk handling, storage, bottling lines
- but transition was slow – WW2
- lack of regulations for pasteurisation

On-farm changes in milk handling were slow to develop:

- adoption of milking machines, farm cooling tanks
- constrained by cost, access to loans, no regulations

Change accelerated with food safety regulations:

- shift from mixed to specialised, larger scale farms
- bulk milk collection – refrigerated road tankers
- rationalisation – co-operative mergers

Policy factors in chain development

Supply chain development, efficiency also shaped by policy:

- initially government funded extension
- later regulations associated with food safety
- market support interventions

Effect of policy measures were mixed:

- some enhanced outcomes, some detrimental

Gains from extension focused on post milk harvesting:

- training on milk handling practises – farm & processing
- encourage adoption of new technology
- use of demonstration dairies, education programs
- complimented farm production extension

Policy factors in chain development

What about market support interventions?

- early attempts to regulate prices
- fluctuating prices, farm incomes – consumer concerns
- competition among milk (collectors) vendors
- duplication of fresh milk delivery services
- state governments had legislative powers

Regulations to stabilise prices in 1930s:

- discrete zones with producer & vendor numbers fixed
- production quotas
- prices regulated by local authority
- quality standards – production, processing, transport

Policy factors in chain development

Initially maximum fresh milk prices set:

- moved to regulating all prices & margins

Policy measures to support cheese & butter returns followed:

- initial ‘voluntary ‘ industry efforts – eventually regulations
- concept of price equalisation, pooling returns
- production levy, export subsidy
- processors received same per unit return
- evolved into price support – higher domestic prices

Effect on chain development & efficiency:

- removed incentive to improve processing efficiency

Policy factors in chain development

Complex marketing arrangements also reduced incentive for:

- market growth & development;
- new product development;
- increased consumption of dairy products; and
- the adoption of new milk processing technologies.

Food safety regulations another factor in chain efficiency:

- gains slowed by voluntary adoption of new technology
- milk handling & hygiene regulations – farms & processors
- pasteurisation
- product composition, quality standards
- accelerated development of factory based chain

Concluding comments

Efficiency gains in evolution of supply chain driven by:

- adoption of new technology
- improvements in milk handling practises – hygiene
- extension efforts – post milk harvesting
- regulatory requirements related to food safety.....
- but market support measures were detrimental

Early stages of chain development assisted by:

- farmer education programs, demonstration dairies
- compliment extension for farm production efficiency
- also aimed at milk distributors, processors
- resources to enforce food safety regulations