Quality and efficiency of beef supply chains in Australia, the United States and the United Kingdom

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ABSTRACT

The purpose of this paper is to compare and contrast the operation of beef supply chains in Australia, the US and the UK. This comparison reveals aspects of the supply chains that are a consequence of their respective contexts, including resource endowments in the various countries. It also suggests areas where each jurisdiction can learn from the others to improve efficiency and enhance red meat quality.

Method

Appendices 1 to 3 show the configurations of the supply chains of Australia, the US and the UK, respectively. By analysing these supply chain frameworks in different ways it is possible to obtain various insights into the operation of the respective supply chains. For example the quantities of live cattle and beef flowing through each channel can be shown by altering in the figures the thickness of the channels. The extent of vertical integration can be shown by appropriate colour coding of segments of the figures. Moreover at key points in the supply chain figures, quality assurance processes can be indicated.

The process of augmenting of the supply chain figures led to five components of comparison between the respective chains: beef industry focus, the regulatory framework, main source of consumer confidence, market structure of the industry and value attributes for retailers, processors and producers.

Issues revealed by comparing these chains

Differences in natural resource endowments have impacted on the structure of the beef industries of the three countries. Australian cattle producers use both native pastures and improved or sown pastures to produce mostly grass-fed beef. In the UK, cattle producers generally use a grass diet. In contrast, the US cattle producers tend to use feed grains to finish cattle as the US generally has plentiful supplies of grain. Feedlots are a characteristic of US cattle production and are becoming more common in Australia, whereas in the UK, feedlots are not a characteristic of cattle production.
Table 1 shows a comparison between Australia, the US and the UK beef supply chain management. As mentioned above, there are four components of comparison between beef supply chains: the regulatory framework, sources of consumer confidence, market structure of the industry and value attributes for retailers, processors and producers.

Table 1 Comparison between the US, UK and Australia beef supply chain management [11]

<table>
<thead>
<tr>
<th>Item</th>
<th>US</th>
<th>UK</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory framework</td>
<td>Public and private</td>
<td>Public and private</td>
<td>Public and private</td>
</tr>
<tr>
<td>Source of consumer confidence</td>
<td>Government</td>
<td>Retailers</td>
<td>Processors and retailers/wholesalers</td>
</tr>
<tr>
<td>Market structure concentration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Producer</td>
<td>Low</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Feedlot</td>
<td>Very high</td>
<td>N/A</td>
<td>Medium</td>
</tr>
<tr>
<td>Processor</td>
<td>Very high</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Retailer</td>
<td>Low</td>
<td>Very high</td>
<td>Medium/High</td>
</tr>
<tr>
<td>Property Rights</td>
<td>Individual</td>
<td>Retailer</td>
<td>Individual and partnerships</td>
</tr>
<tr>
<td>Value attributes (order winner or qualifier) for retailer/supermarket, processors and producers</td>
<td>Focus on own brand, increase customer loyalty, increase throughput/profit, stable pricing/price floor and niche positioning</td>
<td>Increase customer loyalty, protect retail brand, maintain supply and consistency of product, access to market, plan and forecast accuracy, stable pricing and market orientation</td>
<td>Improve food safety and quality, increase profit, cost reduction, stable pricing, protect retail brand, maintain supply and consistency of product, access to market, plan and forecast accuracy</td>
</tr>
</tbody>
</table>
**The regulatory framework**

All three countries have public and private aspects of regulation of beef supply chains. Governments get involved directly in the market for red meat products. Australia has direct regulation of the beef industry through Livestock Production Assurance (LPA) Program; Animal Welfare (State and Federal legislation); and the Australian Quarantine and Inspection Service (AQIS). The US has 1996 Final Rule on Pathogen Reduction and Hazard Analysis Critical Control Points (MEGAREG); 1938 Federal Food, Drug and Cosmetic Act (FFDCA); the Federal Meat Inspection Act (FMIA); the 1996 Food Quality Protection Act (FQPA); and Public Health Service Act. The UK has direct regulation of the beef industry through the 1990 Food Safety Act.

In summary, the key lessons learned from this are to have a better understanding of the aspects of regulation of beef supply chains before the empirical studies on quality assurance and aspects of regulations models are to be conducted. Additionally, the fundamental objective of the QA schemes is to guarantee to consumers that the supply of produce has all attributes that the schemes seeks to affect, for instance, improved animal welfare, improved traceability and elimination of objectionable feedstuff.

The second is private regulation. It includes self-regulation and certification by other parties, for example the International Organisation for Standardisation (ISO), HACCP, Farm Assured British Beef and Lamb, Scottish Quality Beef and Lamb Association, Certified Angus Beef, Nebraska Corn-Fed Beef and others.

**Sources of consumer confidence**

In the UK, consumers trust in the major supermarkets [17] and the resultant economic benefits derived from the success of own-brand beef products is tempered by the increase in the possible penalties imposed by both consumers and regulators in the event of product failure, as the consequences are not just confined to the product category but affect the overall retail brand.

**Market structure**

Australia, the US and the UK have high concentration at the processor level as processors have high proportion of kill share. In the UK, retailers at the national level have very high concentration compared to the US and Australia. The reason is the number of mergers and acquisitions in the UK is increasing at the retail level.

In terms of feedlot in market structure concentration, the UK does not have the feedlot in beef supply chain market structure, however the US has very high concentration at the feedlot level as Australia only has moderate concentration at this.
**Value attributes**

Australia, the US and the UK have similar value attributes for beef retailers/wholesalers. They are concentrating brand, customer loyalty, stable pricing and profitability. However, Australia is concentrating food safety and quality. With the identification of value attributes of this comparison between Australia, the US and the UK, beef enterprises may design operations to support those value attributes.

**Conclusions**

**References**


Appendix 1: Australian Beef Supply Chain Framework
Appendix 2: The US Beef Supply Chain Framework
Appendix 3: The UK Beef Supply Chain Framework
Figure 1 Australian Beef Supply Chain
Appendix 2: The US beef supply chain management framework

Seedstock

Cow-Calf Producers

Yearling Producers

Feedlots

Packers/Processors

Retailers

Consumer

Source: IGD 1999/Katz and Boland, 2000
Appendix 3: The UK beef supply chain management framework [11, p.22, 12]