

Incentive structures for food safety and quality assurance: an international comparison

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Received 28 May 2001; received in revised form 19 November 2001; accepted 20 November 2001

Abstract

This paper compares the incentive structures for changes in food safety legislation and in private sector business strategies in the UK, Canada and Australia. The experiences of these countries with respect to food safety scares is quite different, leading to different incentives for change and alternative legislative and private sector responses. In the UK, incentives were primarily related to crisis management and the restoration of consumer confidence following a number of high profile food safety scares. In Canada and Australia, the policy focus has been on risk management and the prevention of trade-threatening food safety issues. Private sector responses to food safety have included the growth of vertical alliances in the UK and Australian beef industries. These are less evident in Canada. The three-country comparison presented in this paper highlights the importance of incentives for change in determining the respective roles of public policy and private sector responses to food safety issues. © 2002 Elsevier Science Ltd. All rights reserved.

Keywords: Food safety; Quality assurance; Risk management; Crisis management; Vertical alliances

1. Introduction

Food safety has become an important focus of consumer concerns, policy responses and strategic industry initiatives in many countries.³ This paper compares food safety systems in the UK, Canada and Australia. These three countries make an interesting comparison because their respective drivers for change differ and because of the differing approaches government and industry have taken to ensuring food safety. In each country, the meat industry has been a particular focus of

food safety and quality assurance (QA) initiatives. Vertical industry alliances are becoming an important means of assuring food safety and quality in the UK beef industry and, to some extent, in Australia.⁴

2. Food safety legislation and drivers for change

2.1. The UK

The UK food industry is driven primarily by its domestic market, with the supermarket food retailers enjoying considerable market power. Thus, it is no surprise that the two major influences on the plethora of food safety initiatives in the UK are *internal*: the 1990 Food Safety Act and the Bovine Spongiform Encephalopathy (BSE) (or “Mad Cow Disease”) crisis.

The Food Safety Act 1990 was significant because it introduced the due diligence defence, which shifted the legal responsibility for food safety downstream in the

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³ For a discussion of consumer concerns and analyses of policy responses in various countries, see for example, Antle (2000), Caswell (1994), Caswell and Cotterill (1996), Loader, Henson, and Traill (1995), OECD (1997) and Unnevehr (2000). For analyses of strategic industry initiatives in different countries, see Loader and Hobbs (1999), Roberts, Moreales, Lin, Caswell, and Hooker (1997) and Zaibet and Bredahl (1997).

⁴ A more extensive discussion of some of the issues explored in this paper can be found in Hobbs, Spriggs, and Fearn (2001).

food supply chain. Previous legislation allowed buyers in the supply chain to use the so-called ‘warranty’ defence, which only required that they prove the food was not compromised while under their control. The 1990 Act requires buyers to take all ‘reasonable steps’ to ensure that the food they receive from upstream suppliers is safe. It also means that upstream firms need to demonstrate to their downstream customers that they are handling food correctly (Hobbs & Kerr, 1992). The critical word in the definition of due diligence is ‘reasonable’. This is sufficiently vague that it has encouraged retailers to take extraordinary steps to ensure food safety by instituting stringent QA programs with their suppliers, with an emphasis on traceability (Fearne, 1998). The meat industry was the first to feel the impact as retailers drew up codes of practice for their suppliers covering all aspects of animal husbandry. The industry responded by developing or revamping generic farm assurance schemes (Leat, Marr, & Ritchie, 1998). All of the major supermarkets now require all livestock to come from suppliers who are members of a recognized farm assurance scheme.

The second major driver for change has been the BSE crisis (Palmer, 1996). The crisis weakened the public credibility of the UK government, the meat processing sector, and livestock producers. Only the supermarkets appeared to retain the confidence of the consuming public, reacting swiftly and decisively to the crisis as it unfolded. The UK government was widely criticized for initially dragging its feet on the issue, attempting to downplay the risks to humans. Largely as a result of the BSE crisis, stringent mandatory inspections of abattoirs are now conducted monthly using an objective, risk-based assessment of health standards. The real significance of the BSE crisis, however, is that it shifted the emphasis away from risk management at the retail level and the need to conform to food safety legislation, to the restoration of consumer confidence.

In January 1998, the meat industry launched Assured British Meats (ABM), an impartial organization with representation from within and outside the meat industry. ABM has the sole aim of restoring consumer confidence in British meat through a voluntary industry-wide assurance scheme which is designed to establish minimum safety standards on which retailers will not compete, but will be free to ‘bolt on’ their own QA schemes (ABM, 1998).

The BSE crisis focused the attention of the industry on the importance of food safety and on the devastating effects of a loss in consumer confidence. QA and traceability are now top priorities for food retailers – only producers who are members of a QA scheme are eligible for the partnership arrangements which now proliferate the industry and the race is on to develop a system for full traceability from breeder to individual meat cuts. The British food industry remains gripped by a battle to

restore consumer confidence in all food products, not only beef, and it is this battle which is currently forcing the pace of closer vertical coordination between producers, processors and retailers.

2.2. Canada

Federally, responsibility for food safety is shared between the Canadian Food Inspection Agency (CFIA) and Health Canada (HC). Broad health and safety policies are the purview of HC whose responsibilities include establishing nutritional standards, risk assessment, product labeling issues and product recall in the event of a food safety problem. The CFIA is responsible for inspection and quarantine services and for accreditation of Hazard Analysis Critical Control Points (HACCP) systems (Spriggs & Hobbs, 1999). In some cases, food safety and inspection standards are under provincial jurisdiction, depending on whether the food is to be consumed within or shipped out of the province. A private sector response in a number of sectors has been the introduction of voluntary on-farm QA programs. These are of varying degrees of sophistication, some include farm audits but many do not.

The key factors driving change in the approach to food safety in Canada have been *external*. Maintaining access to existing export markets, particularly the US, as well as obtaining access to new markets, is extremely important given relative the importance of exports to the Canadian agri-food sector.⁵ Regulatory initiatives in Canada’s main export markets have required the adoption of equivalent measures domestically. In the meat processing sector this means that Canadian firms wishing to export to the US must have a HACCP system in place even though it is not yet a mandatory requirement under Canadian legislation. The international focus on science-based risk assessment through the WTO Agreement on Sanitary-Phyto-Sanitary Measures further encouraged a move away from traditional organoleptic food inspection methods. While these drivers for change also affect other countries, they are particularly strong in an export-dependent country such as Canada. Important *internal* drivers have been the need to reduce duplication of responsibilities across Federal government departments and to harmonize regulations nationally. The harmonization of regulations nationally through the CFIA was intended to simplify the regulatory requirements facing firms. It was felt that failure to harmonize would have negative repercussions for access to export markets in the long run.

⁵ The US is Canada’s largest trading partner, accounting for over 60% of agri-food exports in 1999 (AAFC, 2001). For the beef sector, dependence on the US export market is even higher.

2.3. Australia

Under the Australian constitution, State governments are responsible for the enforcement of food law, however, this has led to the emergence of different standards across the country. In an attempt to harmonize standards nationally, the Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) developed “Australian Standards” for primary processing establishments servicing the domestic market (e.g. fresh meat). The Standards require the introduction of HACCP in domestic meat plants. Further downstream, the Australia–New Zealand Food Authority (ANZFA) has developed national food standards for further processing, distribution and retail. It is developing harmonized hygiene standards between the States based on the due diligence principle which will require all food establishments to have HACCP-based food safety programs. There are a number of livestock farm QA schemes (e.g. Cattlecare and Flockcare) which include HACCP-like principles to prevent chemical residue problems. Membership in such programs are voluntary, however, each farm is subject to independent audits.

As with Canada, the important drivers for change in the Australian food industry are *external*, reflecting the need of the export-dependent sector to remain internationally competitive. A series of food safety and quality problems with meat exports focused attention on the need to tighten controls and raise standards. These helped spawn on-farm QA programs. The most important *internal* driver for change has been highly publicized food poisoning outbreaks. Of these, the most prominent was the so-called “Garibaldi Incident” in 1995, in which one person died and 24 were hospitalized as a result of consuming a contaminated sausage product. The Garibaldi incident kickstarted the Australian food industry into improving food safety, resulting in the upgrading and harmonizing of fresh meat inspection and hygiene standards across the country. It is also credited with motivating food manufacturers in Australia to implement stringent food safety procedures, ahead of mandatory regulations being imposed by Federal and State regulatory bodies. The desire to reduce the cost of food regulation has also been a driver for change. The cost of meat inspection has gradually shifted to industry through “co-regulation”, whereby the meat industry is responsible for food safety backed up by government or third party audits.

2.4. Lessons from the comparison

While there are number of similarities in the development of food safety initiatives in the three countries, there are also some important differences in the key drivers and how they have influenced the process of

ensuring food safety. Three key lessons are: (1) the incidence of food safety scares; (2) differences in incentive structures and; (3) the proliferation of standards.

The *incidence of food safety scares* is the primary driver for change, with the UK arguably the most advanced of the three countries due to high profile public scares. The Australian food industry had a taste of what a food safety scare can do, but to date Canada has not experienced a major food scare on the scale of BSE in the UK or Garibaldi in Australia.

In contrast to the UK, the Australian and Canadian food industries have a strong export orientation. Key markets, notably the US, introduced tough new standards for exporters if they wanted to maintain access to these markets. Given the importance of food exports, the Canadian and Australian Federal governments became involved as a facilitator rather than purely as a regulator. The key lesson is that the *incentive structures* were different. In the UK the incentives were primarily related to crisis management and the restoration of consumer confidence, while the Canadian and Australian governments focused on risk management and the prevention of trade-threatening food safety issues.

The third aspect of food safety provision is the *proliferation of standards* that emerge in the absence of central Government intervention. In the UK, the 1990 Food Safety Act placed the burden for ensuring food safety primarily on the retailers who, acting in competition rather than in concert, set about building their own unique assurance programs. The proliferation of industry schemes which resulted placed additional burdens on suppliers and did not cease until ABM emerged with the task of removing food safety as a source of competitive advantage and uniting all elements of the meat supply chain under one industry-wide assurance scheme. In the other countries, proliferation resulted from the blurring of responsibility among different Federal and Provincial agencies, until the trade loss threat encouraged the respective administrations to provide national support and standards.

3. The role of vertical alliances

Vertical supply chain alliances between producers, processors and retailers to enable credible assurances of food safety and quality have emerged as a private sector response to food safety concerns and changing regulatory environments. These are most evident in the UK beef industry, although there are similar developments in some parts of the Australian beef industry.

Some players in the UK beef industry have recognized that a change in emphasis is required towards the benefits which can come directly from addressing consumer requirements for food safety and indirectly from

the systems which have been put in place to deliver safe food. This change in emphasis is manifested in the growing importance of supply chain partnerships, from retailers to farmers to breeders, feeders and other input suppliers.

The major retailing multiples and the largest abattoirs have yet to find an effective system for tracing products from the breeder through the cutting plant to the retailer on a commercial scale. This has provided the smaller players with an opportunity to gain competitive advantage. One such player is *Tracesafe*, a farmer owned company in SW England that operates a unique cattle traceability and QA system. The Tracesafe Cattle Management System encompasses a network of breeders and finishers and enables the history of individual meat cuts to be traced back to the animal of origin. The beef is targeted at specialist retail outlets and high quality restaurants, where consumers are willing to pay a premium for the assurance of guaranteed traceability. All grain is supplied from a network of mills contracted to provide specially prepared rations. Independent auditing of breeding and finishing units is carried out under the ISO 9002 accreditation requirements. Complete details of an animal's life, including parentage, medication, feeding and any movements are documented (Fearne, 1998).

The UK retailer *Marks and Spencer (M&S)* operates its own vertical supply chain alliance. Unlike the other major food retailers who work mostly with abattoirs, M&S has a direct link with their farmer suppliers. M&S' Select Beef Scheme focuses on delivering consistently high eating quality through traceability. Taste panel tests are linked directly back to the farm of origin and are used to compare beef produced under different regimes, enabling technical staff to recommend changes to a ration or husbandry to enhance eating quality. Farms are subject to random inspections. Producers must provide a breakdown of all feed ingredients to show that only approved ingredients are used (Fearne, 1998). These two examples demonstrate an important change in the nature of vertical coordination in the British meat industry, away from adversarial spot trading to tightly organized strategic alliances that have responded swiftly and effectively to the demands for improved safety.

Vertical partnerships are emerging in the Australian beef industry and are being led by the major super-market chains (Woolworths and Coles). In the case of meat, this is happening, in part, because the Australian Government has encouraged co-regulation whereby the meat industry is required to take direct responsibility for food safety. Woolworths has developed a Vendor Quality Management Standard for its suppliers. Suppliers who agree to participate in the program implement a HACCP plan that is subject to independent audit.

4. Conclusions

An effective and credible food safety regulatory system remains a critically important role for public policy. The challenge lies in designing a system that ensures a safe food supply in which consumers can have confidence, while avoiding draconian measures that hamper the competitiveness of the industry with little marginal benefit for consumers. There exists a complex mix of market, supply chain and regulatory incentives for firms to provide safer food. In comparing the differences in institutional arrangements in the UK, Canada and Australia it is clear that national harmonization of standards, increased private sector accountability and tighter regulatory control are features of all three systems to varying degrees. The industry response has been swifter and more decisive in the UK than in Canada or Australia and has been driven largely by the retail sector. Paradoxically, given that retailers are the final point of contact with consumers, they have not featured prominently in Canadian industry QA initiatives. Until retailers become involved, these initiatives cannot truly be regarded as complete "gate to plate" supply chain partnerships. It is not clear which institutional environment will be the most effective and efficient means of delivering safe food. Further research is warranted to determine the relative effectiveness of different national systems.

References

- Agriculture and Agri-food Canada (AAFC) (2001). All about Canada's agri-food industry, Agriculture and agri-food Canada, Ottawa. Available: http://www.agr.ca/cb/factsheets/2indus_e.html.
- Antle, J. M. (2000). No such thing as a free safe lunch: the costs of food safety regulation in the meat industry. *American Journal of Agricultural Economics*, 82, 310–322.
- Assured British Meats (ABM) (1998). *Meat industry sets new standards with consumer assurance body*, Press Release ABM, Milton Keynes.
- Caswell, J. (1994). The policy environment for food safety and nutrition: regulating quality and quality signalling. In D. Padberg (Ed.), *Re-engineering marketing policies for food and agriculture* (pp. 57–76). Texas: Texas A&M University.
- Caswell, J., & Cotterill, R. W. (1996). Strategy and policy in the food system: emerging issues, Food Marketing Policy Center, Department of Agricultural and Resource Economics, University of Connecticut and Department of Resource Economics, University of Massachusetts, Amherst. Available: <http://agecon.lib.umn.edu/ne165.html#conf95>.
- Fearne, A. (1998). The evolution of partnerships in the meat supply chain: insights from the British beef industry. *Supply Chain Management: an International Journal*, 3(4), 214–231.
- Hobbs, J. E., & Kerr, W. A. (1992). The cost of monitoring food safety and vertical coordination in agribusiness: what can be learned from the British food safety act 1990? *Agribusiness: an International Journal*, 8(6), 575–584.
- Hobbs, J. E., Spriggs, J., & Fearne, A. (2001). Institutional arrangements and incentive structures for food safety and quality assurance in the food chain. In N. H. Hooker, & E. A. Murano (Eds.), *Interdisciplinary food safety research* (pp. 43–67). Boca Raton, FL: CRC Press.

- Leat, P., Marr, P., & Ritchie, C. (1998). Quality assurance and traceability the – Scottish agri-food industry's quest for competitive advantage. *Supply Chain Management: an International Journal*, 3(3), 115–117.
- Loader, R. J., Henson, S. J., & Traill, W. B. (1995). Food policies and the food marketing chain. *European Review of Agricultural Economics*, 22, 271–281.
- Loader, R., & Hobbs, J. E. (1999). Strategic responses to food safety legislation. *Food Policy*, 24(December), 685–706.
- OECD (1997). Costs and benefits of food safety regulations: fresh meat hygiene standards in the United Kingdom, OECD Working Papers vol. V., No. 99, Organisation for Economic Cooperation and Development, Paris.
- Palmer, C. (1996). A week that shook the meat industry: the effects on the UK beef industry of the BSE crisis. *British Food Journal*, 98(11), 17–25.
- Roberts, T., Moreales, R. A., Lin, C.-T. J., Caswell, J. A., & Hooker, N. H. (1997). Worldwide opportunities to market food safety. In L. T. Wallace, & B. Schroeder (Eds.), *Government and the food industry: economic and political effects of conflict and cooperation* (pp. 161–178). Dordrecht, The Netherlands: Kluwer Academic Publishers.
- Spriggs, J., Hobbs, J. E. (1999). *Competitiveness of Canada's beef food safety system: comparison with the United Kingdom*, Agriculture and Agri-Food Canada, Ottawa, Canada, May.
- Unnevehr, L. (2000). *The Economics of HACCP: costs and benefits*. Eagan Press.
- Zaibet, L., & Bredahl, M. (1997). Gains from ISO certification in the UK meat sector. *Agribusiness*, 13(4), 375–384.