GOVERNMENT VERSUS PRIVATE
QUALITY ASSURANCE FOR AUSTRALIAN
FOOD EXPORTS

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Most foodstuffs have quality attributes that are difficult to determine prior to
purchase. Thus quality assurance is an inherent problem in food exporting. Private
quality assurance can succeed if exporters can credibly signal that they have much
to lose from cessation of purchases. If exporters do not provide credible quality
signals, and foreign importers judge food quality according to country of origin,
honest exporters can suffer negative spillovers from others' cheating under either
government or private quality assurance. For both economic and political reasons,
the best choice between government and private quality assurance will differ
between foods and importing countries.

Government inspection and certification of exported foodstuffs, to
meet overseas standards of health and safety, cost Australian industry
about $120m in 1991 and 1992. Exporters of meat, live animals, dairy
products, fish, and processed fruits and vegetables, who usually undertake
their own quality control measures, generally have no choice in the
matter; inspection of exported foodstuffs can be enforced under the
Export Control Act 1982. Yet many commodities, such as cars, computers
and wine, are traded internationally in the absence of government export inspection, and, moreover, government inspection has not
prevented instances of fraud in the past (Woodward 1982). In an era of
deregulation, both in the economy generally and in the agricultural sector
in particular, these facts suggest that the superiority of government quality
assurance over private quality assurance for food exports should not
be taken for granted.

* The first version of this paper was written while Jane Harris was an M.Ec.
candidate at Monash University.

† Export inspection is conducted by the Australian Quarantine and Inspection
Service (AQIS), which is part of the Commonwealth Department of Primary Industries
and Energy. Full cost recovery for export inspection services has applied since 1 January
1991. Previously, export inspection costs were shared 40:60 between government and
industry respectively.

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In this paper, the literature on quality assurance is reviewed, including quality assurance for internationally-traded products. Then, the economic and political arguments in favour of government quality assurance and current approaches to quality assurance for Australian food exports are outlined. Finally, the effectiveness of government and private quality assurance in accurately signalling quality at least cost is discussed. The discussion highlights the need for more empirical evidence about the economic and political factors which affect the choice of an appropriate quality assurance system for particular food exports.

Quality and Information — A Review

Problems with signalling quality exist because information about characteristics of goods is asymmetrically distributed between the potential buyer and the seller. The better-informed party, generally the seller, has an incentive to try to cheat the buyer by misrepresenting product quality.

Search, Experience and Credence Goods

Goods can be classified according to the method used by buyers to obtain information about product quality. Nelson (1970) coined the terms 'search goods', for goods the quality of which is determined prior to purchase, and 'experience goods', for those the quality of which is determined post-purchase. Darby and Karni (1973) distinguished a third class of goods, namely, 'credence goods'. Credence goods are those with quality attributes which cannot be detected in normal use.

Consumers of foods cannot ascertain all desirable attributes of foods by 'search'. Some of these attributes would be 'experienced' in use (e.g., taste and freedom from spoilage by bacteria or foreign matter), but others, such as freedom from disease and chemicals, could be classified as 'credence'. Any latent disease obtained by consuming a particular food would be difficult or impossible to trace back to a particular supplier. With chemicals, contamination is a cumulative process and many years may pass before effects are noticed, if they ever are. In that case, the affected customer probably could not discover whether the chemicals came from a particular food — solely or partly — and certainly not the identity of the actual supplier. Thus, freedom from disease and chemical contamination are credence qualities of foods.

The 'Lemons Problem'

If the unit cost of production of 'high' quality exceeds that of 'low' quality, a seller of experience or credence goods has strong incentives to take advantage of buyers by supplying lesser quality than promised (the

\[2\] The distinction between deliberate fraud and inefficiency is ignored. This is because 'deliberate' and 'non-deliberate' activities have essentially the same ramifications. Fraud/cheating in this paper means quality misrepresentation, whatever the cause.
moral hazard problem). Recognising this, buyers will be willing to pay only for low quality. Sellers who offer high quality will receive the low quality price. In the absence of information to signal quality to buyers, sellers of high quality will either withdraw or will convert to the more profitable low quality (the adverse selection problem). If low quality is sufficiently unattractive to buyers, the market for the good concerned may disappear. This is the ‘lemons problem’ (Akerlof 1970 pp. 489-91).

How can buyers and sellers of experience and credence goods organise exchange so that high quality is supplied and rewarded? Their problem is to create institutions which provide buyers with reliable information about quality and reward the sellers who supply it.

Alternative Solutions to the Quality Assurance Problem

It is generally prohibitively costly for consumers to test goods for experience and credence quality attributes at the time of purchase. This reduces the buyer’s and seller’s combined gains from exchange, owing to the repeated measurement of quality (Barzel 1982). Some testing by or on behalf of buyers is essential in the case of credence goods, where quality is not revealed in normal use. Diseconomies of small-scale testing mean that it is generally too expensive for consumers and other small-volume buyers, relative to their gains from exchange.

In the case of standardised products, collective provision of testing by buyers can reduce unit costs. However, since it is difficult to exclude non-payers from the benefits of test information, buyers will have the usual incentives to free-ride, and private testing is likely to be under-provided. This is the basis for public provision of quality testing. Public provision can speed up buyer learning in the case of experience goods, and provide buyers with additional information about quality attributes undetectable in normal use, such as chemical contamination of foodstuffs, in the case of credence goods (Tirole 1988, p. 114).

A second solution is to create a tort liability system, which makes producers liable for defects in their products. However, producers of foodstuffs commonly have limited control of product attributes, and most foodstuffs are materially altered in consumption or processing. In these circumstances, tort liability provides weak incentives for producers to perform satisfactorily because of the high costs or impossibility of legally determining fault (Shavell 1984).

A third solution is to make experience goods subject to contingent contracts, that is, warranties. Warranties are economic for sellers of durable goods where the production-line costs of achieving a higher probability of high-quality performance are high compared with the costs of rectifying faults ex post, and where the seller can identify the buyer’s contribution to performance. Warranties are uneconomic for goods which

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3 Williamson (1985, pp. 47-49) terms this attribute of human behaviour 
*opportunism*, and defines it as ‘self-interest seeking with guile’.
are materially altered in consumption or processing, as is generally the case for foodstuffs, because the original item no longer exists to be exchanged or repaired or as a basis for establishing which event lead to poor performance.

A fourth solution to the quality assurance problem is to remove the opposition of interests of buyer and seller by internalising the transaction within a vertically integrated firm. This is applicable to intermediate goods but not to final consumer goods. Market signalling and incentives are replaced by operational rules and rewards and sanctions implemented by authority within the firm (Cheung 1982; Williamson 1985, ch. 4).

A fifth solution is for the seller to provide a convincing signal to the potential buyer, other than a warranty, that the seller stands to lose if the promised quality is not delivered. Quality signalling mechanisms discussed in the literature include low introductory prices, high prices, licensing, reputations associated with brand names, and advertising and other conspicuous firm- and product-specific expenditures designed to convince the buyer that the seller has much to lose from cessation of purchases. Examples of conspicuous expenditures include elaborate store designs and production facilities designed to meet the requirements of a particular class of buyer. The efficacy of particular mechanisms depends on a variety of factors, including the value of specific expenditures, whether the transaction is once-only or whether there are repeat purchases, the demand for quality and the marginal costs of increased quality, the initial information status of potential buyers and the rate of transmission of information between potential buyers, and the durability of the signals to buyers (Klein and Leffler 1981; Shapiro 1982; Tirole 1988; Ippolito 1990).

Sales of agricultural products by farmers and agricultural processors are characterized by repeat transactions and ability of the seller to vary quality between successive selling periods. In this situation, provision of high quality in the past can signal to buyers that the seller is likely to choose high quality today. That is, the seller may develop a reputation for high quality, leading to repeat purchases at a price reflecting the expected high quality. If the seller provides lower quality than expected, buyers can react by not repeating their purchase. The seller then faces a trade-off between the immediate cost savings from providing a lower quality item at the given price, and the loss of reputation and future profitable sales of the high quality item (Tirole pp. 111-12).

For reputations to produce high quality, buyers have to believe that the costs of loss of reputation outweigh the cost savings due to lower quality. If they do not, then they will expect and pay for low quality, the seller will have no incentive to provide high quality, and the lemons problem reappears (Tirole p.123). So it is important for the seller to provide clear

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4 Tirole (1988, pp. 106-126) provides a useful summary of this literature.
evidence that the returns to maintaining a favourable reputation are high, in particular at the commencement of business when there is generally no prior reputation to convince buyers that a seller is intrinsically honest. Conspicuous initial expenditures, such as introductory sales at an obvious loss, and advertising and expenditures on equipment specific to the firm and to its continuation as a seller of high quality items, can convince buyers that the firm will continue to provide high quality. Such expenditures may also increase the expected profits of established firms, if buyers have any reason to question the firm’s continuation as a seller.  

Ippolito (1990) recognises that particular quality signals, such as advertising, either may not reach all potential buyers or may be forgotten and, therefore, must be repeated at extra expense. If the costs of signalling quality are too high relative to extra revenue gained, individual sellers again have no incentive to produce high quality items. Thus Ippolito stresses the importance of the durability of quality signals. Durability depends on factors such as the degree of communication between buyers, and memory loss by buyers, which is in turn affected by market characteristics such as frequency of purchase and the potential loss from cheating.

Ippolito points out that quality signalling mechanisms can be viewed as bonding mechanisms, whereby some asset or wealth is forfeited when the promised quality is not delivered. In similar vein, Williamson (1983) characterises the costs of contract termination, for any reason, as hostages. Any build-up of seller bonds/hostages (hereafter, hostages) raises the costs to the seller of violating contractual terms by misrepresenting quality.

Signalling the Quality of Intermediate Goods

The fact that buyers are firms can make a difference to the costs and durability of quality signals. Monitoring of experience and credence attributes is less costly for firms which are volume buyers. Vertical integration of buyer and seller is possible, removing the market signalling problem and substituting the problem of coordination and incentives within the firm. Alternatively, recognition of commercial interdependence based on specific investments and/or repeated exchanges can lead

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5 High prices can also signal high quality. This will be the case when the profit margin on high quality items is recognised to be less than that on low quality items, so that a high price ‘proves’ that the seller intends to provide high quality. The seller will also have an incentive to charge a high price for high quality when some buyers can recognise high quality; not to do so will sacrifice profits obtainable from the informed buyers. If the uninformed buyers recognise this, the high price signals high quality (Tirolo 1988, pp.107-8 and 111).

6 The same argument applies whether the seller is a monopoly or a competitive firm. With free entry each seller’s long-run expected profit must be zero, and hence any conspicuous initial expenditures must cause losses to be recouped by subsequent expected profits from sales of the high quality item (see Shapiro 1983).
to the creation of informal coordination processes (Williamson, 1985, ch. 3). Finally, Ippolito's (1990) observations on factors affecting the durability of quality signals suggest important differences in durability between markets for consumer goods and intermediate goods. In general, frequency of transactions and potential losses from cheating are likely to be relatively greater for firms which are purchasing intermediate goods than for consumers. This suggests that sellers' signals are likely to be more durable, and penalties for poor quality performance more substantial, in the case of intermediate goods. On the other hand, buyers of intermediate goods from the same seller are often competitors, and communication of a seller's quality signals and quality performance between buyers of intermediate goods may be limited, reducing the durability of signals.

The foreign buyers of food exports are practically always firms. The importing firm, or a subsequent processor or retailer, may have the resources and motivation to monitor exporters' claims about credence attributes such as freedom from diseases and chemical contamination. Firms will be motivated to detect credence qualities if they are liable for damage to the final consumer, or if they have their own reputations to protect. For example, of the fifty per cent of Australian beef and veal exports that goes to the United States, a large proportion is used in hamburgers and other processed meat products produced by large firms who operate chains of outlets. Such firms are interested in maintaining their reputations for consistent quality.

**Signalling Quality in International Markets**

International quality signalling has been investigated by a limited number of economists working in the fields of industrial organisation and international trade. Teece (1986) focusses on vertical integration, which resolves the international quality signalling problem by aligning the interests of the parties. He explains the existence of the vertically integrated multinational enterprise as a response to high international transactions costs in the presence of transaction-specific assets. Such specific assets would include abattoirs designed to meet specific ritual slaughter or hygiene standards, and fruits and vegetables advertised as free of artificial chemicals.

Donnenfeld and Mayer (1987) explain the lemons problem in international trade. They show that, when foreign buyers have incomplete information about the quality of exports from individual exporting firms, informational externalities can lead to sub-optimal product qualities. For example, if foreign buyers use the minimal quality of a country's exports as an indicator of the quality produced by each exporting firm, there will be no reward for producing above minimal quality.

Donnenfeld and Mayer's assumption, that uninformed foreign buyers judge quality by country of origin, rather than some other quality indicator, leads naturally to recommendations for regulation of quality by the governments of exporting countries. They find that minimum quality
standards imposed by the exporting country, which raise the average price received by exporters, are socially optimal, providing that they are not too costly to implement. A minimum quality standard can also lead to increased penetration of the importing-country market, if foreign buyers have less information about the quality of imports than of home produced goods (Donnenfeld, Weber and Ben-Zion 1985).

Falvey (1989) explores the effects of national origin labelling and minimum quality standards (which could be imposed by either the importing or exporting country) where both domestic and foreign firms produce experience or credence goods and build reputations by initially selling products at prices below production cost. Firms subsequently recoup their investment in reputation by pricing their goods above production cost. Assuming that the costs of producing quality differ across countries, Falvey shows that national origin labelling and differential minimum quality standards for home produced goods and imports reduce reputation establishment costs. This in turn reduces the need for sellers to subsequently charge buyers prices in excess of production costs.  

Falvey points out that non-protective differential standards are unlikely to be implemented by importing countries, because they tend to be viewed as non-tariff barriers by trading partners. Thus it may be in the importing country’s interest to negotiate minimum quality standards to be imposed by the exporting country.

The Basis of Government Quality Assurance for Food Exports

Economic Arguments

The main economic argument for government inspection and certification of the identity and health and safety of food exports is that made by Donnenfeld and Mayer. Some categories of food exports are lemons — foreign buyers receive no reliable signals of individual exporters’ quality, and judge quality by country of origin. Thus exporters who cheat on quality impose negative spillovers on honest exporters, and minimum export standards can raise average returns to exporters as a group. This argument is based on the premise that individual food exporters will not go to the expense of assuring buyers that their products are healthful and safe using low initial prices, brand names, or another of the aforementioned quality signalling mechanisms.

Why would quality signalling be too costly for honest food exporters? First, diseconomies of small-scale signalling may make it too costly for the small exporter. Second, signalling may be too costly if quality information is not communicated between foreign buyers, and has to be repeated at extra expense.

Falvey points out that differential minimum quality standards are inappropriate for experience and credence attributes related to health and safety.
Economies of scale in signalling quality are discussed by Nelson (1976, pp. 284-7). His arguments apply to both direct quality signals and indirect signals involving seller hostages. He argues that, the larger a firm, the less likely it is that the firm can sell a markedly inferior product without news of the fact coming to a buyer’s attention; thus large firms can signal quality more cheaply than small firms. Nelson’s reasons are, first, if importers judge quality by the number of reports received from personal acquaintances, they are more likely to identify the quality of exporters with larger market shares. Second, larger exporters are likely to receive more attention from private information services, because the number of subscribers and hence the return on information collected is likely to be proportional to an exporter’s sales. Third, if the exporter chooses to signal quality by advertising, there are diseconomies of small size in advertising.

With respect to communication between buyers, foreign buyers of a particular food are often competitors. Thus, they are unlikely to communicate the quality signals of an individual exporter among themselves. If the quality signals are too subtle or too complex to be communicated through the general trade media, an individual exporter may choose to accept a price based on country of origin, rather than incur the expense of repeating quality signals for each prospective foreign customer.

If individual quality signalling is too costly, and foreign buyers judge product health and safety by country of origin, a scheme which enforces minimum quality standards for all Australian exports of a particular product provides a non-rival and non-excludable good, namely, information that all Australian exports meet the standard. All Australian exporters of the product receive higher prices as a result.

Private voluntary arrangements to enforce minimum quality standards on exporters of particular foods are unlikely to succeed unless overseas buyers begin to judge quality by membership of the group of participating exporters. Otherwise, non-contributing exporters will obtain the benefits of others’ efforts to enforce minimum standards. Thus, individual exporters have incentives to free ride, and voluntary schemes are unlikely to be initiated. In these circumstances, only government can enforce minimum quality standards, and the contributions required to fund product inspection and certification.

**Political Arguments**

National governments commonly monitor and control the quality of imported foodstuffs, where experience and credence qualities can directly affect human health, and even threaten life itself. Hidden attributes of food which may endanger health are a politically sensitive issue. If the food items concerned are available for legal purchase, all potential buyers see themselves as potential innocent victims of a combination of private malpractice and public dereliction of duty. The perception of innocence leads to strong pressure on politicians to protect food buyers. However politicians in food importing countries generally have neither moral
responsibility nor electoral or financial accountability to Australian food exporters. Thus, in the case of food exports, the need for highly credible quality signals is plain, as is the potential for strategic use of quality standards to protect producers in the importing country.\(^8\)

One way for the government of the importing country to demonstrate its good faith in quality control is to negotiate agreed minimum quality standards to be imposed and policed by the government of the exporting country. In such cases, economic and political interests may coincide; as explained by Donnonfeld and Mayer (1987), the imposition of minimum export standards may be in the exporting country’s own interests.

Government inspection and certification of food exports probably also serves political goals unrelated to economic efficiency. Food processing and inspection, in particular, meat processing and inspection, satisfy important conditions for effective lobbying of politicians. Processing plants, such as abattoirs, are often major employers in regional centres where alternative industries and employment opportunities are few. Plant operators and labour and Australian Quarantine and Inspection Service (AQIS) inspection staff are all represented by established national trade organisations or unions. Thus, it is not surprising that the Commonwealth subsidised export inspection until the end of 1990, and that AQIS is required to provide inspection services to small establishments and remote locations (Ernst and Young 1991, p.21).\(^9\)

**Quality Assurance Alternatives**

How are foreign buyers of Australian food exports convinced of their quality? Three alternative quality assurance mechanisms operate at present. One is AQIS’ traditional *quality control* process, where AQIS staff inspect the end product to identify defects. However, AQIS is currently shifting its focus from quality control to a second alternative, *quality assurance* (QA). QA involves building controls into the production process to produce a product free of defects. QA programmes in individual establishments are designed in collaboration with AQIS, approved by AQIS, and are subsequently subject to audit by AQIS. This alternative gives industry managements a more active role in the production of quality, but AQIS retains at least the formal responsibility for certifying the quality of Australian food exports. The third alternative approach is private quality assurance.

Private quality assurance arrangements may involve any of the quality signalling mechanisms discussed earlier. For example, in the case of fresh vegetable exports, the Industries Assistance Commission (IAC) report on Vegetables and Vegetable Products (1986) states (1986, p. 183): ‘the

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\(^8\) Falvey (1989) notes the difficulty in distinguishing between informationally-efficient quality standards and non-tariff barriers.

\(^9\) Subsidies to small remote abattoirs continued until phased out at the end of 1993 (AQIS, Personal communication, January 1994).
information provided by most Australian exporters of fresh vegetables suggests that they are not perceived as an homogeneous group but instead rely on individual reputations... they make regular telephone contacts with their established overseas agents and regularly visit those markets. They take responsibility for the quality of their exports and are unlikely to be confused with other Australian exporters. Each new entrant has to establish itself in the particular market, earning lower returns than established Australian exporters until it has proven its performance. In other words, fresh vegetable exporters create hostages, non-salvageable investments which they will forfeit if the promised quality is not delivered.

No single quality assurance system will be equally appropriate for all exported foods, or for all foreign markets. Foods and foreign markets differ in the significance of experience and credence attributes to overseas buyers. Export industries differ in structure, in the costs of credible quality signals, and in exporters' financial abilities to signal quality. Foreign buyers and governments differ in their attitudes to different quality-assurance arrangements. This diversity is reflected in the diversity of current and proposed quality assurance arrangements for Australia's food exports. Meats, live animals, dairy products, grains and processed fruits and vegetables undergo AQIS inspection; exports of beer, wine and sugar do not. The IAC report on the vegetable industry (1986) documents the success of Australian fresh vegetable exporters in the absence of export inspection. The Australian Horticulture Quality Certification Scheme (AHQCS), administered by the Australian Horticultural Corporation (AHC), offers exporters certification of QA systems to the international standard, ISO 9002, prescribed by the International Organisation for Standardisation. The AHQCS involves assessments and audits by independent quality systems assessment agencies and, subject to acceptance by overseas authorities, it can also satisfy AQIS phytosanitary certification requirements (AHC undated). On the other hand, countries which import Australian meat still require AQIS inspection of slaughtering in export abattoirs (Industry Commission 1993, pp. 83-85).

Evaluating Quality Assurance Alternatives

An efficient quality assurance system, public or private, will: (i) signal product quality to potential foreign buyers; (ii) provide exporters with strong incentives to deliver the quality promised; and (iii) signal quality at the lowest cost possible. Efficiency is not enough, however. Whatever the economic potential of a quality assurance system, it must be acceptable to political decision makers in Australia and overseas.

This section begins with a discussion of the likelihood that private signals of the quality of food exports are limited or absent, or are ignored. Then, assuming that exporters do signal quality, the links between signals and quality performance under private and government quality assurance are discussed, in particular, the possibility that spillovers between exporters will be more prevalent under government quality assurance than under private quality assurance. This is followed by a discussion of the incen-
tives for cost minimisation under private and government quality assurance. The section concludes with brief comments on political acceptability.

**The Significance of Private Signalling**

As previously explained, the case for government quality assurance is based partly on the beliefs that food exporters do not signal their product identity, health and safety and that uninformed overseas importers judge quality by country of origin. The case for government intervention would be similar if importers ignored quality signals and labelled all Australian exports as just 'Australian'. Is the absence of effective quality signals consistent with what is known about food exporting and the insights into buyer-seller communication offered by the quality signalling literature?

It seems unlikely that overseas buyers of Australian foods would ignore credible quality signals. Specialist importers, food processors and food retailers who buy Australian foodstuffs have to convince their customers of the quality of their products. These firms will generally possess hostages, such as brand names or specialised factories or stores, the value of which will fall if the promised quality is not delivered. Most overseas buyers therefore will have a keen interest in quality signals.

Is private quality assurance too costly for many Australian food exporters? The quality signalling literature indicates that to deter cheating in the eyes of foreign buyers, an exporter must, first, identify its products, and, second, convince buyers that its costs of cheating (hostages forfeited) exceed its gains from cheating. Other things equal, the greater the obvious hostages, the greater the credible deterrent to fraud.

Identification of individual food exporters' products is the norm with government inspection and certification. Reputable exporters use legally registered brand name(s). It is less clear whether individual exporters possess sufficient hostages credibly to deter cheating on quality.

Hostages are larger the more frequent the sale of the product, the greater the probability of repeat transactions, and the more specialised capital investment by sellers. Based on these criteria, food exporters appear likely to have substantial hostages. Food processing and exporting typically involve frequent and repeated sales, because most food products are perishable. Food processors are frequently required to invest in specialised assets to satisfy overseas customers, for example, ritual slaughter facilities. More importantly, food exporters commonly make large non-salvageable capital investments in overseas markets both prior to and during overseas sales. Examples include the costs of identifying suitable overseas agents, satisfying local food regulations, and the provision of product information and advertising.

On the other hand, the greater the instability in market conditions, the less effective the hostage mechanism (Klein 1985). If exporter hostages take the form of the anticipated value of future transactions, anticipated future losses must lower the short-term value of hostages, and thus their deterrent value. If the hostages are non-salvageable capital investments,
wide swings in the short-term profitability of adhering to the terms of export contracts increase the probability that the gains from cheating and possible termination exceed the losses from forfeiting hostages. Thus, fluctuations in world food prices and access to overseas markets probably reduce the effectiveness of private quality assurance for most Australian food exports.

Without empirical studies of exporter and importer behaviour, the quality signalling arrangements and industry structures in food exporting in the absence of government intervention are uncertain. For reasons already explained, individual quality signalling may be too costly for small exporters who find it relatively more costly to signal quality.

Incentives

Now suppose that exporters provide foreign buyers with credible quality signals. Are such private signals likely to provide a stronger motivation to provide the identified product and health and safety than a government inspection and certification system?

In private quality assurance, the hostages, which provide the necessary incentives to deter cheating, are the quality signals. So long as overseas buyers or governments monitor the imported product and reduce or cease trading with exporters who cheat, there is a swift and certain impact on the profits and specific asset values of the exporter whose fraud is discovered, namely, it forfeits some or all of its hostages. Other Australian exporters, trading under their own brand names and with their own hostages, are unaffected.

Incentives to deliver the promised quality are strong if international exchanges are organised within a single vertically integrated firm. The Australia-based employees of international food trading firms will be rewarded or penalised according to their performance in delivering foods of the required quality to overseas processors or retailers.

In government quality assurance, the individual exporter is no longer responsible for signalling product identity, health and safety. Instead, AQIS staff provide the quality signals (certification stamps or certificates attached to export shipments) and the actions of AQIS and other regulatory bodies such as the Australian Meat and Livestock Corporation create the incentives for firms to deliver the required quality, for example penalties such as suspension or loss of export licenses, or court-imposed penalties. So both exporters’ quality performance, and overseas importers’ and governments’ treatment of Australian food exports, will be influenced by their judgement of the behaviour of the staff of AQIS and other regulatory agencies.

Exporters and overseas importers and governments may not believe that AQIS and other regulatory staff put communication of quality information ahead of other goals, such as personal relationships with exporters, job preservation and maximising agency budgets. In the past, these views have been supported by evidence of fraud occurring under compulsory government inspection, as in the meat species-substitution scandal
of the early 1980's (Woodward 1982). In these circumstances, quality signalling can deteriorate, and spillovers between exporters may occur, despite government regulation of export quality. Less scrupulous exporters are likely to cheat on quality, and overseas importers and governments may judge that when fraud occurs under compulsory government inspection, government quality assurance must have broken down. As a result, where overseas markets have been developed for 'Australian' product, cheating by individual exporters may cause losses for other exporters owing to loss of confidence in the quality of all Australian food exports.\(^\text{10}\)

Whether spillovers between exporters will be more or less prevalent under government quality assurance, depends upon both the credibility of private hostages and the incentive structures within AQIS and other regulatory agencies. There is no reliable evidence on these matters.

*Quality Signalling Costs*

When private firms fund their own quality signals, they have strong incentives to do so at least cost. Under the traditional system of inspection by AQIS staff, the export industry which receives the benefits of inspection, and bears most of its costs, has had no formal role in the determination of inspection standards or costs. AQIS, as a publicly-funded monopoly provider of a service that is compulsory for most exporters, has had only limited incentives to reduce charges and costs. The IAC, in its Report on the Food Processing and Beverages Industries, concluded that export quality controls had not been limited to where the benefits to the industry could be shown clearly to exceed the costs, including industries' compliance costs (IAC 1989, p.87).

The recent moves to full cost recovery and progressive adoption of the QA approach to government inspection have given industries and AQIS stronger incentives to work to minimise inspection costs. Removal of the previous forty per cent subsidy of export inspection costs increased the political pressure to cut costs. Although AQIS retains formal export certification authority in QA schemes, in practice it collaborates with exporters in building quality controls into production processes. Thus exporters now have more discretion in designing least-cost measures.

AQIS itself faces significant constraints on reductions in the costs of inspection and certification. These include AQIS' obligation to service small establishments and remote locations, Public Service Act coverage of AQIS employees, and work practices incorporated in the Food Standards Officers Award (Ernst and Young 1991, pp. 21-26; Industries Commission 1993, pp. 83-88 and 165-66). Unlike a private quality assurance

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\(^{10}\) In August 1987, unacceptable levels of organo-chlorine pesticides were detected in meat exported from Australia to the United States and this resulted in temporary US bans on all Australian meat exports. The discovery of organochlorine contamination threatened the entire industry and not just the individuals at fault.
organisation, it is accountable to the Minister and to Parliament, not to
the food exporting industries which pay for most of its activities. Thus
attempts to reduce costs, for example by varying the employment condi-
tions of meat inspectors, require the agreement of the Minister and the
Government as well as the industry (Ernst and Young 1991, pp. 23 and
26).

In the Ernst and Young Report to the Minister for Resources on
Organisational Form and Managerial Arrangements for AQIS (1991) it
was suggested that, as a division of a federal government department,
AQIS has limited incentives to pursue aggressively cost minimisation.
Private quality assurance, if economically and politically feasible, is
likely to communicate quality information at lower costs than current
government arrangements.

Political Acceptability

The domestic and overseas opposition to changes in quality assurance
arrangements for Australian food exports varies by importing country and
by product, indicating the need for a case-by-case approach to quality
assurance. Thus, Australian horticulture appears to be moving towards
private quality assurance with little political opposition, whilst in the case
of meat exports, importing countries, the managements of many exporting
firms and unions all have shown resistance to change (Ernst and Young

Concluding Remarks

If foreign importers judge food quality according to country of origin,
honest exporters can suffer from other exporters' cheating on quality
under either private or government quality assurance. In the case of
private quality assurance, this can occur when individual exporters do not
have sufficient hostages to convince importers that the costs of cheating
exceed its gains. In these circumstances, government intervention can
overcome the free riding which prevents voluntary cooperative provision
of minimum quality standards. On the other hand, when government
implements compulsory minimum standards, any evidence of undetected
cheating can cast doubt on the effectiveness of the entire inspection and
certification process, and thus losses can again spill over to other food
exporters. Also, given the incentive structure of public agencies, it cannot
be assumed that the costs of compulsory inspection will be minimised or
that the quality standards adopted will be those which exporters would
choose for themselves.

In the absence of detailed information about the behaviour of Austra-
lian exporters and foreign importers of particular foods, there is no way
of knowing which quality assurance alternative will maximise net returns
from food exports. Nor is it clear what changes in quality assurance
arrangements would be politically acceptable at home and overseas. For
both economic and political reasons, the best arrangements will differ
between foods and importing countries.
In this paper the need has been highlighted for empirical research into the economic and political factors affecting the choice of quality assurance systems for Australian food exports, and for foods in general. Important topics for research include: the identity of credible hostages for individual Australian exporters in the eyes of Australia's overseas customers; the hostages currently offered by Australian exporters of particular foods, and the effects of those hostages on export prices and quantities; the relationship between the institutional structure of government quality assurance agencies and agency performance; factors determining the attitudes of foreign governments to private quality assurance arrangements; the impacts of alternative quality assurance arrangements on export industry structure; the comparative performance of transnational firms and purely Australian firms in international food trading; and factors explaining the differences in progress towards new quality assurance arrangements for horticultural exports and beef exports.

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