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Organization and Performance of World Food Systems: NC-194

ON THE ECONOMICS OF FOOD QUALITY STANDARDS AND INTEGRATION IN THE EUROPEAN COMMUNITY

IAN M. SHELDON* AND HARALD VON WITZKE†

OP-29 JANUARY 1992

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IAN M. SHELDON* AND HARALD VON WITZKE†

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*DEPARTMENT OF AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY, THE OHIO STATE UNIVERSITY, COLUMBUS, OHIO, USA

†CENTER FOR INTERNATIONAL FOOD AND AGRICULTURAL POLICY, DEPARTMENT OF AGRICULTURAL AND APPLIED ECONOMICS, UNIVERSITY OF MINNESOTA, MINNEAPOLIS-ST. PAUL, MINNESOTA, USA

THIS IS A REVISED VERSION OF A PAPER PRESENTED AT THE 25TH EAAE SEMINAR: FOOD MARKETING AND FOOD INDUSTRIES IN THE SINGLE EUROPEAN MARKET, JUNE 24-26, 1991, BRAUNSCHWEIG, GERMANY

Abstract

Part of the process of completion of the European Community's (EC's) internal market relates to the harmonization of EC food safety and health standards. In order to understand the economic implications of this process for the EC food industry, this paper addresses three interrelated issues. First, if competitive markets do not generate the necessary standard-assuring mechanisms, the nature of such a market failure needs to be understood. By setting out a simple model of contractual enforcement, it is possible to show that asymmetric information on quality components is sufficient for the quality-enforcement mechanism not to work in the case of food quality and safety. Second, if standards have to be set by public institutions, the nature of harmonization at the EC level can be examined. Specifically, it is important to assess the economic implications of the concept of "mutual recognition" in the setting of EC food standards. It is possible that this will lead to minimum standards in the Community which has certain welfare implications for consumers and producers. Alternatively, under certain assumptions, removing internal barriers to trade may drive down the price of food quality and may even result in the exit of low quality goods. The process of harmonization may also provide differing opportunities for rent-seeking by both consumers and food producers, therefore, it is useful to consider the likely impact of such behavior on both internal food prices and external trade.

Introduction

Until fairly recently, a prime concern of agricultural policy-makers has been to assure the supply of a sufficient quantity of food to consumers. Quality considerations have played only a secondary role. However, by the early 1980s, the fear of persistent food scarcity had dissipated and was replaced by concerns over food surpluses in the developed world (von Witzke and Ruttan, 1989). This switch in the perception of food scarcity has been paralleled by a growing emphasis on food quality.

The growing demand in developed countries for many food quality components is usually expressed in the form of a growing demand for food quality standards. Such standards represent quasi-public goods and thus involve a market failure. The general focus of this paper is on both the nature of this market failure and its central implications for completion of the European Communities (EC's) internal market for food products.

The paper is structured as follows: in Section 1, a simple model of contractual enforcement is developed, and it is shown that asymmetric information on quality components is sufficient for the quality-enforcement mechanism not to work in the case of food quality and safety. The implications of this model for food industry structure and trade in food products are considered in Section 2. In Section 3, given that differing food standards are set by public institutions within individual EC member states, the nature of food standards harmonization is examined, in particular, the economic implications of "mutual recognition" in the setting of EC food safety standards are assessed. In addition, because the process of standards-setting in the Community may provide differing opportunities for rent-seeking by both consumers and producers, it is interesting to consider the likely impacts of such behavior on both internal food prices and external trade.

1. Theoretical Background

There appears to be general consensus that many food quality components will eventually be met through free contracting between private agents both domestically and internationally. However, there is also a consensus that certain quality components require regulation as a result of irreversible health consequences of consuming food with negative quality components and because of asymmetric information on those quality components (Kinsey, 1990; Kramer, 1990).

In examining the nature of market failure in the provision of food standards, it is useful to outline a model of contractual performance, developed from the work of Klein and Leffler (1981) and Allen (1984). Consider a situation where, in each discrete time period, consumers purchase a food product x which embodies a quality level q. The utility function of a consumer is defined as:

(1) $$U = Uq(p)$$

where Uq(p) is the utility obtained from products with quality q, purchased at price p, and $U'q(p)<0$ and $U''q(p)\geq 0$ which implies utility is decreasing and convex in price. Prior to consumption, individuals are uncertain about the actual quality of a good but are able to ascertain, by pre-purchase inspection, that it meets a minimum standard, e.g. fruit is unblemished.

On the supply side there are many firms who can supply the market with identical technology. Assume that the cost function is given as:

(2) $$C(x,q) = c(x,q) + f(q)$$

where c and f are variable and fixed costs respectively. The cost function is assumed to exhibit the following characteristics: first, $f(q_h)\geq f(q_l)\geq 0$, where h and l represent high and low quality respectively; second, $C'(x,q_h)>C'(x,q_l)$, i.e. the marginal costs of producing high quality is greater than that for low quality; third, $C'(x,q)>0$ and $C''(x,q)>0$ for high and low qualities.

Given this type of structure, under what circumstances might quality be assured in free contracting between firms and consumers? Following Allen, suppose in any consumption period that a consumer enters the market observing p and x and also has some knowledge of firms' cost functions and the previous quality history of each firm. Quality is only discovered post-purchase, and information is then costlessly communicated amongst all consumers. If quality proves less than claimed, the seller will be punished by non-repeat purchase.

Under such an information structure, consumers will use price and output to check the claimed high quality is in fact so. There will be some set of values of p and x, that provides a boundary below which the consumer will not purchase the good, this boundary is the "moral hazard" curve.

In the case of firms, if they produce low quality ~~the~~ they will receive the following one-period profits:

(3) $$\frac{px - C(x,q_l)}{1 + r}$$

whereas if they produce high quality, they receive a steady stream of profits of:

(4) $$\frac{px - C(x,q_h)}{r}$$

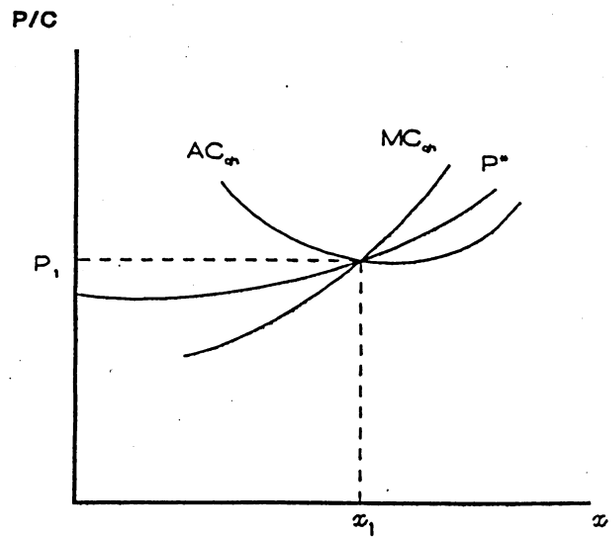
where r is the rate of interest. Clearly, if the following holds:

(5) $$\frac{px - C(x,q_h)}{r} > \frac{px - C(x,q_l)}{1 + r}$$

then firms have an incentive to produce high quality. If (5) holds, then consumers will expect high quality, if not they expect low quality. The set of prices satisfying (5) form the moral hazard curve, and can be defined as:

(6) $$p* = \frac{C(x,q_h) + r[C(x,q_h) - C(x,q_l)]}{x}$$

Figure 1



From this, it is possible to argue that high quality goods will be guaranteed in equilibrium. Given a free entry/exit condition, the equilibrium may either be the perfectly competitive outcome or one similar to monopolistic competition, depending on the shape of the moral hazard curve. In **Figure 1**, where AC_{qh} and MC_{qh} are the average and marginal cost curves for high quality respectively and p* is the moral hazard curve, equilibrium will be where a high quality good is sold at price p_1 with no excess profits. In **Figure 2**, because of the shape of the moral hazard curve, equilibrium is at p_1'. Essentially, equilibrium has to be on average cost, given the free entry/exit condition, and above or on the moral hazard curve. Here price equals average cost but exceeds marginal cost, so firms are able to earn quasi-rents. Therefore, given these assumptions, high quality products can be assured through free contracting.

Figure 2

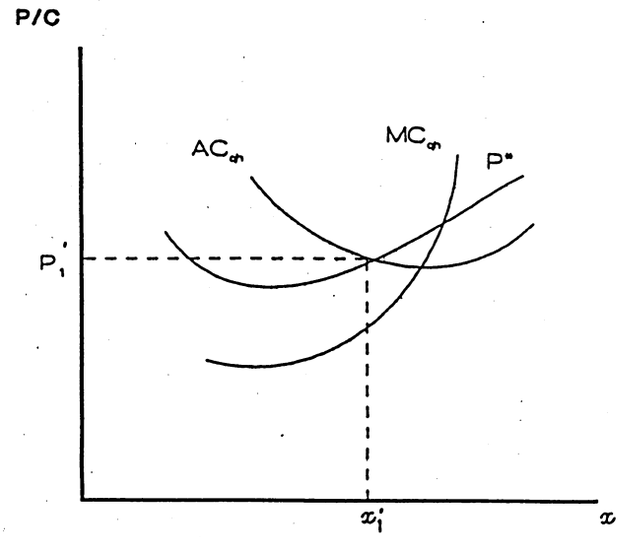
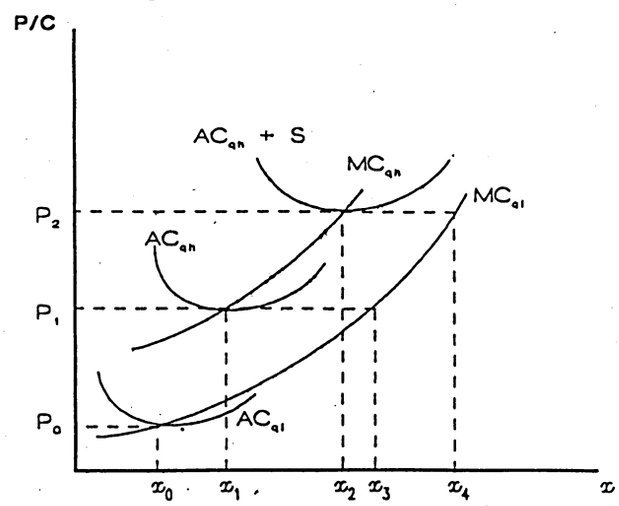


Figure 3



Suppose, however, that output is not observable, which is what Klein and Leffler argue, and that consumers have poor knowledge of technology, then the previous argument breaks down. Focussing on **Figure 3**, where AC_{ql} and MC_{ql} are the average and marginal cost functions for low

quality production, and p_0 and p_1 are the relevant competitive prices for low and high quality goods. Given consumers can only observe whether a good is of some minimum quality pre-purchase, firms now have an incentive to cheat by selling x_3 of the low quality good at the high quality price, as the one-period quasi-rents w_1 from cheating outweigh the zero quasi-rents of being honest, i.e.:

$$w_1 = \frac{1}{1+r}\left[(p_1 - p_0)x_3 - \int_{x_0}^{x_3}(MC_{ql}(x) - p_0)dx\right] > 0 \tag{7}$$

Rational consumers will realize this, and because of the moral hazard, will only be willing to pay p_0, so only low quality goods will be produced[1].

Klein and Leffler argue, however, that there may exist a price above the competitive price p_1 that will motivate firms to supply high quality goods, i.e. p_2 which generates a price premium such that the perpetual quasi-rents w_2 from supplying high quality outweighs one-period rents from cheating, w_1, i.e.:

$$w_2 = \frac{1}{r}\left[p_2x_2 - \int_{x_1}^{x_2}(MC_{qh}(x) - p_1)dx\right] > w_1 \tag{8}$$

where w_1 are now the one-period rents to be earned by selling x_4 of the low quality good at the high quality price p_2.

However, given the free entry/exit condition, firms cannot earn positive profits, hence entry would force the market price below p_2. To generate an equilibrium, Klein and Leffler argue that firms compete such profits away by investing in firm-specific assets such as brand names, logos and advertising. This will have the effect of shifting up the average cost curve

[1] This result is essentially the same as Akerlof's "market for lemons" argument.

for high quality goods by AC_{qh}+s (i.e. $f(q_l)$ in (2) increases). Firms will not cheat at the high price of p_2 as they stand to lose future sales and incur a capital loss. Firms effectively face a perfectly elastic demand curve at price p_2, any price below p_2 indicates lower quality and any price above p_2 will generate entry. Also, investment in specific assets acts as a signalling device to consumers where they are uncertain about firms' cost structures.

Hence, even where consumers cannot observe firms' outputs and technology, it is possible for quality assurance to work. The question arises as to how robust this is when the quality index for a product is a vector of characteristics. As Kinsey notes, food quality is a continuum of characteristics ranging from the very negative such as unsafe food to positive in terms of taste and convenience. The combination of the price premium and repeat-purchase mechanism would likely generate a Pareto optimum for positive quality characteristics such as taste, and one certainly observes European and US food processing firms investing in firm-specific assets such as brand names.

However, it seems less likely that contractual assurance can be maintained in the case of negative characteristics. The repeat-purchase mechanism is based on the idea that consumers can evaluate quality immediately post-consumption and can communicate to other consumers. When consumption of a good bears a health risk, markets fail to achieve a Pareto optimum. Honest firms may invest in firm-specific assets concerning food safety, but because the repeat-purchase mechanism is undermined by consumer uncertainty, dishonest firms have an incentive to free-ride and cheat[2]. Hence, the moral hazard problem remains in the case of negative quality characteristics, and a competitive market will not provide the necessary quality information. Of

[2] See Falconi and Roe (1990) for analysis of incentives to firms to distort safety information.

course, information itself has the characteristics of a public good (Stiglitz, 1985). Therefore, public institutions are required to set food quality and safety standards. In equilibrium, firms incur costs in meeting a particular standard which will be reflected in market prices.

2. Market Structure and Food Quality

The above model is useful in identifying the basic cause of market failure in the supply of food quality, and hence the need for government-set food standards. However, there are two points that make the model less than satisfactory. First, the nature of demand for quality is not clearly specified, in particular the role of income is not taken into account. Second, the equilibrium is one of a fragmented food industry market structure, which is not necessarily true in the case of the food industry in the member states of the EC.

The demand for food quality, as well as for food safety and health standards, is a function of a number of variables. Both food quality and health standards represent luxury goods (Falconi and Roe, 1990). Growing incomes, together with improved knowledge about health risks have led to a significant growth in demand for food quality in the last decade. Of course, the demand for food quality and food quality standards is also a function of other environmental hazards that consumers are exposed to and of (nationally divergent) preferences. Moreover, the demand for food safety and health standards is driven by the growing opportunity cost of human time. Food components are frequently not easy to recognize. The cost of information on food quality components tends to rise with increasing opportunity costs of time. In addition, rising opportunity costs of time stimulate increased demand for food away from home (Senauer, 1979),

and, thus, lead to a growing intake of food for which there is uncertainty about the quality components (Falconi and Roe).

Nevertheless, this discussion suggests that there will be a positive link between income levels and the demand for food quality and safety standards. Kinsey and Houck (1990) have shown how increasing incomes over time could be incorporated into the previous model. Essentially, at a point in time, given a specific income level, government sets the necessary standard level in order to assure market quality, and assuming there is some relationship between this standard and firms' average costs, prices rise to the relevant equilibrium level, reflecting consumer willingness to pay for quality. However, if average incomes increase over time, and consumers demand higher quality, government must raise standards in order to ensure that consumers are not cheated by firms supplying lower quality at higher prices due to the informational asymmetry outlined earlier. This implies that in a group of economies such as the European Community, food standards are likely to differ between member states, depending in part on income levels. However, this only deals with average income over discrete periods of time and does not deal with the issue of a distribution of consumer incomes at a point in time.

In terms of market structure, the results already derived could be interpreted in terms of the traditional location paradigm of product differentiation (see Lancaster, 1979). If the government sets some food quality standard, this becomes one part of a vector of characteristics that the good embodies. Given identical production technologies, free entry and a uniform distribution of consumer preferences over different characteristics sets, then all goods will be sold at the same price at any specific point in characteristics space. What determines the quantity of a good sold by a specific firm is not the distribution of income but the average level of income.

Thus goods are horizontally differentiated and the market structure is one of monopolistic competition. While each good contains the same quality standard, they are differentiated by differing bundles of other characteristics, hence in equilibrium, firms will earn some rents, although they do not derive from quality *per se*.

In the case of horizontal product integration, goods simply differ in the specification of characteristics. However, given the earlier analysis, it is possible for consumers to derive utility from quality, i.e. goods are vertically differentiated[3]. To fix ideas, assume initially that the asymmetric information problem on quality does not exist, and that all characteristics, other than quality, are treated as one characteristic, denoted as v.

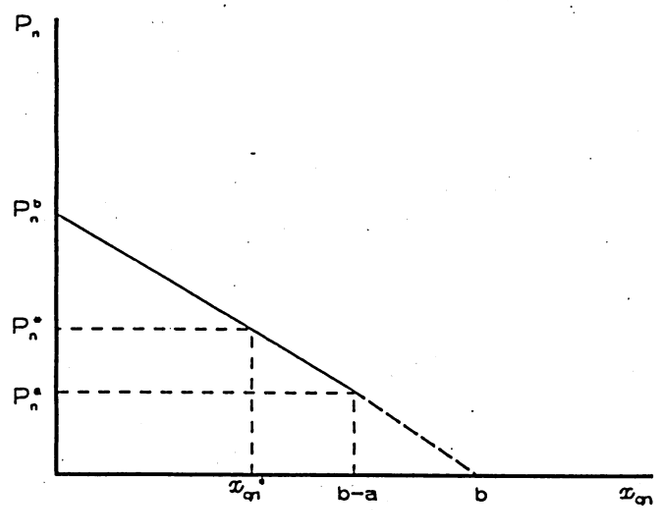
Suppose a number of firms, k=1....n, each sell a product of some quality level q_k at price p_k. Consumers are assumed to differ in income, but they all agree on the ranking of quality, i.e. given two goods sold at the same price, they will all prefer the good of higher quality. Hence a consumer with income y derives utility from consuming a good k with price p_k, the utility being $U(q_k,v,y-p_k)$; where $y-p_k$ is spent on other goods. With a number of different quality goods on offer, $U_{qn}>U_{qn-1}....>U_{q1}$, offered at prices $p_n>p_{n-1}....>p_1$, consumers will divide up by income in such a way that goods of higher quality are bought by consumers with higher incomes, i.e. a consumer's willingness to pay for quality is an increasing function of income. Also, the consumer on the boundary between two income bands is indifferent between buying a high versus a lower quality good.

Such a demand structure has a number of implications for the food standards problem and also completion of the EC's internal market. If it is assumed that consumers' incomes are

[3] See Shaked and Sutton (1983, 1984 and 1987) for a discussion of vertical product differentiation.

uniformly distributed over the range [a,b], where $0<a\leq y\leq b$, in addition, the goods are produced under a technology where average variable costs are zero, the burden of increasing quality falling on fixed costs.

Figure 4



In **Figure 4**, consider the situation where a firm offers the highest quality good q_n at a price p_n and the next quality good is offered at the price $p_{n-1}=0$. Given the income distribution, the vertical intercept for good q_n's demand curve will be P_n^b, where the richest consumer is just willing to pay a positive price to consume good q_n rather than q_{n-1}. Assuming in a Nash game that price is the firm's strategic variable, as the price of this good is cut, consumers on lower incomes are willing to purchase q_n. Once the lower end of the income distribution is reached at p_n^a, the poorest consumer is just willing to purchase good q_n rather than q_{n-1}. Hence, total demand for good q_n is denoted by b-a, and point b in **Figure 4** refers to the point where a consumer of zero income would be willing to pay a zero price for good q_n.

Given this demand curve for a good of quality q_n, the profit-maximizing firm sets a price to maximize profits, so with zero average variable costs, it will be the mid-point of the demand curve at p_n*, x_{qn}*, where x_{qn}* is equal to b/2. From this it is possible to define the equilibrium market structure. If the income distribution is (b-a)<b/2, the firm can set a price p_n so low that it is a monopolist. This is easily interpreted by rearranging (b-a)<b/2 to be a>b/2, i.e. the distribution of income is sufficiently narrow. If a<b/2, the income distribution will be broader, so that more firms will exist in equilibrium. Consequently, in equilibrium, the number of firms supplying quality goods is bounded, depending on the breadth of the income distribution and tastes.[4]

As Shaked and Sutton (1983, 1987) have shown, this result is robust under varying assumptions. First, if normal or lognormal distributions of income are allowed for, the result still holds that goods of higher quality dominate the market. Second, if positive average variable costs are allowed for, the bounding condition still holds, as long as costs do not rise too steeply. If they do rise steeply, the number of firms will be large in equilibrium and there will be a range of qualities. Third, the result will also hold where quantity is the firms' strategic variable.

This analysis has several implications for the analysis of food standards. Once the quality assurance mechanism breaks down, it is difficult for consumers to verify qualities on offer and the prices charged, consequently, the market situation described breaks down. However, if government sets food standards, the model works in an adjusted manner. If a single, low food quality standard is set, and the average variable costs of supplying quality do not rise steeply, then all consumers can purchase a good of known quality. However, if the government chooses

[4] See Shaked and Sutton (1983, 1987) for precise proofs of the bounding property.

to set a higher quality, depending on the breadth of the income distribution and average variable costs, consumers with a lower willingness to pay for quality may be priced out of the market, as firms are unable to offer products of a lower standard at a lower price. Alternatively, if there is a range of food standards from high to some minimum standard, then by the analysis outlined above, the number of qualities actually supplied in equilibrium will be a function of average variable costs and income distribution. In particular, lower qualities may be driven out of the market and those consumers on lower incomes are just able to purchase higher qualities.

The model therefore has implications for a situation where two economies are joined together in trade, which would characterize the process of completing the EC's internal market. First, suppose two economies have identical structures in terms of income distribution, each produces two goods, one of high and one of low quality, where the standards have been fixed by government. Because of the bounding condition, one producer of each quality of good should be driven from the market, equilibrium prices will be lower and consumers benefit from lower prices for quality, assuming quality is verifiable from government standards. Second, in the case where one country has a single higher standard than the other, depending on market size, income distribution and average variable costs, the lower quality good could be driven from the market so that all consumers end up purchasing a higher quality good, again assuming that quality is verifiable by the relevant government standard. Third, if the two economies have different income distributions, once trade is allowed for, the increased market size generates an incentive for firms to offer higher quality, which, in the case of food standards, would require governments to raise standards. Also intra-industry trade in the two qualities may occur, the economy with the lower/higher average income producing and trading the lower/higher quality good.

3. Food Standards and 1992

As the variables determining the demand for food quality and safety standards are likely to be different from one country to another, there will be differences in each country's optimum quality standards (in terms of positive as well as normative analysis) in the absence of international policy coordination. Such nationally divergent standards obviously represent barriers to trade in that goods sold in countries with lower standards cannot be sold in those with higher standards. Hence, there is an incentive for each country to pursue political strategies which could lead to harmonization of food quality and safety standards. These incentives for policy coordination represent one of the driving forces of the EC 1992 market integration initiative.

Despite these incentives, uniform food safety and health standards may be difficult to achieve for political economic reasons. For example, in the case of the US, despite being a nation state for 200 years, there are still numerous interstate trade barriers, many of which are based on differences in food safety and health standards. In the case of the EC, the growing demand for standards has facilitated the formation of domestic coalitions between consumers who desire food safety and health standards and food and agricultural producers who demand protection from competition. Therefore it has proved difficult for EC member states to agree upon a set of uniform food quality standards and, as a result, such uniformity is no longer considered a realistic objective of the 1992 process.

It would appear (Gray, 1990, Swinbank, 1990, Burns and Swinbank, 1990) that the EC has in fact adopted the principle of "mutual recognition" in its approach to food standards harmonization. Products manufactured and sold within a particular EC country, and those imported from a non-EC country, are subject to that country's set of quality standards, while

products imported from other member states only have to meet the standards set by their relevant governments. Although little headway was made to harmonize food standards before the *Cassis de Dijon*[5] case, the latter ruling has effectively determined the European Commission's position on food standards. For example, in 1988 the Commission commented that:

> "The Court of Justice has developed this principle in its case law, notably in the *Cassis de Dijon* judgement. It signifies acceptance by all Member States of products lawfully and fairly manufactured and sold in any other Member State, even if such products are manufactured on the basis of technical specifications different from those laid down by national laws in force..." (p.24)

Given this concept of mutual recognition, it is interesting, in the light of the theoretical analysis, to consider the likely effect of this approach to food standards. There are two generally accepted outcomes of the principle of mutual recognition. First, it is clear that the notion of mutual recognition will tend to break down barriers to intra-Community trade in food products. Clearly, if other EC countries' food standards have to be accepted, then there is no longer any incentive for producers in one Member State to seek protection from EC competition through higher food standards. Second, Third Country exporters to the Community will still face an unchanged trading position vis-à-vis standards after 1992, i.e. they will, in the extreme, have to meet the food quality standards of twelve countries. Consequently, the EC's food standards ruling is likely to promote internal trade creation at the expense of Third-Country exporters.

In terms of the other effects of mutual recognition, it is not clear exactly what will occur. Burns and Swinbank have argued that, while mutual recognition will break down intra-

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[5] Judgement of 20 February 1979 in Case 120/79, **European Court Reports**, 1979, p.649.

Community barriers to trade, it will not result in a single EC market in food products because of the differing standards of the Member States. As a result, they argue that differing food standards will generate competitive distortions for food manufacturing firms dependent on their location within the EC, i.e. as Josling (1990) has suggested, mutual recognition has transformed what was a border tax into a tax on producers where food standards are high. In order to bypass this distortion, it is suggested that firms will pursue two basic strategies: first, new capital investment will occur in those EC countries with the lowest food quality standards, *ceteris paribus*; second, firms in countries with high food quality standards will lobby their governments to reduce standards in order that they can compete with lower quality imports from other EC countries.

In addition, Burns and Swinbank note that concerns have been expressed by lobby groups over the possibility that the principle of mutual recognition will generate costs to consumers. First, it is argued that differing food quality standards within the Community will increase the opportunity cost to consumers of verifying food quality pre-purchase. Second, as food processing firms petition governments to reduce food standards, there will be a "debasement of quality and safety". Consequently, the strategies of food firms and the concerns of consumers will generate coalitions lobbying for harmonized food standards within the Community.

In the context of the analysis outlined in Section 2, there are two problems with the above analysis. First, it takes no account of the impact on food standards of the completion of the internal market. Second, it does not really recognize the fact that consumers may be willing to pay for high quality products that are backed by government standards.

In the case of removing internal barriers to trade in food products, suppose two Member States, with similar income distributions, set a high and a minimum food quality standard for some food product prior to removal of the trade barriers. Depending on the relation between average variable costs and standards, a high and a low quality good could exit the market as prices are competed down upon completion of the internal market. In principle, therefore, consumers should benefit from the lower prices for food quality, assuming they can verify the other country's food standards. Such a process of rationalization and price competition in food quality runs parallel to the other predicted gains from 1992 whereby there will be rationalization and increased realization of economies of scale.

In the case where EC countries have different income distributions and hence differing food quality standards, trade may either drive the lower quality product from the market if the income distributions are sufficiently close or there will be intra-industry trade in the two qualities, the direction of trade being determined by the mean of the income distributions. Thus high/low income consumers in the low/high standard country are able to purchase a high/low quality good. Again this result depends on consumers in one country being able to verify foreign government standards.

Therefore, if food quality is modelled in terms of vertical product differentiation, mutual recognition is not necessarily "bad" for economic welfare. As trade barriers are removed in the 1992 process, consumers may benefit from lower prices for food quality and there are possible gains from intra-industry trade in different qualities. However, these results are sensitive to both the underlying assumptions of the model and also the assumption that consumers in one EC country can verify standards set by another. The latter point suggests that the European

Commission would have to harmonize the reporting of standards even if standards themselves are not.

Finally, in considering the role of food quality standards within the EC, it is interesting to focus on both the incentives for rent-seeking by consumers and food producers and the likely impact of such behavior on both internal food prices and external trade. As indicated in the previous analysis, for a variety of reasons, consumers within the EC are demanding higher food quality standards. Parallel to this, food and agricultural producers have sought to use food quality as a means of protecting themselves from international competition. The principle of mutual recognition and the 1992 process will tend to undermine the incentive for firms within the EC to seek rents from non-tariff barriers to trade. However, the model of vertical product differentiation suggests that if consumers are willing to pay for high food quality, and given the market mechanism described, firms may have an incentive to demand high quality in order to drive out low quality and capture market share.

Therefore, over time, as incomes increase, one would expect the average level of food quality standards within the Community to increase. In addition, if some range of qualities exists after completion of the internal market, then there will be a range of internal food product prices reflecting different levels of willingness to pay for quality and differing levels of the cost of supplying food quality.

In the case of external trade, food and agricultural producers in the EC still have an incentive to demand higher food standards in order to create non-tariff barriers to trade, as the principle of mutual recognition does not extend to Third Countries. Thus the growing demand for food quality will tend to favor political coalitions between food and agricultural producer

interest groups and consumers. In addition, as progress is made in creating a more liberal international trading environment, as one instrument of protection is taken away from EC producers, e.g. farm support policies, there is an incentive to replace it with some other, less transparent form of protection, food quality standards being an attractive option.

Therefore, it is expected that food quality standards will play an increasingly important role as non-tariff barriers to trade with the EC. In fact, there has been a growing incidence of international disputes over food quality and food quality standards. There was disagreement between the EC and the United States over the use of growth hormone in beef production and the Community threatened to ban the import of all beef from the United States for this reason. Also, the EC now requires that foreign meat processing plants meet EC standards. Recently, the EC significantly reduced the number of certified plants, causing the United States to threaten retaliation.

This growing emphasis on food quality standards will also re-define trade relations between the EC and the developing world. Food exporting countries are likely to face more barriers to trade, as the EC countries introduce additional and tighten existing food safety and health standards. Less developed countries may have problems meeting standards set by EC countries because, in many cases, new production techniques are human capital intensive; human capital, however, is scarce in most low income countries. Moreover, production technologies that meet the standards developed in the Community, may not be efficient under either the climatic conditions or relative factor prices in developing countries. A further dimension of this problem is that some EC food exporting firms may be constrained in their domestic sales of foods to those that meet domestic standards but unconstrained in the production of below-standard foods for export to other countries with less restrictive regulation.

4. Summary

In summary, this paper has shown that quality assurance under free contracting is unlikely in situations where food quality cannot be verified post-purchase. This follows from consumer uncertainty about food quality factors such as long-term health risks. Consequently, because food quality has some of the characteristics of a public good, such a market failure requires government-set food standards. Also, when it is recognized that the demand for food quality is an increasing function of income, and this is dealt with explicitly in terms of vertical product differentiation, it is possible, under certain conditions, for lower qualities to be driven from the market through price competition. This result has potential implications for analyzing the effects of EC food quality standards regulation.

The EC has actually adopted the principle of mutual recognition rather than harmonization in its approach to food standards legislation. This paper indicates that there are two possible outcomes from this approach to food standards. On the one hand, it has been argued that there will be competitive deregulation as firms in Member States with high food standards petition their governments to reduce what is regarded as a competitive distortion. In addition, if consumers fear such deregulation will undermine food safety and quality, coalitions between producers and consumers will lobby for food standards harmonization. On the other hand, if consumers are willing to pay for quality, i.e food products can be vertically differentiated, then it is possible, under certain conditions, for some low quality products to be driven from the market as trade barriers are removed, and in equilibrium there may be two-way trade in food qualities.

References

Akerlof, G.A. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism," Quarterly Journal of Economics, Vol.84, (1970), pp.488-500.

Allen, F. "Reputation and Product Quality," Rand Journal of Economics, Vol.15, (1984), pp.311-327.

Burns, J. and A. Swinbank. "An Exploration of the Economic Implications of 'Mutual Recognition' in the Food Sector," in Impacts of Europe 1992 on the Processed Food Industries, Organization and Performance of World Food Systems: NC 194, Economic Studies, Report No. 1, (1990).

Falconi, C. and T.Roe. "Economics of Food Safety: Risk, Information, and the Demand and Supply of Health," Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, MN, (1990).

Gray, P. "Food Law and the Internal Market: Taking Stock." Food Policy, Vol.15, No.2, (1990), pp.111-121.

Lancaster, K. Variety, Equity and Efficiency, Columbia University Press, New York, (1979).

Kinsey, J. "Food Quality and Prices," in Agricultural and Food Policy for the 1990s, Resources for the Future, Washington, D.C., (1990).

Kinsey, J. and J.P. Houck. "The Growing Demand for Food Quality: Implications for International Trade," presented at Annual Meeting of the International Agricultural Trade Research Consortium, San Diego, CA, December 16-18, (1990).

Klein, B. and K.B. Leffler. "The Role of Market Forces in Assuring Contractual Performance," Journal of Political Economy, Vol.89, (1981), pp.615-641.

Kramer, C.S. "Food Safety and Public Policy: What can Economists Contribute?" in Agricultural and Food Policy for the 1990s, Resources for the Future, Washington, D.C., (1990).

Josling, T. "Completion of the Internal Market: Implications for non-EEC Countries," Food Policy, Vol.15, No.2, (1990), pp.152-160.

Senauer, B. "The Effect of Demographic Shifts and Changes in the Income Distribution on Food-Away-From-Home Expenditures," American Journal of Agricultural Economics, Vol.61, (1979), pp.1046-1057.

Shaked, A. and J. Sutton. "Natural Oligopolies," Econometrica, Vol.51, (1983), pp.1469-1483.

Shaked, A. and J.Sutton. "Natural Oligopolies and International Trade," in Monopolistic Competition and International Trade, (ed) H.Kierzkowski, Clarendon Press, Oxford, (1984).

Shaked, A. and J.Sutton. "Product Differentiation and Industrial Structure," Journal of Industrial Economics, Vol.36, (1987), pp.131-146.

Stiglitz, J.E. "Information and Economic Analysis," Economic Journal, Supplement, Vol.95, (1985), pp.21-41.

Swinbank, A. "Implications of 1992 for EEC Farm and Food Policies," Food Policy, Vol.15, No.2, (1990), pp.102-110.

von Witzke, H. and V.W. Ruttan. "Agricultural Policies: A Need for Reform," Economic Impact, Vol.2, (1989), pp.60-64.