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The U.K. Agricultural Tractors Information Exchange System

Horst Albach

1. Introduction

The European Commission in a decision of February 17, 1992, prohibited the U.K. Agricultural Tractor Registration Exchange System.¹ This information system passed on registration of agricultural tractors provided by the U.K. Department of Transport on official forms V55 to the members of the exchange system. The information identified the manufacturer, the model, the postal code of the farmer, and information on the dealer that had sold the tractor to the farmer.

2. The Market

2.1 The U.K. Tractor Market before 1973

Before the entry of the United Kingdom into the Common Market, there were four major producers of agricultural tractors operating in the U.K. tractor market: Ford, David Brown, International Harvester, British Leyland.

Agricultural income was low under the British agricultural policy of those times. The number of tractors sold in the market was comparatively small, though greater than today for various reasons, productivity of the individual tractor being one of them.

The five producers of tractors in the U.K. were members of the Agricultural Engineers' Association (AEA), a trade organization established in 1875.

In the early sixties, the English producers of tractors within the AEA started to process registration information. At that time processing was done by hand. In the later sixties IBM took over processing of the registration information on a contract basis. Finally, after long discussions about the proper and cost efficient way of handling the registration forms, the Systematics Group of Companies Ltd. (SIL) emerged as the data processing center for the manufacturers.

1 European Commission, Decision of February 17, 1992, IV/31.370 und IV/31.446 - U.K. Agricultural Tractor Registration Exchange (92/157/EEC). In: *Official Journal of the European Communities*, No. L 68, March 13, 1992, pp. 19-23.

The tractors of that time were heterogeneous, but the rate of product innovation was low. In particular, the market leader had not made any substantial model changes for many years.

2.2 The U.K. Tractor Market after 1973

2.2.1 Innovation

When Great Britain entered the Common Market, agricultural policy changed dramatically from income subsidization to price subsidization. The purchasing power of the British farmers increased substantially as a consequence of this shift in policy. The U.K. market for agricultural tractors became interesting to outside producers of tractors. Since no barriers to entry into the U.K. market existed, the number of entries increased significantly. Table 1 shows the number of entries into the U.K. tractor market

Table 1: Suppliers to the U.K. Tractor Market

Year	Number of Firms in the Market	Number of Members of the Information System
1960	7	5
1972	15	5
1979	18	8
1980	29	9
1981	32	10
1982	33	10
1983	35	9
1984	37	9
1985	38	6
1986	38	9
1987	41	10

The number of new models introduced to the British market increased substantially also. Table 2 gives the number of tractors offered in the U.K. tractor market in any given year and shows the number of new models introduced into the market. The number of firms, of new models, and of models offered in the market increased three times between 1972 and 1989.

Table 2: Models offered and New Models introduced in the U.K. Agricultural Tractors Market

Year	Number of Tractors Offered	Number of New Models Introduced
1960	6	-
1965	14	-
1970	18	-
1975	21	1
1976	-	6
1977	-	9
1978	-	7
1979	-	14
1980	59	6
1981	62	28
1982	61	10
1983	72	23
1984	73	5
1985	74	5
1986	69	25
1987	61	9
1988	62	6
1989	62	7

When John Deere moved into the market in 1979, none of the incumbent firms had tractors in the size class offered by John Deere, namely tractors with one hundred horse power. The impact of this innovation in the U.K. tractor market changed competition dramatically. Farmers were given a chance to become more efficient and to operate bigger acreage with fewer tractors. This in turn forced the other companies to also enter the market for large tractors. The effects of this innovation on the market are shown in table 3. The large tractors immediately gained a market share of 10%, then dropped back to 7% of the market and reached a substantial share of almost 20% in 1991.

Table 3: The U.K. Market for Large Tractors

Year	Registrations	
	Number	Percent of Market
1981	2.254	10.0
1982	2.671	10.3
1983	3.266	9.1
1984	2.668	8.5
1985	2.667	7.7
1986	1.986	7.2
1987	2.222	8.1
1988	2.687	8.8
1989	2.465	12.3
1990	2.848	15.7
1991	2.828	18.5

Another major innovation in the U.K. market was made by the Japanese firm Kubota. This firm produces small tractors with less than forty horse power. This market was not well developed in the U.K. Kubota captured a sizable share of the market. In ten years the market share of compact tractors grew from 2% to 6-7%. Table 4 shows the development of the U.K. market for compact tractors.

Table 4: The U.K. Market for Compact Tractors

Year	Number	Percent of Market
1981	405	1.9
1982	614	2.3
1983	997	3.5
1984	1.113	4.3
1985	1.211	4.9
1986	1.164	6.3
1987	1.404	7.2
1988	1.453	7.5
1989	1.306	6.6
1990	1.283	6.9
1991	965	6.3

Innovation activity was not restrained to model changes. Each model underwent significant technical changes as a consequence of customer needs and technical progress.

2.2.2 Market Shares

If the market shares of the leading four or five producers of tractors are taken together, total market share dropped from 90% in 1970 to 84% in 1976 and from then on gradually declined to 76% in 1988. Certainly, this looks like a fairly dominant position of the leading firms in the market. However, inference of inadequate competition in this market would not be justified. Individual market shares evidence significant changes. The market shares of the four dominant firms in the U.K. market as a whole are given in table 5.

Table 5: Development of Market Shares in the U.K.; 1970-1988
The U.K. Market for Agricultural Tractors (Index: 1970 = 100)

Year	Firm 1	Firm 2	Firm 3	Firm 4	Others
1970	100	100	100	100	100
1971	-	-	-	-	-
1972	87	103	95	109	100
1973	81	80	111	155	121
1974	81	80	101	182	143
1975	87	83	116	245	128
1976	81	82	137	277	76
1977	95	72	138	345	65
1978	79	83	135	364	64
1979	78	74	118	373	75
1980	76	71	121	459	56
1981	70	65	125	400	55
1982	73	70	131	473	71
1983	78	71	107	455	86
1984	70	65	113	532	81
1985	69	69	102	550	81
1986	73	64	97	623	81
1987	74	53	111	673	89
1988	76	53	107	641	88

Index figures are used in order to demonstrate the dynamic developments in the market. Firm 1 lost 25% of its market share in a shrinking market, firm 2 lost one

half of its 1970 market share, firm 3 gained significantly during the seventies but dropped back during the eighties, and firm 4, a newcomer in the sixties, made significant progress during the whole period. The rest of the firms, many of them hit and run competitors, could not gain lasting ground. During the first years of U.K.'s membership in the Common Market, they increased their market share by almost one half, but then dropped back to below their original share.

However, competition in the U.K. tractor market is not done from headquarters. Rather, it is the dealers in their respective sales territories that wage competition with the dealers of other makes. Data are available not for sales districts, but for counties. Market share development in one county is given in table 6. The firms are identical.

Table 6: Development of Market Shares in a British County in the U.K., 1976-1988
The U.K. Market for Agricultural Tractors (Index: 1976 = 100)

Year	Firm 1	Firm 2	Firm 3	Firm 4	Others
1976	100	100	100	100	100
1977	115	84	101	117	80
1978	100	112	87	130	108
1979	100	109	81	122	79
1980	99	115	84	122	61
1981	106	107	84	125	47
1982	104	101	89	134	73
1983	93	108	86	161	82
1984	76	115	86	203	100
1985	82	96	79	191	102
1986	85	100	76	229	58
1987	92	95	86	213	71
1988	101	78	85	244	52

We notice that in this county firm 1 defends its market share much more successfully than on the market as a whole. Firm 3 loses against total market share, firm 2 does not suffer as much damage to its market share than on the market as a whole, and firm 4 cannot make as much progress as it has does in the U.K. market as a whole. Other county markets show strikingly different patterns of development adding up to the total development shown in table 5.

3. The Information Exchange System

3.1 The Use of the Information Provided by the Information Exchange System

The U.K. Tractor Registration Information Exchange System provided information on registrations on a daily and on a monthly basis. In fact, the system made it possible for the user to access the data bank on a realtime basis.

The companies used the daily information for a daily understanding of the developments in the various sales areas and to closely monitor actual development on the basis of its growth targets.

The monthly information came as a break-down by horse power and by postal code numbers which was aggregated by each firm to cover its sales districts. The horse power information was needed to assess the sales performance against the firm's goal in each of the horse power brackets. The firms identified movements of customer product preferences on the basis of this information. One of the companies explained its losses of market share to headquarters by asking for a new six cylinder tractor with specific features: *"We urgently need to resolve this product need if we are to protect our share in what is now the major sector of the U.K. market"*.

The monthly information was also used to monitor dealer performance. The companies used bonus schemes which were partly based on sales and partly on market share in the dealer district. These schemes were particularly aimed at improving market share. On a shrinking market dealers could offset losses in bonus income by more aggressively competing for market share. This bonus scheme had to be abandoned when the information exchange system was banned by the European Commission. Accordingly, the intensity of competition in the dealer territories declined.

3.2 The Competitive Effects of the Information Exchange System

While, as has just been mentioned, the agricultural tractors registration information exchange system had pro-competitive effects, it is in general assumed by the antitrust authorities that information exchange systems with rival identification have collusive effects. In fact, such information systems have two effects: the competition effect and the collusion effect. The competition effect outweighs the collusion effect when innovation competition is enhanced by information on rivals and when price competition is facilitated by more effectively

targeting the areas for price moves. The collusion effect outweighs the competition effect if the companies use the data in order to correlate their marketing strategies and to make retaliation more credible.

Attempts to identify the conditions for one of the two effects to be stronger than the other have led to the following set of factors that tend to increase the probability of the information exchange system to have pro-competitive effects:

1. a high number of competitors in the market
2. a high number of entrants to the market
3. a high number of product innovations
4. a high degree of product differentiation
5. significant differences in production costs
6. a divergence of interests of the firms
7. a divergence of opinions about future market trends
8. differences in the time preferences of the firms
9. a long detection lag for secret price cuts
10. a high degree of uncertainty about the environment
11. the precision of the competitors' information.

These factors are all encountered in a wide oligopoly with heterogeneous products and innovation competition.

Let us first look at competitors that want to launch a new tractor model in the market. For them it is of utmost importance to judge market demand properly. Market trends may differ from region to region of the market. They may be identifiable in one sales territory before they become known in another. Observation of rivals' models on a regional basis helps to identify such trends. Sales potential by model and by territory can be assessed more properly if the information exchange system provides such data in reliable form. Production volume for a new model can be more accurately planned, and inventories can be kept to lower levels. The data from the information system help firms to reduce the risk of product failure and of incorrect investment planning for production facilities. Therefore, aggressive competitive moves into a market with new models or by new entrants become more probable and more frequent.

On the other hand, competitors' reactions towards the launch of a new model do not require registration information. The fact that a new model is in the market becomes known by looking into the showrooms of dealers and by following advertisements. Reaction with a new model designed to balance or outweigh the model advantages of the new model launched by a competitor cannot be immediate. Therefore, reaction has to come in the form of price concessions. Price competition is, therefore, increased as a consequence of the aggressive move with an innovation. Price competition will be secret. Therefore, hidden

price competition is not weakened by the information exchange, but rather strengthened.

Let us now look at a competitor that wants to enter the market not with a new product but with a strategy of penetration pricing. Such a competitor does not need the detailed information supplied by the information system. He will try to make his favorable prices known as widely as possible to capture the low price segment of the market wherever he can find it. Such a competitor will not become a member of the information exchange system. Therefore, the established firms do not have access to registration information on this competitor. If they want to retaliate, they have to rely on information supplied by their dealers.

The information exchange system does not "*destroy what hidden competition there remains between the suppliers on that market on account of the risk and ease of exposure of independent competitive action*", as the European Commission expects. It has just been argued that hidden price competition becomes more probable. It should be noted that the system informed competitors about sales volume, not about prices. Therefore, when receiving information about a sales increase of a competitor a firm does not know exactly whether this is due to an increase in demand as a consequence of a shift in consumer preferences or to an improvement of competing products or whether it is due to a price reduction, directly or indirectly through rebates. Therefore, hidden price competition cannot be prevented by the information system.

The intensity of competition is reduced, if the probability of retaliation is high and retaliation credible. In such a case a competitor may refrain from an aggressive competitive act for fear of retaliation. The question is whether retaliation becomes more probable as a consequence of the data supplied of the information exchange system.

Retaliation to an aggressive innovative move with a new model would be a fast reaction with a new model. If such retaliation was credible, this would result in a low rate of innovation on the market. This would happen with and without the information exchange system. There is no evidence that the rate of innovation would have been even higher without the information exchange system.

Now let us assume that retaliation comes in the form of price cuts. If one firm wanted to punish the aggressor for defecting from what may be considered tacit collusion, it would reduce its own profits and would adversely affect the sales of all the other firms as well. The other firms may mistake retaliation by their competitor as a defection from collusion. The results would be a general price war. Therefore, the aggressor in the market does not have to take the danger of retaliation by one competitor seriously. The risk that all the competitors join in a concerted retaliation action is not a serious risk either. It would presume a degree of open collusion that can easily be detected.

However, retaliation has to be taken more seriously if the losses from retaliation can be limited. This may be the case if the retaliation is addressed to a limited area like the sales district where the price attack was launched. However, since the information exchange system does not provide price information, retaliation may not be easily identified by the aggressor. It may be mistaken as another competitive act in a highly competitive market. If the aggressor cannot clearly identify retaliation, retaliation is not effective. Therefore, one may conclude that the information exchange system does not affect the danger of retaliation.

It is to be concluded from theory and practical evidence in the U.K. tractor market that in such a dynamic market with price competition and innovation competition prohibiting the tractor registration information exchange system will not lead to more intensive price competition but rather to less innovation competition and more product heterogeneity.

4. The Court Decision

4.1 The Attitude of the European Commission towards Information Exchange Systems

The European Commission in its decision in the U.K. Agricultural Tractor Registration Information Exchange System case emphasized its fear of collusive effects of such market information systems and did not, despite the evidence to the contrary, acknowledge the competitive effects of the U.K. Agricultural Tractor Registration Information Exchange System on innovation competition and secret price competition. The Commission pressed for a per se ruling on information exchange systems on the basis of two previous decisions by the Commission and its notice on information sharing systems.

In the Fatty Acids Case,² the Commission considered the following elements of the information exchange system operated by the Association des Producteurs d'Acides Gras as per se violations of Article 85:

1. the strengthening of the connection between the three competitors
2. the provision of a forum for raising criticism about aggressive competitive behavior of rivals
3. the means for monitoring future performance of the competitors

2 European Commission, Decision of September 2, 1986, IV 31.128-Fatty Acids. In: *Official Journal of the European Communities*, No. L 3, January 6, 1987, pp. 17-26.

4. the creation of a climate or of conditions which make additional restrictive arrangements possible
5. the exchange of business secrets which does not seem to be consistent with competitive behavior.

In the X/Open Group-case³ the Commission regarded the information exchange provided by the Group to result in competitive advantage over non-members and thus to distort competition. However, the Commission concluded that *"the advantages involved in the creation of an open industry standard easily outweigh the distortions of competition entailed in their rules of governing membership"*.

In its notice on information sharing systems, released in 1968⁴ the Commission considered information systems as not acceptable under article 85 which provide

1. individual data from individual firms generally viewed as trade secrets
2. information exchange systems on oligopolistic markets
3. information exchange systems which do not involve buyers
4. information exchange systems that provide or facilitate any direct or indirect contact between firms in order to influence the behavior of a competitor or that discloses to him the future behavior of the firm.

In its 7th Report on Competition Policy the Commission clarified its approach to information exchange systems:⁵

1. information exchange systems are not per se prohibited
2. non-identifying information systems are permitted
3. information exchange systems are prohibited if anti-competitive use of the information provided is actually made
4. non-identifying information systems are subject to examination if they make it possible to identify competitive behavior of the other market partners
5. stricter rules are applied in oligopolies than in polypolistic markets
6. information systems in oligopolistic markets are closely examined if they do not improve the transparency of the market for customers also.

In the U.K. tractors case the Commission obviously sought a per se ruling for information systems on what it considered to be a narrow oligopoly.

3 European Commission, Decision of December 15, 1986, IV-31.458-X/Open Group. In: *Official Journal of the European Communities*, No. L 35, February 6, 1987, pp. 36-43.

4 *Official Journal* of July 29, 1968, p. 75; see also: *Official Journal* of August 28, 1968, p. 4.

5 Commission of the European Communities: Siebenter Bericht über die Wettbewerbspolitik, Brüssel-Luxemburg, April 1978, pp. 19-21.

4.2 The Decision by the European Court of First Instance

The Commission in its Decision had argued that the tractor registration information exchange system *"necessarily leads to a reduction of competition between the competitors operating on that market ... however, to provide proof ... is impossible in practice ... it is the economic context, the structure of the market and the nature of the information exchange which all lead to the conclusion that a lessening of competition as a result of the exchange is inevitable"*. It is obvious that the Commission applied the per se rule to this case in view of the fact that the factual evidence for a lack of competition could not be provided and its theoretical logic was falsified.

And yet, the European Court upheld the Commission Decision.⁶ It argued:

1. The provision of the information in question to all suppliers presupposes an agreement, or at any rate a tacit agreement, between the traders to define the boundaries of dealers sales territories by reference to the United Kingdom post code system (par. 52).
2. The provision of the information in question to all suppliers presupposes an institutional framework enabling information to be exchanged between traders through the trade association to which they belong (par. 66).

The Court continues: *"By acting in concert that way, the traders participating in the information exchange system ... have necessarily restricted their ability to make independent decisions in ways which may have consequently affected competition between those traders"* (par. 66). The hypothetical nature of the alleged lessening of competition is further underscored: *"General use of exchanges of precise information ... is on a highly concentrated market ... likely to impair substantially the competition which exists between traders"* (par. 82).⁷

The decision is obviously in contrast to the results of our analysis. The Court does not prove any other collusive behavior of the firms.⁸ The decision does not distinguish between innovation and price competition, because it treats tractors as homogeneous products.⁹

6 European Court of First Instance (Second Chamber), Judgment of October 27, 1994, T-35/92 (John Deere), ECR II 1-37; European Court of First Instance (Second Chamber), Judgment of October 27, 1994, T-34/92 (Fiatagri and New Holland Ford) ECR II 1-38.

7 A similar wording is found in the Fiatagri Decision: European Court of First Instance (Second Chamber) Judgment of October 27, 1994, T-34/92, (Fiatagri UK and New Holland Ford), ECR II 1-38.

8 John Deere Decision § 51, p. II-18: *"Does not underpin any other anti-competitive arrangements either"*.

9 John Deere Decision § 51, p. II-18: *"Sufficiently homogeneous products"*.

This evidence given above is not denied by the Court. The question is what are the effects of the information exchange system on competition. Economic analysis shows theoretically that the information exchange system is pro-competitive because there is no collusion on innovation in the U.K. tractor market. The Court disregards the increase in consumer welfare from innovation competition and from targeted and therefore less risky price competition by new entrants and outsiders and emphasizes the potential abuse of the "framework" of the information exchange system for hypothetical future collusive agreements.

5. Conclusion

It seems important that further analysis urges the European Commission and the Court to recognize the importance of innovation competition on consumer welfare more appropriately and to take a second look at the application of the per se rule to information exchange systems on oligopolistic markets. The competitive effects of precise information on quantities sold should not go neglected. There is no a priori theoretical evidence that in innovative markets information exchange systems with rival identification inevitably lead to a collusive market outcome.¹⁰

10 The "Rules for the Type of Information Exchanged" in a recent report by Kühn and Vives to the Commission beg this issue. See Kühn, K.-U. and Vives, X. (1995): "Information Exchanges Among Firms and their Impact on Competition". Document published by the European Commission, Brussels, February 1995.