

Cartels

Where are they?

In the September 2006 'Economics of Industry' column (Vol. 24, No. 1) I examined competition between firms in oligopolistic markets. One of the assumptions underlying that analysis was that the firms acted independently. In reality, however, firms might collude when setting prices, output levels or other strategic variables. The incentive to collude arises from the fact that, while the aggregate profits of the firms would be maximised if price (and output) were set at the monopoly levels, competition between firms might result in lower prices (and higher output). Does this mean that, in practice, we can always expect firms to collude? The answer is 'No' for two reasons.

• First, collusion is not a straightforward process for the firms involved. As we shall see, there are likely to be difficulties in both forming and maintaining cartels.

• Second, in the UK and many other countries, cartels are generally illegal. In the UK, the laws against cartels have been strengthened considerably in recent years. Under the Competition Act 1998, firms can be fined up to 10% of their annual turnover for participating in a cartel and under the Enterprise Act 2002, the individuals who are directly involved may be subject to criminal prosecution.

In spite of these difficulties, collusion does take place. From the standpoint of both an economist wishing to understand the workings of markets and the competition authorities seeking to ensure that markets function efficiently, a key question is, 'In what situations is collusion most likely to occur?' In this column, I examine the theoretical arguments and empirical evidence on this issue.



There are a large number of cartels in the construction business.

Geoff Stewart, managing editor of *ECONOMIC REVIEW*, examines the conditions that are conducive to collusion between firms

Theory

To establish a cartel, firms need to reach agreement on a variety of matters. These may include price, output levels and, in some cases, product specifications. But reaching agreement may not be easy, particularly if there are many firms involved and if the firms are heterogeneous in terms of production costs or product characteristics.

Differences in costs conditions between firms will make it more difficult to determine the optimum price and output level of the cartel. Moreover, the optimal cartel strategy is likely to involve some firms having higher market shares than others. Specifically, maximisation of aggregate cartel will require that high-cost firms accept a lower output and market share than low-cost firms. The high-cost firms may, therefore, seek some form of concession in return and there is no guarantee that the firms will actually be able to reach an agreement on this issue.

Similar problems can arise when there are differences in the products that the firms produce. Another potential difficulty is that firms may differ in their attitudes to a possible trade-off between short-run and long-run profits. This can be important where a rise in price would induce the entry of new firms into the industry. A potential cartel member that puts a high weight on current — as opposed to future — profit may argue for a high initial price, even

though future profit will be depressed as new firms are attracted into the market. In contrast, a member firm that puts a high weight on future profits may argue for a lower initial price. Once again, there is no guarantee that they will reach agreement.

Even if the firms do succeed in reaching an initial agreement, their problems may not be over. Cartels are inherently unstable organisations, in the sense that there is an underlying incentive for individual members to cheat on the collusive agreement. This can be explained using Figure 1.

Price-setting in a cartel

Suppose there are two firms in an industry producing identical products under the same cost conditions. If they formed a cartel, their joint profits would be maximised if they each set a price of p^m (the monopoly price). Total sales would be Q^m and the total profit of the cartel would be wxy . Given the symmetry between firms, it is natural to suppose that each would produce $Q^m/2$ and thus make a profit equal to one half of the monopoly profit. The problem is that each individual firm then has an incentive to undercut the agreed price, because by doing so, it can expand its market share and increase profit.

Suppose, for example, that one of the firms conformed to the agreement by setting a price of p^m but the other 'cheated' by setting its price just below p^m . The second firm would gain market share and profit at the expense of the first one. In fact, given that the products are identical, we might expect all consumers to switch to the low-price firm and thus its market share would increase from 50% to 100% and its profits would almost double. (They would not quite

Table 1 Cartels uncovered by the OFT, January 2003–July 2006

Date of OFT announcement	Sector	Type of agreement	Number of firms
March 2003	Figurines	Price	156
August 2003	Replica football kits	Price	4
December 2003	Toys	Price	3
March 2004	Roofing contractors	Price	9
November 2004	Desiccant (used in double glazing)	Price	5
April 2005	Roofing contractors	Price	7
April 2005	Roofing contractors	Price	4
July 2005	Roofing contractors	Price	6
September 2005	Banking (MasterCard)	Price	17
November 2005	Independent schools	Price	50
February 2006	Roofing contractors	Information exchange	14
April 2006	Check pads*	Price	3
June 2006	Double glazing spacer bars	Price, market share	4

*Check pads are paper notepads with tear-off sheets used, among other things, for writing down orders in restaurants.

double due to price now being below the monopoly level). The end result might be a breakdown of the cartel. This incentive to undercut is likely to be greater the more firms there are in the cartel because, other things being equal, individual market shares under the agreement will be smaller and thus the gain from cheating greater.

But cheating may not be costless for the firm concerned. The risk is that it will be detected by other members and punishment will ensue. The punishment may, for instance, take the form of a price war. A firm contemplating cheating may therefore face a trade-off between a short-run gain as it captures market share and a long-run loss as the punishment takes effect. Much will then depend on the ease and speed with which cheating can be detected. Detection is likely to be easier when firms are producing similar products and selling to final consumers rather than other firms, and quicker when the period between product orders is shorter. More generally, collusion will be easier, the more stable the market and the more information that firms have about each other's activities — the greater the transparency of the market. Let us now have a look at the evidence.

Evidence of cartel activity

A natural starting point for the analysis of cartel activity in the UK is to look at the cases that have been uncovered by the Office of Fair Trading (OFT).

Table 1 lists the collusive agreements uncovered in the period January 2003–July 2006. As you can see, they cover a wide variety of sectors including replica football kits, double glazing and independent

schools. Aside from the variety of sectors represented in the table, the other striking feature is the relatively large number of cartels in construction and roofing in particular. The table also reveals that, with the notable exception of the supply of figurines, the numbers of firms involved are generally small. The figurines case is somewhat distinctive, in that the collusion involved bilateral agreements between the manufacturer, Lladro, and each of 155 UK retailers. It would be dangerous to draw general conclusions from the data in Table 1 as the sample size is very small. A much larger sample, comprising cartels in the EU and the USA, is analysed in a recent OFT working paper by Paul Groot and Silvia Sonderegger. They conclude that cartels are more likely to be found in industries with relatively few firms producing fairly homogeneous products under conditions of relatively stable demand and market shares. Also, the evidence suggests that cartels are unlikely to be observed in markets that do not exhibit some degree of transparency. You might also be interested to learn that, when the authors used their model to predict sectors where cartels might exist but had not been discovered, the list of possibilities included secondary schools.

(This research was conducted before the OFT's announcement concerning information exchange by independent schools reported in Table 1.)

Concluding remarks

Generally, cartels seek to restrict competition and thereby have an adverse effect on economic welfare. Theoretical arguments suggest that cartels are more likely to be present in some sectors of the economy than others. Factors thought to be conducive to collusion include:

- small numbers of firms
 - cost and product homogeneity
 - market stability and transparency.
- The evidence from cartels uncovered in the EU and USA is consistent with these arguments. However, this evidence must be interpreted with great care. It is important to recognise that the data are drawn only from cartels that have been discovered. It is quite possible that the characteristics of undiscovered cartels are quite different, in which case the above evidence would not offer an accurate picture of cartel activity in general. **ES**

OIL PRICES RISE ON OPEC CUTS TALK

BBC NEWS : Tuesday 21st November 2006

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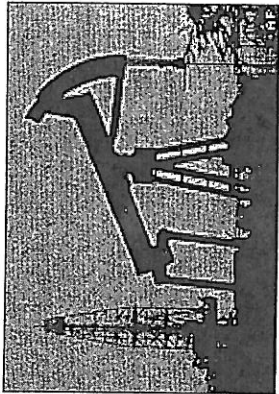
Oil prices rose slightly on Tuesday amid speculation that the producer cartel Opec may announce production cuts at its December meeting.

US light, sweet crude climbed 33 cents to \$59.13 per barrel while Brent crude climbed 34 cents to \$59.32.

Opec president, also the oil minister of Nigeria, Edmond Daukoru said he had "no doubt" there would be cuts made. But a decision last month to cut production to try to bolster weakening prices has yet to be fully implemented.

Opec decided to cut production by 1.2 million barrels per day (bpd) from the start of November.

Opec is set to meet on 14 December.



Oil prices are almost \$20 below July's \$78.40 peak

What is OPEC?

OPEC's member countries hold about two-thirds of the world's oil reserves. In 2005, OPEC accounted for 41.7% of the world's oil production, compared with 23.8% by OECD members and 14.8% by the Former Soviet Union.

OPEC's "Finest" Hour?

The 1973 oil crisis first began on October 17, 1973 when the Organization of Petroleum Exporting Countries (OPEC), consisting of the Arab members of OPEC plus Egypt and Syria, announced as a result of the ongoing Arab-Israeli War, that they would no longer ship petroleum to nations that had supported Israel in its conflict with Syria and Egypt. This included the United States and its allies in Western Europe. A source of contention which is still held today.

OPEC members agreed to use the powers from their cartel to collude in simultaneously cutting output, hence quadrupling world oil prices. Due to the dependence of the industrialized world on OPEC oil (two-thirds of the world's oil reserves come from OPEC), these price increases were dramatically inflationary to the economies of Western Countries, while at the same time suppressive of economic activity.

This was stressed by the Shah of Iran: "Of course [the world price of oil] is going to rise," the Shah told the New York Times in 1973.

"Certainly! You buy our crude oil and sell it back to us, redefined as petrochemicals, at a hundred times the price you've paid to us... it's only fair that, from now on, you should pay more for oil. Let's say 10 times more."

OPEC devised a strategy whereby it hoped to make industrial economies that relied heavily on oil imports vulnerable to Third World pressures. Dwindling foreign aid from the U.S. and its allies, combined with the West's pro-Israeli stance in the Middle East, angered the Arab nations in OPEC.

CURRENT MEMBERS:

Africa

- Algeria (July 1969)
- Libya (December 1962)
- Nigeria (July 1971)

Middle East

- Iran (September 1960)
- Iraq (September 1960)
- Kuwait (September, 1960)
- Qatar (December 1961)
- Saudi Arabia (September 1960)
- United Arab Emirates (November 1967)

South America

- Venezuela (September 1960)

Southeast Asia

- Indonesia (December 1962. Membership currently under review as Indonesia is no longer considered by OPEC as a net oil exporter.

FORMER MEMBERS

- Gabon (Full member from 1975 to 1995)
- Ecuador (Full member from 1963 to 1993)

PROSPECTIVE MEMBERS

- Angola Expressed interest in joining (November 2006)
- Ecuador Expressed interest in joining (November 2006)
- Sudan Expressed interest in joining (November 2006)

