

A NOTE ON CARTELS

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Cartels, characterized by activities such as simultaneous price increases or decreases, or virtual price identity at almost the same time, without explicit communications or agreements, have long been discussed. For the first time, the price leadership model is suggested as an explanation. Recent studies have focused on the repeated game model in which one firm responds to price changes by the other firm, looking for Nash equilibria. However, such models are inadequate to explain joint pricing in oligopolistic industries, because there is a gap between the models and empirical facts.

In fact, all of the major elements of the cartel theory and the division of an unhampered-hampered market already exist in Rothbard (1933) and Salin (1996), and, in that sense, what is needed is to piece together the relevant aspects or to derive simple implications from them in order to answer our question. The purpose of this note is to do just that.

Using both the idea of an unhampered-hampered market and simple implications from the cartel theory of Rothbard-Salin, this note suggests that list price changes, such as simultaneous price adjustment, or virtual price identity, at almost the same time in oligopolistic industries, is the result of cartelizing or joint action under a hampered market. At the least, this is true after the enforcement of the Sherman Act, because explicit cooperation among producers is legally prohibited, and therefore, implicit cooperation or spontaneous coordination regarding product prices without explicit communications or agreements is the only way left for producers to cooperate.

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EMPIRICAL FACTS AND THE QUESTION RAISED

Let's look at the tobacco industry from the 1910s to the 1940s in the United States of America, because it is a typical example of pricing in oligopolistic industries. Scherer (1970, p. 38) states,

In 1918 American Tobacco tried to lead a price rise, but Reynolds (the largest seller) refused to follow. In 1921, American cut its price and Reynolds retaliated with a further cut, which American and the other sellers were forced to match. This experience apparently had a profound educational impact on American and the other major brand sellers, none of whom challenged Reynolds' leadership again for a decade. Between 1923 and 1941, virtual price identity prevailed continuously among the "standard" brands. During this period there were eight list price changes. Reynolds led six of them, five upward and one downward, and was followed each time, in most cases within 24 hours of its announcement. The other two changes were downward revisions during 1933 led by American and followed promptly by the other standard brand vendors. American also attempted to lead a price increase in 1941, but Reynolds again refused to follow and the change was rescinded.

Here we can clearly define the question which we raise in this note. There are basically two questions regarding the empirical facts about the tobacco industry quoted above. The first question is: why does simultaneous price adjustment, or virtual price identity, occur? The second one is: how can it be fit in with, or interpreted by the correct theory or idea? In this paper, the latter will be pursued because this note basically concerns cartelizing or joint pricing among producers, and because the former is likely to be more clearly understood and, therefore, more easily solved, after the latter.

THE UNHAMPERED MARKET AND THE HAMPERED MARKET

To answer the question, we must first understand whether the market which we analyze is unhampered or hampered. Rothbard shows that if the market is not intervened in by, or is free from, external forces, then it is "unhampered." If the market is intervened in by external forces then it is "hampered." He also states that government is the only important external force to intervene in the market. It is important always to check if the market which we analyze is unhampered or hampered.

During the historical period which we focus on, antitrust laws were enforced, and thus explicit cooperation among producers was legally

prohibited. In other words, the tobacco industry during this period was a hampered market. However, implicit cooperation or spontaneous coordination among producers was not explicitly prohibited. In short, the tobacco market during the period was unhampered or free in terms of implicit cooperation and hampered in terms of explicit cooperation.

Now let's look at another example to more clearly understand the division of an unhampered-hampered market. In many countries, some drugs are exchanged on the black market, because free exchange is legally prohibited. Therefore, such drug exchanges in those countries are the phenomena of a hampered market. However, drug exchanges in the black market will not occur if drugs are free to exchange. For the same reason, simultaneous price adjustment, or virtual price identity, is a phenomenon of a hampered market; if explicit communications or agreements are freely permitted, it will be eradicated because producers will choose explicit cooperation rather than implicit cooperation or spontaneous coordination.

THE CARTEL THEORY OF ROTHBARD-SALIN

We also need to understand the cartel theory of Rothbard-Salin to solve our problem, because it is the only cartel theory that has been developed. Mainstream or neoclassical economics condemns every cartel among producers in an industry as "collusion." However, Rothbard argues that the cartel theory of neoclassical economics is wrong because it does not discriminate between two distinct types of cartel: the voluntary cartel and the involuntary cartel. Furthermore, the voluntary cartel is not collusion but "cooperation" among producers. Therefore, he suggests that the voluntary cartel should be legally permitted but the involuntary cartel should not.

Salin, however, criticizes a part of Rothbard's cartel theory, even though he agrees with the main theme of Rothbard's argument about competition and monopoly—that there is no monopoly if a contract or an exchange is voluntary. He argues that Rothbard focuses on the cartel made only by explicit cooperation. A cartel where independent firms make a formal agreement about the price of a product due to a dramatic decrease in demand is a typical example of a voluntary cartel made by explicit cooperation. However, Salin suggests that a cartel can also be formed by spontaneous coordination in the real world and, therefore, it should be included in the voluntary cartel. He offers some examples of cartels formed by implicit cooperation or spontaneous coordination: franchising in retail trade, standardization of parts and systems in the computer industry, and money production by private banks under a free

banking system. In short, Salin shows that there is an additional form of the voluntary cartel made by implicit cooperation or spontaneous coordination of product attributes among producers.

Moreover, Rothbard accepts the conventional view that a cartel is always an unstable production structure. However, Salin argues that a cartel is unstable under certain economic circumstances but stable under others. In other words, whether a cartel is continued or not depends on both benefits and costs from it.

In sum, there are two forms of voluntary cartels: the voluntary cartel with explicit cooperation and the voluntary cartel with implicit cooperation or spontaneous coordination. The stability of the cartel depends on the economic incentives of producers in the market. In fact, the two forms of voluntary cartels have two points of difference. The first difference is the existence of explicit communications and agreements. The former has explicit communications and agreements but the latter does not. The second difference is that the explicit cooperation is about product prices but the implicit cooperation or spontaneous coordination is about product attributes. At any rate, all voluntary cartels are production structures or value-producing organizations. This is "Rothbard-Salin's cartel theory."

THE VIEWPOINT AND IMPLICATIONS

The cartel theory of Rothbard-Salin, however, is only applicable to an unhampered or free market. In fact, in the real world, after the enactment and enforcement of antitrust laws, markets become hampered in terms of explicit cooperation because any explicit agreements among producers are legally prohibited. However, the cartel theory of Rothbard-Salin gives us the idea that any joint action is a voluntary cartel, even if it is done under a hampered market. In that sense, it is indirectly helpful to explain joint action under a hampered market. Rothbard (1993, p. 635) states, "Either the firms are independent and therefore competing, or they are acting jointly and therefore cartelizing. There is no third alternative." This is still true for any joint action even under a hampered market.

In sum, simultaneous price adjustment, or virtual price identity, is the same as Salin's cartel, in terms of implicit cooperation or spontaneous coordination, but different from it in terms of an unhampered market and product attributes. Thus, we argue that simultaneous price adjustment, or virtual price identity, of the tobacco industry should be considered as the result of a voluntary cartel regarding product prices—

but not product attributes—without any explicit communications or agreements.

Now several implications are suggested. First, any voluntary joint action is a voluntary cartel even under a hampered market. Therefore, it should be treated as such. However, the price leadership model and the repeated-game model treat simultaneous price adjustment, or virtual price identity, explicitly or implicitly, as a cartel phenomenon solely under an unhampered market. This point will be discussed in detail in the next section.

Second, Salin shows that the stability of a voluntary cartel depends on the economic environment. This is also true for any joint action under a hampered market. In fact, joint action in the tobacco market was continuous between 1923 and 1941. This fact implies that a voluntary cartel under a hampered market is also stable in certain environments.

Third, Rothbard argues that a voluntary cartel is not a monopoly and, therefore, causes no economic losses regarding resource allocation. Such an argument could apply to our case except for the losses from the absence of explicit agreements which are more efficient than implicit ones. Therefore, we argue that, in that sense, antitrust laws make the operation of the market less efficient.

Fourth, our argument explains the reason that such coordination during that period was sometimes rough or broken. After the announcement of list price changes by one producer, for example, the other producers in the market then know whether such changes are profitable or not. As a result, coordination is sometimes broken when list price changes are unprofitable to some producers. In short, the reason that sometimes such coordination is not smooth is that explicit communications or agreements are legally prohibited.

CRITIQUES OF THE PRICE LEADERSHIP MODEL AND THE REPEATED GAME MODEL

This note criticizes the main idea of price leadership, which was first extensively discussed by Scherer (1970) and has been widely accepted by neoclassical economists. Now, the price leadership model explains joint pricing by firms in oligopolistic industries in most textbooks of microeconomics or industrial organization theory.¹ Scherer demonstrates that there are three types of price leadership: dominant firm price leadership, collusive price leadership, and barometric price leadership. In

¹See, for example, Fleisher et al. (1987), pp. 192–93.

this note, we focus on joint pricing, the so-called collusive action of firms in oligopolistic industries, as the common element in three types of price leadership. In addition, this note also briefly criticizes the repeated game model.²

First, the price leadership model is not based on the idea of the dichotomy of an unhampered-hampered market. We have argued that simultaneous price adjustment, or virtual price identity, results from a hampered market, because formal communications or agreements are legally prohibited since the enforcement of the Sherman Act. However, the price leadership model treats simultaneous price adjustment, or virtual price identity, as if it were a phenomenon of an unhampered market. This is also true for the repeated-game model.

Second, the basic idea of Rothbard-Salin is that any joint action under an unhampered market is a voluntary cartel and, therefore, "cooperation," whether explicit or implicit. This is also true for any joint action even if it is done under a hampered market and is implicit cooperation. More specifically, simultaneous price adjustment, or virtual price identity, of some products of every firm in an industry results through implicit cooperation or spontaneous coordination from their own interests, because explicit cooperation has been legally prohibited. It should, therefore, not be "condemned." However, Scherer condemns such pricing as "collusion." The repeated game model also has the same problem as the price leadership model does.

Third, Scherer implicitly assumes that the so-called collusion explains simultaneous price adjustment, or virtual price identity, as an observable fact. However, he does not provide direct evidence of such collusion. Therefore, we could not know whether the assumption is correct or not. To complete and verify his explanation for simultaneous price adjustment, or virtual price identity, he should provide direct evidence of agreement among producers.

Fourth, the additional problem of the price leadership model is as follows. Using its position, the dominant firm leads list price changes. If price followers do not follow the list price changes set by the leader, then the latter could retaliate against the former. However, such retaliation causes more harm to the leader than to the followers because the former has a bigger market share than the latter. Therefore, the followers have an opportunity to increase their market share if the leader

²The original work on this subject is Oscar Morgenstern and John von Neumann (1944). For more details, see Fudenberg and Tirole (1986).

increases its list prices. In short, the presumption that the price leader could retaliate, or that the followers always follow implicit rules set by the leader, is not helpful to understand joint pricing in oligopolistic industries. Such an assumption is illogical, and not always borne out by the actions of economic agents. It should also be explained.

Fifth, sometimes list price changes by a major brand seller were not followed by other sellers, especially of other major brands. The price leadership model does not explain the fact that cooperation among producers is sometimes broken or that list price changes initiated by one leader may be discarded or rescinded by other followers. The repeated game model also has the same weakness as the price leadership model in this regard.

Sixth, the problem of price leadership is about methodology or the relationship between theory and empirical facts. In price leadership, a theory about pricing behaviors in oligopolistic industries is derived from observable facts, even though Scherer does not explicitly say anything about such a process of theorizing. However, Mises (1962) shows that it is totally wrong. The correct process of theorizing is as follows. We first derive or make an exact theory or theories from some basic axioms about human behaviors. Then, using that theory or theories, we interpret the meaning of observable facts in the real world. Therefore, the theorizing process of the price leadership model is totally wrong and untenable.

Finally, an essential part of the repeated game model is the repeated response among producers. However, two occasions of price response between American Tobacco and Reynolds in the tobacco industry during the late 1910s and early 1920s had made the latter as a price leader from 1923 to 1941. This indicates that sometimes joint agreement or action among producers is very quickly reached and continued for a long time and, therefore, that repeated interactions among producers is not necessarily needed.

CONCLUSION

This note does not develop any new theories relating to cartels. Rather, we derive empirical applications from both the cartel theory of Rothbard-Salin and the dichotomy of an unhampered-hampered market, and then suggest an explanation for cartels under a hampered market—such as simultaneous price adjustment, or virtual price identity, under the enforcement of the Sherman Act. Even though we use the joint pricing of the tobacco industry as a typical example, our argument could be applied to other implicit cooperation or spontaneous coordination about prices of products under a hampered market.

This note deals with the second question mentioned earlier. Now the first question remains: why does such simultaneous price adjustment, or virtual price identity, occur?³

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³Rothbard (1993) argues that a typical reason for such joint action among producers is a dramatic decrease in demand. Moreover, Scherer (1970, p. 38) states, "Between 1911 and 1921, conditions in the cigarette industry were unsettled due to several radical changes: the dissolution of the old Tobacco Trust in an antitrust action, the introduction of new tobacco blends, and the initiation of nationwide promotional campaigns."