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MARKET INFORMATION AND PRICE REPORTING IN THE FOOD AND AGRICULTURAL SECTOR

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MARKET INFORMATION AND PRICE REPORTING IN THINLY TRADED OR IMPERFECT MARKETS

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INTRODUCTION

In contrast to the atomistic structure of farm production units, the characteristics of imperfect market structures — product differentiation, barriers to entry or exits, small numbers of firms in the relevant markets, inadequate market information — are prevalent at most levels of the vertically linked markets for many food products. Thinly traded markets are frequently observed in the food sector, as market institutions and products of the food system evolve in response to the changing wants of consumers and the changing product possibilities and profit incentives for participants in the production and marketing process (several examples are cited in reference 1). New market institutions prefer long-term contracts, direct marketing rather than the use of terminal markets, or formula-pricing arrangements to shift products out of normal marketing channels. Many food processors or manufacturers are shifting to more processing and fabrication close to the point of production, reducing processing and marketing costs, and differentiating their product. Further, cooperatives are becoming more heavily involved in processing agricultural commodities. As these changes shrink the volume going through some marketing stages or market institutions, more thinly traded markets are being observed in the food sector of our economy.

The nature of these market environments has prompted some to question whether infusions of market information necessarily improve market performance in such settings, and whether publicly supported market information and price reporting agencies face some problems in acquiring and interpreting the market information from thinly traded or imperfect markets. How can prices and other market information be acquired most effectively in thinly traded or imperfect markets? Should that information be considered suspect? These are some questions that we propose to consider briefly, hoping to stimulate a productive dialogue on these issues and to provide a backdrop for viewing some of the "case studies" that will follow.

THEORETICAL EXPECTATIONS

Does increased or improved market information lead to improved market performance? Some might argue that providing some information to participants in an imperfect market structure would benefit primarily those few firms with large market volumes and the expertise to take advantage of that information, and lead to further concentration of market power. Further, the "theory of the second best" by Lipsey and Lancaster [2] provides no theoretical grounds to show that more or improved market information in a market setting, where other imperfections are present, will necessarily im-

prove social welfare. However, neither does it suggest that more or better market information will cause a decline in social welfare when other imperfections are present. In addition, their analyses related to a single market level, and not to a multiple-layer economic or marketing system which is characteristic of the food production and marketing systems. Thus, we must rely on other rationale to build a case for or against additional market information provided to participants in these market settings.

THEORETICAL RATIONALE FOR PUBLIC MARKET INFORMATION SERVICES

Consider an imperfect market (in several structural characteristics) with no publicly supplied price reports or other market information. Each firm in that market would have to acquire its own information, and the economies of scale in information gathering and analysis clearly would lead to a comparative disadvantage for the smaller or fringe firms competing in an imperfect market. Smaller firms negotiating with much larger customers or suppliers would be less able to counter effectively their greater size and market power.

One might reasonably expect that the ability and incentive of a firm to invest in the acquisition and interpretation of market information, would be strongly influenced by the overall size of the firm (in that market and other markets), its degree of specialization in the product market under study, and its corresponding reliance upon results in that particular market. Large firms in an industry, or conglomerates with similar information needs or analytical staff requirements in several product or business units, would be expected to take advantage of the economies of scale available in information acquisition and interpretation much more effectively than their smaller opponents. If information isn't available from public sources, these firms can better afford to acquire their own, spreading the cost out over a large number of units. If interpretation skills are not available, the marginal revenues potentially available from the acquisitions of specialized skills (either full time employees or temporary consultants) would be greater in a large operation, justifying greater expenditures. As a consequence, inequities in bargaining power or competitive ability among big and small firms would be greater without publicly available price reporting or market information services.¹

Greater market information availability should help support the retention of more small firms in the industry and slow the concentration of economic and political influence that might otherwise be expected. In addition, with smaller firms staying viable in an industry, there would be greater likelihood of local control, and corresponding social and community responsiveness in ongoing business decisions.

Not only would you expect smaller firms to be more viable competitors with improved market information, but improved market information should also enhance the ability of all firms to diagnose market discrepancies and stimulate improved market arbitrage. Rothschild [3, p. 1284], in his review of market organization models with imperfect information, indicates that,

while perfect competition would not support discrimination, markets with imperfect information will. If assisting firms diagnose market discrepancies, public market information may be viewed as a complement or a substitute for actions of antitrust agencies, since it certainly can help consumers or weak competitors police stronger firms which, otherwise, might be better able to capitalize on their strong market position in an imperfect market setting.

Not only would incomes be expected to be allocated more equitably among the market participants, when more market information is available, but the resulting price signals to current market participants and other potential entrants would be expected to be more accurate indicators of the opportunity cost for resources in this sector of the economy. Further, public provision of market information reduces one of the costs that would otherwise be required to enter the market, and may facilitate new entry.

In some markets, market information services may be provided by firms who are also buyers or sellers, and who may have a vested interest in suppressing adverse information. In such situations, more objectivity may be derived from "third-party" information services which wouldn't benefit from biasing the information provided. If "third-party" private information services aren't available in some markets, public market information services may be necessary to provide accurate, objective market information.

Public market information and price reporting services also can cut the duplication of similar functions that private firms would have to provide for themselves. By reducing somewhat this duplication in acquiring the same basic market information, overall marketing costs ought to be reduced. However, there would be a corresponding shift in the incidence of the cost from the firm (and, ultimately, the consumer) to the taxpayer.

In addition, firms at the next level of the marketing system also are strongly impacted by the prices and other market information generated by adjacent markets. The potential benefits from information, regarding the derived demand for their product or the forthcoming raw material supply, are sometimes strong rationale for better market information in adjacent markets. Better information on prices, production, inventories, etc., can influence planning and investment decisions of these firms, as well as their ability to negotiate their key product prices or raw material costs on an equitable basis.

SOME SPECIAL PROBLEMS

In thinly traded or imperfect markets, there is apt to be less public trading and relatively few private treaty transactions, though they may be large in absolute size in some markets. Firms in these market situations are very likely to be cognizant of their potential influence on market price, through both their actions and the possible effects of information regarding their activities on the behavior of their competitors, suppliers, and customers. Not only may firms have a greater incentive to avoid sharing information on their purchases or sales prices, their inventory situation, etc., but there may also be fewer participants and transactions in the market to police attempts to manipulate market prices or to affect market price reports through selective or false re-

porting. As a consequence, the problems involved in reporting representative prices might be compounded in these market situations, where the incentive is greater for firms to disguise or completely hide the information potentially available. In some cases, only public agencies may be able to acquire and report this information. In those situations, the potential benefits may be large, since it may be difficult or impossible for some private firms to acquire the information themselves.

In very thinly traded markets, where prices may move erratically, and short-term price behavior may not really be representative of or consistent with long-term price changes, one might question the value of short-term price reports. If the volume traded is a true indication of the number of users of this information (i.e. these short- and long-run prices do not have an impact on many others in the industry, because of formula price contracts, etc.), then the elimination of such reports might be easily justified. But if there is a significant number of information users who aren't reflected in the volume figures, then the challenge is to put these short-term price reports into a perspective that is not misleading, while searching for potential remedies for the market shortcomings.

If there are market imperfections, such as elements of long-term monopoly or oligopoly, what do representative or equilibrium prices acquired from that market setting represent? Should they be ignored? Rothschild [3, p. 1286] indicates equilibrium in imperfect markets depends on what its participants know and do. Because of their potential influence on the market price level, the reservation supply or demand of firms with market power may be different than in perfectly competitive markets. However, the price level in an imperfect market may still accurately represent the values attainable for small firms dealing with a dominant firm. Consequently, values transmitted through the vertically linked marketing system may provide a reasonable indication of the relative prices and profitability, which strong and weak firms in these markets ought to expect. Accordingly, these prices should be appropriate for firms to use in resource allocation decisions, even though they may not be equitable or differ from some normative standards.

INFORMATION EXTRACTION AND REPORTING ALTERNATIVES

Are there innovative yet practical approaches to developing representative market prices and other market information that might be particularly appropriate in thinly traded or imperfect markets? In some cases, approaches now used in some market settings may have broader applicability. Yet, the approaches that might be appropriate would depend, to a large extent, on the reasons for a market being thinly traded, or the particular nature of the imperfections in a market. Let's consider a few situations which might have applicability in several commodity subsectors, focusing primarily on price reporting.

Reducing Reporting Effort

There may be thinly traded or imperfect market settings where only a few firms are involved. These may be the result of a long-term concentration of market power among few firms, or changes in consumer tastes and product comparative advantage and profitability may lead to a declining market volume and declining firm numbers. The lamb market might be an example where the industry and its market volume are shrinking. As individual local or regional market volumes decline, and auctions shift from once a week to once a month, or even close, what should you do? In the interim process, prices can be reported on the infrequent days when volumes are large enough to provide a representative price. But, as more producers and buyers discontinue their operations, the base of public market or private treaty transactions declines, the difficulty (and cost per unit) of information gathering increases, and the user population declines. Fewer markets could be reported less frequently, to keep the costs in line with the reduced public benefits, or reporting could be discontinued and resources shifted to higher priority markets where the public benefit-cost situation looks more favorable.

In a related situation, where formula pricing may be heavily used in conjunction with a small residual negotiated market (e.g. cheese, choice beef carcasses, etc.), the small volume in the negotiated market may not be indicative of the number of industry participants (or government agencies) using that information. In a lamb market, fewer resources may be appropriate to allocate to market information acquisition and reporting, because there's less opportunity cost involved if resource allocation mistakes are made because of information gaps. But in beef and cheese, similar errors in the market price or the market price report would have much broader, far-reaching effects on income distribution and long-term resource allocation.

Eliminating Reports

In situations where volumes are small, public market volumes are nil, and trading is sporadic, one might discontinue price reports. Where formula pricing is a primary cause for shrinking negotiated market volumes, some analysts have suggested that discontinuing price reports will force firms back into individually negotiated trades. But eliminating public price reports or market information may discourage entry and put other interested parties (perhaps the government or adjacent market participants) at a significant disadvantage.

Broadening Product and Market Coverage

Some markets become thinly traded because the product composition shifts. Where beef carcasses were once the primary produce marketed, boxed beef now makes up 40 percent or more of the volume. Turkeys are now sold as cut up or basted, and not exclusively as frozen whole birds. Hog carcasses haven't been sold for many years. Rather, pork loins, hams, and other cuts are traded. Many of these cuts are further processed, as packers attempt to differentiate their product or retail buyers seek to minimize the processing done at the retail store level. As a result of these shifts in product form, the market volume in some of the original product categories has declined.

Some markets become thinly traded because other markets develop and remove product from traditional markets. Consider various forms of long- or short-term contracts, which entail time horizons or other terms of trade quite different from the traditional spot markets, or the demise of terminal markets for some commodities.

When the product or the market composition changes, one approach that appears reasonable is to broaden the product or market coverage so the main streams of the entire product and market spectrum are covered. To insure the best report possible (given the volume constraints), more resources could be devoted to in-depth information search in the most thinly traded category, but this may not be the best long-term use of resources, if the volume in that category continues to decline. Rather, it seems reasonable to diversify the reports to capture the primary streams of product, which are derived from or closely related to the original commodity class, but now may be the primary streams of commerce themselves. Even if these product categories are thinly traded, the information on their relative values (knowing their similarity or differences, compared to the basic commodity or the product that the information user deals in) can be quite useful in developing a composite picture of the overall change in the value of the stream of closely related products, as well as diagnosing possible report errors when relative prices get out of line. This would also provide useful information to processors who could shift from one product or another, and facilitate arbitrage among product categories if relative market prices were out of line. Apparent discrepancies should also provide a warning signal or red flag with regard to some uses for these reports (e.g. for formula priced contracts).

Providing a Composite Value Index

When product composition shifts in a market (especially, further processing of basic commodities), the composite values of the further processed products may provide a useful signal to guide resource allocation in the industry. This may necessitate development of composite value indexes (sometimes difficult to establish) to more effectively translate the values of a complex of products (e.g., boxed beef products) into useful terms for other levels of the marketing system (e.g., the cattle feeder).

Providing More Interpretation

Many of the techniques considered so far have been ways to get information, or report more information that would be useful in imperfect or thinly traded market settings. While improved quantity or quality of the information from public agencies may reduce the comparative information disadvantage that small firms otherwise would have, the small firm still has a comparative disadvantage in effectively interpreting this information and putting it to effective use. This suggests that public (or private) price reporting agencies should consider changes in the formats of reports which would help firms inter-

pret the information provided. While I have no quick remedies to suggest that will clearly help improve the competitive equity of small firms unable to utilize information as well as some larger competitors, this may be one research area that warrants further analysis.

Reporting Trading Volumes and Price Ranges

In some thinly traded markets, the credibility of the report and prices may be suspect due to the thin trading volume or the even smaller number of reported trades on which the price report may be based, or experience where some transaction prices have historically been out of line with reported prices. These often stimulate concerns about market price manipulation or false reports influencing market price reports. Two reporting procedures may be helpful in countering or encouraging such skepticism where it's appropriate. Garbade (AER, March 1979, p. 59) has shown that traders viewing a compact distribution of prices are more inclined to give those prices greater weight (and credibility) in their views of price. It seems logical that reports of the price range during the day would be very useful to traders as they assess the credibility and usefulness of the average or closing prices reported from that market. In a similar vein, knowledge that a large number of trades were the basis for the closing market price report would be quite useful in assuaging concerns about the influence of market manipulation or false reporting by market participants. At the same time, a closing price report based upon very few trades (theoretically quite appropriate, if that's the price that's necessary to clear the market) may provide users with a greater sense of caution in using that report when market manipulation or false reports may be suspected. Price reporting services may find that including information on price ranges during the day and the volumes involved in determining the closing price would enhance the credibility and usefulness of their reports.

Committee Price Reporting

Another option that's used in some markets is committee price reporting by well-informed market participants. The sugar market (characterized by infrequent, large cash market transactions) might be an example where the use of a small committee of market participants is appropriate to report the market price, as long as those experts aren't in a position to let their own market position bias their report and influence the ultimate price reported. The recent Department of Justice suit against the New York Coffee and Sugar Exchange brought out the conflict between the need for information and the differing risks of manipulation inherent in some committee price reporting mechanisms. It has recently resulted in what seemed to be a reasonable compromise (a random selection of five reporters from a pool of twenty-five market participants, with the high and low reports dropped from consideration). But some of the cash cotton market committees may be an example of a waste of time and resources for reports that have little if any potential use, even though they were mandated by law to serve a potential need in now inactive futures market settlements.

Mandatory Reporting

In thinly traded or imperfect market settings, where firms are reluctant to voluntarily report prices, mandatory reporting (perhaps just by the largest firms involved in the market) to the government or approved private price reporting agencies may be a public policy option that would have to be used. Dominant firms may dislike the resulting reduction in their comparative information advantage, and there would be costs involved in reporting purchase or sales prices. The public benefits of the information gained would have to be weighed against the risk that such reports might facilitate collusive activities in the market, or the risk that private charges of collusion might be more likely in such situations even when the charges would be unfounded. Nevertheless, the benefits to the entire marketing system may be sufficiently large that such costs and risks are worth incurring.

Mandatory Negotiation

In market situations where the negotiated market volume is shrinking as other market institutions (like formula pricing) replace it, the externalities of such a change may be sufficiently large and negative on some market participants that mandatory negotiation of some or all of the firm's market transactions might be required (as the House Small Business Committee is considering for meat). Yet there may be a significant cost to some market participants in exercising such an option, whether it be voluntarily done or publicly mandated. While some thinly traded markets temporarily could be made thicker, the long term cost and structural consequences could be significant enough to overwhelm the benefits from such a change in some market settings.

Electronic Exchanges

The introduction of computerized electronic exchanges would be another option worth exploring, especially in settings where arbitrage among closely related geographic or product markets is quite imperfect due to lack of information regarding alternate market opportunities, or the high cost of tapping alternative markets. Not only could arbitrage be facilitated in some market settings as this new market technology becomes adapted to commodity markets, but significant infusions of market information would also be forthcoming as a byproduct. The technical and economic feasibility (and industry acceptance) of electronic exchanges has been tested in a few market settings, and several more experiments are underway which should provide a more comprehensive perspective of the potential feasibility and benefits of electronic exchanges in thinly traded markets.

CONCLUSION

In this paper, the rationale for public market information and price reporting services in imperfect or thinly traded markets have been explored, and alternative approaches to information gathering and reporting have been briefly discussed. Despite the "theory of the second best," there appear to be some convincing reasons for public market information and price reporting services in thinly traded or imperfect markets. Such services probably reduce the comparative competitive or bargaining disadvantages of small or fringe firms in a market, facilitate market arbitrage, provide third-party objectivity in the reporting process, and aid firms in adjacent markets who are strongly influenced by that market's results.

The information acquisition and reporting options that might make sense in any market depend strongly upon the nature of the short or long term market imperfections, the basic causes of a market becoming thinly traded, and the related behavior of the firms. In some cases there may be no good solutions. Mandatory reporting or mandatory negotiation may be necessary to solve some thinly traded market problems, but the costs or problems associated with the solution may be greater than the benefits. Broadening the product categories or market institutions being reported may improve the usefulness of market information and price reports in situations where new product forms and alternative markets become important. Translating a complex of prices into a more useful composite sometimes may be appropriate, as may be more interpretation regarding the implications of raw numbers for those firms least able to do that themselves.

In thinly traded markets, credibility is frequently an issue, along with fears of market manipulation and manipulation of price reports to a firm's advantage. Providing information on price ranges during the day and the volumes used to determine the key market indicators could enhance the usefulness and credibility of some reports.

The feasibility and usefulness of these options in specific market settings need to be evaluated in conjunction with the apparent market performance shortcomings, and their causes. This is a challenging task, but the results could prove quite useful in the design and implementation of improved public and private market information and price reporting services.

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FOOTNOTES

- ¹ A contrary view regarding public market information underlies some recent Department of Justice actions regarding public announcement of price changes in oligopolistic markets, alleging that parallelism of pricing decisions is facilitated. If public market information might help foster collusion, either explicit or implicit in some concentrated markets, and further competition in others, researchers ought to try to identify those market structures (probably few in number) where public market information might prove more harmful than helpful.