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Agriculture - Econ. Aspects

Part I

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MAR 26 1969

PROCEEDINGS

Agricultural Economics Seminar

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February

1969

NOTES ON MARKET STRUCTURE ANALYSIS
IN DEVELOPING COUNTRIES

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Suppose that you were hired to work in the ministry of economic affairs in one of the newly independent African countries as a foreign expert. Suppose further that part of your job involved helping formulate the development plan of the country in question. (This is not fantasy. During the past year I have had over a dozen inquiries from foreign governments or international agencies who were looking for young economists with some graduate training to work abroad in similar capacities. Unfortunately at the moment there are far more openings of this sort than there are people to fill them and development planning suffers as a result.) One of the major questions you might be consulted on in such a job is how well does the price system function in the country you work for.

If the price system does not allocate resources well, it is obvious that government intervention may be able to stimulate growth. There may, of course, be other reasons for planning. Even if the price system functions reasonably well--even if it adequately transmits signals from consumers to producers and between producers and suppliers of raw materials or intermediate products--there may still be a convincing argument for some sort of planning. It may be argued that the rate of growth in absence of any planning--even if moderately rapid and steady--would be inadequate, given political pressures and national aspirations. Nevertheless, the amount and kind of planning will be strongly influenced by assumptions about the price system.

If there is a large body of opinion in the country where you work that the price system does not allocate resources in a way that maximizes the rate of economic growth--or that it works against other national objectives, such as reducing inequality of income and wealth--the pressure for development planning will be much stronger; the plan that eventually is produced will be much more comprehensive; and its impact will be felt by a larger proportion of the economy. The plan will also be more difficult and expensive to produce. In the limiting case planners may attempt to take over all the functions of the price system and themselves assume the gigantic task of allocating resources. This is not far from the attempt--if perhaps not the reality--of many of the Communist block countries and it is the ideal of at least Gulnee and Mall, two tropical African countries strongly influenced by Block countries.

But not only is a much larger and detailed plan required if the price system is badly deficient, the implementation of the plan, too, is an enormously larger job, requiring large amounts of trained manpower and an abundance of high quality data, both of which are in short supply in most, if not all, developing countries.

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In short, if the price system can be relied on to at least help regulate the economy and transmit the needed growth incentives to the sectors, firms, and individuals that should receive them, the task of the planner and policy maker is greatly reduced and simplified, and the probability of success in planning is increased. If it is the case that the adequacy of the price system is not the same for all goods and services, or for all factors of production, it is essential to identify where it works best and to know why. This brings us to research, and in particular to market structure research. (There are, of course, other reasons for doing market structure research in developing countries, but the relevance for planning is, I think, especially interesting, and is, perhaps, the one that gets the most attention.)

MARKET STRUCTURE RESEARCH IN A RELATIVELY DEVELOPED COUNTRY

Market structure research falls under the rubric of industrial organization in our economic jargon, which has allowed me, when asked about my field of research specialization, to startle people not well acquainted with the terminology of our profession with the reply: "I do research on the industrial organization of the unindustrialized countries."

Just in case one of the Wisconsin state legislators by chance happens to read this, let me hasten to explain that although that statement seems open to the interpretation that I do nothing, that is not the case. Industrial organization is an unfortunate and misleading term now that we are interested in economies other than those of the North Atlantic community. It really can be translated as "amount and kind of competition among buyers or sellers." It includes the competitive behavior of buyers and sellers (or their conduct); the environment (or structure) that conditions such behavior; and the results of their competitive behavior (or the resulting performance, i.e., such things as the level of prices charged or offered, rates of profit, and the amount of innovative activity undertaken).

Because the environment within which this competitive behavior takes place tends to vary from one good or service to another, it is essential to separate commodities in our analysis of competitive behavior and thus we often speak of all producers of a given good or service in a given geographical area as an industry. And since most tacit or overt organization among buyers or sellers affects their competitive behavior, there is some basis for using the term industrial organization even though it is misleading because industry means manufacturing in some contexts.

Most of the research done under the label of industrial organization is on market structure for at least two reasons: (1) because we lack either the tools or the data to do a good analysis of competitive behavior or performance; and (2) because it is often easier to design and implement policies that change market structure (since market structure affects competitive behavior and thereby performance, market structure policies to some extent get at most changes in conduct and performance that are desired).

Traditional Tools of Market Structure Research

A major problem in determining market structure is to define the commodity involved. Suppose we have 30 sellers of, say, palm oil, used by housewives for only two purposes--cooking and making soap--in a given market in an African country. If there are 30 sellers each trying to get each sale made we would conclude, looking at numbers of sellers alone and not examining what they are selling or the terms they offer, that atomistic competition is likely. No seller is likely to expect much more than one-thirtieth of the market and therefore can be expected to be a price taker.

Now suppose that despite the fact that all this palm oil looks alike we learn that palm oil which is not fresh--say that which is more than three days old given the way it is processed in this particular country--is not good for cooking because its free-fatty acid content is too high. Suppose also that only one of these sellers has fresh palm oil in a given time period. What looked like atomistic competition for palm oil then turns out to be monopoly for fresh palm oil and pure competition for old palm oil. For purposes of market structure analysis we have two commodities, not one, and two market structures to analyze.

The most precise technique for determining whether two similar commodities are the same in the market structure sense is use of coefficients of cross-elasticity of demand. A sufficiently high cross-elasticity of demand of the right sign between what we think may be different commodities suggests that they are in fact close substitutes--as the price of one changes there is a strong response in the same direction in the quantity demanded of the other--suggesting that sellers of one are in fact capable of easily getting customers from sellers of the other, hence are participating in the same competitive arena.

Once commodities have been defined a second major problem is defining the market, or the competitive arena, in which the behavior to be analyzed takes place. If commodities offered for sale are very close substitutes, or the limiting case, identical, some of the sellers may not be in competition with others because of a variety of factors. Where housewives buy foods and foodstuffs daily in a marketplace, as they do in most developing countries, the marketplace and market are likely to coincide, providing there are no peddlars, milk trucks, or other channels of distribution for the items sold in the marketplace. On the other hand the market for a group of urban storekeepers is likely to extend not only beyond the city limits, but for some distance beyond. The market for many manufactured goods in this country is either national or world wide, and IBM stock, or the stock of any of many other major companies, is clearly world wide with buyers from any point on the globe easily getting almost instantly, but indirectly in touch with any seller interested in selling by calling or wiring a stock broker.

Having defined the commodity and the boundaries of the market that is of interest, a logical next step in market structure research is to determine the number and size of sellers and/or buyers. In countries like the United States it is fairly easy to get the data needed from censuses or other published sources and a calculation then can be made of the share of the market accounted for by the largest seller, or any group of sellers, say, the largest three, four, eight, ten, or twenty. Particularly when there are either many sellers or only one or two, economic theory tells us a great deal about the sort of competition to expect.

But concentration ratios are, of course, not the end of the research effort. Gentlemen's agreements worked out on the golf course, or formal cartels--where they are legal, as they are in some foreign countries and in some international operations of even American firms--may prevent or distort competition even if numbers of sellers would suggest otherwise. Twenty sellers who by agreement act as one give the appearance of atomistic competition but in fact are a monopoly.

The researcher must learn all he can about his commodity--how it is produced, stored, marketed, and consumer, and particularly how decisions are made by those who buy and sell it. If the ownership of the commodity changes hands several times between the raw material stage and the final consumer, the researcher is confronted with not one but several commodities that must be researched. Each time the product is sold its characteristics may be changed and the boundaries of the relevant market may be altered. To take a hypothetical example one might have a monopolist selling each of the raw materials needed for a particular good, but, say, an oligopoly among the manufacturers who combine these raw materials into a new commodity, atomistic competition among the wholesalers, and monopolistic competition at retail. In one town in West Africa where I have done market structure research one finds atomistic competition among cattle producers, oligopoly among cattle shippers, a perfect, tightly-run cartel among wholesale dealers, a duopoly among butchers, monopolistic competition among retailers with fixed locations, and monopoly with well defined selling zones among retailers who hawk meat from door-to-door.

If the researcher does a really good job he will not only have to critically scrutinize his data and cross check it for accuracy, using his ingenuity to fill gaps or find proxy variables, but he will have thoroughly analyzed why the structure he finds prevails. Thus he will not only say that for a given commodity in a particular market for a specified time period one finds, say, a large dominant price leader with a competitive fringe, but he will do all he can to explain how in this instance the price leader emerged and how he is able to maintain his position.

MARKET STRUCTURE RESEARCH IN A DEVELOPING COUNTRY

Economists doing research on developing countries incessantly complain about the inadequacy of data. Usually few statistics of any sort are available and many of those which have been collected are known to be of doubtful reliability. One of the few generalizations about developing countries that we can be sure of is that good statistics are a function of the level of economic development. To have really good data a country must not only be affluent, but must also have a large pool of well-trained manpower and a large, well organized, efficient administrative structure for collecting and analyzing economic data. Only with putting data to use--the analysis--can one convincingly establish the priorities that should be given to collecting information and determine where there are weaknesses in data already being gathered.

The researcher working on market structure in developing countries almost certainly will find no data on the size and number of sellers of any commodity, so to calculate concentration ratios he will be forced to collect his own data. More serious than the lack of data is lack of analysis of data that may already be available. Even if data suffice to estimate elasticities of demand or supply, usually no elasticity coefficient of any kind has yet been estimated.

A second difficulty is that the researcher is often working with commodities that are unfamiliar--for example, coffee, cocoa, rubber, manioc, or kola nuts (used in making Coca-Cola). Moreover, the social and economic systems of the countries in which he works are often equally unfamiliar to him. The Federal Reserve System he learned about in courses in money and banking is found nowhere else in the world and central banking often is vastly different in developing countries. The institution of the money lender; the ramifications of the extended family on decision-making, propensities to save, hoard, or invest; the special economic problems of pluralistic societies made up of dozens of ethnic groups, all are likely to add to his difficulty in interpreting his data.

But although his research may take longer than it would at home and be more difficult because of data problems and his unfamiliarity with the country studied, there are important compensations. When the researcher has to participate in collecting the data he analyzes, he is forced to be aware of many of the limits to its reliability, an awareness that is too often lacking when an unknown party's guesses or guesstimates, having been sanctified with printer's ink, are taken unquestioningly as facts. The process of gathering data also allows the researcher to develop an intimate first-hand knowledge of his commodity which he would have to somehow acquire anyway if he is going to produce an outstanding piece of work. An additional advantage is that in developing countries he can often get details of seller behavior that he would be denied in the United States. Because developing countries do not have anti-trust laws, the researcher can often learn a great deal about the mechanism for allocating market shares, how price fixing is done, or other interesting operations that would be carefully guarded secrets in this country.

Because he is forced to rely heavily on interviewing, the interviewing technique the researcher in developing countries uses becomes a critical factor in determining his success. In this regard it is particularly important (1) that respondents are not asked leading questions or questions that they can't possibly have accurate information on and (2) that there is a constant effort to cross check information obtained to discover where there are inconsistencies with other data already gathered.

Formulation of Questions

In most developing countries asking sellers leading questions will give a striking uniformity to the answers received. Because of a desire to please the interviewer or to get the interview over with persons interviewed will answer a question like "Do you usually sell at retail?" with "Yes" or "No", whereas if asked "Who buys from you?" will name a variety of people, or categories of people, some of which are final customers and some of which resell the product.

Questions about sensitive matters are likely to yield little reliable information, and careful study of the culture of the country must be done to know what is sensitive. Where tax evasion is common, sellers will find it convenient to estimate their income on the low side.

Much of the information the researcher would like to have cannot be obtained because informants are not in a position to know. Asking sellers who keep no written records the volume of their sales six months--or perhaps even one month--in the past is to invite inaccurate answers. Common courtesy of their culture may demand that they give you some figure, even if they know it is a wild guess.

Cross-Checking

Sellers may be reluctant to talk about their own practices, but at the same time will talk freely about what their competitors do, or what "most sellers" do. In Brazil we found that crop buyers often give an advance on a crop before harvest with the agreement that they buy it at a discount at harvest. We soon learned that none of the people in our sample were going to admit to being involved in this practice because it was generally felt farmers were exploited by the practice. We therefore never asked whether the person interviewed gave or took advances, but rather what the discount was in deals of this sort that he had heard about.

Comparing what one party says about a given transaction with the other party to it is another excellent check. Wholesaler's stories can be checked by information from retailers buying from them, etc.

CONCLUDING OBSERVATIONS

Market structure research in developing countries differs from that in the United States mainly in the greater input of time, energy, and ingenuity required to do a particular analysis. The same techniques are applicable in both parts of the world, but the researcher usually must get into the field to both collect and analyze data in developing countries, whereas in relatively developed countries he may get away from his desk or the library only in the analysis phase, if at all

Because (1) little market structure research has been done in most developing countries--none at all in a number of them--and (2) because of the relevance of knowledge of market structure in any sort of development planning, the results of such research in developing countries often immediately has an observable influence on economic policies of the country concerned. Thus despite the many frustrations and difficulties involved such research can often be exciting.