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PRICE AND MARKETING POLICY RESEARCH DAIRY

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A number of forces have contributed to the reappearance of dairy issues on the national policy agenda. Rising milk prices, the emergence of interregional "supercooperatives" with at least the appearance of substantial market power and political clout, and the Milk Fund scandal in the early 1970s prompted a number of consumer groups to bring dairy issues into the limelight.

Scholarly critiques of dairy pricing policy during the mid and late 1970s fueled the debates. More recently the high cost of the dairy price support program, the casein import question, and the deregulation climate in general have served to keep the pressure on. Given this impetus, one can reasonably expect a continuing interest in dairy policy over the next few years.

The primary focus of this paper is on broad, national dairy policy issues and concerns. It ignores or treats only indirectly a number of issues relating to administration of marketing orders, performance and operation of dairy cooperatives, and the role and impact of state milk marketing orders. This omission is not meant to reflect an order of importance.

The first section of the paper discusses some general notions about the content of policy research. Here I review the contributions that policy analysts might reasonably be expected to make. This discussion will serve as background to the second section which has two aims: (1) to present and briefly discuss some issues that merit dairy policy researchers' attention, and (2) to assess policy researchers' contributions toward resolution of these issues. I suggest that we have been less attentive than might be hoped to the development of an understanding of basic economic processes and relationships at work in this industry, that there are alternative means of implementing dairy policy that need to be examined, and that the analytical approaches used in some recent studies and subjected to much criticism have probably been criticized for the wrong reasons. The final section of the paper offers some thoughts on improving the communication of policy research results.

THE NATURE OF POLICY RESEARCH

Policy research viewed broadly is scholarly analysis directed at the resolution of ". . . struggles of people to reach hard decisions concerning what ought or ought not to be done on specific issues." (Brewster, p. 211). The basic problem giving rise to the inquiry exists because the real situation departs or is perceived to depart from some desired state of affairs. Any of several courses of action might be taken to close the gap (or to enlighten those holding erroneous perceptions), but one cannot know which policy should be followed until the consequences of each alternative are studied and elucidated.

The policy position is determined in the political arena although the actual course of action taken to implement this policy will be determined by the agency charged with implementation. The process by which decisions are made in the political arena is not only an interesting one; it is one policy analysts should appreciate and understand. The policy

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researcher can play a useful role in providing information relevant to this process if he or she is aware of the issues and of the timing of policy debates and decisions.

Several authors of treatises on policy have described this process in detail. Stigler and Peltzman have formalized a theory of the process leading to several useful hypotheses about how policy positions are developed and tradeoffs among alternatives evaluated.

The role, operation, and needs of agencies charged with implementing policy seems to me to be less well understood, especially in the academic community, but no less important. The fact that these agencies can play a significant role is rather forcefully indicated by Wellford in his account of how food safety policy in the meat industry was implemented. Of more importance to our purpose here, however, is the fact that these agencies typically lack the research capability, and particlularly the long run research capability, necessary to investigate issues of relevance to the decisions that must be made.

The policy researcher can play a useful role in providing information to such agencies. To do so, however, he or she must be knowledgeable about the agencies' operations and needs and must be aware of how to communicate his or her research results.

Alternative Courses of Action

I turn now to the type of activities in which policy researchers engage. The first of these is tracing out the consequences of alternative courses of action for implementing policy and providing policy makers with a comparison of the consequences of these alternative courses. This is the type of research in which policy makers are typically most interested. It generally leads to less controversy and greater acceptance because it is non-normative. Brewster (p. 210) points out that policy makers are usually not interested in solutions to normative problems–solutions that in effect say,

> *If society's values are such and such, then the interregional resource shifts of the magnitudes indicated in this study are the one's policy makers should strive for.*

I do not mean to imply, nor did Brewster, that normative research should be avoided–only that normative judgments, or what appear to be normative judgments, should be avoided (see Brewster, pps. 214-215).

Research on the consequences of alternative courses of action is dependent upon the researcher's interpretation of the technical, economic, and political world. Brandow argues that there is a logical approach to this type of research although it is frequently subject to a variety of problems–lack of appropiate data, absence of good estimates of technical or economic relations, conflicts between received theory and available models and reality, and possible entry of value judgments required to cope with such problems. Hence it is clear that research of this nature could lead to controversy. In general, however, the problems are not likely to be so great as to lead competent analysts to different conclusions.

Several dairy research efforts of late have been of this variety. Clayton, et al. studied the implications of no import restrictions, a 50 percent import quota, and a 50 percent ad valorem import tariff on casein. Here an attempt was made to estimate the demand for casein at various price levels and assess the likely inroads on the U.S. dairy economy under the specified options. Buxton examined the implications of alternative Class I differentials using a partial equilibrium model for the U.S. dairy economy. The results of the alternative differential levels were evaluated in terms of income transfers and social costs. Vertrees and Emerson studied the consequences of alternative price support levels. These authors used a quarterly simulation model to assess the different alternatives in terms of prices, quantities, revenues, and government costs.

Alternative Policy Objectives

Most researchers would agree with Brewster and others that economists have little business making pronouncements on "ought" questions on the basis of their research–i.e.,

advocating which specific policy objectives consistent with fundamental societal goals should be adopted. Indeed it is through the political process where trade-offs among the broad societal objectives are made and where pressure groups operate that these decisions are made.

Nevertheless, it seems to me, economists have a legitimate role to play in both suggesting alternative policy objectives that might be considered, and in providing information with which to better inform policy makers about the need for, consequences of, and feasibility of pursuing alternative objectives. Much of the literature on public policy analysis growing out of work on the Great Society programs stress the need for this type of work. Etzioni (p. 9), for example, argues that "Policy research deals with values and seeks to clarify goals and the relations among them, as well as among goals and sets of means." In *The Moon and the Ghetto,* Nelson apparently agrees (see especially pps. 146-154). Indeed Nelson suggests that analysis often leads to conclusions about the legitimacy of certain interests (pps. 150-151).

Analysis directed to policy objectives is likely to be controversial since it may lead to conclusions about means and ends that are at odds with existing policy and/or conventional thought. Such analyses can, nevertheless, lead to the identification of policy problems which merit public attention. Here too the analyst can play a significant role in obtaining public recognition of such problems.

Studies illustrated by the work of Kessel, Ippolito and Masson, and Dahlgran fall into this category. In each case a partial, competitive equilibrium model for the U.S. dairy industry was used. These studies offer competitive equilibrium as an alternative to the goals pursued with supported prices and classified pricing. The alternatives are compared on the basis of deadweight losses, surpluses, and income transfers. These works have been received with less than great enthusiasm to say the least. In the next section I want to consider at more length the nature of the criticisms and some of the contributions of such studies.

Economic Understanding

The research activities described above depend first and foremost on the results of research designed to further our understanding of the basic economic decisions and relationships underpinning the industry. Too often, I believe, we tend to consider research designed to enhance our understanding in these areas outside the realm of the policy specialist. I do not share that view.

In what follows, I suggest there is much work of this nature yet to be done in dairy that promises substantial payoff. It would be unfortunate if work of this nature has been avoided simply because policy specialists do not consider it part of their role. Whether it is for this reason or because of lack of research funds or something else, my review of the dairy literature indicates something less than an oversupply of research of this nature in recent years.

Demand for Dairy Products

Monitoring the demand situation and estimating demand functions for dairy products and for all milk is a continuing need if prices are to be administratively set so as to encourage an adequate but not excessive supply of milk. There have been significant shifts in dairy product consumption in recent years partly in response to price but also in response to other factors as well. We need a better understanding of what these other factors are and what their impact is.

Between 1950 and the early 1970s, non-price factors, such as the changing age distribution of the population and the cholesterol scare, were more important than was price in explaining variations in the demand for dairy products. Whether or not this generalization can still be made is questionable, but non-price factors are still important. In general there would appear to be room for additional innovative analytical work in demand analysis. I

find it surprising, for example, that so little empirical work (in dairy or elsewhere) has been done using Lancaster's ideas on consumer behavior (see, e.g., Ladd and Suvannunt).

Producer Response and Adjustment

Similarly we need continual monitoring of producer responses and adjustments. We need to develop reliable estimates of both regional and aggregate supply relations since spatial analyses are so important in dairy policy work. Again there is room for innovative empirical work here using what is referred to as duality theory (see Weaver and McSweeney).

We also need, it seems to me, to develop a better understanding of producer response to high energy prices, inflation, and technology. We need up-to-date information on scale economies in dairying. We need to clarify our understanding of the possibilities for, limitations to, and time lags involved in the adjustment of resources out of or into dairying—in the aggregate and in individual regions.

What kinds of adjustments might be possible, for example, if we were to move toward a free-market situation? Has the decline in farming activity (relative to non-farming activity) in almost all of the U.S. (see Hoppe) also meant a serious erosion of the infrastructure serving dairy farmers in some areas, in particular regions, or everywhere? Are there input and output market constraints that make dairy farming economically infeasible in certain areas?[1] Do such constraints inhibit the adjustment of resources out of dairying and into some other agricultural or even non-agricultural activity? In view of the current milk surpluses and presumed excess of resources in dairying, these questions take on added meaning.

New Product Development

An issue of considerable importance for dairy policy is the impact of imitation cheese (Tilsworth and Graf). A strong fear is that this product may be as critical to dairy as was oleomargarine particularly since over one-quarter of the milk marketed in this country is marketed as cheese. In part this will require some indepth demand analyses, but it will also require analyses of the impact on cheese manufacturing firms and their location.

Another development meriting attention is the possiblity for and impact of new techniques and processes for responding to the high cost of energy. Milk contains 87 percent water. Thus much energy is currently expended (some argue needlessly) in transporting, storing, cooling, and pasteurizing water. In response to higher energy costs, work has begun on the development of technologies or processes to remove water and/or separate milk into components, and on possibilities for industry reorganization to minimize transport and storage costs. Economic research is needed to guide these decisions and to isolate barriers to realization of feasible alternatives.

THE POLICY ISSUES AND RESEARCH CONTRIBUTIONS

Need for Government Programs

A basic issue, of course, is what role should government play in the milk industry? At one time, dairy farm income enhancement was a fairly explicit goal of dairy legislation. I believe most would agree that the weight attached to this goal today should be much lower than in past decades. Another major goal of dairy legislation is to stabilize milk prices. The weight attached to this goal would, in most camps, still be fairly high. A third major goal is to keep government costs at a minimum. This goal is, of course, receiving much greater attention today than in previous years.

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[1] *In a recent report, Madden and I suggest that to fully understand the limits to agricultural development, growth, and adjustment in a region, knowledge of input and output prices alone is not sufficient. One must also comprehend and build into the analytical model constraints that represent the size and availability of input and output markets (see Hallberg and Madden).*

Although not frequently discussed, several second-level goals could be considered. Among the more important are maintaining conditions for efficient milk production and dairy product manufacture, ensuring an adequate supply of dairy products for domestic and foreign aid programs, ensuring that dairy farmers and/or processing firms with severely restricted alternatives for employment of resources can stay in dairying, and providing a climate in which an orderly adjustment of resources out of or into dairying, when warranted, can take place.

The excess of milk production over demand for the past couple of years suggests that too many resources are currently employed in dairying. Removal of excess resources is a painful process however accomplished. It is exceedingly painful if these excess resources cannot move into other agricultural pursuits. Policies to encourage such adjustment could be more rationally designed if policy makers understood the barriers to adjustment. In some instances non-dairy alternatives in agriculture may not exist to a dairy farmer because input markets, transportation facilities, or product buyers for the alternative do not exist.

In other instances the skills may not exist. In still others the capital or the means of obtaining the capital may not exist. Lacking the knowledge of such problems, it is impossible to develop rational educational programs let alone public policies to help cope with the adjustment process. Policy researchers, I submit, could play an important role in this area.

Considerable research of late has been directed to the need for existing dairy programs. This research has been critical in that it attacks the very foundations of existing legislation. It has been criticized for ignoring the realities of the existing structure of the dairy industry and for ignoring the price stability objective of existing legislation.

This research has proceeded along the following lines:

> If the dairy industry had been permitted to operate as per the perfectly competitive model instead of being subjected to regulated prices, this is what the results would have been. And since there is a rather large discrepancy between the real world results and the model results, we have a big policy problem here.

The model results are usually described in terms of gains or losses in consumer's and producers' surplus, deadweight losses, and implied transfer payments from consumers to producers and vice versa.

I tend to agree with Cochrane that concepts like consumer and producer surplus are at minimum difficult to explain to most policy makers and probably should be avoided. But this does not negate the use of the perfectly competitive model. One can just as well evaluate the results in more meaningful terms–prices, quantities, consumer expenditures, producer revenue, etc. I also agree that such models are quite naive in that they ignore most of the interesting questions relating to market performance in a dynamic setting. I do not find them to be hopelessly naive, however, since they do provide a useful (normative) base with which to make comparisons and thus with which to guide policy.

A more severe criticism seems to be that the competitive model as applied to dairy is not representative of the real world. There is no disagreement over the fact that the dairy industry today departs substantially from a perfectly competitive world. Can we not, though, conceive of a different world? For example, the modelers argue that in a perfectly competitive world, the difference between the equilibrium price of milk used in fluid products and the equilibrium price of milk used in manufacturing products would equal the difference between the cost of producing these two types of milk. The critics argue this is not so–cooperatives are providing a "balancing" function that requires remuneration, there must be an extra incentive for farmers in surplus areas to supply milk needed in deficit areas, there must be a transporation differential to reflect the higher cost of moving milk to fluid milk bottling plants, etc.

Is it not conceivable that under the conditions of the model, processors and/or farmers would adjust behaviorally and locationally so as to elimate the need for a price differential that is significantly higher than the cost of production differential? The critics are apparently unwilling to concede the point. I know of little research evidence which would substantiate their position. Further, if the indicated adjustments are found not likely to come about by the "invisible hand" but the model results are still preferable to the real world results, then we should ask: What regulatory programs can be adopted to bring about the desired adjustments? This, after all, is one of the things the public should expect of regulation!

In general, I am not convinced that the competitive model results should be dismissed just because the industry structure implied by the model differs from the structure of the real world. Other bases for criticism seem to me to be more salient. First, these models are static and typically ignore the question of price stability.[2] It is fairly clear that the price support program enhances price stability[3] and that this is (under certain assumptions concerning risk aversion) a desirable result to both producers and consumers. Whether this result overshadows the estimated "social costs" of existing programs is another question and not one to be decided by economists. These models also ignore any of the second-level goals listed above.

Second, the models under discussion are always estimated for a single year. If actual and model results were compared over a series of years, a different perspective might be evident.[4] Certainly the "social costs" of dairy programs were higher in 1980 than in 1975! It is quite conceivable that, just like the market, policy makers overadjust in some years but the results of their actions (government costs and CCC stocks) serve as a self-correcting mechanism over time.

Finally, I suggest that these models may be too narrow in scope to fully address the question. Certainly they must be regional in scope (as was Dahlgran's) so as to yield the full range of information of relevance to the policy problem. Ignoring interregional comparisons and tradeoffs in dairy cannot be justified in view of the interregional relationships that exist and in view of the fact that interregional price differences are in effect set by federal orders.

It may also be that to analyze the dairy industry under perfectly competitive conditions, use of a partial equilibrium model sweeps too many other important factors under the rug. If we were to move to a "free-market" situation in dairy, can we realistically use models that ignore the dairy impact of feedgrain policies or interactions between the dairy and beef sectors and between dairy and such non-agricultural sectors as transportation?

Policy analysts have, in my view, long been remiss in ignoring the impacts of grain policy on the livestock sector, in total as well as in particular regions. This may be even more critical in a free-market situation. Similarly the opportunities or lack of opportunities for alternative employment of resources now employed in dairy are likely more critical concerns under free-market conditions. Finally transport policies that are aimed primarily at serving the goal of maximizing grain exports may well work to the disadvantage of dairy in most dairy regions of the country.

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[2] *Dahlgran's work did show the kind of supply function shifts resulting from price instability that would be requited in order to offset the estimated gains from perfect competition.*

[3] *In a recent study (Hallberg, 1980), I attempted to estimate the amount of price variability that would accompany dairy program removal. This issue merits further examination, but the initial results suggest that the typical concerns over the level of instability that would accompany deregulation may be exaggerated.*

[4] *In a forthcoming article, I have examined the extent to which the classified pricing program has operated so as to maximize producer revenue or to maximize consumer welfare over the 1960-1979 period. I conclude that producers may not have been advantaged as much as is often implied, and that over this 20-year period, there has been a fairly steady movement toward a position more favorable to consumers.*

Implementing Policy

In addition to the basic question of the need for government programs, there are several issues relating to the means of implementing existing policy that merit policy researchers' attention.

Dairy Price Supports

The level and timing of price supports is an issue of obvious importance. The analytical machinery for researching this issue is readily available and has been used (see Vertrees and Emerson). This machinery is in the form of a quarterly simulation model consisting of several econometrically estimated equations, various technical relations, and several identities, and having limited regional detail. It requires as input, specifications for determination of support prices plus such exogenous data as population growth, age distribution of the population, inflation rates, disposable income, feed prices, etc.

I do not believe the model used by Vertrees and Emerson as presently structured is the ultimate, nor will it give precise answers. Clearly this machinery is only as good as the relationships embodied in it, and the latter are always in need of updating. I believe, though, it can give excellent guidance to a variety of issues relating to the level and timing of price supports and to the implementation of price support legislation.Vertrees and Emerson, for example, certainly anticipated the current surplus problem with high support levels using this model!

At the present time, price supports in dairy are based on parity. An alternative to parity is cost of production. But the use of cost of production as a basis for support prices immediately conjures up two questions: (1) The cost of producing milk is not the same in Maine, Kentucky, Illinois, etc. Hence basing support prices on the U.S. average cost of production may amount to giving producers in low-cost regions a windfall while unduly penalizing producers in high-cost regions. (2) Will basing the support price on cost of production foster inefficiency in milk production or at least retard adoption of new technology and cost reducing practices?

If we must resort to a cost of production base, what are the merits of establishing price supports on the basis of a regional cost of production estimate derived from demonstration (or even synthetic) farms which are required to use technology and management techniques known to yield the highest level of production efficiency? Such a plan raises many questions that need to be researched. It would appear on the surface to be feasible although the implementation details would have to be worked out.

Clearly the CCC as it operates today would not work here. The plan includes an equitability feature not now present. It would encourage rather than discourage technical efficiency. It could be used as a means of enhancing farm incomes (by setting the support price at, say, 125 percent of the cost of production in all regions), but in view of the reduced need for farm income enhancement, its most important use would probably be as a means of stabilizing milk prices. Some preliminary implications of such a plan could be derived from an application of the type of model described above.

Milk Marketing Orders

The level of Class I differentials and intramarket and intermarket price alignment are issues that must receive continual attention. In recent years, for example, research has suggested that multiple price basing points should be considered (Fallert and Buxton; Hallberg, et al.). Additional work in this area is warranted especially as transport costs increase and as we get better handles on regional supply response relations. Our spatial equilibrium models which include supply and demand functions and appropriate blend pricing mechanisms are indispensable for this work. If this issue is to be examined realistically, however, the spatial

equilibrium model should probably include a government sector and be suitably constrained to reflect other realities (e.g., price supports). The models cited above are deficient on this count.

Another issue meriting investigation is an alternative to the current blend pricing arrangement. For years now we have produced far more fluid grade milk than is needed for fluid products. A primary reason for this is that under the present blend pricing arrangement, there is no incentive for producers overproducing fluid grade milk to curtail production, and there is every incentive for manufacturing grade producers to convert to fluid grade production thus adding to the surplus problem. Some would argue this is not a serious problem because it costs about as much to produce Grade B milk as it does to produce Grade A milk. Available evidence, even though somewhat dated, suggests otherwise.

If there is still a justification for two grades of milk, as I am inclined to believe, then an alternative to blend pricing is in order. One such alternative is a plan that would return to each producer no more nor less than the value of his surplus milk so that overproduction of fluid grade milk would be discouraged. Such a scheme would require the use of individual producer fluid milk quotas so that quota milk would be priced at the fluid milk price and over-quota production would be priced at the manufacturing price.

This plan has some severe disadvantages. It would appear to have some strong advantages, though. Again I believe spatial equilibrium models would be useful in assessing the implications of such a policy instrument.

COMMUNICATING THE RESULTS OF POLICY ANALYSIS

Etzioni (p. 10) offers some sage advice on communicating the results of policy analysis.

> "* * * policy researchers, unlike basic researchers, must be willing to invest a significant amount of their time and energy in communicating.
>
> "A successful policy researcher seems to require a psychic profile quite different from that of a basic researcher. Basic researchers can be loners, people who get along best with libraries, computers, test tubes, and research associates. A policy researcher must be able to interact effectively with politicians, bureaucrats, housewives, and minority leaders.
>
> "Probably the least useful tool for communicating between policy researcher and policy maker is the one most commonly used—the hundred-odd-page stenciled report packed with statistics, footnotes, and technical terms. The shortcomings of this mode of communication are more than stylistic and cannot be overcome simply by providing an abstract or a rewrite in idiomatic English, sans tables and references."

The policy researcher must expect resistance to his work. Face-to-face exchanges may be required to clarify points on research design and assumptions. Pre-publication review by policy makers, when feasible, is often helpful. The "Interactive Process" adopted by GAO (Staats) in which the contracting agency interacts with the researcher at all stages of the research and where time schedules for interaction are written into the contract, may be useful as a general procedure. There may be other agencies or subgovernments with which exchange would be desirable and it is the task of the researcher to ferret out these agencies or subgovernments.

To leave the task of communicating to a go-between is not usually, if ever, desirable. In so doing the researcher loses a valuable first-hand source of information relative to the policy issues and how best to impact the policy process. Further there is the very real chance that the go-between will fail to carry the message intended. I am inclined to view the process of communicating research results to policy makers much like extension education work. Most researchers, however, have had no formal training in extension work and thus have little background to draw upon in this effort.

In the end we may find that being an effective communicator of policy research results comes down to working hard at the process and accummulating experience. There would,

though, appear to be some general guidelines that might be observed. I suggest the following. First, the policymaker will not likely be impressed nor able to absorb vast amounts of quantitative results. The communication should be straightforward and emphasize only the major issues. Second, tradeoffs should be pointed out when appropriate even if quantitative evaluations are not readily available. Dairy policy has resulted in social costs which are quantifiable. The social benefits of price stability or small farm and processing firm retention or publication and dissemination of market information resulting from dairy policy, however, are not yet measurable. To the extent that the latter are benefits of dairy policy, they deserve mention along with the measurable costs.

Third, costs and benefits should be expressed in meaningful terms. To say that the social cost of dairy programs in 1976 was $131 million (Dahlgran) is probably not terribly meaningful to most policy makers. They will be more comfortable with results expressed in terms of farm income losses, consumer expenditure reductions, milk output increases, etc.

Publication of research in the usual research style and vehicles should not be discouraged—we need to keep colleagues informed and we need continued scholarly debate on methods and procedures. But these types of publications will simply not do for the policy maker—they are too long, too technical, and too full of jargon. One-on-one discussions are perhaps more effective than even short, non-technical publications. Most of our departments have a monthly or quarterly economic letter that we can use for dissemination of results. My impression is that while these serve a very useful purpose, they serve better as a mechanism with which to inform local clients and do not often find their way to national offices.

All this suggests to me that what might be most useful to the young policy researcher, and maybe even to some of us who are not so young, would be a report that sets down some general principles or guidelines that should be followed in the communication process, and that lists the relevant policy making bodies, describes their role in the policy process, and indicates how they might be contacted.

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