DISCUSSION OF FACTORS AFFECTING STRUCTURAL CHANGE IN AGRICULTURAL SUBSECTORS: IMPLICATIONS FOR RESEARCH

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Two major themes of the provocative paper by Drs. Reimund, Moore and Martin are that: (1) research is definitely needed concerning the causes, nature and results of structural change in agricultural production, and (2) the model derived from their historical analysis of changes in the cattle feeding, broiler and processing vegetable production subsectors may serve as a prototype for some of this needed research. This author concurs on both counts. Consequently, remarks will be more of a summary than a criticism of their presentation.

The paper begins and ends with emphasis on current inability of our profession to provide an adequately documented answer to the question, "Who will control agriculture?" One plausible reason for this knowledge gap is the complexity and variety of research the authors believe is needed to come to grips with the problem. The list includes:

1. Assessment of potential economic efficiency and social welfare impact of production technology. They emphasize importance of broad-scope analysis by pointing out that advances in biological and mechanical technology of feed grain production was a major factor in structural change in the cattle feeding subsector.
2. Analysis of development and influence of institutional technology, which they define as including organizational linkages between various stages of a given subsector and ancillary services, and programs and policies of such agencies as the IRS, EPA, FTC and OSHA, in addition to USDA.
3. Behavioral research to measure distribution of risk aversion, to assess the relationship between risk preference and socio-economic characteristics of participants in various production subsectors, and to identify other attitudinal characteristics that tend to support or impede adoption of new production or institutional technology.
4. Positive, rather than merely normative, analyses of firm growth, and of the formulation of yield and price expectations, with emphasis on the marginal value of more precise information.

Though far from inclusive, this panoply of suggested research needs might lead to the conclusion that structural change research is a hopelessly complicated task. Preferable is the alternative interpretation apparently held by Drs. Reimund, Moore and Martin, that this research represents an amazingly broad and promising challenge to agricultural economists in that it encompasses research interests and expertise of virtually any member of the profession.

What, then, accounts for scarcity of empirical work in this area? Perhaps it is the lack of pioneering efforts—attempts to explore, however tentatively, this largely uncharted morass. If so, Dr. Reimund and co-workers are to be doubly complimented for efforts to derive and publicize a prototype.

In their comparative analysis of changes having occurred in fed cattle, broiler and processing vegetable production, they identified 16 circumstances or events of varying relative importance which they concluded necessary for structural change to occur in any agricultural production subsector. Designated as key factors were: (1) new production technology, (2) new institutional technology,

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(3) shifts in interregional competition and (4) risk management strategies.

This listing is amazingly similar to one suggested in 1969 by Paarlberg [3]. In ". . . trying to identify those conditions that appear to be conducive to the development of a large-scale integrated system . . .", he listed: (1) unexploited scientific knowledge, (2) economies of size, (3) market opportunities to be exploited, (4) large requirements for management and capital and (5) favorable attitude toward large-scale operations. Paarlberg was considering one specific type structural change, while Dr. Reimund and associates address structural change in general.

This raises the question of inevitability of movement in agricultural production toward what has been termed the industrial model which, in its pure form, includes no fixed factors of production [1]. Is increasing industrialization the only relevant and significant type of structural change in agricultural subsectors? Or, is there merit in the contention by some that developing scarcities of some industrial inputs, notably those that are petroleum based, will reverse the trend [2]?

This author's unsupported guess is that technology will triumph; that substitutes at affordable, though higher, costs will be developed to sustain the trend to increasing intensification in agricultural production. At worst, deviation from this trend seems unlikely in the near future. Thus, the prototype suggested by Reimund and associates appears to be a significant step toward their concept of the ultimate goal of structural change research, which is to provide the means to simulate and project the structural configuration of the various commodity subsectors in agriculture.

As stressed by the authors, further application and refinement of their prototype is obviously warranted. Further testing appears needed, for example, to determine whether all 16 of their primary structural change factors are really essential to promote rapid industrialization in other agricultural subsectors. Recall that they characterize new production technology as the triggering factor in the process and suggest that new institutional technology plays an implementing role. Are these two factors alone enough to ensure that the structure of a subsector will change in the pattern followed by subsectors analyzed? Or are some or all other factors involved in their hypothesized scenario—shifts in location and concentration of production, innovative entrepreneurs from outside the subsector, development of pecuniary economies, etc.—also necessary? The problem is that there seems to be no clear demarcation between basic causes and resulting characteristics of the change.

Dr. Reimund and co-workers place major emphasis on the importance of understanding the factors that promote structural change. By contrast, less attention is given to the need for analysis of forces tending to retard or prevent intensification of production. Several economic and institutional factors that may fall into this category are mentioned, but no attempt is made to specify the combinations or relative levels at which such impediments may effectively block or modify the utilization of available technology. It appears that this problem must also be dealt with before the goal of projecting subsector structure can be achieved.

The only point made by Reimund to be strongly challenged is the rather incidental assertion that change in interregional competition has not been recognized as an important structural change variable. Observation and logic seem to suggest just the opposite; because shifts in location of production are more easily observed than most other factors, considerable attention has been given to this phenomenon. In fact, this author contends that significant locational change signifies structural change to some economists and many politicians.

Finally, it may be noted that new production technology and evolving or potential shifts in production location are features of a number of commodities that are important in the South. The rather rapid increase in highly coordinated, large-scale hog production, especially in North Carolina and Georgia, is one example. This subsector, in fact, appears to be a prime candidate for structural change research. "Will pigs go the way of broilers?" is being asked with increasing frequency both in the South and in the traditional production region, the Corn Belt.

Also, it is widely believed the location stability of two major "money crops" of this region—tobacco and peanuts—depends heavily on Government policies and programs that will expire this year. Further, new production technology in the form of mechanical harvesters and bulk handling and curing facilities is available and is being adopted in the tobacco subsector. Thus, importance, value and timeliness of analyses of structural change effects of any proposed major revisions in tobacco legislation seem apparent.

The contribution made by the work of Drs. Reimund, Moore and Martin is welcome, the invitation for others to join the effort is wide open, and the potential payoff appears quite promising.

REFERENCES

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