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THE EVOLVING GRAIN DISTRIBUTION SYSTEM--TRENDS AND IMPLICATIONS FOR AGRICULTURE[1]

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Introduction: For this discussion, I wish to identify three types of changes that are significant to developing trends and prospects for the grain distribution system. They are (1) market changes, (2) technological changes, and (3) institutional changes. I will refer only briefly to continuing market and technological changes (although their importance is frequently overlooked) and emphasize more the role of institutional change in bringing about modifications in the grain distribution system.

Market Changes: Export markets have become the dominant markets for U.S. grains that enter the commercial distribution system. This is well known, of course, but is still significant in the slow process of adjustment in the facilities/infrastructure that serves the grain distribution system. Export was not the dominant market when many of the present facilities were built and major storage and processing sites determined.

Specialized grain feeding and grain processing in deficit areas also have led to longer distance movement of a larger part of U.S. grain production than in the past. Development of the broiler industry, increased cattle feeding, and expansion of the flour-milling industry in grain deficit areas are examples. Gradual adjustment to market changes continues in the 1980s.

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Technological Changes: Market changes have encouraged technological changes, especially in transportation. Larger-volume movement and longer hauls have prompted adoption of new distribution techniques. The sub-terminal elevator and unit-trains are associated closely with market developments requiring larger volume and long-haul deliveries. Basic economies in all forms of transportation occur when load-unit size increases and continuous movement occurs over a range of distances compatible with the operating cost characteristics of a given mode of transportation. Those economies have become available to the distribution system for grains, especially in export movement through innovative grain handling and transport techniques. New techniques (sub-terminals, unit-trains) were more readily adopted in corn and soybean distribution than in wheat and sorghum for some apparent and perhaps some not-so-apparent reasons.

Barge transport, spurred on by technical improvement and investments in channel development, became increasingly competitive with rail in providing transport for the newer, long-haul distribution system throughout the 1960s and the 1970s.

Institutional Changes: It was in an environment of market and technological change that institutional changes affecting market relationships occurred, principally in 1980. Some change in rules governing transactions in transport markets had occurred even before 1980. Cargill and the Illinois Central railroad had experimented with unit-train shipments as early as 1968. In the 1970's the Interstate Commerce Commission (ICC) reinterpreted its mandate and modified earlier policy on shipper/carrier contracts, minimum annual volume rates, and trainload rates, as well as changes in policy regarding entry into interstate trucking.

New legislation in 1980 (the Staggers Act and the Motor Carrier Act), together with further modification of the regulatory posture of the ICC have changed operating and transactions rules, especially for railroads, to an extent that the market environment for grain marketing agencies has been altered substantially.

The result of regulatory change has been to introduce new dimensions of competition in rail transportation by allowing railroads to compete with each other. Increased ability of railroads to adjust rates also has provided intensified competition with trucks and barges. Railroad grain rates are changed on a selective basis, on short notice, and, in the case of contracts, secretly. Rail service conditions offered to shippers have changed, as have market access conditions for individual shippers.

Events of the 1980s: The forces of change (dominated in the 1980's by changes in institutional rules) have resulted in the following events.

1. Grain transport rates have been reduced. A recent report from the USDA, Office of Transportation states, "In general, rail rates decreased for grain destined for export markets, and some single car rates charged to processors declined as railroads attempted to stay competitive with trucks" (Office of Transportation, p. i).

   Although secrecy of contract rates does not permit complete documentation of the extent of rate changes, analysis of inter-market price spreads and tariff rates provide evidence of rate reductions. For example, in Kansas from January, 1981 through July, 1983, railroad rates on wheat from selected

origins to the Gulf of Mexico for export were reduced by an average 35 percent nominal and 43 percent deflated. Given the level of freight rates in January, 1981, the above reduction is as much as 35 to 40 cents per bushel from some locations, which was reflected in reduced price spreads between to-arrive price at the Gulf and local elevator farm bids. Marketing margins (price spreads minus transport rates) did not increase.

2. The use of shipper/carrier contracts has become widespread, The volume of grain moving under contracts is not known, but in July, 1984, the ICC reported 16,000 shipper/carrier contracts filed since the Staggers Act became effective (Interstate Commerce Commission, p. 1). Grains and grain products contracts previously have been about 14 percent of the total cr, in this case, 2,240 contracts.

3. Stable rate patterns no longer prevail. Although some elements of change in rate structure occurred before 1980, major changes have occurred since then. Contract rate, and other selective, short-notice rate changes have removed the stable structure of transport rates on which the grain distribution system was built. Regional, area, and site competitive relationships have been modified throughout the grain economy.

4. Selective rate changes through special tariff conditions (e.g. minimum annual volume rates) and through shipper/carrier contracts also have changed competitive relationships among grain firms with disregard for conditions that in the past have been considered unlawful discrimination and, in the case of contracts, without sufficient information readily available

to competitors of contracting shippers to decide if legal action to determine discrimination is warranted. Individual shipper contracts and specialized rate conditions are arrived at through negotiation. It is not unreasonable to assume that shippers with the greater negotiating stock, including resources available to commit to the negotiation process, will obtain the better terms.

5. Prescribed rail competition has increased competitive conduct and reduced cooperative conduct among rail carriers. As a result, routing options and market access through rail transport for shippers have been reduced. These restrictions have been enforced through gateway closings; modifying or cancelling of joint rates; selective increases in traffic interchange charges; and changes in transit and other enroute routing opportunities. Market access for shippers has been restricted frequently in the post-Staggers period.

6. Drastic restructuring of the railroad system is occurring. Frequent reference is made to the probability of only six to eight major freight-hauling railroads in the U.S. within a decade. As a result, a severe struggle for market share is occurring among the major carriers. The market-share struggle has resulted in rail mergers, rate restructuring, and a reduced cooperative posture, which have brought about at least some of the limitation in routing and service options for shippers discussed above.

7. Within this environment of change, greater operating freedom for the railroads very likely has increased rail productivity.

Part of productivity increases are passed on to shippers, especially where shipper adjustments are necessary to help achieve increased overall productivity, e.g., modifications in loading facilities or expansion of freight volume through a designated loading or unloading facility.

While existing research has demonstrated that reduced costs for grain marketing firms are quickly reflected in lower price spreads, evidence of the short-run income distribution effects of innovation in the rail system are not as well documented. The declared intent of the Staggers Act was to improve railroad income. Achieving this result through innovation rather than increased charges to grain shippers would appear to be a happy solution to the railroad income problem.

Prospects for the Grain Distribution System: Prospects for grain distribution depend a lot on whether the events described above will continue and become relatively permanent or if they are more in the nature of temporary events related to adjustment to changed conditions. My evaluation is that most will continue. The most critical condition for estimating distribution system prospects is the degree of autonomy retained by railroad management to determine railroad operating conditions and structure of rail service and rates.

On the assumption that regulatory conditions will not be appreciably modified, several trends seem likely. Increased exercise of economic authority by railroads over the performance of grain transportation services that impact grain marketing is likely to occur. Four avenues of exercise of economic power are in progress and likely to continue.

First is the fine-tuning of railroad rates to approach as closely as possible the reservation price of each shipper, gathering to the railroad as much of consumer surplus as possible (it's called charging what the traffic will bear). Second is the structuring of rates to fit the long-term development plans of railroads, e.g., conversion of an area or territory to trainload shipping or for the elimination of a competitor. Third, consolidation of rail systems and rail/barge or rail/truck systems to improve the pricing options of the railroad, and fourth, inter-railroad joint planning activity to maximize rail movement over long hauls.

Changes in rate structure have occurred, and will likely continue for some time, that have modified regional comparative advantage for farmers. I speculate that comparative advantage in cash grain sales has improved in areas of the Central Plains relative to the Corn Belt during the past four years, although one can't be sure without access to contract rate and service information. Whether this will continue to be the case will depend upon market conditions (i.e., growth in West Coast markets) and transport conditions in which rail carriers compete for marketing opportunities in an environment of independent pricing of services. Before Staggers, railroads operating in areas in which there was an absence of competition from other modes at rates approaching railroad costs allowed rates to rise significantly above railroad variable costs. This was the case with grains from Great Plains origins. In the Central Plains where inter-railroad competition is relatively strong, carriers likely have found that demand elasticity is greater when rates are determined independently of the input of other railroads and in competition with them. Whether for

reasons of intra-mode competition, inter-mode, or other competitive reasons, geographically uniform rate changes have not been characteristic since 1980.

For directly competing shippers, selective rate changes resulting in rate improvement for one or more of a group of competitors has caused severe economic hardship for some elevators. Capital values at some sites have dropped sharply as a result of changes in transactions rules in rail transportation markets. The threat that this may occur as a result of a particular competitive strategy in transport markets adopted by a railroad in pursuit of its economic objectives is a discouraging prospect for local elevator managers.

For some agricultural shippers, transportation rate and service advantages apparently derived from successful negotiations appear to be substantial. Shipper negotiations carried on by the well-informed with large trading stakes and transport options are likely to be successful. In grain marketing, these are the larger regional or national firms.

Being well informed results from more than the relative alertness and energy of a manager. It requires assigning resources to information management. Substantial economies of scale likely exist in information gathering and the development of negotiating skills.

The changes in transport conditions generally have placed the independent small local elevator in a bad position. Margins have become uncertain and somewhat more variable than before deregulation. Consolidation of shipping at a more limited number of local points for more economical rail service has changed the nature of local elevator business.

It is difficult for non-trainloading elevators to compete profitably

in long-haul traffic. Some that do not load complete trains will find specialized markets for smaller shipments; others will find specialized truck markets, including trainload shippers; others may integrate with larger firms for purposes of transportation rate negotiations; and some will turn to other pursuits. Negotiating disadvantage and difficulty in dealing with margin fluctuations and market changes suggest fewer long-distance shippers among smaller local firms in the future.

For larger grain firms, railroads likely will become increasingly competitive with other modes of transport. But each railroad will want to maintain control of freight from entrance into the system until it reaches a final market. Reduced interchange opportunities and increased switching charges will encourage retention of traffic by the originating carrier.

Increased margin risk, reduced auxiliary rail services (e.g., transit and a broad range of routing options), and reduced absorption of switching charges in line-haul rates all suggest the need for larger margins for grain firms to cover those additional costs. Cancellation of joint rates also suggests less efficient marketing. We would expect increased costs to be reflected in larger margins for merchandising over separated geographic points.

Comparisons of margins (price spreads minus transport costs) for marketing services from farm delivery to arrival at Gulf Coast ports for Kansas wheat over the period 1977 through 1985 do not indicate increased margins. Lack of margin increase may result because (1) system modification may not have created serious inefficiencies and cost increases, or (2) necessary margin increases required to maintain a longer-term marketing infrastructure in the new environment may not

yet be registered in the market.

Increased costs also are occurring between the harvest field and the elevator purchasing grain for long-distance shipment. Unquestionably, the evolving system involves more local trucking of grain to reach long-distance shipping points. Cost of operating trucks for local services impacts on farmers. Road costs for increased local trucking is largely a public cost where road systems are supported from general tax sources instead of user (largely fuel) taxes.

Summary: Existing market trends, technology, transactions rules, and options in transportation markets appear to me to point to more concentration in control of grain at the local level. This also means a diminished or greatly modified role for many local elevators.

Whether this is a better system than we currently have depends upon the criteria upon which comparative systems are judged. Cost efficiencies from consolidated handling and movement have produced lower cost transportation and storage. Probably there are additional efficiencies to be realized. Freedom of action and choice in a free enterprise system allows continuous adjustment to market forces leading in the direction of longer-term efficiency. Empirical evidence of reduced efficiencies from restricted market access or increased cost of dealing with uncertainties arising from reduced prescription of transaction rules have not yet emerged.

Other criteria that may affect our evaluation of these changes include: (1) the distribution of benefits from lower-cost marketing; (2) effects on related industries, processors or livestock feeders, for example; (3) fairness to participants, i.e., protection from abuse arising from arbitrary action by other participants in the process; and (4) system flexibility in dealing with variations in product flow.

These and other criteria need consideration in establishing the rules under which the system will operate. "They (criteria) can be explicit or implicit, but never absent" (Breimeyer, p. 18).

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