



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

TRANSPORTATION ISSUES AFFECTING PRODUCTIVITY IN THE FOOD INDUSTRY

Transportation
Neil G. Soslow and Wesley R. Kriebel
Director of Transportation
National Commission on Productivity and Work Quality
and
Professor, Agricultural Economics Extension
Pennsylvania State University

The "food industry" is one of the largest and most complex sectors in the American economy. It is, in fact, a series of interdependent and complementary industries which encompass the functions of growing, processing and distributing products from the farm to ultimate consumer. Transportation provides the link between these industries and functions.

The "transportation industry" is also a complex sector of our economy and is comprised of a number of industries. It is both intercity and intracity. Intercity domestic transportation can be classified in six categories: railroads, trucks, Great Lakes shipping, rivers and canals shipping, pipelines and air. Food and food products use all modes in significant quantities except for pipelines and air, although air freight is indispensable for a limited number of high value, perishable commodities in addition to these modes, food moves by ocean shipping in import and export traffic and in connecting the mainland with Alaska and Hawaii. Intracity transportation tends to follow the dictum that marketing channels grow more complex the closer the product moves to the point of consumption.

Individual modes themselves are not always homogeneous industries. In the trucking industry, for example, vast differences exist among the regulated common carriers, regulated contract

carriers, exempt agricultural haulers and private fleets, each of which serves the food industry.

Productivity in transportation, as in other industries, has historically been measured in terms of labor--that is, output per manhour. Although labor productivity in transportation must be viewed in terms of shifts in commodities transported, changes in service characteristics, technological innovations, capital investment trends, institutional and managerial changes, etc. In practice, output per manhour measures are of marginal use in evaluating the performance of food transportation.

Service Goals

It is useful to delineate some of the basic concerns and desires of both carriers and shippers/receivers in the provision of transport services. The carriers strive to achieve high equipment utilization and reasonable rates for services provided. Equipment utilization is improved when demand is fairly constant (that is, limited seasonality), when cars, trucks or barges are moved expeditiously by the carriers and when release of equipment by shippers/receivers is prompt. Reasonable rates means covering variable costs at the very minimum.

Good transportation to shippers/receivers means reliable service, availability of equipment on demand, and

reasonable rates. Many shippers seem to be more interested in reliability of service than in speed of delivery. Knowing a shipment will arrive 99 percent of the time in 5 days is much more important than knowing it may arrive 40 percent of the time in 4 days. Shippers also want to have equipment made available to them when they need it. This means the right type and number of pieces in clean, operational condition. Finally, shippers want rates that are reasonable for the service provided.

The movement of fresh fruits and vegetables provides an illuminating case study of the difficulty in achieving an equilibrium between the desires of carriers and shipper/receivers. The railroads are the largest single hauler of perishables between California and the Northeast.

Perishables are normally shipped in mechanical refrigerator cars that today cost in excess of \$50,000 each and the average car carries 10 to 12 loads per year. A number of railroads are usually needed to handle each shipment. Some railroads do not handle cars as expeditiously as others and some shippers/receivers hold cars longer than is necessary. Demand is heavy for several months and low during the balance of the year. In addition, most would agree that perishable rates are too low. All of these factors adversely affect the rate of return on investment in these specialized rail cars. The railroads have not purchased additional or replacement refrigerator cars in several years and, under present conditions, there is no reason to expect a change in this policy.

Shippers and receivers are faced with unreliable service and inadequate levels of equipment to meet peak demands. Although generally willing to pay higher

rates, shippers and receivers want guarantees of reliable delivery and sufficient equipment to meet demand. The financial difficulties of the railroads, generally poor condition of tracks, and an industry structure which requires cooperation and interdependence in most movements makes such guarantees almost impossible to obtain.

Recommended Food Industry Initiatives

In spite of this relatively bleak picture, there are a number of areas where the food industry should encourage improved transportation service and, in several cases, where the industry can take the lead in implementing change. The food industry can be effective in the following areas:

- modularization
- containerization and intermodalism
- long haul and urban distribution interface
- computer use for problem solving

Modularization refers to the use of standardized containers in food distribution. It is estimated that the fruit and vegetable sector of the food industry in the United States uses 2,400 different container sizes for both packaging and shipping compared to Switzerland's use of only 4 related carton sizes to create a standard palletized shipping module. A limited number of shipping modules that can efficiently use shipping container space and that can be easily handled by mechanical means will result in considerably improved transportation and warehouse productivity. This issue is one that the food industry can take the lead in.

A second area is containerization and intermodalism. Containerization

involves the use of a container or trailer as the transportation unit; intermodalism involves the use of two or more modes of transportation to complete a given shipment. Containers and trailers can be shipped by truck, rail, water and air. Intermodalism allows the use of trucks where they are most efficient (pick up, delivery and short haul) in combination with rail, water or air in long-haul where they are most efficient. Containerization allows the shipper/receiver to use the most effective transportation system without necessitating an unloading and loading of the product as transportation modes are changed.

The long haul and urban distribution interface is a third area of transportation concern to the food industry. Movement can frequently be scheduled efficiently in the long haul portion only to be faced with the problems in urban distribution of severe traffic congestion, pollution, pilferage, primitive handling techniques, duplication of services, small shipments, congestion at warehouse receiving docks, etc. These distribution inefficiencies result in higher costs that affect every consumer. Many of these problems can be resolved and greater research effort should be expended in this direction.

A fourth area is greater use of the computer for problem solving. Most computer installations were intended to be used primarily for computation and to some extent for control purposes (traffic flows, transport expense, etc.) and to communicate that information where it is needed. The early data processing emphasis on education of general and administrative expenses has been realized. Advances in computer technology and program

development now give transportation and distribution executives access to a variety of sophisticated management and analytical systems to examine and evaluate route scheduling, site selection, distribution requirements planning, freight rates, and other logistical alternatives. Greater computer use in solving transportation problems promises significant productivity improvement in the food industry.

In summary, the four areas discussed have great potential for improving transportation productivity in the food industry and deserve more concentrated efforts by the industry. The net results will be improved service and lower costs to consumers.
