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THE IMPACT OF TRUCKING DEREGULATION ON THE TRANSPORTATION OF MICHIGAN AGRICULTURAL PRODUCTS

By

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ABSTRACT

THE IMPACT OF TRUCKING DEREGULATION ON THE TRANSPORTATION OF MICHIGAN AGRICULTURAL PRODUCTS

By

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Motor carriers play a major role in agricultural transportation. Historically, motor carriers have been regulated by the Interstate Commerce Commission and the Michigan Public Service Commission. Terms of regulation have centered around entry, rates and routes. The Federal Motor Carrier Act of 1980 and Michigan Public Act 399 of 1982 substantially reduced motor carrier regulations.

In order to determine the impacts of trucking deregulation on the transportation of Michigan agricultural products, mail questionnaires were sent to trucking firms. Shipper/receivers and motor carriers were also interviewed to gain further insight on the impacts of deregulation.

Shippers and receivers, including those located in small, rural communities, have benefited from deregulation. Real shipping rates have declined since 1980 without a corresponding decline in service quality. Truckers have been negatively impacted by deregulation through increases in competition, resulting in declining profits for many motor carriers.

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CHAPTER 1

INTRODUCTION

1.1 Background

The transportation of farm commodities, processed food products and farm inputs is perhaps one of the most important aspects of agricultural marketing. The significance of the physical transportation process is often overlooked for one simple reason. "Unless you have a secret desire to jockey an 18-wheeler down the highway, transportation may be an unglamorous aspect of marketing" (Rhodes, 1978, p.42). Indeed, transportation may seem unglamorous, but its importance cannot be overlooked since approximately seven percent of the total U.S. food marketing bill is comprised of intercity rail and truck transportation costs (Agricultural Statistics, 1983). A significant portion of the food marketing bill is also comprised of local transportation costs.

The major modes of transportation include rail and truck. Railroads provide long-distance hauling services for the less perishable products such as grains and selected agricultural inputs but the perishability of many products along with the need for local transportation of all commodities requires the services of motor carriers. An estimated 94,000 trucks transported Michigan agricultural products over 816.5 million miles in 1982 (1982 Census of Transportation, p.3). Table 1.1 indicates the important role that motor carriers play in transporting agricultural products.

Table 1.1 Motor Carrier and Rail Transportation of U.S. Agricultural Products, 1977

	Food and Kindred Products (Percent of Total)	Grain Mill Products (Percent of Total)
Truck	80	53
Rail	16	43
Other	4	4
Total	100	100

Source: 1977 Census of Transportation

1.2 The Research Problem

Prior to 1982, Michigan's intrastate motor carrier industry was regulated under Public Act 254 of 1933. Interstate transportation had also been regulated before 1980 under the National Motor Carrier Act of 1935. These Acts were originally implemented to promote safety upon and conserve the use of the public highways through regulation of the trucking industry. The depressed economy of the 1930's produced an abundance of workers who felt money could be made in the infant trucking industry. This created conditions which led to the need for government regulation. Drivers often worked long hours, drove unsafe equipment, charged rates barely above costs and had inadequate insurance. Since the highways are a public good, the Michigan Public Service Commission (MPSC) and Interstate Commerce Commission (ICC) felt that regulation was required in order to eliminate chaos in the industry. Terms of regulation centered around the monitoring of rates and number of firms providing services but also included safety, insurance, and to whom and to what destination the trucker will serve.

The regulatory agencies recognized the special needs for

flexibility in transporting agricultural goods and thus exempted truckers who haul raw, unmanufactured agricultural commodities from entry, rate and route regulation. Although the exemptions freed truckers of raw agricultural commodities from ICC and/or MPSC regulation, they were still regulated in the sense that they were limited as to what products could be transported. For example, a trucker hauling unprocessed apples could not haul apple juice as a backhaul commodity.

Regulation of the motor carrier industry continued without much debate until the late 1970's when participants began to feel that government involvement was no longer needed. Those favoring deregulation felt that regulation leads to unnecessarily high rates and inefficiencies. Limited backhaul opportunities were forcing firms to move empty trucks, thus creating a rate structure which reflected the inefficiency of the industry. Advocates felt that competitive forces would benefit the industry. Motor carriers could provide a wider variety of services while shipper/receivers would receive services at lower prices (Johnson, 1981).

Proponents of regulation argued that regulatory laws are necessary in order to prevent a return to `pre-1930' conditions when there were many truckers operating unsafe equipment on public highways while charging cutthroat rates. This "destructive competition" was attributable to a lack of economies of scale and low entry barriers existing in the truck transportation business. Also, the proponents felt that without regulation, firms would no longer be motivated to serve shippers

in small, rural communities, and those that do service these areas would charge higher rates.

The strong arguments for and against deregulation were examined by policy makers and the result was partial deregulation or `reregulation' of the motor carrier industry. The ICC implemented the Motor Carrier Act of 1980 on July 1, 1980 while the MPSC followed with a similar act governing intrastate regulation in 1982 (see chapter 3). These acts decreased entry barriers for new firms wishing to enter the industry and allowed established firms to expand operations. A few additional agricultural products were also exempted from regulation.

The railroad industry was also deregulated as part of a broader move towards deregulation of the transportation industries. Before 1980, railroads were regulated, "based on the notion that railroads formed a market structure requiring close public control to function in the public interest" (Fuller, 1984, p.1). The Staggers Rail Act of 1980 deregulated the railroads. The Act is designed to increase competition by allowing the railroads greater flexibility in establishing rates. Also, the Act provided the opportunity for railroads to reduce costs by changing service obligations. The Staggers Rail Act has impacted grain transportation by putting more pressure on motor carriers who haul grain short distances while reducing the use of trucks for transporting grain long distances (Baumel, 1983). Although this report focuses on motor carrier deregulation, it is important to note that rail line abandonment resulting from railroad deregulation has put added pressures on

the agricultural trucking industry, especially for motor carriers transporting the less perishable commodities.

1.3 Objectives of the Study

Considerable research has been conducted examining the impacts of the Staggers Rail Act (an act which liberalized railroad regulation) and a comparatively small amount of research has been conducted on the implications of the Motor Carrier Act of 1980 (see List of References). However, a study examining the combined effects of the Motor Carrier Act of 1980 and the MPSC Public Act 399 of 1982 on Michigan agricultural transportation has not been conducted. The Michigan Department of Agriculture recognized the need for such a study and thus provided funding for a study examining the economic impacts of trucking deregulation on the transportation of Michigan agricultural products. Specifically, the research objectives of this study were:

1) To assess the impacts of transportation deregulation on the availability and cost of agricultural trucking services in Michigan.
2) To identify problems and possible alternatives for improving the performance of the Michigan-based trucking industry.

1.4 Research Procedures

The primary source of data used to examine the economic impacts of trucking deregulation were responses from mail questionnaires, supplemented by personal interviews of truckers

and shipper/receivers. In order to prepare a comprehensive questionnaire which addressed the major issues of trucking deregulation, individuals and organizations familiar with regulatory laws and issues were contacted. Contacts included the Michigan Public Service Commission, the Interstate Commerce Commission and the Michigan Trucking Association. Several haulers of agricultural products were also interviewed.

The majority of trucking firms hauling agricultural products were identified through a mailing list provided by the MPSC. The MPSC list consisted of firms having intrastate operating authority. The remainder of the trucking firms were identified through the yellow pages in Michigan telephone directories. The results from the first survey (see Appendix A) were used to compile a directory of Michigan truckers and truck brokers hauling agricultural products. In addition, the questionnaires were summarized in order to identify structural characteristics of the industry and identify some of the deregulatory impacts. A total of 1032 questionnaires were mailed; 612 were returned of which 269 were adequate for analysis purposes. All questionnaires returned were not analyzed since many (343) of the firms initially contacted identified themselves as non-agricultural haulers or out-of-business.

A second questionnaire (see Appendix B) was mailed to agricultural motor carriers who responded to the first mail survey. Two hundred sixty-seven questionnaires were mailed; 112 were returned. (Two respondents did not receive a second questionnaire since the first questionnaire was received after the second mailing). The results from this survey were tabulated

and used to analyze the economic impacts of trucking deregulation.

Visits were also made to the MPSC to examine annual reports of selected carriers and also study the rate structures of these carriers.

In order to analyze deregulatory impacts objectively, the views of both providers and users of trucking services were examined. Twenty-seven firms engaged in the shipping and receiving of agricultural products and 15 motor carriers who haul these goods were interviewed. Firms were carefully selected in order to provide a sample consisting of shipper/receivers and motor carriers who handle a wide variety of agricultural products and commodities. Both personal and telephone interviews were conducted. Interviews were the primary information source for examining deregulatory impacts on shippers and receivers.

1.5 Organization of the Report

Chapter 2 provides a framework for examining the impacts of motor carrier deregulation by identifying structural characteristics of the industry. Also, Chapter 2 focuses on four aspects of competition characteristic of agricultural transportation.

Chapter 3 describes in detail the legislative history of motor carrier regulation and outlines the current regulatory situation.

The impacts of trucking deregulation on the agricultural motor carrier industry are described in Chapters 4 and 5. Chapter 4 provides an analysis of deregulation on the motor

carrier, focusing on competition, rates, profitability, non-price competition and small community service. Chapter 5 examines the impacts of deregulation on the shipper/receiver of agricultural products and commodities.

The final summary and conclusions are provided in chapter 6 along with recommendations for improving the performance of the Michigan based trucking industry serving agriculture.

CHAPTER 2

STRUCTURAL AND COMPETITIVE CHARACTERISTICS OF THE AGRICULTURAL TRUCKING INDUSTRY

The economic impacts of motor carrier deregulation are partially dependent upon the structural organization of the industry and also competitive characteristics within the industry.

2.1 Structural Characteristics of the Agricultural Trucking Industry

Two methods of categorizing motor carriers are commonly used in the industry. Motor carriers may either be classified according to: 1) size of the operation and nature of services provided, or 2) the regulated status of the carrier. Industry professionals use both classification schemes when discussing industry organization and thus both methods are discussed in this report.

2.1a Types of Motor Carriers According to Size and Nature of Services Provided

All farm commodities and products are normally shipped by farmers and small agribusinesses during at least one stage of the transportation process. Farmers and small agribusinesses are the primary haulers of: 1) inputs from the dealer to the farm, and 2) commodities from the farm to the first handler. The important role that farmers play in transporting farm products is suggested by the fact that over 92 percent of all Michigan farmers own a farm truck and almost two-thirds of these farmers

own a truck weighing two tons or more (Harvest Publishing, 1984). Farmers provide their own local services due to the flexibility and convenience of hauling their own products short distances.

Small independent trucking firms constitute the greatest number of motor carriers offering for-hire trucking services to agriculture. A large number of independent truckers are needed to provide regional services to Michigan's 58,661 farms (MI Ag. Statistics,1984). Transportation of many agricultural products, especially perishable commodities, requires fast and versatile service and the independent trucker is well equipped to provide this service. Independent trucking firms serving agriculture normally haul a specific commodity or group of commodities. For example, many agricultural carriers specialize in transporting bulk commodities while other independent truckers concentrate their efforts on hauling produce. The independent carriers also operate small fleets of specialized trucks suited to haul specific commodities or products. The fleet size, which represents the number of trucks operated by the owner from a single "base of operation," provides a good estimate of the large number of independent trucking firms serving agriculture. It is estimated that nearly eighty percent of Michigan's 94,000 trucks used for agricultural hauling are operated in a fleet size of one truck. Nine percent are operated in a fleet of two to five trucks (1982 Census of Transportation).

Trucking companies such as Associated Truck Lines, Central Transport and Jones Transfer Company are examples of commercial motor carriers. Commercial carriers are not the primary movers

of raw agricultural commodities but do transport many of the processed food items. Commercial carriers often own (or lease) many trucks and transport goods interstate and intrastate. An examination of MPSC annual reports indicates that there are approximately twelve major commercial motor carriers transporting food products from Detroit, Michigan to various other locations in the state. The 1983 gross revenues vary greatly for these firms but on average, the twelve commercial motor carriers had a 1983 gross revenue of 48.39 million dollars. It should be noted that the large firms are very diversified and thus a large portion of their freight often consists of non-food items. Commercial carriers normally transport items in dry or refrigerated vans and they seldom transport products which require the use of highly specialized equipment.

The private motor carrier hauls products exclusively for a parent business and does not engage in for-hire trucking services. All employees of the trucking operation are employed by the parent company. Examples of private motor carriers include many of the large grocery chains such as Kroger and Meijer's Thrifty Acres. Many small grocery chains also use their own trucks to transport food items from the warehouse to the grocery stores.

Private motor carriers handle a substantial portion of all food products transported in the United States. Raw products and inputs are infrequently transported by private carriers but many of the processed food items travelling to grocery stores and food distribution centers travel via private carrier. Table 2.1

summarizes the important role private motor carriers play in transporting food products.

Table 2.1 Shipments of Food Products Via Private Motor Carriers

Product	Percent of Total Tons Transported U.S.	East North Central Region[1]
Meat(fresh,chilled,frozen)	39.9	42.6
Meat Products	51.2	57.7
Dairy Products	71.2	61.2
Canned Fruits	11.2	5.9
Canned Vegetables	32.1	32.6
Seafood(fresh & frozen)	27.5	4.7
Grain Mill Products	48.1	24.0
All Food and Kindred Products	36.2	31.7
All Commodities	48.9	42.1

1 Includes parts of Wisconsin, Illinois, Michigan, Ohio, Pennsylvania

Source: 1977 Census of Transportation

The truck broker arranges transportation services for shipper/receivers and motor carriers. Truck brokers most frequently specialize in arranging the transportation services for specific commodities, especially the perishable commodities such as fruits and vegetables. Brokers frequently provide for-hire services in addition to arranging services for other carriers and shipper/receivers. It is unknown how many brokers are currently providing services in Michigan but a survey of agricultural motor carriers identified 15.2 percent of the respondents as truck brokers (see Appendix A).

2.1b Types of Motor Carriers According to Regulatory Distinction

Government regulation of the motor carrier industry implies

that trucking firms must be classified according to their regulatory status. Basically, the regulatory agencies recognize motor carriers as common motor carriers, contract motor carriers and exempt motor carriers.

A common motor carrier is defined as:

> ... any person who holds himself or herself out to the public as being engaged in the business of a for hire common carrier as the common law, either directly through any device or arrangement, including but not limited to those who operate over fixed routes or within one mile of a fixed route or between fixed termini, in the transportation by motor vehicle from place to place upon or over the highways of this state, the property, or any property, or any class of property of others who may choose to employ the person (MPSC P.A.399, 1982, p.1).

Hence, a common carrier is any person or business who offers for-hire transportation services of property or passengers to the general public. Common motor carriers are regulated by the MPSC and the ICC and they are normally granted authority to haul a specific commodity to a specific location at posted rates (see Chapter 3).

The motor carrier industry recognizes two types of common carriers. Those haulers who are limited as to the commodities they may transport, the areas serviced and the equipment utilized are termed limited common carriers. The independent trucker discussed previously is often classified as a limited common carrier. In general, most agricultural products subject to regulation of routes, entry and rates are transported by limited common carriers. However, some of the processed and frozen foods as well as some supplies do travel via the general commodity carrier. These carriers normally transport goods intrastate and interstate and possess authority to carry all

commodities over regular routes. Large commercial trucking companies are often classified as general commodity carriers. It is expected a priori that limited common carriers outnumber general commodity carriers in the agricultural trucking industry. Of 269 surveyed motor carriers serving agriculture, 81 were reported to be general carriers while 105 were limited common carriers.

An additional type of motor carrier recognized by the ICC and the MPSC is the contract motor carrier. A contract carrier enters into a contract to serve a particular shipper. The shipper must agree to the contract carrier's proposed rates. A contract carrier can serve an unlimited number of shippers.

Contract carriers are regulated under both ICC and MPSC regulations. In addition, they may provide both common carrier and contract carrier services. Contract carriers have historically provided quality service by meeting the distinct needs of their customers (Hutchinson, 1982). They play an important role in agricultural transportation, indicated by the fact that 83 of 269 surveyed motor carriers provide contract services to their customers.

Motor carriers who are exempt from regulation of routes, entry and rates are termed exempt carriers. Transportation of agricultural products primarily involves the hauling of commodities by exempt carriers since many raw agricultural commodities are exempt from government regulation.(see page 39) Exempt carriers include exempt for-hire truckers wholly committed to hauling exempt products, farmers hauling their own

commodities with their own trucks, private trucking fleets, and agricultural cooperatives hauling member goods. In addition, some regulated carriers transport exempt products when backhaul opportunities exist. Only 32 percent of the surveyed motor carriers indicated that they were exempt carriers. This low percentage is attributable to the fact that it is difficult to obtain information on exempt firms since they are not required to register with the MPSC or the ICC. Many of the firms contacted in this study were identified through MPSC information, resulting in the sample population consisting of a large proportion of regulated carriers.

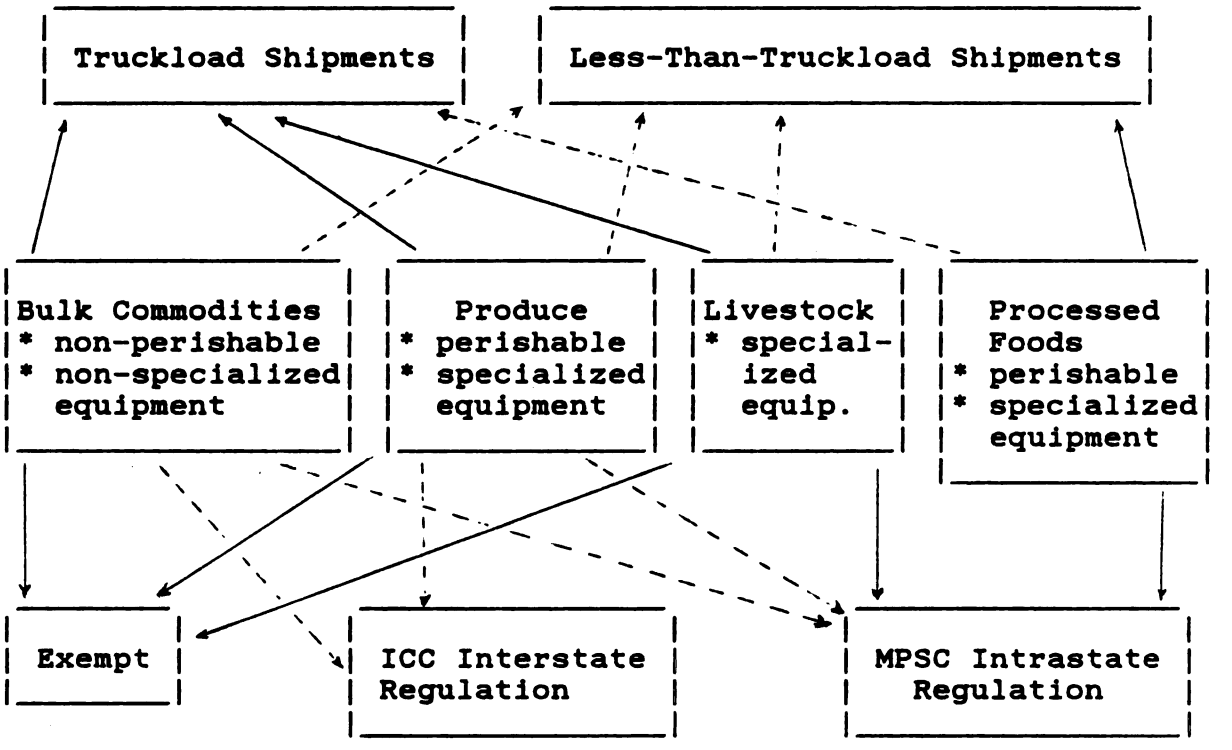
2.2 Competitive Characteristics of the Motor Carrier Industry

The large number of firms hauling agricultural products along with relatively low economies of scale indicate that motor carriers operate in a very competitive industry (MPSC, 1982). The competitive environment along with the structural characteristics discussed previously are the key factors which affect the magnitude of deregulatory impacts on the motor carrier industry.

Motor carriers transporting agricultural products operate in an industry which differs from non-agricultural carriers due to characteristics of the goods transported. Specifically, four major structural characteristics impact the competitive environment in which the agricultural motor carrier operates. First, agricultural commodity carriers may operate in a regulated or exempt environment, or both. Second, many agricultural products are perishable and thus quick, efficient

transportation services are often required. Third, the specialized equipment required to haul certain commodities can act as barriers to entry and/or exit. Finally, products and commodities may be transported in truckload or less-than-truckload shipments, a factor which not only effects the incentives to haul but also impacts revenues. In order to simplify the analysis, each factor is discussed separately but motor carriers are normally subject to a combination of competitive factors, further complicating the competitive environment in which they operates. Figure 2.1 diagrams the situation facing motor carriers of specific commodity groups.

Figure 2.1 Schematic Framework of Competitive Factors in the Agricultural Trucking Industry



2.2a Regulatory Status

Prior to deregulation (see chapter 3 for a complete discussion of deregulation), motor carriers who had Interstate Commerce Commission (ICC) and/or Michigan Public Service Commission (MPSC) authority to haul a regulated product operated in an environment protected from entry by new firms. Firms were protected from competition since they (the regulated carriers) could post rates at levels which guaranteed a profit while new firms could not easily enter the market. The hypothesis that profits are higher on regulated movements is supported by research which has proven that regulated rates are normally

higher than exempt rates, even for the same commodity. For example, the ICC deregulated fresh poultry in 1955 and frozen poultry in 1956. A U.S.D.A. study concluded that rates for fresh poultry fell by an average of 33 percent and frozen poultry rates declined by 36 percent (Snitzler, Byrne, 1959).

This study does not compare regulated and exempt rates but it can be concluded from interviews with regulated carriers that rates are now being set competitively. Carriers stated that posted rates are not being challenged by the ICC or MPSC and as a result, carriers are setting rates at competitive levels.

Although rates are now competitive, barriers to entry in the regulated market still exist. Firms can not freely enter the regulated market since they must apply for authority from the ICC or MPSC. Very few applications are refused but the process is costly and this reduces some incentives to haul regulated goods. The initial application fee to apply for intrastate authority is 100 dollars (as of March, 1985) and once authority is granted, a fee of 100 dollars per vehicle per carrier is required of the motor carrier. A diesel fuel tax which gives the carrier a six cent per gallon discount is also levied at the rate of 92 dollars per power unit per year. These costs discourage firms from entering the regulated motor carrier industry.

Exactly to what extent firms are being discouraged from entering the regulated market depend on the rate-cost structure of the motor carrier. As stated earlier, carriers claim they are currently charging competitive rates. The question which relates to this issue is, "Are the `competitive' rates in the regulated

segment higher than the `competitive' rates in the exempt segment?" If exempt firms feel that the regulated rate provides higher returns, the incentives for increased profits may outweigh ICC or MPSC application fees.

The operating permit provides the regulated carrier with a competitive advantage over exempt carriers. Whereas a regulated carrier can haul all the products for which there is authority plus all exempt products, the exempt motor carrier can only haul exempt products. Flexibility of hauling in different markets is unavailable to the exempt motor carrier.

The competitive characteristics of exempt and regulated hauling are dependent upon rate-cost structures and barriers to entry. Before deregulation, the differences were obvious with regulated carriers operating in a protected market and charging rates which provided adequate returns. Now the situation is less clear. Total deregulation has not been implemented but entry barriers still exist in the regulated segment although they are minimal and would be virtually non-existent if it were not for application fees. Thus, the competitive characteristics of the exempt and regulated markets can only be slightly differentiated when examining the transportation of Michigan agricultural products.

2.2b Perishability of Commodities

Perhaps the biggest factor affecting the competitive nature of agricultural transportation is the perishability of commodities. Not all agricultural commodities are perishable but items such as fruits and vegetables are subject to losses if

improperly handled. Frozen foods, meats and dairy products are also perishable but to a lesser degree than fresh produce.

The degree of risk involved with transporting a perishable product depends on the constraints placed on the motor carrier by the shipper/receiver. If a product is easily damaged in transit due to handling or slight variations in temperature, few incentives exist to haul the product. Financial returns must not only cover operating expenses but must also provide returns to cover insurance and other costs associated with risk. Table 2.2 indicates that for many Michigan commodities, variations in temperature and humidity must be minimal to preserve produce during transport and therefore risk is high.

Table 2.2 Recommended Transit Conditions For Selected Fruits And Vegetables

commodity	Temperature Range (degrees farenheit)	Humidity (%)
apples,berries cherries, grapes,peaches,pears,plums	32 - 34	90 - 95
tomatoes (green or pink)	55 - 65	85 - 95
snap beans,peppers(green or red)	40 - 45	95
potatoes(late crop),watermelon	40 - 55	85 - 90
red beets,carrots,lettuce,peas	32 - 34	95 - 100
sweet corn,cabbage,cauliflower, onions	32 - 34	95 - 100

Source: Pierson, Allen, Mclaughlin, Hollaran, 1982

The humidity and temperature constraints along with high perishability of some commodities imply that some losses are to be expected. However, it is not realistic to assume that all losses are due to motor carrier neglect. Research has identified

six major reasons for frozen food losses during transit and only two can be directly attributed to the motor carrier. These include 1) malfunction or improper operation of the truck, and 2) truck is not at proper operating temperature prior to loading. Other causes for losses in transit include the product being at an improper temperature prior to loading, product improperly stacked, product damaged during loading or unloading, and improper packaging (Pierson, Allen, Hollaran, 1982). A major complaint of the motor carrier is that no matter what the cause of food losses, they are normally attributed to the trucker. Motor carriers stated that problems associated with food losses, especially those related to fresh fruits and vegetables, reduce the willingness to haul perishables when more profitable forms of hauling are available.

Table 2.3 Estimated Ranges of Frozen Food and Produce Losses Attributable To Transportation, 1977[1]

product	Losses (percent)[2]	Value of Losses (millions of dollars)[3]
Produce	3.8 - 5.00	268.70 - 379.81
Frozen Food	.04 - 1.00	2.30 - 58.43

1 Losses cited are estimated values of physical quantities of food lost for human consumption. Costs of recoup, trimming, salvage operations and numerous indirect costs associated with losses and damages are not included.

2 Percentage losses are based on dollar value of losses in each phase of distribution as a percentage of the wholesale value of products entering the distribution system. Wholesale value of products entering the system are estimated to have ranged from $5744.17 million to $5843.36 million for frozen food and $7071.00 million to 7596.22 million for produce. This range acommodates the given loss rates and supermarket sales of $7893.38 million for frozen food and $9506.49 million for produce.

3 Losses in transportation activities are valued at wholesale prices and losses at retail are valued at retail prices. The estimated retail gross margin is 27.8 percent for frozen food and 31.7 percent for produce.

Source: Pierson, Allen, Hollaran, Mclaughlin, 1982

2.2c Specialization of Equipment

Adding to the perishability factor of fresh produce is the need for specialized equipment to haul these products. Refrigerated vans called reefers are required for transporting perishable products. Reefers are not severely limited in the products they can carry since the cooling units can be turned off so that the reefer serves the same purpose as a dry van. The refrigerated equipment acts as an entry barrier to the frozen food and produce transportation industry since firms without the specialized equipment can not haul the perishable products. On the other hand, the refrigerated hauler does have the flexibility of expanding into other markets.

Livestock transportation is characterized by some risk but the major factor in hauling livestock is specialization of equipment. Livestock can only be transported safely in a livestock trailer and few other commodities can be hauled in this type of equipment. Thus, the equipment constraints act as entry and exit barriers.

2.2d Truckload and Less-Than-Truckload Transportation

Truck transportation is often the preferred mode of transportation due it's ability to penetrate markets which other modes of travel such as railroad can not enter. In many situations, trucks are the only feasible method for moving products to specific markets. The structure of the food transportation industry suggests that many commodities must be transported in less-than-truckload (LTL) shipments to various points along a route. Almost all agricultural products eventually end up in LTL shipments with the exception of bulk goods.

A minimal amount of research has been done on LTL movements in the motor carrier industry but it is apparent from interviews with common carriers and shipper/receivers that the competitive characteristics for hauling TL and LTL differ greatly. Truckload hauling usually involves transporting a full load point-to-point without intermediate stops. Truckload hauls are normally very efficient since the equipment is utilized to maximum capacity. Conversely, LTL shipments involve numerous stops, resulting in higher transportation costs. A 1980 study comparing handstacked LTL and TL shipments found that LTL shipments average $7.45 per

100 cases while TL shipments averaged $5.19 per 100 cases.(Shaffer,Bouma, 1980) The profitability of LTL loads depends on the ability of the carrier to secure a large number of LTL loads per shipment, thus increasing the capacity utilization of the equipment. Motor carriers often stated that it is difficult to arrange several LTL loads in a single shipment since loads do not usually have the same general destination. These characteristics decrease the incentives to transport goods LTL, especially when TL shipments are available. A recent study which compared TL and LTL movements concluded:

> Movements of less-than-truckload freight is far more complex with competition frequently more limited than existing within the market for truckload shipments. The equipment and facilities required to efficiently move LTL freight is significantly more complex than that required for truckload movements. As a result, the operational characteristics of the LTL general commodity carrier are significantly more complex than those relating to truckload freight movements (MPSC, 1979, p.131).

Motor carriers do adjust for difficulties encountered with LTL transportation by increasing the rates charged for LTL hauls. Examining the rates of twelve motor carriers transporting frozen foodstuffs within Michigan shows that on movements from Detroit to other cities within Michigan, LTL rates averaged considerably higher than TL rates when measured in cents per pound (see Table 2.4). Although rates are higher for LTL shipments, motor carriers transporting agricultural products LTL stated that TL shipments are a more profitable and preferable haul.

Table 2.4 Transportation Rates of Twelve Motor Carriers Serving Michigan, Transporting Frozen Foodstuffs in Mixed or Straight Shipments. October 26, 1984. (cents per 100 pounds)

Type and weight of shipment[1] (lbs.)	From Detroit, MI to: Lansing	Holland	Grand Rapids	Traverse City
LTL 5000	316	541	513	621
LTL 10000	212	342	329	461
TL 24000	115	176	164	211
TL 38000	109	152	139	158

1 LTL = less-than-truckload shipment, TL = truckload shipment

Source: MPSC, Rates and Tariffs Section

CHAPTER 3

LEGISLATIVE HISTORY OF THE MICHIGAN TRUCKING INDUSTRY

1933-1979

The Michigan motor carrier industry is currently regulated by two separate government agencies. The Interstate Commerce Commission (ICC) regulates interstate traffic while the Michigan Public Service Commission (MPSC) is responsible for regulation of point-to-point traffic within Michigan. The history of these agencies needs to be examined in order to thoroughly understand the regulatory position of each agency and how their policies affect agriculture transportation.

Prior to 1933, the infant trucking industry was exempt from government regulation. As is the case with most competitive industries, truckers and trucking firms were free to establish tariffs and haul any product or commodity over a desired route. Barriers to entry were minimal, leaving the door wide open for new firms to enter the market. An individual could enter the industry with a relatively small amount of capital since fixed costs do not play a major role in the cost structure of truck transportation. In addition, research has indicated that economies of scale in the industry are minimal, a characteristic which further decreased barriers to entry (MPSC,1979).

The cost characteristics of truck transportation along with the depressed economic times of the early 1930's made apparent the need for government regulation of the trucking industry. Rates which barely covered operating costs led to such problems

as unsafe equipment, operators driving excessively long hours, and inadequate insurance (Hutchinson, 1983). Destructive competition could not be tolerated since it meant that safety would deteriorate on the public highways. Also, the potential existed for small, rural communities to suffer from declining service. Thus, the federal and state government intervened and created laws which regulated the motor carrier industry.

3.1 Intrastate Regulation

Michigan intrastate traffic first experienced state regulation with the passage of Public Act 254 in 1933. This act was designed to ensure safety upon the highways by ensuring all motor carriers in operation are necessary for the convenience of the general public. Specifically, the Act defines it's objectives as:

> sec.2. (1) relieve all future undue burdens and congestions on the highways arising by reason of the use of the highways by motor vehicles operated by motor carriers; (1a) protect and conserve the use of the highways and protect the safety and welfare of the traveling and shipping public in their use thereof; (2) carefully preserve, foster and regulate transportation and permit the coordination of motor vehicle transportation facilities; (3) restrict the use of the highways by motor vehicles operated by motor carriers to those required by convenience of the general public; (4) prevent unjust discrimination and ensure adequate motor transportation service; (5) prevent evasion of this Act through any device or arrangement.(p.3)

3.1a Barriers to Entry

The objectives of this Act clearly stated that barriers to entry will be maintained for new firms desiring to enter the industry. Obtaining original authority to transport goods required the applicant to meet the following criteria:

a. prove financially able to perform the service
b. prove that a need exists for the proposed service
c. public convenience will be enhanced through approval of the application
d. MPSC's approval of the application will be in the interest of the public
e. the service can be performed without damage to or public interference of the highways(MPSC, 1979, p.31)

In addition, the applicant was required to have adequate insurance, post reasonable tariffs, and pay registration and plate fees when approval was granted. However, before granting approval, a hearing was conducted in which protests could be advanced by all parties who believed the new service would infringe upon services currently provided by other firms. In order for a new applicant to successfully be granted authority, assistance was often needed from potential users of the service who would testify that a need exists for the proposed service. This was often a problem for the applicant since the applicant was not established and thus clientele was nonexistent. To compound the problem, established carriers would most likely protest new applications, claiming increased competition would decrease revenues. The burden of proof was the applicant's responsibility and the inability of many firms to prove public convenience and necessity resulted in entry by new firms being severely limited (Johnson and Griffin, 1983).

3.1b Tariff Regulation

Upon approval of the application, the applicant had to conform to the Act by filing the rates to be charged. According to the Act, rates must possess the following characteristics:

> Sec.7. Reasonable rates without unjust discrimination. All rates made by any common motor

> carrier shall be just and reasonable, and shall not be unjustly discriminatory, prejudicial nor preferential. No such common motor carrier shall charge, demand, collect or receive a greater or less or different remuneration for the transportation of passengers or property, or for any service in connection therewith, than the rates, fares and charges which have been legally established and filed with the commission;(p.7)

Also, section 8 of this Act states that rebates are unlawful. Section 476.7 pertains to common motor carriers, while section 477.6 pertains to contract carriers. Contract carriers must also file rates with the MPSC, but these rates are agreed upon between the shipper and the carrier. A written contract between the shipper and the receiver which contains the agreed upon rates must be posted and the MPSC has the authority to accept or reject the rates. Of importance in the acceptance or rejection of contract rates is section 7 of Article 3, which states:

> Sec.7 No unfair competition with other motor carriers. No contract motor carrier shall give or cause to be given or enjoyed undue or unreasonable advantage or preference to those whom he serves, over the patrons of any contract motor carrier; or subject the patrons of any such contract motor carrier to any undue or unreasonable discrimination or disadvantage; or by unfair competition to destroy or impair the service or business of any other contract motor carrier;(p.11)

In accordance with the general policy of this Act, this clause gave the MPSC the right to eliminate excessive competition in the contract carrier segment of the industry.

Once rates are posted, the MPSC may accept, suspend, investigate or reject the rates. The MPSC as well as the ICC uses the operating ratio (total operating expenses/gross income) as the basis for determining rates.

> A target ratio of 93 has been established by the ICC and embraced by the Michigan Intrastate Traffic

> Bureau as the appropriate level. This `rule of thumb' performance target is considered by the bureau as the standard upon which to establish rates which on average will provide adequate and reasonable returns to the carrier at price levels considered fair to the shipping public (MPSC, 1979, p.144).

3.1c Route Designation

Along with rate controls, routes to be taken for transporting commodities were also defined. A general commodity carrier usually has regular route authority which enables the trucker to haul all commodities but the routes taken are limited, often to the extent that specific roads and interchanges are designated. Limited common carriers are also limited in routes to be traveled. Limited carriers may be specified to haul only to defined areas or may be indirectly limited through the service provided, commodities transported or the shippers served. Contract carriers are also limited through the shippers they serve.

3.2 Interstate Regulation

Two years after the MPSC regulated intrastate traffic, the ICC regulated interstate transportation with the National Motor Carrier Act (MCA) of 1935. The regulatory philosophy of the ICC closely parallels that of the MPSC. The ICC's intent was to: 1) control entry procedures and grant authority to motor carriers, 2) monitor rates and territories served, and 3) govern matters concerning safety. Due to basic similarities with Michigan Public Act 254 of 1933, a detailed discussion of the MCA of 1935 will not be provided. However, a more in-depth discussion of the current interstate act and its implications can be found on

page 36.

3.3 Commodity Exemptions

The authors of the original MPSC and ICC Acts realized that certain characteristics of agriculture transportation created a need for regulatory exemption of selected agricultural commodities. Agricultural commodities are often perishable and thus require quick transportation to market. In addition, the seasonal commodities may experience wide price fluctuations, creating a need for flexibility of rates and haulers. During times of peak production, demand for trucking services is large but during off-seasons, the demand decreases drastically. Enforcing authority to haul specific commodities at set rates would be detrimental to both the trucking and agriculture industry. Hence, the ICC and the MPSC both exempted raw agricultural commodities in hopes of assuring "...higher quality services at lower prices in the overall marketing of farm products, thus contributing to farm income"(Miklius, 1969, p.2). Specifically, the MPSC exempted the following items pertaining to agriculture:

> sec.2. (e) A vehicle used for the transportation of farm products, including livestock, when transported by others than the owner, from farm to the market in the raw state, or used for the transportation of milk from the farm to the milk stations, or trucks owned by a farmer bearing a farm truck license, when being used by the farmer in hauling farm produce, livestock, or farm equipment, and supplies for other farmers for remuneration in kind or in labor, but not for money.
> (f) A vehicle used for the transportation of fruits, grain, vegetables, nursery stock and sugar beets from farm, nursery, or orchard to market or for transferring or reloading the farm produce for other markets either local or foreign. This subdivision

> shall not exempt produce in other than the raw state.
> (g) A vehicle used for occasional accommodatative transportation service including seasonal transportation of perishable commodities even though the cost of the accomodative service and seasonable transportation of perishable commodities may be paid by the person accomodated.(p.14)

In addition, this Act contained a lengthy clause exempting construction materials such as gravel, stone and sand being transported less than 50 miles to a construction site as well as exempting pulpwood and logs if being transported less than 100 miles.

The Interstate Commerce Commission created similar exemptions but it is obvious that major differences also existed. With the exception of livestock and fish, specific commodities were not mentioned but rather the ICC exempted farmers, cooperatives and unmanufactured agricultural commodities.

> (4a) Motor vehicles controlled and operated by any farmer and used in the transportation of his agricultural commodities and products thereof, or in the transportation of supplies to his farm, or
>
> (4b) Motor vehicles controlled and operated by a cooperative association as defined in the Agricultural Marketing Act, approved June 15, 1929, as amended, or
>
> (4c) Motor vehicles used exclusively in carrying livestock, fish (including shellfish), or agricultural commodities (not including manufactured products thereof);(Miklius, 1969,p.2)

The ICC exemptions were wider in scope and thus provided more flexibility in defining exempt commodities. For example, the MPSC exempts livestock being transported from farm to market but the ICC exempts livestock transportation in general. Also, the ICC exempts motor vehicles controlled and operated by an

agricultural cooperative while the MPSC did not exempt cooperatives.

Relatively few major changes had been made concerning agriculture exemptions between 1933 and 1980. At various times the exempt list was expanded and contracted, but the initial format was not greatly altered.

The ICC did expand it's exempt list in 1955 to include fresh dressed poultry in 1955 and frozen poultry in 1956. In addition, frozen fruit and vegetables were declared exempt from regulation in 1957 but then removed from the exempt list in 1958 (Snitzler and Byrne, 1958).

DEREGULATION OF THE MOTOR CARRIER INDUSTRY

President Carter declared in his 1979 State of the Union Address that significant `reregulation' would be imposed on the transportation industries. The Reagan administration then followed through on Carter's initial push by confronting what was considered to be a major U.S. problem. Interstate traffic was reregulated in 1980 through the Motor Carrier Act of 1980 while the MPSC followed suit and reregulated intrastate traffic in 1982 (Public Act 399).

Although the MPSC did not deregulate intrastate traffic until two years after the ICC deregulated interstate carriers, MPSC regulations and changes will be discussed first since they have major implications for Michigan agriculture transportation. A brief review of ICC regulations and amendments will then follow.

3.4 Intrastate Regulation

The purpose of Public Act 399 differed greatly from the original 1933 act. Although the act kept paragraphs (1), (1a), (4) and (5) (see page 27), it added the following objectives.

Sec.2.
(c) promote competitive and efficient transportation services
(d) meet the needs of motor carriers, shippers, receivers, and consumers
(e) allow a variety of quality, price and service options to meet changing market demands and the diverse requirements of the shipping public
(f) allow the most productive use of equipment and energy resources
(g) provide the opportunity for efficient and well managed motor carriers to earn adequate profits and attract capital
(h) promote intermodal transportation
(j) promote greater participation by minorities in the motor carrier system
(k) provide and maintain service to small communities and small shippers(MPSC, 1982, p.2)

It becomes quite apparent when comparing the two acts that the MPSC had initiated reforms which promoted "competition" and "fairness."

3.4a Barriers to Entry

The MPSC reduced the barriers to entry for obtaining authority to haul goods. A firm must still show that: 1) the vehicles to be operated will transport goods safely, 2) that the applicant is fit, willing, and able to provide transportation services, and 3) the proposed service will provide a useful public service (MPSC,1982). However, the act specifies that diversion of revenue or traffic from other carriers is no longer a sole reason to deny authority. The Act states, " The commission shall not find diversion of revenue or traffic from an existing motor carrier to be in and of itself inconsistent with the public interest" (MPSC, 1982 p.5). In addition, the act

provides guidelines for existing firms wishing to protest an applicant's authority. These guidelines along with the commission's stance on competition have reduced entry barriers and provided the opportunity for firms to enter the intrastate trucking industry.

3.4b Tariff Regulation

The MPSC did not change the law concerning the filing of rates. A firm must file rates with the MPSC which are made available to the public upon request. The current act differs from the past in that a clause has been created which is designed to prevent excessive and destructive competition through predatory ratemaking (Section 476.6). Predatory rates are defined as rates which fall below a firm's fully allocated cost. Aside from establishing controls on predatory ratemaking, the commission has constructed the act so that rate competition and flexibility are a reality. Specifics of this section include:

> Sec.7a. (1) ... the commission may not investigate, suspend, or revoke any rate fare or charge proposed by a motor carrier on the grounds that the rate fare or charge is unreasonable on the basis that it is too high or too low if all of the following requirements are met:
> (a) The motor carrier notifies the commission that it wishes to have the rate, fare, or charge considered pursuant to this section.
> (b) The rate, fare, or charge is the product of independent action on the part of the motor carrier proposing the rate, fare, or charge.
> (c) The aggregate of increases and reductions in any such rate, fare, or charge is not more than 10% above or below the rate, fare, or charge, as adjusted under subsection (3), in effect 1 year before the effective date of the proposed rate, fare or charge.(p.7)

These additions are important in that they state that rates may be set competitively through independent action. Also important is the 10% zone of reasonableness which allows a firm to vary rates 10% above or below filed tariffs, thus increasing opportunities for competitive practices. The zone of reasonableness may also be increased 5 or 10 percent in any given year if the commission feels a need exists. Hence, increased flexibility of rates is always a possibility.

Contract carriers have also been granted flexibility in ratemaking. Prior to 1982, the MPSC prescribed minimum rates and fares to be collected by contract carriers. This is now only done when the commission feels that the Act has been violated. Thus, contract carriers have more freedom in negotiating rates with shippers. In addition, section 477.7 of the 1933 Act has been entirely eliminated (see page 29), an indication that the MPSC is willing to let competition in the contract carrier segment increase.

3.4c Route Designation

A minor change in the 1982 Act concerns the designation of routes. A carrier must still operate over fixed routes or between fixed terminals, but the carrier is now free to travel within one mile of the fixed posted route.

3.5 Interstate Transportation

The Motor Carrier Act of 1980 was signed into law in July of 1980. The philosophy of this act is similar to MPSC Act 399 in that the intention is to promote competition within the industry through an increase in rate and service options.

3.5a Barriers to Entry

The entry barriers are similar to Michigan's intrastate laws in that an applicant must show fitness and a need for the proposed service. However, the stringency of other tests including proof that present service is inadequate have been reduced. In addition, the fitness test is a judgemental issue and it is apparent that the ICC has lowered standards for meeting this requirement (Hutchinson, 1980).

Especially important to agriculture are three categories for which the ICC need only to find the carrier fit, willing and able to provide service. The Motor Carrier Act of 1980 identifies these categories as:

> (A) transportation to any community not regularly served by a common motor carrier of property certified under this section;
> (B) transportation services which will be a direct substitute for abandoned rail service to a community not having any rail service and if such application is filed within 120 days after such abandonment has been approved by the commission;...
> (E) transportation by motor vehicles of food and other edible products (including edible byproducts but excluding alcoholic beverages and drugs) intended for human consumption, agricultural limestone and other soil conditioners, and agricultural fertilizers if (i) such transportation is provided with the owner of the motor vehicle , except in any emergency situations;(p.253)

Both (A) and (B) are important to agriculture in that they provide the carrier with an opportunity to serve communities not normally serviced by common carriers or which have lost rail service, of which the majority of these are small, rural communities. The importance of (E) arises as a result of industry structure. It provides owner-operators, who normally

work through a common carrier and thus share revenues with the carrier, greater flexibility in providing their own services independent of the common or contract carrier. Food and agricultural products are the focus of this section and thus shippers, receivers and owner-operators dealing with agricultural products may benefit from lower rates and increased income.

3.5b Tariff Regulation

Ratemaking under the ICC Act is very similar to the MPSC Act. A 10% zone of reasonableness has been incorporated into the Act and the percentage may change depending on changes in the Producer Price Index (Hutchinson, 1983). The freedom for firms to increase and decrease rates indicate more competitive practices occurring including rate-service packages such as discounts and weekend service. Both the shipper/receiver and the carrier should benefit from the added flexibility.

3.5c Route Restrictions and Efficiency

An important change in interstate regulation is the ICC's push for efficiency through elimination of unreasonable route restrictions. Prior to 1980, many firms were forced to operate inefficiently through regulatory restrictions. However, the 1980 Act removed many of the restrictions. The new legislation

> ... directs the ICC to remove all requirements resulting in curcuitous routings from operating authorities and to process within 120 days any request by individual motor carriers to: (1) Reasonably broaden the categories of property authorized by the carrier's certificate of permit. (2) Authorize transportation to intermediate points. (3) Provide round-trip authority where one-way authority exists. (4) Eliminate unreasonable or

> excessively narrow territorial limitations. (5) Eliminate any other unreasonable restriction (Hutchinson, 1983, p.16).

In addition, both common carrier and contract carrier operating rights may be held for the same truck. These provisions are designed to allow the hauler greater route flexibility in hopes of increasing competition and efficiency.

Other agriculture related changes in the MCA of 1980 include: (1) the increased freedom given to agriculture cooperatives and (2) the allowance of food transportation discounts for food or grocery sellers. Farmer cooperatives may now haul up to 25% of total tonnage nonfarm or nonmember goods without operating authority. This represents an increase of 10%. Grocery and food sellers who pick up their own products at the warehouse may now be granted price discounts by the seller if they are made available to all buyers on a nondiscriminatory basis and the discount is no greater than the actual cost of transporting the items if they were to be transported in the seller's truck (Hutchinson, 1983). The use of discounts was created in hopes that lower costs would be passed on to the consumer. Before the passage of the 1980 act, discounts were prohibited.

3.6 Commodity Exemptions

The list of agricultural exemptions has increased for both interstate and intrastate transportation. Past exemptions have remained unchanged while a few commodities and products have been added. In addition to the 1933 Act, the MPSC now exempts:

> Sec.2. (m) a vehicle used in the transportation of livestock, poultry feed, chemicals, pesticides, and

> fertilizers on movements directly to a farm for use in agricultural production.
> (o) A vehicle transporting animal and poultry feed or feed ingredients to a site of agricultural production or to a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production.(p.17)

These additions increase the flexibility of agricultural haulers while providing additional back-haul opportunities.

Remaining exempt in the ICC Act are those items exempted in 1933 (see page 32) while certain products were added to the list. Specifically added was (o) as stated above and also:

> (B) agriculture or horticulture commodities (other than manufactured products thereof);
> (D) cooked or uncooked fish, whether breaded or not, or frozen or fresh shellfish, or byproducts thereof not intended for human consumption, other than fish or shellfish that have been treated for processing, such as canned, smoked, pickled, spiced, corn or kippered products;
> (E) livestock and poultry feed and agricultural seeds and plants, if such products (excluding products otherwise exempted under this paragraph) are transported to a site of agricultural production or to a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production;(p.86)

The Motor Carrier Act of 1980 allows for less strict interpretation on exempt versus regulated commodities or products. This has resulted in confusion concerning exemptions but the major thrust of the 1980 Act was to increase the number of agricultural exemptions, creating implications for shippers and receivers as well as carriers (For a complete list of ICC exempt commodities, see Appendix C).

3.7 Administration and Enforcement

3.7a Intrastate

The Office of Motor Transportation Affairs (OMTA), an

administrative subdivision of the MPSC, is responsible for enforcing motor carrier regulations for all intrastate truck transportation and some interstate transportation. The OMTA enforces vehicle-driver safety and fitness for interstate motor carrier transportation.

The OMTA consists of four divisions which perform distinct functions of motor carrier administration and enforcement. Specifically, the four divisions are: 1) The Authorities and Registration Division, 2) The Financial Analysis and Investigation Division, 3) The Field Operations (Enforcement) Division, and 4) The Staff Services Division (MPSC, 1979, p.16).

The duties of the Registration and Enforcement Division are quite complex. Their basic responsibilities include carrying out the administrative procedures necessary to ensure compliance with regulations. For example, this division reviews and processes all operating applications, schedules and serves notice of hearings, and issues MPSC plates.

Evaluating posted rates and the financial status of regulated motor carriers is the responsibility of The Financial Analysis and Investigation Division. This division is further subdivided into three sections which include The Rates and Tariffs Section, The Audit Section and The Investigation Section.

The Field Operations Division consists of staff and field personnel who provide regulatory information to motor carriers and enforce highway motor carrier operations. The field staff

includes the Michigan State Police Motor Carrier Division which patrols state highways. This division operates weigh stations, inspects vehicles, licenses and freight bills, and issues citations.

The complexities of motor carrier regulation require a Staff Services Division. The Staff Services Division assists other divisions by providing research and technical support. Duties include reviewing current legislation, performing studies and proposing new legislation.

3.7b Interstate

The Interstate Commerce Commission's Office of Compliance and Consumer Protection (OCCA) is the agency responsible for enforcing the Motor Carrier Act of 1980. With the exception of driver-vehicle fitness and safety which are enforced by state agencies, the OCCA investigates complaints from drivers, truck owners, shipper/receivers and the general public concerning noncompliance of ICC rules.

The major enforcement areas of the ICC include:

1. Loss and damage, overcharges, and duplicate payments, etc.
2. Household goods abuse
3. weight-bumping
4. protecting owner-operators against abuses by carriers
5. shipper/receivers, labor groups and others forcing independent truckers to accept and pay for loading/unloading services (known as `lumping')
6. unauthorized transportation and insurance requirements
7. rate integrity and kickbacks
8. mergers, consolidation and pooling
9. antitrust (98th Congress, p.38).

The current philosophy of the OCCA is to investigate complaints and not perform self-initiated investigations. It is felt that a complaint oriented program provides the best results

in enforcing compliance to the Act. Also, a complaint oriented system is necessary since OCCA staffing levels have been reduced by one-half since 1981 and an additional 18 percent reduction is being projected for 1985 (98th Congress, p.6).

CHAPTER 4

DEREGULATORY IMPACTS ON THE MOTOR CARRIER SERVING AGRICULTURE

Although the Federal Motor Carrier Act of 1980 and Michigan Public Service Commission Public Act 399 of 1982 added only a few commodities to the exempt list, the transportation of all agricultural products has been affected through decreases in entry barriers and also the added flexibility in ratemaking. Due to increased competition, some firms are hauling more exempt and regulated products while being forced into competitive ratemaking. Implications are varied across commodity types but it is clear that very few products are being sheltered from the impacts of deregulation. Furthermore, regulated carriers are not affected by deregulation in the same manner as exempt haulers and intrastate haulers are being impacted by deregulation differently than interstate haulers.

The complicated and dynamic structure of the motor carrier industry suggests that there are many ways to segment the industry for study. Other studies have also confronted this problem. A 1979 study reported, "Early in the group's work, it became apparent that the motor carrier industry is a heterogeneous group with many different segments evidencing different economic characteristics" (MPSC,1979,p.126). Possibilties for segmenting the motor carrier industry include examining the exempt and regulated carrier, but difficulties arise because the same commodity is often classified as regulated or exempt depending on the level of processing or

preserving. For example, produce is an exempt commodity when transported in the raw state and chilled but regulated when frozen. Table 4.1 demonstrates the problem in classifying fruits as strictly exempt or regulated. The same situation holds true for many other commodities.

Table 4.1 Regulatory Status of Selected Commodities

commodity and degree of processing	regulatory status
Apples,fresh,unfrozen,peeled,cored,sliced and dipped in brine solution to retain freshness.	exempt
Apple peels and cores ground but not otherwise processed	exempt
Apples Pomace (substance remaining after extraction of juice)	regulated
Apples,frozen or canned	regulated
blueberries,incidentally frozen while being maintained in low temperature storage,allowed to thaw during transport	exempt
blueberries,frozen or canned	regulated
cherries,in sulfur dioxide "brine" for purpose of holding them in fresh state until they can be processed for marketing, which processing includes "debrining"	exempt
cherries, frozen or canned	regulated
peaches, pitted and put in cold storage containers	exempt
citrus fruit sections,fresh,cold packed or semi-frozen	exempt
citrus,fruit sections frozen	regulated

SOURCE: Can They Do That?,ICC, Office of Consumer Protection

Statistics show that for many commodities, a significant percentage of the total crop is marketed for processing. Thus, the importance of regulated movement can not be overlooked (see Table 4.2).

Table 4.2 Utilization of Selected Michigan Commodities, 1982

commodity	total utilization	% allocated to fresh market	% allocated to processing market
apples	980 mil.lbs.	37.2	62.8
tart cherries	195 mil.lbs.	2.6	97.4
sweet cherries	51 mil.lbs.	7.8	92.2
peaches	11000 tons	60.9	39.1

SOURCE: Michigan Agriculture Statistics, 1984

In order to analyze the economic impacts of deregulation on the transportation of Michigan agricultural commodities and products, the entire agricultural trucking industry, encompassing all products and commodities, will be examined. The industry will then be broken down into four commodity groups which include:

1. bulk commodities (seeds, feeds, grains, etc.)
2. fresh produce
3. processed goods requiring refrigeration (frozen foods including meats and dairy products)
4. livestock.

For each commodity group, five topics will be examined. The topics include:

1. changes in competition
2. rates and costs
3. profitability of motor carrier firms
4. non-price competition
5. small community service.

This method of segmentation allows for orderly analysis of both regulated and exempt freight as well as addressing the competitive characteristics within each group.

4.1 Deregulatory Impacts on the Agricultural Trucking Industry: An Overview

Questionnaires were mailed to 1032 trucking firms identified as potential haulers of agricultural products. A follow-up questionnaire was then mailed to 267 of the 269

respondents and 112 were returned. The respondents represent a wide variety of carriers transporting many types of agricultural products. In addition to the mail questionnaires, 15 motor carriers hauling many types of products were interviewed (personal visits and telephone interviews) to gain insight on issues not addressed in the questionnaire.

4.1a Increased Competition

A large majority of the motor carriers indicated that competition for obtaining shipments has increased since 1980. Deregulation has relaxed entry barriers and thus new firms are being granted authority to haul goods and established firms are expanding operations by hauling a wider variety of commodities and products. For example, the ICC approved 97 percent of the applications received for new and expanded operating rights in 1981, compared to 70 percent in 1976 (97th Congress, p.29). New firms account for the largest increase in competition while out-of-state haulers expanding operations in Michigan also account for a large share of the increase. Out-of-state carriers outnumber established Michigan firms due to the difficulty in obtaining intrastate permits. Although it is easier to obtain all types of authority, interviewed carriers often stated that it is more difficult to obtain intrastate than interstate authority. Tables 4.3 and 4.4 provide motor carrier responses to the questionnaire. Unless stated otherwise, all proceeding tables and figures use data obtained from the questionnaires. Total respondents in each table vary since all questions were not answered by the same number of respondents.

Table 4.3 Competition for Obtaining Shipments Since 1980, All Carriers

	Count	%	0 | 50 | 100
Increased	64	71.9	|**********
Constant	20	22.5	|*********
Decreased	5	5.6	|**
Total	89	100.0	|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-| 0 50 100

Table 4.4 Source of Increasing Competition, All Carriers

	Count	%	0 | 50
New Firms	28	44.4	|**********
Out-of-State Haulers	23	36.5	|*********
Private Fleets	19	30.2	|*******
Farmers Hauling	13	20.6	|*****
Estab. MI Firms	9	14.3	|***
Railroads	4	6.3	|*
Ag Cooperatives	2	3.2	|*
Other	2	3.2	|*
Total	63		|-+-|-+-|-+-|-+-|-+-| 0 50

4.1b Rates and Costs

The increased competition throughout the industry has resulted in decreasing or constant rates. Eighty-two percent of the respondents indicated that the rates they charge for hauling services have either decreased or remained constant since 1980, suggesting that on average real rates (rates adjusted for changes in the price level) have declined. The majority of carriers interviewed said that they have been forced to reduce rates in response to the increased competition. Similar results have been reported in other studies. For example, one study concluded that, "Although carriers have not taken full advantage of the rate setting flexibility now allowed, rates now appear to be set in a free market environment and substantial reductions from previous levels have been reported" (Hutchinson, 1983, p.6).

Table 4.5 Rate Changes Since 1980, All Carriers

	Count	%	0 25 50
Decreased	37	41.6	**********
Constant	36	40.4	**********
Increased	16	18.0	**********
Total	89	100.0	

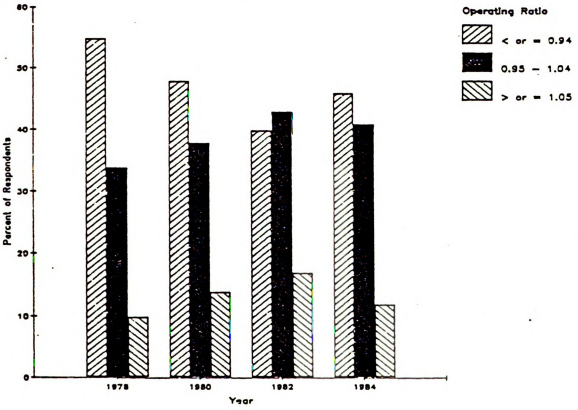
4.1c Profitability

While rates have remained constant or declined input prices for fuel and equipment have increased, forcing a decline in profit margins. Forty-nine percent of the carriers surveyed said that rates have moved closer to costs, implying lower profits for industry participants. A similar number said that profits have declined since 1980 while very few carriers reported an increase in profits.

Operating ratios (total operating expenses/gross revenue) have increased for many carriers. Operating expenses include all costs related to the transportation function, including fixed and variable costs. A decline in the operating ratio over time is an indicator of a decline in profits but does not provide an absolute measure of profitability. Firms were asked to give their operating ratios for 1978 through 1984 and results show that more firms had operating ratios of less than 0.95 in 1978 than in 1984 (see Figure 4.1). The ICC defines an operating ratio of 0.93 as the level which will provide adequate returns (see page 29).

The decrease in profit margins has slightly affected the purchasing patterns of motor carriers, resulting in a greater percentage of old trucks currently being used on the highways.

FIGURE 4.1
OPERATING RATIOS OF AGRICULTURAL COMMODITY CARRIERS
1978 – 1984



Forty percent of the carriers stated that they owned a greater percentage of new trucks prior to 1980. Only 19.5 percent now own a larger percentage of new trucks than they did prior to deregulation. Although there are more older trucks being used on the highways, there is currently no indication that the overall safety level has declined in the transportation industry, based on interviews with motor carriers and shipper/receivers. Results from a 1984 Bureau of Transportation Planning Study are less conclusive but provide similar results. "At the present time, data on the specific question of the impact of trucking deregulation on the overall safety of the industry is very limited and subject to misinterpretation" (p.8).

4.1d Non-Price Competition

Motor carrier firms are being forced into competitive ratemaking, leading to a decrease in profits and thus many of these firms are attempting to stabilize or increase profits through several forms of non-price competition.

Contract hauling involves rate negotiation between the carrier and shipper and guarantees a service for the shipper and revenues for the carrier. Motor carriers can perform both contract and common carrier operations and thus have flexibility in addition to security. As expected, many carriers have increased the amount of contract hauling. Of the 45 carriers who have changed the amount of contract hauling, 31 reported an increase while only 14 reported a decrease. Similar studies support these results. A 1983 USDA report stated, "They (contract carriers) are now permitted to conduct both contract

and common carrier operations, thus, the level of competition has been enhanced within the motor carrier industry"(Hutchinson, 1983, p.v).

Truckload hauling is more competitive than less-than-truckload hauling (see page 23) and a greater number of firms are increasing their TL operations. Approximately ten percent more firms said they have increased their TL operations over LTL. Interviewed carriers often stated that they prefer to haul TL whenever possible due to higher profit margins and less logistical problems.

Although the ICC and MPSC have both relaxed entry barriers, obtaining intrastate authority is often more difficult than obtaining ICC authority. Common carriers said that they could easily and quickly be granted authority from the ICC but difficulties were encountered when applying for an MPSC permit. Survey results supported their statements. While 39.7 percent of all carriers indicated that they have expanded into interstate markets, only 25.6 percent have increased the amount of hauling within Michigan. Furthermore, the same percentage have decreased intrastate hauling while only 15.4 percent reported a decrease in interstate operations. In general, 42 percent of all carriers said that they are hauling to a wider geographical area.

Table 4.6 Changes in Intrastate Hauling Since 1980, All Carriers

	Count	%	0 25 50
No Change	38	48.7	**********
Increase	20	25.6	**********
Decrease	20	25.6	**********
Total	78	100.0	

Table 4.7 Changes in Interstate Hauling Since 1980, All Carriers

	Count	%	0 25 50
No Change	37	47.4	**********
Increase	31	39.7	********
Decrease	10	12.8	**
Total	78	99.9	

Truck brokers perform a vital function for carriers and shippers by bringing together shippers who are in need of transportation services with truckers who are willing to provide the service and have equipment available (see page 12). Eighteen of 78 carriers reported increasing the use of truck brokers while only four carriers have reduced truck broker services. The increase is likely attributable to the ability of a truck broker to secure loads in a market which is now very competitive due to deregulation. Shippers also benefit since a truck broker can compare rates and secure a load for a shipper at competitive rates.

Table 4.8 Changes in Truck Brokerage Since 1980, All Carriers

	Count	%	0 50 100
No Change	56	71.8	**********
Increase	18	23.1	******
Decrease	4	5.1	*
Total	78	100.0	

ICC and MPSC deregulation allows carrier firms to haul a wider variety of products, both exempt and regulated. Seventeen percent of the carriers now haul more exempt commodities while 33 percent of all carriers are hauling more regulated goods. Reasons for increasing regulated hauling are twofold. First, deregulation has relaxed entry barriers and thus carriers are applying for and receiving authority to haul a wide variety of

products. Second, hauling regulated goods is more profitable than hauling exempt goods. Although rates have declined for both regulated and exempt movements, rates for shipping non-exempt products must be posted and thus there is less flexibility in rate negotiations. A study which compares regulated and exempt traffic in Texas found that the regulated intrastate rates were generally higher than exempt interstate rates (Fuller, 1982). A similar situation exists in Michigan.

Trip-leasing has become more popular since deregulation. Trip-leasing is a means by which an exempt hauler can generate backhauls of regulated products by leasing the driver and equipment to a regulated carrier. Trip-leasing pertains only to interstate movements since Article 5, Section 10a of MPSC Public Act 399 states that a vehicle used by a regulated carrier is to be operated only by employees of the carrier. In addition, the period of the lease shall not be less than 30 days. These provisions eliminate the possibility of trip-leasing on intrastate movements.

4.1e Small Community Service

Opponents of deregulation claim that without regulation of the motor carrier industry, rural shipper/receivers will receive either reduced service or service at predatory rates. Many studies have addressed this problem, often reaching similar conclusions.

> The issue of the effect of deregulation on nonurban shipper/receivers has been studied extensively, in many different forms and by many different groups, agencies, and individuals. The similarities of the results are striking, so much that it would be

> difficult to ascribe all of the observed effects to economic conditions or other factors. No matter how the study has been conducted, no matter what its funding source, no matter how it defines small or rural, and no matter what jurisdiction is considered, the results are approximately the same. Deregulation has at most a neutral effect on nonurban shipper/receivers and is likely to exert a favorable influence on rates, service options, and competitiveness of transportation to these areas (Beilock, Freeman, 1983, p.80).

The results of this study are similar with results from past research. Motor carriers were asked to indicate whether they have increased, decreased, or provided constant service to small, rural communities since 1980. Over one-half reported that service has remained constant while approximately an equal number has increased or decreased service.

Table 4.9 Service Provided to Small Communities, Changes Since 1980, All Carriers

	Count	%	0 |-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-| 50 |-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-| 100
Constant	47	52.2	|**********
Decreased	23	25.6	|**********
Increased	20	22.2	|**********
Total	90	100.0	

Given the results from surveys and personal interviews of shipper/receivers and motor carriers, this report concludes that although small communities have seen a decrease in service provided by some carriers, they have also experienced an increase in service by others and thus in general, the total service provided has remained stable.

Deregulatory Impacts Across Commodity Types

The following section is a detailed analysis of deregulatory impacts on motor carriers hauling specific

commodities. The four commodity groups include bulk commodities, fresh produce, processed foodstuffs requiring refrigeration, and livestock. The impacts of trucking deregulation are outlined in sections 4.2 through 4.5, respectively.

4.2 Bulk Commodities

Agricultural products and commodities which are non-perishable and normally transported in truckload shipments are classified as bulk commodities. This study specifically addresses grains, fertilizers, seeds and feeds as bulk commodities.

The bulk commodity carrier represents the largest group of respondents to the mail questionnaire. Of 269 surveyed motor carriers, 111 haul fertilizer, 78 haul grains and 77 transport seeds and feeds. Most bulk carriers haul a combination of bulk goods since these products do not require specialized equipment and are normally transported in truckload shipments. For example, of 78 grain haulers, 60 also haul fertilizer and 45 haul seeds and/or feeds.

Table 4.10 Commodities Hauled By Bulk Carriers

R = Row %		Type of Commodity Hauled: grains	fertilizer	seeds/feeds	Total
grains		78	60	45	78
	R	100.0%	76.9%	57.7%	
fertilizer		60	111	50	111
	R	54.1%	100.0%	45.0%	
seeds/feeds		45	50	77	77
	R	58.4%	64.9%	100.0%	
Total		78	111	77	

The bulk commodities primarily involve exempt movements. Grains and feeds are basically exempt from both intrastate and interstate regulation while fertilizers are exempt on movements directly to a farm within Michigan. Also, agricultural seeds are exempt on interstate movements. The exempt status of bulk goods allows the carrier to operate over a wide area and thus most bulk carriers provide both intrastate and interstate services. Nearly three-fourths of the carriers surveyed provide intrastate service and also haul to other states. Although many bulk goods are exempt, government regulation controls some movements and thus many carriers have MPSC and/or ICC operating authority. According to the mail survey, an estimated fifty percent of all carriers have authority to ship regulated goods.

The majority of bulk carriers who reported their 1984 gross revenue earned less than one million dollars in 1984. Financial information of the respondents is provided in table 4.11.

Table 4.11 1984 Gross Revenues and Operating Ratios of Bulk Commodity Carriers

Gross Revenue Column % In Parentheses	Commodity Hauled			
	Grains	Fertilizer	Seeds/Feeds	Total
less $500,000	14 (43.8)	18 (40.0)	10 (30.3)	42
0.5 - 1 million	8 (25.0)	13 (28.9)	9 (27.3)	30
1 - 2 million	4 (12.5)	3 (6.7)	2 (6.1)	9
2 - 3 million	1 (3.1)	4 (8.9)	2 (6.1)	7
3 - 4 million	1 (3.1)	0 (0.0)	1 (3.0)	2
4 - 5 million	0 (0.0)	0 (0.0)	2 (6.1)	2
5 - 10 million	1 (3.1)	3 (6.7)	2 (6.1)	6
10 - 20 million	0 (0.0)	0 (0.0)	0 (0.0)	0
20 - 30 million	0 (0.0)	1 (2.2)	1 (3.0)	2
30 - 50 million	1 (3.1)	1 (2.2)	1 (3.0)	3
> 50 million	2 (6.3)	2 (4.4)	3 (9.1)	7
Total	32 (100.0)	45 (100.0)	33 (100.1)	
Operating Ratio				
< 0.90	6 (25.0)	9 (23.7)	5 (19.2)	20
0.90 - 0.94	7 (29.2)	9 (23.7)	5 (19.2)	21
0.95 - 0.99	3 (12.5)	8 (21.1)	6 (23.1)	17
1.00 - 1.04	4 (16.7)	6 (15.8)	5 (19.2)	15
1.05 - 1.09	3 (12.5)	4 (10.5)	3 (11.5)	10
> 1.09	1 (4.2)	2 (5.3)	2 (7.7)	5
Total	24 (100.1)	38 (100.1)	26 (99.9)	

From analyzing the above information concerning the regulatory status of bulk commodities it is apparent that the majority of bulk haulers operate in both a regulated and

unregulated environment. Hence, strict assumptions concerning deregulatory impacts on exempt and regulated carriers can not be made. This study will focus on the bulk commodity carrier and analyze changes in operations since 1980, assuming these changes are a result of both interstate and intrastate deregulation. Emphasis will also be given to seeds and feeds since these products have recently been exempted from both intrastate and interstate regulation.

4.2a Increased Competition

A substantial majority of the bulk commodity carriers stated that competition for obtaining shipments has increased since 1980. In addition, bulk carriers often stated in interviews that they are operating in a market oversaturated with carriers and thus obtaining shipments has become increasingly difficult. An estimated 73 percent of all bulk haulers stated that competition has increased while only six percent reported a decrease in competition. Within each commodity group results are very similar but seed and feed haulers did suggest a slightly greater increase in competition. These are expected results since the recent exemption of seeds and feeds decreases the barriers to entry for hauling these products.

Table 4.12 Competition For Obtaining Shipments, Bulk Commodity Carriers

R = Row %
Type of Commodity

		Increase	Decrease	Constant	Total
Grains		22	2	7	31
	R	71.0%	6.5%	22.6%	100.1
Fertilizer		29	3	8	40
	R	72.5%	7.5%	20.0%	100.0
Seeds/Feeds		23	1	6	30
	R	76.7%	3.3	20.0%	100.0
Total		74	6	21	

The questionnaire did not ask the carriers to indicate if they are involved in intrastate hauling from the farm to market (an exempt movement) but interviews with carriers found that these shipments have probably been minimally affected by deregulation. Carriers said that this is not a major market of for-hire truckload hauling since many farmers perform these services using their own equipment.

Carriers transporting bulk commodities have felt an increase in competition from several sources. Almost one-half of the carriers said that there are now more firms hauling exempt goods than prior to deregulation and the most significant source of increasing competition is from new firms (since 1980) hauling bulk products. On average, 44 percent of all bulk commodity carriers indicated that new firms are entering the market.

Private fleets also represent a major source of increasing competition, suggested by 27.8 percent of bulk carriers reporting increased competition from private carriers. These

carriers are exempt from regulation and are hauling their own product to reduce marketing expenses. An additional reason for explaining the increase in private hauling was provided from a study of exempt haulers. Although the study occurred in 1969, the conclusions are still relevant.

> ...it may be expected that the agricultural exemption encouraged the growth of private carriage by providing backhauls of agricultural commodities to private carriers. There is some evidence to substantiate such an expectation (Miklius, 1969, p.15).

A priori information would suggest that a small percentage of bulk commodities travel via private carriage. However, research has concluded that, "An estimated 94 percent of feed shipments are intrastate, and 88 percent of that is in private carriage" (U.S.D.A.,Office of Transportation, 1982). The private carriage movements of feed likely filters into the transportation process of seeds and grains.

Within the bulk commodity classification, haulers of seeds and feeds are experiencing the greatest increase in competition from new firms. Fifty-two percent of feed and seed carriers said that new firms are a source of increasing competition, compared to 38.1 percent for grain and 42.9 percent for haulers of fertilizers.

An important source of increasing competition which was often mentioned in personal interviews of grain carriers is an increase in farmers hauling their own commodity. These firms feel that the farmers are not only hauling their own product but are also performing for-hire services, hauling grain and other commodities (see page 109 for additional explanation).

Table 4.13 Sources of Increasing Competition, Bulk Commodity Carriers

R = Row %

		New Firms	Private Fleets	Non-MI Hauler	Farmer	Estab MI Firm	Rail-Road	Ag Coop	Total
Grains		8	6	3	6	4	4	1	32
	R	38.1	28.6	14.3	28.6	19.0	19.0	4.8	
Fertilizer		8	8	8	6	4	4	1	39
	R	42.9	28.6	28.6	21.4	14.3	14.3	3.6	
Seeds/Feeds		12	6	6	4	3	4	1	36
	R	52.2	26.1	26.1	17.4	13.0	8.7	4.3	
Total		28	20	17	16	11	2	3	

4.2b Rates

The exempt status of bulk commodities prior to deregulation suggests that rates have always been established competitively. Thus, it is hypothesized that although rates decreased or remained constant in real terms, the change is not as dramatic as for regulated products. The hypothesis can be supported by examining the responses of bulk commodity carriers to the survey question concerning rate changes since 1980. Rates have either decreased or remained constant since 1980 according to approximately 77 percent of the bulk carriers. Although these figures imply there has been a significant impact on rates, they are not as substantial as responses from carriers of regulated goods. For example, 86.6 percent of haulers of meats (a regulated commodity) reported decreasing or constant rates (see page 85).

Table 4.14 Rate Changes Since 1980, Bulk Commodity Carriers
R = Row %

		Rates Charged			
		Increased	Decreased	Constant	Total
Grains		6	14	11	31
	R	19.4	45.2	35.5	100.1
Fertilizer		10	17	13	40
	R	25.0	42.5	32.5	100.0
Seeds/Feeds		7	14	9	30
	R	23.3	46.7	30.0	100.0
Total		23	45	33	

Surprisingly, rates for previously exempt seeds and feeds have not changed considerably in comparison to grains or fertilizers. Even though seeds and feeds were regulated prior to 1980, the transport rates for these products were low since they are often transported with exempt grains and fertilizers. Hence, deregulation did not greatly affect the rates charged for seeds and feeds.

4.2c Profitability

The decline in rates charged for transporting bulk commodities directly affects the profitability of bulk commodity carriers. Profit margins have been historically low for bulk commodity carriers and the added competition has further decreased these margins. A decline in profits was reported by approximately one-half of the bulk commodity carriers.

Although a significant number of firms reported a decline in profits since 1980, the primarily exempt bulk carrier has not been impacted as greatly as the regulated carrier. Exempt

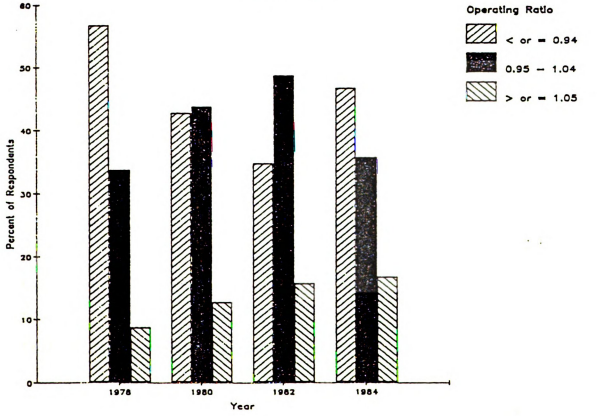
carriers have always operated in a free market and thus are forced to rely on non-price competition in order to remain competitive. Thus, many of these carriers are skilled in utilizing techniques which help to reduce the adverse effects of deregulation.

Bulk carriers can also survive financially in a competitive market because the variable costs for the primarily exempt hauler are lower than for the regulated carrier. A USDA study cited three reasons for lower costs in the exempt segment. First, wage scales are higher for regulated carriers due to employee unionization. Second, owner-operators hauling exempt products may accept a lower wage than they would if working for others. Finally, wages of local drivers are lower than wages for long-haul drivers (Miklius, 1969).

The above statements are supported by examining rates in relation to costs. On average, 52.8 percent of the bulk carriers stated that rates have moved closer to costs since 1980, a percentage nearly identical for carriers transporting regulated meats, dairy products and frozen foods. However, only 31.8 percent of regulated carriers indicated that their 1984 operating ratios were less than 0.95 while 46.7 percent of the bulk carriers had operating ratios below 0.95 (see figure 4.2). Surprisingly, more bulk carrier firms have actually experienced a decrease in operating ratios since 1980 (i.e.costs are a smaller percentage of revenue).

Equipment purchasing patterns of bulk carriers differ from haulers of strictly exempt goods as well as the industry in

FIGURE 4.2
OPERATING RATIOS OF BULK COMMODITY CARRIERS
1978 – 1984



general. Bulk carriers indicated that they have been better able to replace worn out equipment with new tractors and trailers than the regulated carrier, although the trend is towards an increasing amount of old trucks being used on the highways. An estimated 33.8 percent of all bulk carriers had more new trucks prior to 1980 while nearly one-half currently have the same percentage of new and old trucks in their fleet. Haulers of seeds and feeds differ slightly in that 26.7 percent said their fleet had more old trucks prior to deregulation, compared with 12.9 percent for grain haulers and 15 percent for haulers of fertilizers. The fact that more old trucks are being operated on the highways indicates that safety standards will need to be monitored closely in the future.

4.2d Non-Price Competition

Bulk commodity carriers have responded to the increased competition in many ways. Interviewed firms often stated that they have expanded operations since 1980 and a variety of methods were discussed. The questionnaire focused closely on operating changes resulting from deregulation and the results pertaining to deregulation are presented in table 4.15.

The largest increase was reported by over 60 percent of the carriers who stated that they now haul goods to a wider geographical area. Within the commodity groups seed and feed haulers ranked highest with over three-fourths indicating that they are now hauling to a wider area. The majority of this increase is in the form of interstate hauling for all carriers of bulk products.

A priori information would lead one to expect an increase in the hauling of regulated goods due to the decrease in entry barriers along with regulated carriers being somewhat protected from rate competition. Although this is more prevalant in the produce industry (see page 75), there has been an increasing trend of bulk commodity carriers hauling regulated goods. Specifically, 48.7 percent of the respondents reported hauling more regulated products, compared with only 31 percent hauling more exempt goods. The increase in regulated hauling has not led to a decrease in the number of exempt haulers since most bulk carriers interviewed felt that there are plenty of trucks available to haul bulk products and competition has definitely increased since 1980. Rather, the attraction towards regulated hauling is helping to reduce problems associated with increased competition and severely reduced profits which may otherwise plague this industry.

Approximately 30 percent of the respondents said they have increased contract hauling and similar responses were given for specific commodities within the bulk carrier classification. The increase in contract hauling is expected in the primarily exempt market since it guarantees a market at agreed upon rates.

Table 4.15 Increased Activities Resulting From Deregulation, Bulk Commodity Carriers

R = Row %

		Haul to Wider Area	Haul More Exempt	Haul More Non-Exempt	More Trip Leasing	More Adver-tising	More Contract Hauling	Total
Grains		16	8	12	11	2	7	56
	R	61.5	30.8	46.2	42.3	7.7	26.9	
Fertilizer		10	10	16	11	3	8	58
	R	59.4	31.3	50.0	34.4	9.4	25.0	
Seeds/Feeds		19	8	13	11	2	10	63
	R	73.1	30.8	50.0	42.3	7.7	38.5	
Total		45	26	41	33	7	27	

4.2e Small Community Service

In general, the agricultural trucking industry reported that service to small communities has remained stable and shipper/receivers support this claim. Conflicting results were reported by bulk commodity carriers since on average, 29.1 percent reported decreasing service to small communities while only 18.2 percent said they have increased service. However, shipper/receivers of bulk products did not suggest that service to these areas have declined. An explanation for the discrepancy can be found by examining the source of increasing competition. About 22.2 percent of bulk haulers indicated that farmers represent a major source of increasing competition. This increase negates the slight decrease in carrier firms providing service and thus the conclusions for small community service provided by bulk carriers are the same as for the industry in general, i.e. there has not been a major decrease in service to

small communities.

4.3 Haulers of Fresh Produce (excluding frozen)

Almost one-third of the questionnaire respondents indicated that their firm hauls produce. These 87 carriers primarily transport fresh fruits and vegetables although they do not limit their operations to produce. A wide variety of other products such as bulk products, meats and frozen foods are transported in addition to produce.

Table 4.16 Commodities Hauled By Produce Carriers

Commodity	Count	%	0 50 100
Produce	87	100.0	**********
Frozen Foods	45	51.7	**********
Seeds/Feeds	34	39.1	**********
Meats	33	37.9	**********
Grains	32	36.8	**********
Fertilizers	32	36.8	**********
Dairy Prod.	19	21.8	**********
Livestock	5	5.7	**
Total	87		0 50 100

Produce haulers had gross revenues of up to ten million dollars with the majority of carriers reporting a 1984 gross revenue of less than one million dollars. Operating ratios vary greatly among carriers and less than half of the carriers reported operating ratios in the `profitable' range of less than 0.95.

Table 4.17 1984 Gross Revenues and Operating Ratios of Produce Carriers

Gross Revenue ($)	Number	Percent of Respondents
less than 0.5 million	14	35.9
0.5 - 1 million	9	23.1
1 - 2 million	6	15.4
2 - 3 million	4	10.3
3 - 4 million	2	5.1
4 - 5 million	1	2.6
5 - 10 million	3	7.7
greater than 10 million	0	0.0
Total	39	100.1

Operating Ratio	Number	Percent of Respondents
less than 0.90	9	27.2
0.90 - 0.94	6	18.2
0.95 - 0.99	8	24.2
1.00 - 1.04	5	15.2
1.05 - 1.09	3	9.1
greater than 1.09	2	6.1
Total	33	100.0

The transportation of fresh fruits and vegetables is unique from other goods in that a degree of risk is involved for hauling these commodities. Produce is subject to deterioration if not handled properly and significant losses may result from improper handling. The losses result from a number of factors and the transportation process is related to many of these (see page 21). The point is not to imply neglect on the part of the carrier but rather suggest that risks are involved with hauling fresh produce and this characteristic differentiates produce from other commodities.

Fresh produce involves primarily exempt movements for both intrastate and interstate shipments. The commodity is usually transported chilled and is thus exempt from regulation. Fresh produce plays a major role in Michigan farm and supermarket sales and is therefore an important exempt movement in

agriculture. Total fresh produce sales accounted for 9.8 percent of supermarket food sales in 1977 and 11 percent of all cash receipts from Michigan farm marketings in 1982 (Pierson, Allen, Mclaughlin, 1982, and MI Ag. Statistics, 1984).

Chilled produce is transported in refrigerated vans called reefers. Reefers can preserve goods at a variety of temperatures and can therefore handle both frozen and chilled items. This suggests that carriers are capable of hauling both regulated and exempt freight and it seems logical that exempt produce haulers will not limit their operations to hauling strictly exempt goods. In fact, over one-half of the produce haulers indicated that less than 25 percent of their total traffic moves exempt and only 13.3 percent said that over 75 percent of their traffic involves exempt shipments. In addition, over three-fourths of all produce carriers transport commodities both interstate and intrastate and thus the majority of produce carriers operate under ICC and MPSC guidelines.

4.3a Increased Competition

Produce carriers have experienced a relatively small increase in competition due to the risks involved with hauling produce. Although over three-fourths of the respondents hauling fruits and vegetables said that competition for obtaining shipments has increased, 11.1 percent stated that competition has decreased. This response to "decreased competition for obtaining shipments" is the second largest of all commodity groups. The large number reporting an increase in competition are likely to be hauling other products and are experiencing

increased competition in these markets. Personal interviews with produce haulers provided the best insight on changing competition due to deregulation. One motor carrier summed up the opinions of many produce haulers by stating that they would rather not ship food products. This attitude was prevelant among several produce carriers who feel the risks involved with shipping fresh fruits and vegetables along with the relaxed entry barriers for hauling regulated goods decrease the attraction for hauling exempt produce.

> In the pre-regulation days before 1980, exempt haulers were boxed in by an inability to secure Interstate Commerce Commission authority to haul regulated loads. Now such authority is handed out almost for the asking so there are more options available to haulers who were formerly limited to specialization in produce (Hager,1984, p.14A).

This issue was also addressed in a 1979 study which outlined possible impacts of deregulation.

> It is interesting to note, however, that the agriculture industry is concerned about total deregulation because of a fear that the exempt carriers now specializing in agricultural commodities may attempt to compete for more lucrative industrial or commercial traffic, thereby reducing the trucking available to agriculture (MPSC, 1979, p.227).

The above statement is directed at the entire agricultural industry but only produce transportation seems to have been affected in this manner due to perishability and also because only partial deregulation has occurred. The fact that this phenomena is currently occurring for produce is reflected in a 1982 report which identified truck shortages as being an important causal factor for produce losses (Pierson, Allen, Mclaughlin, 1982.).

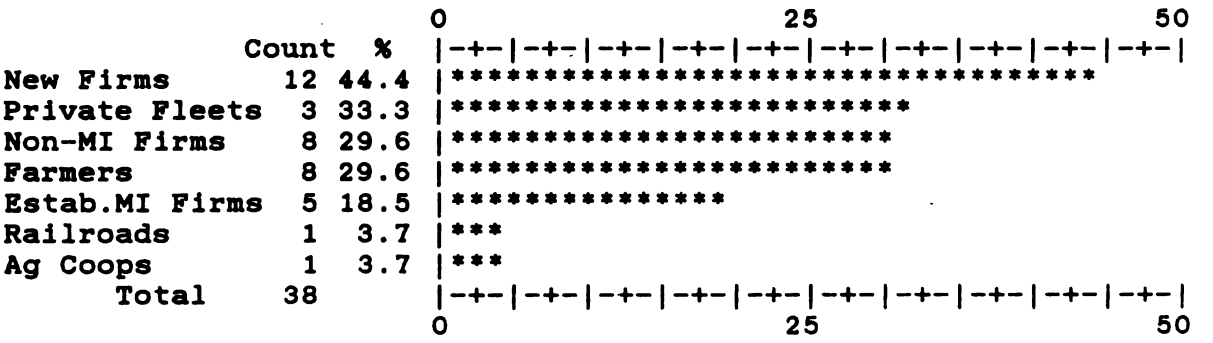
Table 4.18 Competition For Obtaining Shipments Since 1980, Produce Carriers

	Count	%	0 50 100
			|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|
Increased	28	77.8	|**********************************
Constant	4	11.1	|*****
Decrease	4	11.1	|*****
Total	36		|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|-+-|
			0 50 100

Although some firms have indicated switching operations away from produce, it can not be concluded that there is currently a severe shortage of trucks or that deregulation has reduced the total number of trucks available to haul produce. According to shipper/receivers of produce, availability of trucks has always been a problem, even before deregulation. Increased shortages are very possibly long-term impacts but the short-run affects of deregulation is an increase in competition.

About 44 percent of the carriers who feel that competition has increased report new firms to be the major source of competition, followed by private fleets (33.3 percent), out-of-state haulers (29.6 percent) and farmers hauling their own product (29.6 percent). New firms see a potential for profits while out-of-state haulers are using produce as a means to reduce empty backhauls.

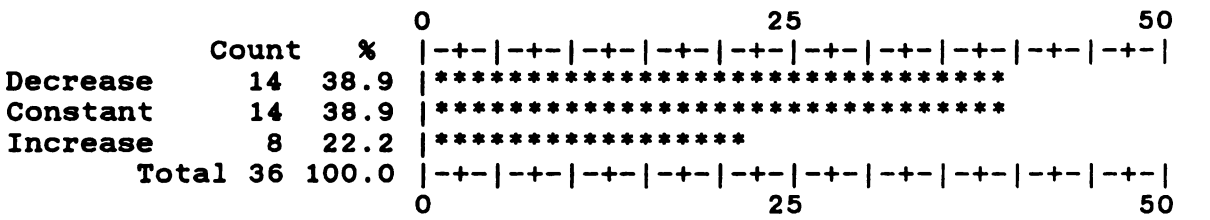
Table 4.19 Source of Increasing Competition, Produce Carriers



4.3b Rates

A priori information on competition leads to the hypothesis that rates have been reduced in real terms. This statement is supported by produce shippers demanding lower rates and the majority of carriers stating that rates have either declined or remained constant. Rates have decreased but the characteristics which differentiate produce from other commodities limit what otherwise would be a dramatic decrease in rates. Risks associated with perishability and the high cost of refrigerated vans have kept the supply of truckers at a workable level and thus the drop in produce rates is small with respect to other commodities.

Table 4.20 Rates Charged For Transporting Fresh Produce, Changes Since 1980



4.3c Profitability

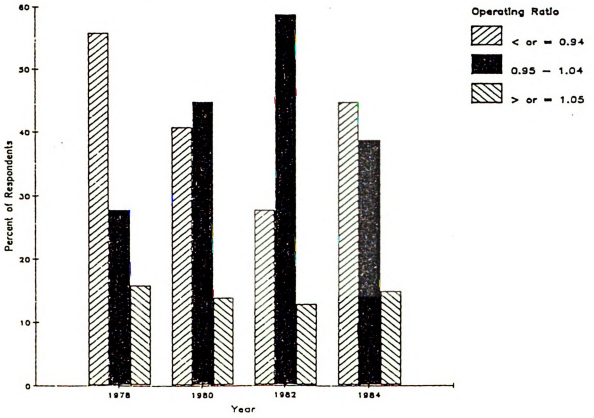
The profits of fresh produce carriers have declined since 1980 as a result of the decrease in rates and increases in input prices. Fifty percent of the respondents said their profits have declined since 1980 while only 23 percent report increasing profits. The number reporting an increase is high compared to other types of carriers. Two carriers who have been able to increase profits consistently since deregulation stated that they have diversified and reduced the amount of produce hauled, thereby reducing financial losses. Personal interviews also found that strictly exempt carriers who have not expanded operations into the regulated market are now suffering from financial hardships. In 1978, 56 percent of the respondents had an operating ratio of less than 0.95, a level indicative of profits. In 1984, these figures had changed dramatically with only 45.4 percent reporting an operating ratio of less than 0.95. However, there has been little change in extremely high ratios (greater than 1.04), suggesting that more firms are now operating at marginal levels (see figure 4.3).

4.3d Non-Price Competition

A major form of non-price competition among produce carriers involves the hauling of more regulated goods. Associated with hauling more regulated products is carrier firms hauling to a wider area, of which 74.2 percent stated that they have expanded geographically since deregulation.

Consistent with the results from all carriers is the increase in interstate over intrastate hauling. Eighteen of 32

FIGURE 4.3
OPERATING RATIOS OF FRESH PRODUCE CARRIERS
1978 – 1984



haulers have increased interstate operations while only 11 are providing more intrastate services. The ICC is more lenient in granting authority than the MPSC and thus firms are expanding interstate operations.

Trip-leasing has become more lucrative for produce carriers, especially those hauling primarily exempt products or haulers who can not obtain authority to haul a wider variety of regulated products. Trip leasing enables carriers to obtain backhauls of regulated goods by leasing their drivers and equipment to motor carriers holding authority to haul regulated freight.

Contractual agreements provide carriers with a guaranteed rate and is often a more profitable type of hauling. Hence, many produce carriers are using contracts to stabilize rates and also reduce risks.

Table 4.21 Changes in Contract Hauling For Produce Carriers

	Count	%	0 25 50
Increase	14	43.8	**********
No Change	11	34.4	********
Decrease	7	21.9	*****
Total	32	100.1	

The largest users of truck brokers are motor carriers and shippers transporting fresh produce. Brokers provide an important service for the produce industry since there are many haulers attempting to serve a large number of shipper/receivers. Twenty-five percent of the produce population surveyed currently use the services of a broker. This figure is well above the 11.7 percent used by all carriers of agricultural products. Three

brokers of fruits and vegetables were interviewed and in general, the answers to questions concerning operations and changes were similar. Brokers said that they are frequently negotiating rates and shippers are often able to receive a rate which is lower than the initial rate offered by the motor carrier. Although the situation seems to favor the shipper/receiver, 31.3 percent of surveyed motor carriers are using a truck broker more often while only 6.3 percent decreased the use of broker services. This increase does not necessarily represent an increase in the use of truck brokers to obtain produce shipments. Interviewed brokers said that although more carriers are using their services, they are using brokers to obtain more regulated hauls, including food and nonfood products.

Table 4.22 Changes in Use of Truck Broker Services Since 1980, Produce Carriers

	Count	%	0 50 100
No Change	20	62.5	**********
Increase	10	31.3	**********
Decrease	2	6.3	*****
Total	32	100.1	

4.3e Small Community Service

Approximately the same number of carriers have increased service to small communities as those who have decreased service. Thus, no major changes in small community service have occurred for the produce industry.

Table 4.23 Service Provided to Small Communities, Changes Since 1980, Produce Carriers

	Count	%	0 25 50
Constant	15	41.7	**********
Increase	11	30.6	*******
Decrease	10	27.8	*******
Total	36	100.1	

4.4 Motor Carriers Transporting Frozen Foods, Meats and Dairy Products

Food products which have been processed and/or frozen are normally classified as non-exempt with a few exceptions (see page 39 and 40). Thus, the majority of carriers transporting regulated goods are regulated by the ICC and/or MPSC. The regulatory status of these carriers along with the perishability factor of the products hauled are the major characteristics which groups the processed food carrier into a special segment for study.

Motor carriers transporting processed foodstuffs such as dairy products (excluding raw milk), meats and frozen foods make up a small percentage of the surveyed carriers but they still play a major role in the agricultural trucking industry. Frozen food sales represent a significant portion of total supermarket sales, accounting for 8.1 percent of 1977 supermarket sales (Pierson,1982). Dairy products and fresh meats are also important and accounted for 10.8 percent and 12 percent of 1977 supermarket sales, respectively (Pierson, 1982). Questionnaire

responses indicated that of 269 agricultural motor carriers, 55 haul frozen foods while 48 haul meats and 29 are carriers of dairy products. Of course, significant overlap occurs (including the hauling of other food and nonfood items) as indicated by table 4.24.

Table 4.24 Commodities Hauled, Carriers of Frozen Food, Meat and Dairy Products

R = Row %

		Frozen Foods	Meats	Dairy Prod.	Pro-duce	Grains	Fertil-izer	Seeds &Feeds	Live-stock
Frozen Foods		55	39	14	45	12	18	19	3
	R	100.0	70.9	25.4	81.8	21.8	32.7	34.5	5.5
Meats		39	48	16	33	12	17	20	4
	R	81.2	100.0	33.3	68.7	25.0	35.4	41.7	8.3
Dairy Products		14	16	29	19	5	5	9	0
	R	48.3	55.2	100.0	65.5	17.2	17.2	31.0	0.0

Totals: Frozen food carriers = 55
Meat carriers = 39
Dairy Product carriers = 14

As expected, the 1984 gross revenues varied greatly for the regulated carriers, ranging up to 50 million dollars. The majority of all carriers had revenues of less than three million dollars in 1984 and one carrier had a 1984 gross revenue between 30 and 50 million dollars. According to 1984 operating ratios, many of the firms surveyed had operating ratios in the 'unprofitable' range (greater than 0.94). In fact, for all the carriers, the range of 0.95 to 0.99 was checked most frequently.

Table 4.25 1984 Gross Revenues and Operating Ratios For Carriers of Frozen Foods, Meats and Dairy Products

Column % in Parentheses

Gross Revenue	Commodity Frozen Foods	Commodity Dairy Products	Meats	Total
< 0.5 million	4 (18.2)	5 (25.0)	4 (21.1)	13
0.5 - 1 million	5 (22.7)	2 (10.0)	4 (21.1)	11
1 - 2 million	1 (4.5)	6 (30.0)	1 (5.3)	8
2 - 3 million	5 (22.7)	4 (20.0)	3 (15.8)	12
3 - 4 million	2 (9.1)	2 (10.0)	1 (5.3)	5
4 - 5 million	1 (4.5)	0 (0.0)	1 (5.3)	2
5 - 10 million	3 (13.6)	0 (0.0)	3 (15.8)	6
10 - 15 million	1 (4.5)	1 (5.0)	1 (5.3)	3
> 15 million	0 (0.0)	0 (0.0)	1 (5.3)	1
Total	22 (99.8)	20 (100.0)	19 (100.3)	

Operating Ratio

< 0.90	5 (25.0)	2 (18.2)	5 (21.7)	12
0.90 - 0.94	2 (10.0)	3 (27.3)	7 (30.4)	12
0.95 - 0.99	9 (45.0)	3 (27.3)	7 (30.4)	19
1.00 - 1.04	2 (10.0)	1 (9.1)	2 (8.7)	5
1.05 - 1.09	0 (0.0)	1 (9.1)	0 (0.0)	1
> 1.09	2 (10.0)	1 (9.1)	2 (8.7)	5
Total	20 (100.0)	11 (100.1)	23 (99.9)	

4.4a Increased Competition

The frozen food and meat industry have been impacted by deregulation primarily through the decrease in entry barriers in the regulated segment. The regulated haul is more attractive to

motor carriers since posted rates provide some insurance of profit.

Almost 60 percent of dairy, meat and frozen food haulers reported an increase in competition for obtaining shipments since 1980. This increase is substantial but it represents the smallest increase of all commodity groups. In addition, the 12.5 percent who feel that competition has decreased represents the largest decrease of all groups.

Table 4.26 Competition For Obtaining Shipments, Carriers of Frozen Foods, Meats, Dairy Products
R = Row %

		Increase	Decrease	Constant	Total
Frozen Foods		14	2	2	18
	R	77.8	11.1	11.1	100.0
Meats		9	2	4	15
	R	60.0	13.3	26.7	100.o
Dairy Products		3	1	4	8
	R	37.5	12.5	50.0	100.o
Total		26	5	10	

It is apparent that many firms (including exempt and regulated carriers) are obtaining authority to haul a wider variety of non-exempt goods but only a fraction are hauling the perishable regulated goods. Many carriers who were hauling fresh produce prior to 1980 have definitely expanded into the regulated market but new firms are not entering the refrigerated hauling market at the same rate as for other products. Interviews with common carriers supported this hypothesis. Carriers felt that the high cost of reefer equipment prevent a large influx of new firms. Firms who owned reefer units prior to 1980 are simply expanding

operations in order to utilize equipment more efficiently. There is an attraction to haul regulated goods but perishability of the product and high equipment costs for transporting perishable goods prevent a large number of firms from entering this market. The attraction is primarily for established firms who have the necessary equipment (such as haulers of chilled products) and wish to operate in a regulated environment.

An additional factor which should be considered is that a reefer van may serve the same purpose as a dry van. In other words, the cooling unit can be turned off and this versatility allows operators of reefer vans to haul a wide variety of goods. One carrier stated that the flexibility allows him to remain profitable.

Other important sources of increasing competition are established out-of-state haulers and private fleets. Out-of-state haulers have increased due to reasons mentioned above and also the ease in obtaining ICC authority. Private fleets have always played a major role in transporting processed food products and the initiation of food transportation discounts for food or grocery sellers (see page 39) has increased the use of private fleets.

Table 4.27 Sources of Increasing Competition, Carriers of Frozen Foods, Meats, Dairy Products

R = Row %

		Non-MI Firms	New Firms	Private Fleets	Estab MI Firms	Farmer	Rail-Road	Total
Frozen Foods		9	6	7	1	2	0	25
	R	64.3	42.9	50.0	7.1	14.3	0.0	
Meats		4	5	4	1	0	0	14
	R	44.4	55.6	44.4	11.1	0.0	0.0	
Dairy Products		1	3	0	0	0	0	4
	R	33.3	100.0	0.0	0.0	0.0	0.0	
Total		14	14	11	2	2	0	

4.4b Rates

Motor carriers transporting meats, frozen foods or dairy products have been forced to reduce rates in response to increasing competition. Approximately 43 percent reported that rates have declined since 1980, 43 percent said that rates have remained constant while only 14 percent have increased rates. The characteristics of perishability which reduces some of the incentives to haul these foods do not outweigh the attraction to haul regulated goods and thus many carriers have been forced to decrease rates in response to the impacts of deregulation.

Table 4.28 Rate Changes Since 1980, Carriers of Frozen Foods, Meats, Dairy Products

R = Row %

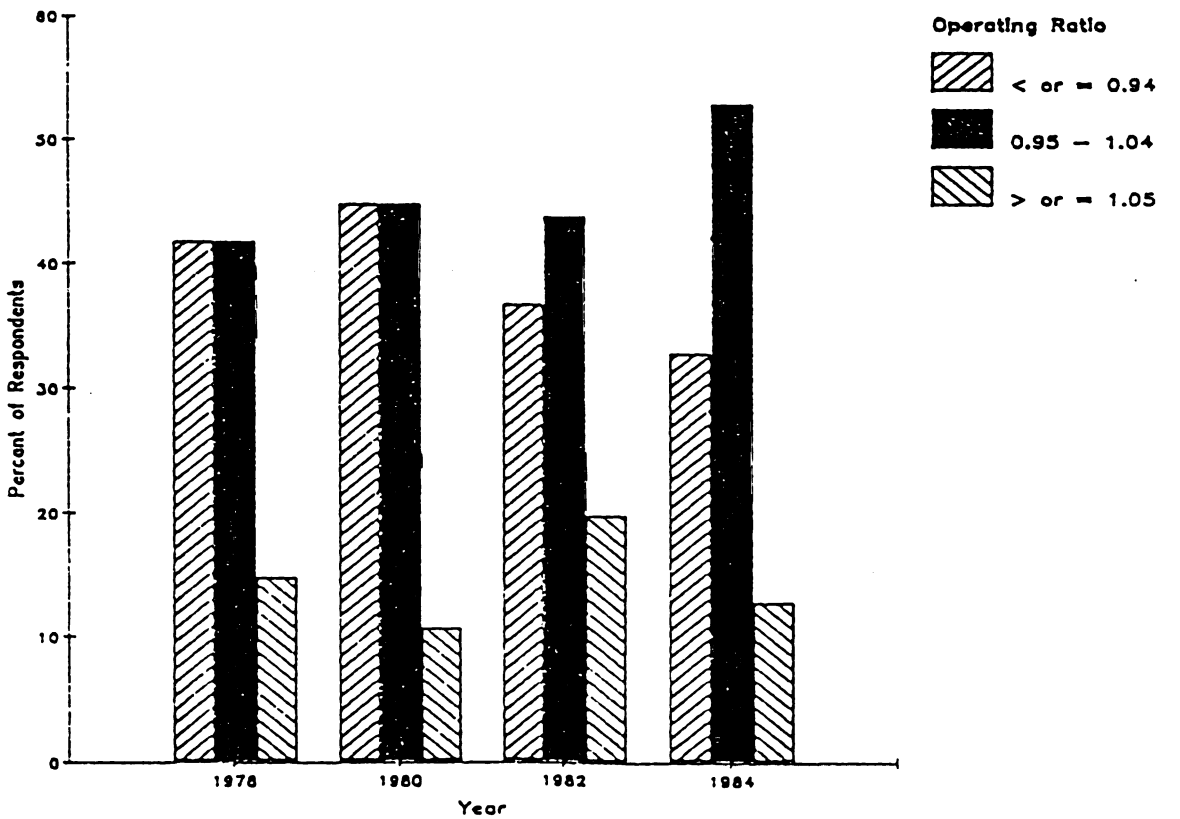
		Decrease	Constant	Increase	Total
Frozen Foods		9	6	3	18
	R	50.0	33.3	16.7	100.0
Meats		8	5	2	15
	R	53.3	33.3	13.3	99.9
Dairy Products		2	5	1	8
	R	25.0	62.5	12.5	100.0
Total		19	16	6	

4.4c Profitability

Changes in competition and rates have led to a decrease in profits for many carriers. Almost one-half of the motor carriers have experienced declining profits since 1980 while 28 percent said that their profits have remain stable. Those reporting an increase in profits are likely expanding operations into the more profitable types of regulated hauling such as the transportation of nonfood items.

As expected, the number of respondents reporting operating ratios of less than 0.95 have decreased since 1980. Many firms are now reporting operating ratios within the range of 0.95 to 1.04, suggesting that revenues are declining relative to expenses (see figure 4.4).

FIGURE 4.4
OPERATING RATIOS OF REFRIGERATED FOOD CARRIERS
1978 – 1984



4.4d Non-Price Competition

Firms are attempting to maintain profits by expanding operations into new markets. Although the carriers of refrigerated goods are somewhat limited due to equipment constraints, many are diversifying in order to create revenues from other sources. The attitudes of the ICC and MPSC which now favor competition have allowed the carriers to apply for and receive operating authorities for a wider variety of food and nonfood items.

Diversification is being achieved in many ways including hauling to a wider area, hauling more non-exempt goods, and increased use of trip-leasing. Hauling more exempt products and contract hauling have also been increased significantly.

Table 4.29 Increased Activities Since 1980, Haulers of Frozen Foods, Meats, Dairy Products

R = Row %

		Haul to Wider Area	Haul More Non-Exempt	More Trip-Leasing	Haul More Exempt	More Con-tracts	Total
Frozen Foods		12	12	7	3	6	40
	R	70.6	70.6	41.2	17.6	35.3	
Meats		10	9	6	3	5	34
	R	76.9	69.2	46.2	23.1	38.5	
Dairy Products		4	5	3	2	1	15
	R	66.7	83.3	50.0	33.3	16.7	
Total		26	26	16	8	12	

Compared with other commodity types discussed in this report, the regulated carrier is making the greatest effort to haul more non-exempt goods and also serve a wider area. The fact that a reefer van can serve a dual purpose gives the owner of

refrigerated vans a comparative advantage over carriers who own strictly dry vans. Both regulatory and equipment barriers exist for hauling regulated goods but equipment barriers for hauling dry goods are less prevalant.

Motor carrier firms who are serving a wider geographical area are providing the additional services to interstate markets. Over 68 percent of the carriers have increased interstate hauling while only 19 percent have expanded their intrastate services.

Trip-leasing is being increased for interstate hauls. The major benefit of trip-leasing is for an exempt hauler to secure revenues from loaded backhauls by leasing out his equipment and driver to a regulated carrier. Regulated carriers are also increasing the amount of trip-leasing but the reasons are unclear. Information gathered in personal interviews further complicated the problem since carriers often said that they no longer need to rely on trip-leasing to haul goods for which they have no authority since the authority can easily be obtained. It is possible that regulated carriers who are trip-leasing more frequently are doing so in order to avoid ICC and MPSC application fees. Also, more trip-leasing services are being offered since more firms now have authority to haul a wider variety of products.

Exempt hauling has less potential for profits than regulated hauling but many regulated food carriers stated that they are hauling exempt products more frequently. Firms have become aware of the competitive situation in the entire industry and are

hauling a wider variety of all goods to prevent empty backhauls.

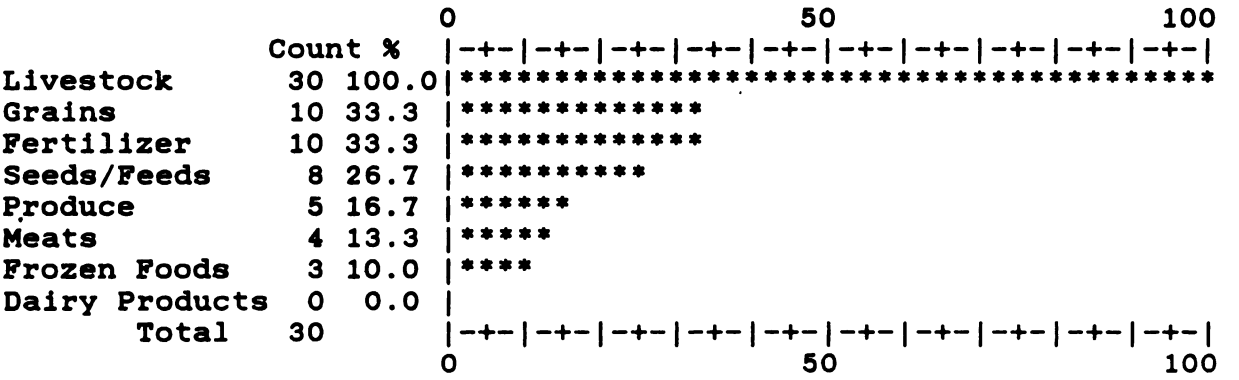
Many of the regulated common carriers are large firms employing union labor. In a competitive industry such as the agricultural trucking industry, variable costs need to be maintained at a reasonable level in order to earn adequate profits and remain competitive. A 1983 Congressional report stated that the average wage for Teamster Union members was $12.74 compared to $8.60 per hour for non-union trucking employees. The report concluded that, "Increased competition from non-Teamster entrants into the general freight sector of the trucking industry has caused Teamsters to lose a substantial share of the truckload market" (97th Congress, p.32). Furthermore, a recent study reported that only 29 firms will bargain with their labor unions in 1985, down from 286 in 1982. The study linked trucking deregulation to much of this decline.

> Behind this exodus, says experts, are new competitive pressures to cut costs and improve productivity to stay in business. Trucking deregulation,..., are among the forces at work (US News & World Report,1984,p.85).

4.5 Livestock Haulers

The questionnaire identified 30 of 269 motor carriers as livestock haulers. These carriers are primarily hauling only livestock although approximately one-third indicated that they also haul bulk products. Some also haul produce and very few livestock carriers haul processed foods.

Table 4.30 Commodities Hauled By livestock Carriers



Livestock carriers are basically small firms. Almost 90 percent of the carriers who reported their 1984 gross revenue earned less than 500,000 dollars and no carriers reported revenues over three million dollars. Although gross revenues are small, the firms seem to be profitable. Two-thirds of the respondents indicated that their firm had a 1984 operating ratio of less than 0.95.

Table 4.31 1984 Gross Revenues and Operating Ratios of Livestock Carriers

Gross Revenue($)	Number	Percent of Respondents
< 0.5 million	13	86.7
0.5 - 1 million	1	6.7
1 - 2 million	0	0.0
2 - 3 million	1	6.7
> 3 million	0	0.0
Total	15	100.1

Operating Ratio	Number	Percent of Respondents
< 0.90	3	33.3
0.90 - 0.94	3	33.3
0.95 - 0.99	2	22.2
1.00 - 1.04	0	0.0
1.05 - 1.09	1	11.1
> 1.09	0	0.0
Total	9	99.9

The regulatory status for livestock was not changed for

either interstate or intrastate transportation. Livestock is exempt on intrastate movements from the farm to the market and exempt for all interstate movements. Most other types of agricultural commodities have been affected by deregulation through the decrease in entry barriers, the deregulation of the specific commodity, or both. Movements of livestock have been unaffected by changes in regulatory status and minimally affected by the decrease in entry barriers. The very specialized equipment required to haul livestock reduces the possibilities for a livestock carrier to haul other commodities while carriers of other goods can not enter the livestock shipping industry due to equipment limitations. Furthermore, livestock hauling involves empty backhauls, reducing incentives for new participants to enter the industry.

4.5a Increased Competition

Thirty livestock haulers were surveyed and three other carriers were interviewed to gain further insight on the livestock trucking industry. Interviewed carriers felt that deregulation has not greatly affected competition in the industry, stating that they are experiencing some additional competition but the increase is slight. Only 38.5 percent stated that competition has increased (lowest of all commodity groups) and over one-half said that competition has remained stable. Those reporting an increase in competition are not necessarily attributing the increase to deregulation. Very few carriers reported new or established firms expanding operations to be a source of increasing competition. Rather, the carrier often

stated in interviews that they are feeling increased pressure from farmers hauling their own product. The carriers suggested that the farmers have a competitive advantage since they can haul livestock without having to pay for commercial plates. Although farmers are exempt from regulation when hauling their own stock from farm to market, they may only provide transportation services for other farmers if remunerated in kind or in labor, but not for money (see page 31). Carriers feel that for-hire services are being provided by the farmer, resulting in increasing competition for hauling livestock from the farm to market (see page 109 for a detailed explanation of this enforcement issue).

4.5b Rates

A priori information suggests that rates have not decreased significantly. Of 13 livestock haulers who answered the question concerning rates, eight said that rates have remained constant while two and three said rates increased and decreased, respectively. Thus, it can be concluded that rates for hauling livestock have held steady since 1980, suggesting a decline in real rates. This decline is partially attributable to deregulation but the majority of carriers feel that 1) the decline is due to the recession which plagued Michigan in the early 1980's, or 2) a distinction between deregulatory and recessionary impacts can not be made.

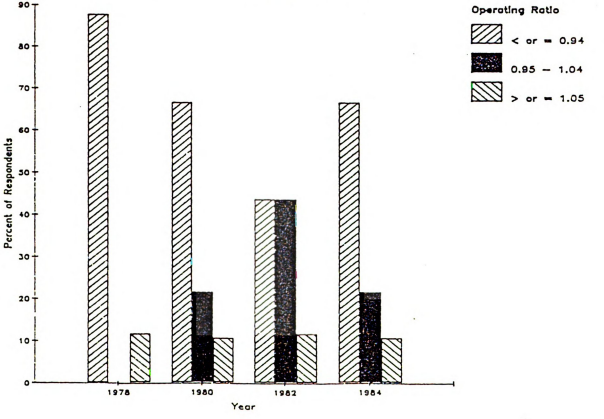
4.5c Profitability

Profits have remained stable since 1980 for the majority of livestock carriers. Only 11 of 30 carriers reported decreasing profits (the smallest of all commodity groups) while two carriers have increased profits. Operating ratios strongly support these results. The same number of carriers had operating ratios of less than 0.95 in 1980 as 1984, and this also holds true for the ranges of 0.95 to 1.04 and greater than 1.04. These figures suggest that incomes have remained stable (see figure 4.5).

Summary of Deregulatory Impacts on Livestock Carriers

The analysis of competition, rates and profitability indicate that the livestock industry has not been impacted significantly by deregulation. Problems concerning availability of trucks (see page 102) and unfair competition do exist but they are not a direct result of deregulation.

FIGURE 4.5
OPERATING RATIOS OF LIVESTOCK CARRIERS
1978 – 1984



CHAPTER 5

DEREGULATORY IMPACTS ON THE SHIPPER/RECEIVER OF AGRICULTURAL PRODUCTS

The deregulatory acts of 1980 (ICC) and 1982 (MPSC) not only affected the motor carrier industry but have also impacted many other food and agricultural industries by changing the transportation structure of food and agricultural products. Users of trucking services were interviewed in order to further determine the impacts of motor carrier deregulation on the agricultural transportation industry. Twenty-seven interviews (personal and telephone) were conducted of shipper/receivers dealing with a wide variety of products including exempt and regulated goods.

Table 5.1 Summary of Shipper/Receiver Interviews

commodity handled	number of firms interviewed
frozen or processed produce	6
fresh produce	4
bulk commodities and products	6
meat and meat products	6
livestock	5
Total	27

Three major categories were discussed including rates paid for trucking services and how these rates are negotiated, the quality of services provided by the motor carrier and opinions of the current regulatory situation along with recommendations to improve the performance of the Michigan based trucking industry serving agriculture. Performance recommendations are discussed in chapter six.

Responses of interviewed shipper/receivers were often similar and in general the users of trucking services stated that transportation rates have remained constant or decreased since 1980 without a severe decline in service quality. The majority of users feel that deregulation has been good for the agricultural transportation industry. However, participants involved with specialized segments of the industry did indicate that results were varied across commodity types due to differences in structure and competition.

5.1 Rates

In response to the question concerning rates and how they have changed since 1980, eight respondents indicated that rates have decreased, fifteen felt that rates have remained constant while four suggested that the rates paid for trucking services have increased. The shipper/receivers reporting an increase in rates are shipping livestock and this implies that livestock hauling is a less competitive segment of the agricultural trucking industry due to specialized equipment and limited backhaul opportunities. In general, shipping rates have either decreased or remained stable in nominal terms but have definitely declined in real terms. A trend was apparent across commodity types which indicates that haulers of bulk products such as grains, seeds and feeds have decreased rates while rates for hauling regulated goods have remained stable. Within the bulk commodities classification seeds and feeds have experienced a greater decline in rates than grains and other previously exempt products. This is likely attributable to the recent

exemption of seeds and feed ingredients from regulation which has created competitive ratemaking while processed and frozen goods are still somewhat protected by regulated tariffs. However, a rate decrease in real terms for regulated products suggests that competition has also increased in the regulated segment.

Flexibility in setting and negotiating rates was an objective of the ICC and MPSC Acts and it is apparent that rates are now flexible and are often being negotiated between the carrier and shipper. Although several shippers of regulated products stated that their carriers do follow posted tariffs, other shippers indicated that rates are often negotiated. Rates are often negotiated on a truckload basis for the less perishable products such as grains and feeds. This is also the case for the less perishable vegetables but the shipper/receivers of perishable fruits indicated that they normally know what rates will be paid for a load prior to arranging services. According to produce shippers, the haulers of fresh produce are aware of the rates which must be charged in order to receive a shipment and are consistent in charging these rates. Produce carriers did indicate that shippers/receivers are attempting to negotiate lower rates (see page 78) but shipper/receivers indicated that rates are predetermined and at an adequate level.

5.2 Service

A major concern of the proponents of deregulation was that service quality would deteriorate if trucking firms were allowed to charge competitive rates and provide unregulated service. Shipper/receivers were asked to comment on the quality of services received. Questions concerning service quality included asking the shipper/receiver to state in general terms the quality of service received and also discussed were specifics concerning service. These specifics included 1) availability of trucks 2) reliability of service, and 3) trucking firms willingness to service out-of-the-way markets.

5.2a Service Quality in General

None of the 27 shippers interviewed said that the service they currently receive is of poor quality and only three firms indicated that overall service quality has decreased since 1980. The remainder of the firms indicated that the service they receive is either equal to the predederegulatory situation or improved. The shipper/receivers often attributed high quality service to using the same carriers for hauling their product, thus giving repeat service to quality carriers.

Two firms which suggested that service quality has decreased were shippers of bulk commodities who said that although quality has diminished slightly, the opportunity to choose from a wider variety of carriers negates the few added problems associated with deregulation. On the other hand, one carrier shipping a wide variety of processed food items did indicate that deregulation has created difficulties in arranging

transportation services. Although there is now a wider selection of carriers to choose from, this firm has lost some control of the regulated carrier due to the size of their operation. Over 130 regular common carriers are used and thus it is difficult to control the transportation functions provided by the carriers. The interviewee felt that the firm is representative of other large, low margin food distributors and thus it is probable that other firms of similar size and nature are experiencing the same difficulties.

5.2b Availability of Trucks

The seasonal nature of agricultural production is perhaps the greatest factor in determining the availability of trucks for hauling agricultural commodities. This characteristic along with other competitive characteristics which differ among market segments led to a wide variety of responses to this question. Thus, responses will be outlined accoording to commodity types.

Bulk Commodities

Shipper/receivers transporting non-perishable products in truckload shipments have benefited from deregulation. Firms indicated that plenty of trucking services are available and this represents an increase from 1980. Several firms did indicate that during peak shipment periods it is difficult to obtain a carrier but this has always been a problem. Actually, the problem has decreased now that seeds and feed ingredients can be backhauled exempt to an agricultural business and chemicals and fertilizers are exempt on movements directly to a

farm. Also, the new trucking firms now offering services are often willing to provide quality service to the shipper.

Fresh Fruits and Vegetables

Firms shipping or receiving fresh produce have indicated that some difficulty does exist in obtaining trucks to haul their product. Although this is not a major problem during the off-season, it becomes quite critical during periods of peak demand for trucking services. Several produce shippers stated that the problem stems from the need to ship products in less-than-truckload shipments. Few carriers are willing to haul LTL if truckload opportunities exist due to the complexities involved with LTL transportation. In order for a trucker to efficiently handle LTL shipments, the firm must be able to combine small freight shipments in a manner that produces maximum efficiency. Difficulties in LTL hauling were outlined in a 1979 study which indicated that TL shipments averaged $234.00 per shipment in gross revenue while LTL shipments averaged $43.00 per shipment (MPSC, 1979). From these figures it can be concluded that LTL transportation is more costly than TL hauling and thus the nature of the industry dictates that it may be difficult for shipper/receivers to obtain LTL shipments. In addition, the perishability factor of transporting fresh produce reduces the incentives to haul fruits and vegetables. It is doubtful that these problems are compounded by deregulation since trucking firms have indicated an increase in LTL services while shipper/receivers suggested that service availability has always been a problem.

Fruit and vegetable shippers are reducing problems associated with LTL transportation by using truck brokers to arrange services and also using the same carrier repeatedly once adequate service is provided. The brokers bring together truckers looking for a load and shippers needing trucking services. The use of the broker does not necessarily reduce rate negotiation between the shipper/receiver and trucker and also allows the shipper to choose a trucker that has provided satisfactory service in the past. This provides the shipper/receiver with added flexibility since services can also be arranged through direct contact with the carrier. Using a carrier that has provided satisfactory service in the past is a common practice and one shipper stated that a carrier who will consistently handle LTL shipments will also be given priority on TL shipments. Therefore, even with a low availability of trucks, shipper/receivers are searching for quality service and low rates.

Although fruit and vegetable firms expressed satisfaction with transportation services, truck brokers and motor carriers have indicated that in the long-run, the produce industry will feel adverse effects of deregulation. Truckers and brokers claim that shippers are demanding high quality service while paying minimum rates. Although carriers are currently meeting these demand, they will not survive due to their charging rates below operating costs. When deregulatory impacts are completely absorbed into the industry, the supply and demand of trucking services may lead to produce shippers paying high rates.

Processed Food Products

An increase in the number of trucking firms hauling regulated products along with more firms in the industry have benefited the shipper/receiver of regulated products. Shippers of processed goods (canned produce, dairy products, frozen foods, meats, etc.) have indicated that there are now more firms willing to provide satisfactory service at low rates. Problems which characterize LTL transportation are apparent for shippers of processed food products but firms involved with LTL shipments say that deregulation has not complicated the situation and has more likely reduced problems of LTL transportation. Meat packers stated that it has always been easy to obtain trucking services while shippers of frozen fruits and vegetables suggested that more trucks are needed during periods of peak demand. However, plenty of trucks are available at other times of the year and it can be concluded that deregulation has resulted in an increased number of trucking firms. Thus, the problems of obtaining trucking services during high demand periods has been slightly reduced.

Livestock

The specialized nature of livestock hauling limits the number of trucks available to haul livestock. Backhaul opportunities are often non-existent since livestock trucks are not designed to haul other types of commodities or products. Although the majority of livestock shipper/receivers indicated that it is often difficult to arrange trucking services, deregulation has not compounded the problem. Research conducted

prior to deregulation found that 47 percent of all livestock handlers had difficulties in obtaining for-hire trucking services (Hoffman,Boles,Hutchinson,1975). In addition, the large shipper/receivers experienced more difficulty than smaller firms, a trend supported by personal interviews. This is likely attributable to small firms hauling livestock with their own equipment. Shippers may currently be benefiting through more farmers hauling their own product. One shipper estimated that up to 40 percent of all livestock transported from farm to slaughter are being transported by farmers. Even with the increase in farmer hauling, it seems reasonable to conclude that the demand for livestock haulers is greater than supply, especially during peak periods of livestock movement. Also, deregulation has not significantly compounded or reduced the problem since there has been no significant change in the number of livestock haulers since 1980.

5.2c Service Reliability

Shippers were asked if the service they receive for transporting agricultural products is reliable in terms of pick-up and delivery of the product. Across all commodity groups firms indicated there were few problems in obtaining reliable service and often attributed this to using carriers which consistently provide adequate service. A few problems with prompt pick-up and delivery exist for livestock and LTL movements but the shippers suggested that delays are often a result of the shipper or receiver not moving trucks in and out of terminals at an adequate pace. Hence, the trucker is not

solely responsible for slow service. Also noted by shipper/receivers is the increasing professionalism among motor carriers. A decline in the number of individual owner-operators and a corresponding increase in the variety of services being offered by trucking firms has implications for shipper/receivers in that professional services are being offered to the customer. For example, an owner-operator does not have the resources to provide alternative transportation if a vehicle in transit breaks down. However, a carrier with several trucks can assure the shipper that a product will reach it's destination with minimal delay even if a vehicle malfunctions since other trucks can provide substitute service. Of course, there are still a number of trucking firms providing non-reliable service but overall, shipper/receivers of all commodities are satisfied with the reliability of available trucking services.

5.3 Small Community Service

A major question surrounding regulatory reform concerns the plight of the small community shipper/receiver. Prior to deregulation, regulated trucking firms were required to serve all shipper/receivers along a designated route, guaranteeing service at nondiscriminatory rates to shipper/receivers located in rural areas. Deregulation reduced this guarantee and proponents of deregulation are concerned that shipper/receivers located in small communities will receive discriminatory service. Thus, a major regulatory debate centers on how severely the small shipper has been affected by deregulation. Finding an answer to this question is especially important to agriculture

transportation since agriculture is based in small, rural communities.

Surprisingly, there do not seem to be any serious negative impacts of deregulation on the shipper/receivers located in small communities. Only one firm which ships processed food products said that it is difficult to ship to terminals not located near a major highway or metropolitan area. In addition the shipper stated that this has always been a problem and it is related to the nature of the business and not regulatory reform. All other firms strongly denied any difficulties in shipping to small communities. The structure of agricultural production suggests that difficulties associated with small community service should not be a problem. Results of other studies have been similar.

> Service to these S/R's has been satisfactory historically in spite of, rather than because of, regulatory constraints. The success of exempt interstate trucking of unprocessed agricultural goods is frequently pointed to as verification of this thesis (Johnson,Lauth). In addition, with greater flexibilities with regard to backhauling, routes, entry and exit, etc., the aggregate supply of trucking services shifts outward. Therefore, while small and rural S/R may receive a smaller share of all trucking services, they may still enjoy absolute gains (Beilock, Freeman, 1984, p.92).

This report concludes that it is the opinion among the vast majority of shipper/receivers located in small communities that deregulation has not adversely affected the ability to obtain trucking services and has in fact benefited their operations.

CHAPTER 6

SUMMARY AND RECOMMENDATIONS FOR IMPROVING THE PERFORMANCE OF THE MOTOR CARRIER INDUSTRY

6.1 Summary

Deregulation of the motor carrier industry has impacted both motor carriers and shipper/receivers of agricultural products. Often, the direction of the impact is similar for all firms but the magnitudes differ depending on the type of commodity being transported. The four major commodity groups examined in this study are bulk commodities, fresh produce, processed foodstuffs (meats, frozen foods, dairy products) and livestock. There are also four competitive characteristics which alter the magnitude of the deregulatory impacts. These factors include:

1. the regulatory status of the commodity or product, i.e. classified as regulated or exempt
2. the perishability of the commodity
3. the need for specialized equipment
4. the frequency of truckload and less-than truckload shipments.

Deregulation has increased the supply of trucking services due to ease of entry and added flexibility in arranging backhauls. Furthermore, motor carriers are now hauling a wider variety of products on all movements. The increased supply of service puts downward pressure on rates, resulting in lower profits for motor carriers. The lower profits have reduced the demand for new equipment but it is currently unclear if safety will deteriorate in the long-run. It can be expected that the

total number of trucks demanded will decrease since the same number of vehicles can now provide more services.

In summary, the impacts of motor carrier deregulation on the agricultural trucking industry are:

- Competition for obtaining shipments has generally increased for agricultural motor carriers. The most dramatic increase is for bulk commodity carriers who report that deregulation has resulted in a large number of new and established carriers hauling semi-perishable bulk goods. The number of carriers hauling livestock has increased only slightly due to the need for specialized equipment and the degree of risk involved with hauling livestock. Motor carriers transporting fresh produce and processed food products requiring refrigeration report substantial and similar increases in competition. The current trend is for haulers of fresh produce, meats, frozen foods and dairy products to haul more lucrative non-food items whenever the opportunity exists. Some firms are reducing their agricultural hauling operations in favor of non-food items, but the increased competition suggests that there is no indication of a possible decrease in the total number of motor carriers serving agriculture.

- Transportation rates for hauling agricultural goods have declined in nominal and real terms since 1980. Very few motor carriers or shipper/receivers reported increasing rates since 1980. The magnitude of the rate changes vary by commodity or product being shipped but it can generally be concluded that real truck transportation rates for all agricultural goods have declined as a result of deregulation.

- The costs associated with operating motor vehicles have risen steadily over the past several years and thus the profits of many motor carriers have declined. With the exception of livestock carriers, approximately one-half of the motor carriers surveyed reported a decline in profits as a result of motor carrier deregulation. One-third of the livestock carriers, who operate in an environment characterized by risk and the need for highly specialized equipment, reported a decline in profits since 1980.

- The motor carrier industry serving agriculture is currently undergoing many changes. As a result of deregulation, motor carriers are now offering a wider variety of services and hauling more food and non-food items. The users of trucking services feel that the overall quality of service currently being provided by motor carrier has improved since deregulation. Motor carriers feel that in order to survive in the competitive trucking industry, they must emphasize

professional service and offer many service options to their customers.

- o There is no indication that rural communities have lost trucking services or are receiving services at discriminatory rates. Motor carriers serving agriculture provide service to small communities since agriculture is based in small, rural communities. It is not expected that motor carriers will abandon agricultural hauling in favor of hauling non-food items. Although non-agricultural hauling may involve less risk, it is expected that motor carriers will continue to provide an adequate supply of trucks to shipper/receivers of agricultural products.

- o The greatest benefits of deregulation have accrued to shippers and receivers of agricultural products. These firms now receive transportation services at real rates which are lower than 1980 levels. In addition, there are many available carriers to choose from and shipper/receivers feel that motor carriers are now emphasizing professional service.

This study does not separate deregulatory impacts from recessionary effects but it is concluded that some of the impacts of deregulation discussed previously are due, in part, to the recession of 1980-1983. For example, profits have declined for motor carriers but some of this decline can be attributed to the recession which reduced the demand for trucking services. Motor carriers often stated that the degree of deregulatory impacts on the industry are unclear due to the recession. However, data is available for 1984 and it can be concluded that although the recession negatively impacted the motor carrier industry, the industry was significantly affected by deregulation.

6.2 Recommendations

Before addressing the need for more or less government regulation of the motor carrier industry, two issues which concern the current status of the industry must be addressed.

First, there needs to be consistency in enforcing regulations and second, there is a need for uniformity between interstate and intrastate acts.

6.2a Consistency

The problem of inconsistency is an enforcement issue and does not directly pertain to government legislation. Whereas legislative activities are governed by the MPSC and ICC, highway enforcement of these acts is the responsibility of the Michigan State Police Motor Carrier Division (see page 42). Motor carriers often stated that operating in a regulated environment would be acceptable if the legislation was properly enforced and thus the issue of enforcement must be addressed.

Perhaps the biggest issue which pertains to enforcement is farmers being a source of competition to the commercial motor carrier. Farmers may legally provide trucking services for others if they are remunerated in kind or in labor but many carriers charged that some farmers are providing for-hire services. The commercial carriers regard this as unfair competition since a farmer is not required to purchase commercial plates and thus has a cost advantage over the commercial carrier (see Table 6.1).

Table 6.1 Costs Of Obtaining Commercial Plates and Farm Plates[1] and Farm Plates for Michigan Based Operations

Commercial Plates[2]	
Initial Application Fee For Obtaining MPSC Authority (fixed rate)[3]	$100.00
Administration Fee (per vehicle)	$100.00
Application Fee For Diesel Fuel Tax Decal[4]	$ 92.00
Total	$292.00
plus	diesel fuel tax
plus .. registration plate fee (based on (gross vehicle weight of 0 to 160,000 lbs.)	$316.00 - 2072.00
Farm Plates[5]	
License Fee (per hundred lbs.empty weight)[6]	$ 0.74

1 Costs are calculated for a first year applicant owning one truck or "self-propelled motor vehicle."
2 Commercial Plates are required for all road tractors, truck tractors and diesel trucks operated in Michigan with the exception of farmer owned vehicles and buses.
3 The MPSC license is required only of regulated motor carriers.
4 In addition to the $92.00 licensing fee, a tax of $.15 per gallon is levied on fuel used in Michigan. A $.06 per gallon tax discount is then given for fuel consumed in trucks which have the diesel fuel decal.
5 The farm vehicle must be a truck, truck tractor, road tractor and used exclusively in connection with a farming operation or for the transportation of the farmer and the farmer's family and not used for hire.
6 Represents one of several available options. An alternative option is available for transporting crops between the field and storage or selected inputs between the farm and field. The special registration plate fee is $15.00 per year.

SOURCE: 1) 1982 Public Act 399, MPSC
2) Michigan Dept. of Treasury
3) Michigan Dept. of State

Many other enforcement issues were discussed in interviews with motor carriers, including the practice of falsifying records and log books. Of course, the enforcement agencies can not eliminate all of these problems, but motor carriers feel that consistent enforcement of the regulatory acts will allow

all motor carriers to operate at equitable levels.

A 1983 Congressional hearing addressed the problems of ICC enforcement and identified five problem areas. They include:

1. program goals and priorities have not been established
2. the system is complaint oriented and thus less effective than it might otherwise be
3. the ICC concentrates on only five areas of enforcement
4. the ICC is currently using an insufficient data system
5. staffing levels for enforcement activities are questionable (97th Congress, p.3).

The report also investigated the possibility of transferring ICC enforcement activities to other agencies, including state agencies such as the MPSC. Various state officials indicated that they are in a position to carry out ICC enforcement activities, but problems could arise concerning the difficulty of coordinating interstate activities with fifty intrastate agencies (97th Congress, p. 3).

6.2b Uniformity

Perhaps one of the most difficult tasks facing the motor carrier is understanding the laws concerning government regulation. This problem is compounded when a carrier operates in both interstate and intrastate markets. Motor carriers frequently indicated that it is difficult to operate in out-of-state markets since state regulations often differ greatly from the interstate act regulations.

Since many carriers operate under both ICC and MPSC authority, it is important that MPSC and ICC regulations closely parallel one another. Total deregulation of interstate and

intrastate transportation will eliminate this problem but it is not the only feasible means of increasing uniformity. Hutchinson (1983) reached similar conclusions.

> Truck licensing and registration are not uniform among States. As a result of the ensuing complexity, a small service industry exists to aid truckers (exempt carriers constitute most of the clientele) in obtaining permits and licenses required to traverse most states. These service firms normally require a retainer fee and charge a percentage of the fees required by each State. Regulatory uniformity among States could result in significant cost savings.(p.17)

6.2c Regulatory Reform

In order to make recommendations concerning the future status of motor carrier regulation, several items need to be examined. First, the opinions of public officials, motor carriers and shipper/receivers as well as motor carriers, should be evaluated in order to assess the needs of the industry. Second, the success or failure of current regulations in meeting the initial objectives outlined by the ICC and MPSC must be determined. Finally, the question must be asked, "Can the objectives of the 1980 and 1982 regulatory acts be realized if additional deregulation is implemented?"

Shipper/receivers of agricultural commodities have benefited greatly from deregulation and as expected, favor deregulation of the motor carrier industry. These firms have benefited from reduced rates and quality service and thus a vast majority of all shippers and receivers interviewed suggested that total deregulation of entry, rates and routes be implemented. Total deregulation of entry, rates and routes will

benefit the shipper/receiver and possibly the consumer if the reduction in marketing expenses is passed on to the consumer. Furthermore, there is no indication that a decline in service quality and quantity will occur in the short or long-run as long as standards for safety are maintained and enforced.

It is expected a priori that the regulated carrier favors regulation since it allows motor carriers to operate in a market somewhat protected from competition. On the other hand, the exempt carrier has benefited from added flexibility and thus these carriers are expected to favor deregulation. Based on responses from surveyed motor carriers, it can not be concluded that exempt carriers favor deregulation while regulated carriers prefer regulation. The opinions for all types of carriers vary greatly, as indicated by table 6.2.

Table 6.2 Motor Carrier Opinions of the 1985 Regulatory Situation

R = Row %

Commodity	Opinion					
	Opposed Strongly	Opposed Moderately	Neutral	In Favor Moderately	In Favor Strongly	Total
Bulk Commod.	19	23	28	22	23	115
R	16.5	20.0	24.8	19.1	20.0	99.9
Fresh Produce	12	5	12	9	5	43
R	27.9	11.6	27.9	20.9	11.6	99.9
Refrig. Foods	12	8	19	8	5	53
R	23.1	15.4	36.5	15.4	9.6	100.0
Live-Stock	5	1	5	1	3	15
R	33.3	6.7	33.3	6.7	20.0	100.0
Total	48	32	64	41	36	

As indicated by Table 6.2, the response checked most

frequently by all carriers was `neutral.' The `neutral' attitudes of motor carriers are likely attributable to the recession which plagued the industry from 1980 - 1983. Carriers often stated that until the industry can operate in a strong economic environment for several years, it will be difficult to determine the net benefits of deregulation.

Motor carriers who disapprove of the current regulatory situation outnumber those that are in favor of legislation as it currently exists. Twice as many carriers reported being `strongly opposed' than `strongly in favor' while the percent being `moderately in favor' or `strongly in favor' differ only slightly. It is difficult to determine whether or not carriers who oppose the current regulatory situation favor more or less regulation. Written comments on the mail survey (see question 6, Appendix A) provided no conclusive results since carriers often had opposing views. In addition, examining the attitudes of carriers hauling specific commodities does not provide evidence that carriers of specific commodities favor more or less government legislation. The attitudes of individual motor carriers are probably influenced by their attitudes toward government involvement in private industry and how their operation has been affected by deregulation.

The objectives of the Motor Carrier Act of 1980 and Public Act 399 were to promote competition in the trucking industry while maintaining adequate service to shippers of all communities. According to the analysis presented earlier, the interstate and intrastate Acts have been successful in meeting

these objectives. Competition has been enhanced and shippers are receiving adequate service. Also, well managed carriers seem to be earning reasonable profits even though many carriers are reporting a decline in profit margins.

To what extent is government regulation necessary to ensure that competition will be maintained and users will receive adequate service? Currently, there are no indications that long-run stability of rates and service could not be achieved if the industry were free to operate competitively. The manner in which legislation is currently being enforced implies that the industry is operating without regulatory control with the exception of safety and insurance regulation and the only entry barriers are the application fees required to obtain authority. These costs, although an added burden to the motor carrier, have not prevented new firms from entering the market and are thus an impractical means of deterring entry. Since essentially all firms can be granted operating authority and have greater geographical flexibility, the value of the operating permit has declined. Prior to deregulation, the motor carrier was paying for a permit which guaranteed protection from competition. The operating permit no longer has this intrinsic value.

The possible long-run affects of total deregulation of entry, rates and routes are still unclear. Based on short-term impacts, it is hypothesized that complete deregulation of the trucking industry would not be detrimental to the industry or users of trucking services. Of course, <u>safety and insurance will always require regulation</u> because the highways are a public good. Perhaps the most logical recommendation is to let the

transportation industry operate under the current Acts for several more years. The impacts thus far are very short-term and are not perfectly clear due to the recession of 1980-1983. After this time, if competition has not resulted in `pre-1930' conditions, and it is believed that this will not be the case, then the ICC, MPSC and other state governments should allow the motor carrier industry to operate free of entry, rate and route regulation.

It must be noted that the recommendations outlined above are directed towards the agricultural motor carrier industry. Other industries were not included in this study and therefore the impacts of motor carrier deregulation on truckers hauling non-agricultural products are unclear.

6.3 Suggestions For Additional Research

Although the study just completed was quite general, the conclusions are of value since they provide a strong foundation for determining the economic impacts of deregulation. A weakness of the study was that many specific issues of deregulation could not be examined in depth. A second weakness which should be noted is the presence of sampling bias. Many of the exempt motor carriers are unidentifiable since they are not on record with the MPSC or ICC. Hence, the sample was biased towards the regulated carrier.

Additional research needs to address specific points brought out in this study. For example, the structure of the trucking industry is changing as a result of deregulation. The

motor carrier industry would benefit from research which examines specific characteristics of firms that have remained financially solvent, compared with the characteristics of firms being forced out of business. Also, results of a study examining specifically to what degree rates have declined since 1980 would answer additional questions concerning motor carrier deregulation.

Opportunities for additional research are numerous, but studies should focus on impacts of motor carrier deregulation which pertain to specific segments of the industry or concentrate on certain aspects of deregulation. We now have a broad-based study which provides the background and foundation for future research.

APPENDICES

APPENDIX A

COVER LETTER, MAIL QUESTIONNAIRE, FOLLOW-UP LETTER

APPENDIX A

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

December 12, 1984

We are conducting a mail survey of trucking firms and trucker-brokers to obtain information that will enable us to prepare an updated Directory of trucker services available to agricultural users and to obtain some preliminary indications of the changing competitive conditions that have evolved as motor carrier regulations have been modified. The Directory will be distributed by the Michigan Department of Agriculture. We hope that you will provide the information requested in Part I of the attached questionnaire so that your firm can be listed in the Directory. A copy of the Directory will be available for your own use.

The second phase of our study will be a more intensive assessment of the impacts of "deregulation" based upon contacts with trucking firms, agricultural users of trucking services and representatives of regulatory agencies. Your observations and comments in Part II of the mail questionnaire will help us in planning the follow-up study. Your answers and comments will be handled in a confidential manner as we summarize the information for publication. We plan to prepare a publication summarizing the impacts of deregulation and will attempt to identify problems and possible alternatives for improving the performance of the Michigan-based trucking industry serving agriculture.

May we have your response to the mail questionnaire by December 31?

Please return the questionnaire in the stamped, self-addressed envelope, even if you are not trucking agricultural commodities.

Thank you for your cooperation.

Sincerely,

Harold M. Riley

Harold M. Riley
Professor

Enclosures - (questionnaire, return envelope)

TRUCKER AND TRUCK-BROKER QUESTIONNAIRE

IMPORTANT

Please return the completed questionnaire in the self-addressed, postage-paid envelope.

If you are not a hauler of agriculture commodities as listed in question 2 below, please indicate here ( ) and return the uncompleted questionnaire.

Part I **Information to be used in preparing a Directory of trucking services for Michigan Agriculture.**

If the address or firm name is incorrect, please show the corrections below.

(1) Type of hauler: (Please check all that apply)

1	( )	Intrastate	6	( )	Exempt For-Hire Carrier
2	( )	Interstate	7	( )	Truck Broker
3	( )	Contract Motor Carrier	8,9		Other (please specify)
4	( )	General Commodity Common Carrier			_____
5	( )	Limited Common Carrier			_____

(2) Agriculture commodities you haul: (Please check all that apply)

1	( )	grains	8	( )	produce/fruits and vegetables
2	( )	fertilizers, liquid fertilizers, chemicals	9	( )	frozen foods
			10	( )	lumber and wood products
3	( )	seeds and feeds	11	( )	farm machinery and supplies
4	( )	meats (fresh and frozen)	12	( )	flowers, landscape materials
5	( )	livestock (including horses)	13,14		Other (please specify
6	( )	raw milk			_____
7	( )	dairy products			_____

(3) Type of equipment you operate: (Please check all that apply and indicate the number of units for each type)

			No. of Units
1	( )	flatbed or platform truck or trailer	_____
2	( )	dump truck or trailer	_____
3	( )	dry van	_____
4	( )	refrigerated van or trailer	_____
5	( )	tank truck or trailer	_____
6	( )	grain truck or trailer	_____
7	( )	livestock truck or trailer	_____
8,9		Other (please indicate type and number	
		_____	_____
		_____	_____

(over)

(4) Do you work through a truck broker? ( ) yes ( ) no

If yes, what is the broker's name and address?

Please check here ( ) if you desire a free copy of the Directory.

_____
(signature)

* * * * * * * * * * * * * * * *

Part II **Impacts of Deregulation (your answers will remain confidential in preparing an overall summary report).**

(5) Please check all statements which reflect changes in your own trucking operation since deregulation.

1 ( ) We now haul more "non-exempt" commodities.
2 ( ) We now haul more "exempt" commodities.
3 ( ) Rates charged to our customers have increased.
4 ( ) Rates charged to our customers have decreased.
5 ( ) We have increased service to small, rural communities.
6 ( ) We have decreased service to small, rural communities.
7 ( ) Our profitability has increased.
8 ( ) Our profitability has decreased.
9 ( ) There has been increased competition from railroads.

(6) What issues or regulatory changes need to be considered when examining the economic impacts of trucking deregulation?

Thank you.

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

January 15, 1985

We mailed a questionnaire to you in mid-December but have not as yet heard from you. Another copy of the questionnaire and a return envelope are enclosed. Your response would be greatly appreciated.

The questionnaire information will enable us to prepare a Directory of truckers hauling agricultural commodities. The Direcory will be distributed by the Michigan Department of Agriculture. We hope that you will provide the information requested in Part I of the attached questionnaire so that your firm can be listed in the Directory. A copy of the Directory will be sent to you upon request.

The second phase of our study will be a more intensive assessment of the impacts of "deregulation" based upon contacts with trucking firms, users of agricultural trucking services and representatives of regulatory agencies. Your observations and comments in Part II of the mail questionnaire will help us in planning the follow-up study. Your answers and comments will be handled in a confidential manner as we summarize the information for publication. We plan to prepare a report summarizing the impacts of deregulation and will attempt to identify problems and possible alternatives for improving the performance of the Michigan-based trucking industry serving agriculture.

May we have your response by January 31?

Please respond even if you are not hauling agricultural commodities. See the note at the top of the questionnaire.

Thank you for your cooperation.

Sincerely,

Harold M. Riley
Professor

Enclosures:
1. Questionnaire
2. Return, stamped envelope

APPENDIX B

COVER LETTER, MAIL QUESTIONNAIRE #2

APPENDIX B

MICHIGAN STATE UNIVERSITY

DEPARTMENT OF AGRICULTURAL ECONOMICS
AGRICULTURE HALL

EAST LANSING · MICHIGAN · 48824-1039

January 21, 1985

Thank you for responding to our mail questionnaire of trucking firms and truck brokers. The information is being used to prepare a Directory of trucker services available to agricultural users. When completed, the Michigan Department of Agriculture will mail a Directory to everyone who requested a copy.

A follow-up questionnaire is enclosed. This questionnaire will be used to prepared a publication summarizing the impacts of "deregulation" and identify problems and possible alternatives for improving the performance of the Michigan-based trucking industry serving agriculture. A short summary of the survey results will be mailed to you upon request (see questionnaire). All answers will be handled in a confidential manner as we prepare the summary and the final report.

May we have your response to the mail questionnaire by February 15?

Please return the questionnaire in the stamped, self-addressed envelope.

Thank you for your cooperation.

Sincerely,

Harold M. Riley
Professor

HMR/en

Enclosures:
1. Questionnaire
2. Return envelope

QUESTIONNAIRE FOR TRUCKERS HAULING AGRICULTURAL PRODUCTS

IMPORTANT: Please return the completed questionnaire in the self-addressed, postage-paid envelope. All answers will remain confidential.

NOTE: Please check here ( ) to request a summary report of the survey results and provide your name and address in the space below.

1. **Approximately what percent of your traffic involves the hauling of exempt products?** (e.g., livestock from farm to market in raw state; transporting raw agriculture products; intrastate carriers transporting livestock, and/or fertilizers directly to a farm for use in agricultural production).
   1 - ( ) zero; 2 - ( ) 1-24; 3 - ( ) 25-49; 4 - ( ) 75-99; 5 - ( ) 100
   6 - ( ) 50 - 74

2. **What year was your company founded?** _____

   If your company was founded in 1980 through 1985, please skip questions 3 through 13 and continue on with question 14. Otherwise, please answer all questions.

3. **Since deregulation, the rates we charge to our customers have**
   1 - ( ) increased 2 - ( ) decreased 3 ( ) remained constant

4. **Since deregulation, our rates (on average) have moved**
   1 - ( ) closer to our costs 2 - ( ) farther from our costs
   3 - ( ) no closer or farther from our costs

   If you answered "closer to our costs" or "farther from our costs" in question 4, please answer question 5. Otherwise, skip to question 6.

5. **The change in rate structure is primarily attributable to**
   1 - ( ) deregulation of the trucking industry
   2 - ( ) the recession of 1980-1983
   3 - ( ) unsure ( ) other_____

6. **Prior to 1980, our fleet had**
   1 - ( ) a greater percentage of new trucks
   2 - ( ) a greater percentage of old trucks
   3 - ( ) approximately the same percentage of new and old trucks

7. **Since deregulation, the competition for obtaining shipments has**
   1 - ( ) increased 2 - ( ) decreased 3 - ( ) remained constant

   If you answered "increased" to question 7, please answer question 8. Otherwise, skip to question 9.

8. **What do you feel is the major source of increasing competition?** (check one)
   1 - ( ) new firms
   2 - ( ) established Michigan firms expanding operations
   3 - ( ) out-of-state haulers expanding operations in Michigan
   4 - ( ) private fleets soliciting backhaul traffic
   5 - ( ) agriculture cooperatives
   6 - ( ) railroads
   7 - ( ) farmers hauling their own products
   8 - ( ) other_____

9. **Prior to 1980, were there more, less, or approximately the same number of firms hauling exempt agriculture products?**
   1 - ( ) more; 2 - ( ) less; 3 - ( ) the same number 4 - ( ) unsure

10. **Since 1980, the amount of service we provide to small communities has**
    1 - ( ) increased 2 - ( ) decreased 3 - ( ) remained constant

11. **Have you added or reduced any of the following operations since deregulation? (Please check all that apply and indicate a decrease or increase in service.)**

	decrease	increase
1 - ( ) line-feeding	___	___
2 - ( ) contract hauling	___	___
3 - ( ) truckload shipments	___	___
4 - ( ) less than truckload shipments	___	___
5 - ( ) interstate hauling	___	___
6 - ( ) intrastate hauling	___	___
7 - ( ) truck brokerage	___	___
8 - ( ) union labor	___	___

12. **Please check those activities in which your firm has become increasingly involved since 1980.** (Please check all that apply.)
1 - ( ) hauling to a wider geographical area
2 - ( ) hauling a wider variety of exempt products
3 - ( ) hauling a wider varity of non-exempt products
4 - ( ) increased amount of trip-leasing
5 - ( ) increased amount of advertising
6 - ( ) increased use of contractual agreements
7 - ( ) other_____

13. **How did you feel about deregulation before it became law?**
1 - ( ) strongly opposed 2 - ( ) moderately opposed 3 - ( ) neutral
4 - ( ) strongly in favor 5 - ( ) moderately in favor 6 - ( ) unsure

14. **On average, the rates we charge to our customers are**
1 - ( ) far below costs 2 - ( ) slighly below costs 3 ( ) equal to costs
4 - ( ) far above costs 5 - ( ) slightly above costs

15. **Please estimate the number of trucks owned according to the year of purchase.**

	year	number of trucks		year	number of trucks
1	1983-85	___	4	1974-76	___
2	1980-82	___	5	pre-1974	___
3	1977-79	___			

16. **Please check your firm's approximate operating ratio (you may simply estimate) for the years indicated. (There should be one check per year for each year of operation.)**
NOTE: OPERATING RATIO= TOTAL OPERATING EXPENSES ÷ GROSS INCOME

	ratio	1978	1980	1982	1984
1	less than .90	___	___	___	___
2	.90 - .94	___	___	___	___
3	.95 - .99	___	___	___	___
4	1.00 - 1.04	___	___	___	___
5	1.05 - 1.09	___	___	___	___
6	greater than 1.09	___	___	___	___

17. **Our firm had a 1984 gross revenue of approximately**

1 ( ) less than $500,000	7 ( ) 5 - 10 million
2 ( ) 500,000 - 1 million	8 ( ) 10 - 15 million
3 ( ) 1 - 2 million	9 ( ) 15 - 20 million
4 ( ) 2 - 3 million	10 ( ) 20 - 30 million
5 ( ) 3 - 4 million	11 ( ) 30 - 50 million
6 ( ) 4 - 5 million	12 ( ) greater than 50 million

18. **How do you feel about the current regulatory situation?**

1 ( ) strongly opposed	2 ( ) moderately opposed
3 ( ) neutral	4 ( ) strongly in favor
5 ( ) moderately in favor	

THANK YOU FOR YOUR COOPERATION!

APPENDIX C

COMMODITY LISTING

APPENDIX C

Commodity Listing

This is a composite commodity listing as of June 1, 1982. The status of certain commodities is currently under Commission review. Further, the fact that a particular product is not shown in the following listing does not mean it is either a regulated or an exempt commodity. For additional information on whether a certain commodity is exempt, you may contact any ICC field or regional office.

Additives - Minor amounts of additives to products (usually limited to 5 percent or less) - exempt.

Advertising matter - in reasonable amounts, transported along with exempt commodities to which it relates - exempt.

Alfalfa - see Feeds

Animal fats - Not exempt[1]/

Animals - see Livestock

Bagged commodities - Placing exempt commodities in bags does not affect their exempt status.

Bagging - scrap (worn jute bagging) - Not exempt.

Bananas - Not exempt

Bark - see Forest Products

Barley - see Grains

Bees - Exempt

Beeswax - crude, in cakes and slabs - Exempt

Beet pulp - see Feeds

Beets - sugar - Exempt

Berries - see Fruits and berries

1/ Unless used as a livestock or poultry feed or feed ingredient and transported to a site of agricultural production or a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production.

Clay - Not exempt

Coal - Not exempt

Cocoa bean shells - in any form - Not exempt

Cocoa beans - Not exempt

Coconut - see Nuts

Coffee -
- Coffee beans - Not exempt
- Coffee, instant - Not exempt
- Coffee, roasted - Not exempt

Compost -
- Compost, composed of manure and straw sweepings, dried, disintegrated, and decomposed - Exempt
- Compost, mixture of manure, straw or rice hulls, but not sawdust - Exempt
- Compost, product, a mixture of processed garbage and sewage sludge - Exempt
- Compost, mixture of manure and sweepings with water and bacterial agents to hasten fermentation, used as a growth medium for mushrooms - Not exempt

Containers -
- Containers, crates, and boxes which have been used in the movement of exempt commodities, which have been reconditioned and sold from stock to new purchasers - Not exempt
- Containers, crates, and boxes which have been used in the movement of exempt commodities, and are being returned for reuse - Exempt
- Containers, used pallets, used empty shipping containers including used intermodal containers and other shipping devices - Exempt unless used in the transportation of motor vehicles or parts of motor vehicles
- Containers, new, for use in shipping exempt commodities - Not exempt

Copra meal -Not exempt

Corn - see Grain

Corn cob -
- Corn cobs - Exempt
- Corn cobs, ground - Exempt

Corn fodder - Exempt

Cottage cheese - see Cheese

. Albumen, fresh, liquid, pasteurized - Exempt
. Dried - Exempt
. Frozen - Exempt
. Powdered, dried - Exempt
. Shelled - Exempt
. Shells, pulverized, for medical use (designated "pure calcuim carbonate") - Not exempt
. Whites, frozen - Exempt
. Whole, with added yolks, dried - Exempt
. Whole, frozen with added yolks - Exempt
. Whole, frozen, standaridized by subtraction of white - Exempt
. Yolks, dried - Exempt
. Yolks, fresh, liquid - Exempt
. Yolks, frozen - Exempt
. Yolks, with 10% salt or sugar added - Not exempt

Fats - animal - Not exempt (see footnote 1)

Feathers -
. Feathers, cleaned and ground, not further processed, nothing added (sometimes referred to as "feather meal.") - Exempt
. Feathers, ground, combined with dehydrated poultry offal - Exempt

Feeds -
. Alfalfa, dried, chopped, and pressed into cubes and wafers by machine, after dampening with water - Exempt
. Alfalfa, dried, etc., as above, but by a steam process - Not exempt (see footnote 1)
. Alfalfa pellets - Not exempt (see footnote 1)
. Beet pellets - Not exempt (see footnote 1)
. Beet pulp - Not exempt (see footnote 1)
. Bird gravel - Not exempt
. Bird seed, containing milo, millet, wheat chaff, and peanut heart - Exempt
. Bird seed bell, seed (millet, wheat, milo, and sunflower seed) mixed with an adhesive, such as corn syrup or wood glue, fitted with a wire hanger, and molded into a bell shape, for feeding wild birds - Exempt
. Bran shorts - Not exempt
. Corn gluten - Not exempt
. Cottonseed products - see Cottonseed
. Distilled corn grain residues, with or without solubles added - Not exempt (see footnote 1)
. Formulas composed of hominy feed, beet pulp, corn gluten, wheat middlings, cane molasses and minerals - Not exempt (see footnote 1)
. Hamster and gerbil food with 9% soy bean and alfalfa meal added - Not exempt
. Hominy feed - Not exempt (see footnote 1)

- Livestock feed - Exempt if transported to a site of agricultural production or to a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production
- Meal - see Meal
- Oat hulls, ground - Exempt
- Parrot food, mixture of exempt commodities - Exempt
- Pelletized ground refuse screenings - Not exempt (see footnote 1)
- Poultry feed - Exempt if transported to a site of agricultural production or to a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production
- Rice bran - Exempt
- Rice hulls, anhydrous ammonia added providing a 10% protein source as feed - Not exempt
- Rice hulls, ground or unground, nothing added - Exempt
- Rice mill feed pellets - Exempt
- Screenings, feed - Exempt
- Soya bean husks - Exempt
- Wheat bran - Not exempt (see footnote 1)
- Wheat mixed feed (mixture of coarse outer covering of wheat kernel, wheat germ, wheat flour, and offal of the tail of the mill) - Not exempt (see footnote 1)

Fertilizer, commercial - Not exempt[2]/

Fibers -
- Abaca (manila hemp), piassava, ixtle, rattan, and palm and grass fibers - Exempt
- Clippings resulting from rope making - Not exempt
- Coir yarn, made from coconut fiber, is manufactured by spinning - Not exempt
- Flax - Exempt
- Hemp - Not exempt - ("Hemp" specifically exempt means true hemp (cannabis sativa) or its fiber, and does not embrace similar plants or plant fibers commonly referred to by name)
- Jute in bales - Exempt
- Jute fabric, product of a textile operation - Not exempt
- Ramie - Exempt
- Kapok, in loose bales, not processed beyond separation of fibers from seeds - Exempt
- Palmleaf, not processed beyond separation from leaf, cleaning, combir drying and baling - Exempt
- Ramie Tops, consisting of long fibers of the ramie plant - Exempt

2/ Unless is a fish or shellfish by-product not intended for human consumption.

- Rayon or synthetic fibers, or mixtures thereof (waste materials or otherwise) - Not exempt
- Sisal, not being a true hemp - Exempt - See explanation under "Hemp" above

Fish (including shell fish) -

- General - Frozen, quick frozen, and unfrozen fish and shell fish in the various forms in which it is shipped, such as live fish, fish in the round, beheaded, and gutted fish, filletted fish, beheaded shrimp, and oysters, clams, crabs, and lobsters, with or without shells, including crab meat and lobster meat - Exempt
- Breaded, cooked, or uncooked, frozen or fresh - Exempt
- Byproducts (not intended for human consumption) - Exempt
- Cakes, codfish, cooked or uncooked frozen or fresh - Exempt
- Canned, as a treatment for preserving - Not exempt
- Clam juice or broth, cooked or uncooked, frozen or fresh - Exempt
- Condensed fish, solubles (obtained by condensing the aqueous portion of the residue of pressing oil from fish) - Not exempt
- Cooked or partially cooked fish or shellfish, frozen or fresh - Exempt
- Crab offal (residue after extraction of meat from crabs including shells, dried and ground) - Exempt
- Crabmeat, pasteurized, placed in hermetically sealed containers for purpose of preservation - Not exempt
- Crabmeat, pasteurized, sealed for purposes of cleaniless
- only, preservation accomplished by refrigeration - Exempt
- Croquettes, salmon, cooked or uncooked, frozen or fresh - Exempt
- Deviled crabs, clams, or lobsters, cooked or uncooked, frozen or fresh - Exempt
- Dinners, cooked or uncooked, frozen or fresh - Exempt
- Fish, processed by cleaning, scaling, and adding a small amount of salt - Exempt
- Fish, ground, frozen into blocks - Exempt
- Fish luncheon meat of smoked ground fish formed into loaves - Not exempt
- Fish, lightly salted or spiced, requiring refrigeration to retard deterioration - Exempt
- Fried fish fillets, oysters, or scallops, frozen or fresh - Exempt
- Frogs, live or dressed - Exempt
- Frogs and turtles, placed in formaldehyde to prevent or retard deterioration during transportation (but not as a preservative as that term is normally used) and used in substantially the same manner as live specimens - Exempt
- Frozen, see General above, and individual listings
- Hermetically sealed in containers as a treatment for preserving - Not exempt

- Hermetically sealed in containers for cleanliness only, preservation attained by refrigeration - Exempt
- Meal - Not exempt
- Offal (inedible portions of fish not further processed) - Exempt
- Oil from fishes - Not exempt
- Preserved, or treated for preserving, such as smoked, salted, pickled, spiced, corned or kippered - Not exempt
- Residue remaining after extraction of oil from fish - Not exempt
- Salmon eggs, brined and packed in salt and formaldehyde solution in vacuum sealed jars - Not exempt
- Salmon eggs, frozen, not pickled or brined or otherwise treated for preservation - Exempt
- Salted, as a treatment for preserving - Not exempt
- Scraps, frozen, granulated, and pressed into blocks, for cat food - Exempt
- Sea lions and walrus - Not exempt
- Seafood casseroles and dinners of which fish or shellfish is the principal ingredient - Exempt
- Seal blubber - Not exempt
- Seal skins - Not exempt
- Shells of sea creatures - Not exempt (see footnote 2)
- Shells, oysters, moving to market for use in button making - Not exempt (see footnote 2)
- Shells, oyster, ground - Not exempt (see footnote 2)
- Shrimp cocktail (Shrimp cooked and placed in glass jars with special sauce and seasoning and kept under refrigeration) - Exempt
- Soup or chowder containing a relatively small proportion of fish or shellfish in proportion to fish or shellfish in proportion to other ingredients which are not within the exemption - Not exempt
- Stew, consisting of raw oysters or clams, milk and seasoning, frozen but uncooked - Exempt
- Sticks, cooked or uncooked, frozen or fresh - Exempt
- Sticks, frozen, cooked, breaded - Exempt
- Tuna Pies, Frozen - Exempt
- Turtles, sea or fresh water - Exempt
- Whale meat, fresh water - Exempt

Flagstone - Not exempt

Flax fiber - see Fibers

Flaxseed - whole - Exempt

Flaxseed meal - Not exempt

Flies - live sterile screwworm, used in screwworm eradication program - Exempt

Flour -
- Flour - Not exempt
- Corn flour, extruded and hammered to a flour consistency - Not exempt
- Corn meal flour - Not exempt (see footnote 1)
- Mustard flour, consisting of seeds ground or milled and bolted - Not exempt
- Tapioca flour, produced in same manner as wheat flour - Not exempt

Flowers and flower plants - see Horticultural commodities

Fodder - corn and sorghum - Exempt

Forage - see Hay and Feeds

Forest products
- Bark - Exempt
- Bark, boiled to clean and soften - Exempt
- Bark, raw, broken up by means of hammermill, or shredded, ground, or crushed, graded, and bagged - Exempt
- Bark, shredded in its natural state, sprayed with copper based fungicide - Exempt
- Blankets of pine and spruce boughs - Exempt
- Bolts for making shingles - Exempt
- Divi and divi pods, natural products of certain trees, not processed - Exempt
- Excelsior wood: shredded birch bark, not a by-product of sawing, planing or finishing of wood - Exempt
- Fence pickets, split by hand from bolts, edged and pointed - Not exempt
- Fence posts and rails, consisting of logs peeled and cut to length, the posts having holes drilled in them for insertion of rails, and the rails being split and sharpened at both ends - Not exempt
- "Firelog": wood shavings, sawdust, low grade petroleum, used in place of firewood - Not exempt
- Greenery - Exempt
- Growing - see Horticultural commodities
- Hickory "wheels" - short lengths cut from trees or logs - Exempt
- Hickory meal - (sawdust or powdered hickory wood) - Not exempt
- Holly sprigs and cuttings - Exempt
- Leaves - Exempt
- Leaves, sisal, husks and moisture removed - Exempt
- Lignin sulphonate obtained by cooking wood chips in a chemical solution and used as a road binder - Not exempt
- Logs and pilings impregnated with a preservative, usually creosote - Not exempt
- Mesquite brush, ground, dehydrated and packaged in plastic bags - Exempt

- Mesquite brush, twigs and debris burned off - Exempt
- Mine timbers or cants, comprised of 8 foot lengths of fir, rough-sawn, square cornered - Not exempt
- Mistletoe - Exempt
- Myrobalans, as imported in natural state - Exempt
- Palmyra stalk fibers (fronds from palm leaves) - Exempt
- Peat moss, dried, shredded, baled - Exempt
- Peat or peat moss, in bags or boxes - Exempt
- Peat moss flower pots impregnated with wetting agent - Not exempt
- Peat, for use as an organic fertilizer, wet with water and other solutions, decomposed in a pressure vessel and dried - Not exempt
- Peeler cores, composed of the center portions of logs remaining after plywood is cut thereform - Exempt
- Pilings, wooden, untreated - Exempt
- Pilings, wooden, impregnated with a preservative, usually cresote - Not exempt
- Pine Cones, leaves, and miniature trees preserved by use of a solution containing calcium chloride - Exempt
- Poles, wooden, untreated - Exempt
- Poles, preassorted, preventative-treated (used by utilities companies, contractors, municipalities, etc.) - Not exempt
- Poles, telephone, not creosoted - Exempt
- Railroad ties composed of bolts from felled trees sawed crosswise and peeled or split but not otherwise processed - Exempt
- Railroad ties, lengths of wood cut to length and sawed lengthwise to size - Not exempt
- Resin, crude - Exempt
- Resin products, such as turpentine - Not exempt
- Roots, natural or dried - Exempt
- Sap, maple - Exempt
- Sawdust and shavings (regardless of their place of production, the process by which they are created, or their ultimate use) - Exempt3/
- Sawdust from lumber mills - Exempt3/
- Shakes and shingles (whether split by hand or by machine) - Not exempt
- Shingle bolts - Exempt
- Slabwood produced from sawmill operations - Exempt3/
- Spanish moss - Exempt
- Sphagnum moss - Exempt
- Spices - see Spices
- Tanbark or tanwood (residue after tanning dye is extracted from bark, roots, or wood by means of extreme pressure and hot water,used as a mulch) - Not exempt

3/ Exempt as wood chips or wood residue from primary plant or forest.

- Tanning extracts (wattle, chestnut, guebracho), produced by leaching bark, clarifying the extract and concentrating it in vacuum evaporators) - Not exempt
- Timber (rough logs or bolts) cut in random lengths, with bark removed - Exempt
- Trees -
- Christmas, plain, sprayed, or coated - Exempt
- Cut to length, peeled, or split - Exempt
- Growing - see Horticultural commodities
- Sawed into lumber - Not exempt
- Trimmings from logs and bolts, except bark - Not exempt
- Valonia, as imported in natural state - Exempt (see footnote 3)
- Wood chips - Exempt
- Wood cut into short crosswise lengths for firewood (not sawed lengthwise) - Exempt
- Wreaths of holly or other natural material with small amount of foundation or decorative material - Exempt

Frogs - see Fish

Frozen - see commodity name: Fruits and berries, Vegetables, Fish, Poultry, etc.

Fruits and berries -
- Apple peels and cores ground, but not otherwise processed - Exempt
- Apple pomace (substance remaining after extraction of juice) - Not exempt
- Apples, fresh, unfrozen, peeled, cored, sliced and dipped in brine solution to retain freshness - Exempt
- Bagged - Exempt
- Bananas, fresh, dried, dehydrated, or frozen - Not exempt
- Blueberries, incidentally frozen while being maintained in low temperature storage, allowed to thaw during transportation - Exempt
- Canned - Not exempt
- Cherries in sulphur dioxide "brine" for purpose of holding them in fresh state until they can be processed for marketing, which processing includes "debrining" - Exempt
- Cherries, maraschino type, resulting from further processing of cherries mentioned just above - Not exempt
- Chopped glazed fruit (similar to that used in fruit cakes) - Not exempt
- Citrus fruit salad, fresh, chilled - Exempt
- Citrus fruit sections, fresh, cold-packed or semi-frozen - Exempt
- Citrus fruit sections, frozen - Not exempt
- Citrus fruit sections, not frozen, packed with sugar, water, citric acid, and benzoate of soda, additives being 6% to 10% of total - Not exempt

- Citrus pulp (substance remaining after juice extraction) - Not exempt
- Color added - Exempt
- Cranberries, partially frozen as result of being placed in open boxes in storage under controlled temperatures to insure freshness pending transportation - to canneries - Exempt
- Cranberries, purposely quick-frozen, maintained in a frozen state during transportation - Not exempt
- Dates, pitted, dried - Exempt
- Dehydrated - Exempt
- Dried, naturally or artificially - Exempt
- Dried, not further processed, placed in sealed packages or receptacles - Exempt
- Figs, dried, halved or quartered - Exempt
- Figs, or dates, ground, in paste form, cooked, or with substantial amounts of other substances added - Not exempt
- Fig paste, consisting of ground figs, either in their natural state or dried - Exempt
- Frozen - Not exempt
- Frozen (quick-frozen) for the purpose of preservation during transportation-whether shipped under temperature control or not - Not exempt
- Fruit baskets or gift packages consisting of fresh fruit with 5% or less of jelly in jars and candy - Exempt
- Fumigated - Exempt
- Graded - Exempt
- Grape slurry comprised of grapes removed from stems and crushed - Exempt
- Hulls of oranges after juice extractions - Not exempt
- In Brine, to retain freshness - Exempt
- Juice, orange or other citrus - Not exempt
- Juice, fruit, plain or concentrated - Not exempt
- Kernels - Exempt
- Myrobalan (prune-like tropical fruit) dried, crushed and bagged - Exempt
- Oiled apples - Exempt
- Olives, processed for table use, in brine or not in brine, stuffed or not stuffed, in any type container - Not exempt
- Orange and lemon peel, dried, prepared from hulls of fruit following juice extraction - Not exempt
- Peaches, peeled, pitted, and put in cold storage in unsealed containers - Exempt
- Pies, frozen - Not exempt
- Plantains (considered to be bananas) - Not exempt
- Preserved, such as jam - Not exempt
- Purees, strawberry and other, frozen - Not exempt
- Quick frozen - Not exempt
- Raisins, seeded or unseeded - Exempt

- Raisins, very lightly coated with honey, cinnamon, or sugar - Exempt
- Raisins, chocolate coated or glaced, thereby preserving and candying them - Not exempt
- Sliced, frozen - Not exempt
- Strawberries, in syrup and unsealed containers in cold storage - Exempt
- Strawberries, in unsealed containers with temperature controlled at 10° or lower - Not exempt

Grain -

- Artificially dried - Exempt
- Barley, brewers' (residuary by-products of the malting process in which barley, steeped and germinated, is mixed with hops and other ingredients and allowed to ferment) - Not exempt (see footnote 1)
- Barley, malted (processed only to the extent of soaking in warm water to hasten or induce germination, then drying, and removal of sprouts in some instances) - Exempt
- Barley, pearled (husked and polished grains) - Exempt
- Barley, rolled - Exempt
- Barley, whole - Exempt
- Brewer's grains, wet, by-product of brewing process - Not exempt
- Corn cob pellets consisting of finely ground cobs with graphite added - Not exempt (see footnote 1)
- Corn, cracked - Exempt
- Corn, from which oil is extracted, ground and dried to comprise a product known as "brewers corn grits" - Not exempt (see footnote 1)
- Corn screenings - Exempt
- Corn shucks, used as "hot tamale shucks" - Exempt
- Corn, shelled - Exempt
- Corn, whole - Exempt
- Cracked wheat (bulgar or bulgur) processed by cooking the grains for purification and preservation, then drying, dehulling and grinding - Not exempt (see footnote 1)
- Feeds - see Feeds
- Hulls and husks - see Feeds
- Milo maize - Exempt
- Oats, crimped or rolled in the same manner as rolled barley - Exempt
- Oats, whole - Exempt
- Oats, whole, crushed and ground, in bags - Exempt
- Oil, extracted from grain - Not exempt
- Popcorn, popped - Not exempt
- Popcorn, shelled (unpopped) packaged with cooking fat or oil (one part oil to 2 1/2 parts popcorn) - Not exempt
- Popcorn, shelled (unpopped), weighing ten or more ounces, accompanied by a separate package of seasoning consisting of salt, monosodium glutamate, butter flavor, cottonseed

oil, and artificial color and flavor weighing approximately 3/4 ounce - Exempt
- Popcorn, (unpopped), shelled, in sealed or unsealed containers - Exempt
- Puffed grains - wheat, rice, millet or corn (produced b application of steam inside air tight tubes, and heat from outside burners, although not fully cooked) - Not exempt (see footnote 1)
- Rice bran - Exempt
- Rice, brewers - Exempt
- Rice, clean - Exempt
- Rice, ground, not sifted, bolted or graded - Exempt
- Rice, hull ash (burned hulls of threshold rice) - Not exempt
- Rice, hulled ("brown rice") - Exempt
- Rice, long grain, enriched, parboiled, subjected to enough steam pressure to harden kernel and reduce stickiness, but not boiled or precooked - Exempt
- Rice, milled, fortified with vitamins - Exempt
- Rice polish - Exempt
- Rice, precooked - Not exempt
- Rice, whole - Exempt
- Rye; whole - Exempt
- Sorghum grains, whole - Exempt
- Wheat, bulgar, cleaned, cooked under steam pressure, dried, dehulled, ground, graded and bagged - Not exempt (see footnote 1)
- Wheat germ - Not exempt
- Wheat, new, crushed, uncooked - Exempt
- Wheat, whole - Exempt

Grass sod - Exempt

Gravel - Not exempt

Greenery - See Forest products

Grinding - without prior or subsequent manufacturing processes does not affect the exempt status of the commodity

Guano - bat (excrement of bats, dried, but not further processed) - Exempt

Gums - the exudation of trees and shrubs, such as arabic, ghatti and tragacanth, in natural state or dried, sifted, and ground, but not purified, neutralized or refined - Exempt

Hair -
- Hair, alpaca, camel, or goat, clipped from animal - Exempt

. Hair, hog or other animal, product of slaughter of animal - Not exempt
. Hair, rabbit or vicuna (plucked or clipped from live animal) - Exempt

Hay -
. Hay and forage, dried naturally or artifically - Exempt
. Hay, chopped - Exempt
. Hay, dehydrated - Exempt
. Hay, salt (from salt marshed) - Exempt
. Hay - see also Feeds
. Hay - sweetened with 3% molasses by weight - Not exempt

Hemp - see Fibers

Herbs - see Spices and herbs

Hides - green and salted - Not exempt

Honey -
. Honey, in the comb or strained - Exempt
. Honey, heat treated to retard granulation - Exempt

Hops - Exempt

Horticultural commodities -
. Bulbs - Exempt
. Flowers, growing or cut - Exempt
. Leaves, natural or dried - Exempt
. Nursery stock - Exempt
. Plants, vegetables and flower - Exempt
. Roots, rhubarb, asparagus, mint, etc. - Exempt
. Star flowers - dried, spray painted - Exempt
. Trees, growing, balled in earth - Exempt
. Wreaths, holly or other natural material, with small amount of foundation or decorative material - Exempt

Hulls and husks -see Feeds; Nuts

Humus - of a nature similar to peat moss - Exempt

Ice for cooling subsequent shipments of exempt commodities - Exempt

Ice cream and ice cream mix - see Milk and cream

Imported commodities - Fact of importation does not affect status of otherwise exempt commodities, except that wool imported from any foreign country is not exempt

Insecticides - Not exempt

Juices -see Fruits and berries

Jute fiber - see Fibers

Kapok - see Fibers

Kelp - dried, ground - Exempt

Latex - see Rubber

Leaves - see Forest products; Horticultural commodities; Spices and herbs

Legume inoculant - Not exempt

Licorice paste and powder - (prepared from ground licorice root, and used in tobacco and confectionary trades and for medicinal purposes) - Not exempt

Licorice roots - spent (by-product or residue remaining after open-vat leaching process used to extract licorice) - Not exempt

Livestock -
- Exhibit animals such as those of 4-H club members, which though shown for a few days, are chiefly valuable for slaughter - Exempt
- Feed - see Feeds
- Laboratory animals, not domesticated, such as rats, mice, guinea pigs - Not exempt
- Medical use animals, such as ordinary healthy swine for serum manufacture - Exempt
- Monkeys - Not exempt
- Ordinary, i.e. all cattle, swine, sheep, goats, horses, and mules, except such as are chiefly valuable for breeding, racing, show purposes, and other special uses - Exempt
- Race horses - Not exempt
- Registered or purebred cattle for ordinary farm or ranch uses, not chiefly valuable for breeding, race, show, or other special purposes - Exempt
- Riding horses, used for personal pleasure riding - Exempt
- Rodeo animals (bucking horses, cow ponies, parade horses,
- pick- up horses, Brahma bulls, steers, calves, buffalo) - Not exempt
- Show horses - Not exempt
- Zoo animals - Not exempt

Limestone - agricultural - Not exempt

Linseed meal - see Meal

Lumber - rough-sawed or planned - Not exempt

Manure -
- Manure, in natural state - Exempt
- Manure, dried or dehydrated, bagged - Exempt
- Manure to which sand is added as conditioning ingredient, equivalent to 3% or the total mixture - Exempt
- Manure, paunch (cud of animal's rumen) product of slaughter - Not exempt
- Manure, fermented, with additives such as yeast and molds, producing a rich liquor which in water solution is used for soil enrichment - Not exempt

Maple sap - Exempt

Maple syrup - Not exempt

Meal -
- Meal, alfalfa - Not exempt (see footnote 1)
- Meal, copra - Not exempt (see footnote 1)
- Meal, cottonseed - Not exempt (see footnote 1)
- Meal, fish - Not exempt (see footnote 1)
- Meal, flaxseed - Not exempt (see footnote 1)
- Meal, linseed - Not exempt (see footnote 1)
- Meal, peanut - Not exempt (see footnote 1)
- Meal, soybean - Not exempt (see footnote 1)

Meat and meat products -
- Beef dinners, frozen - Not exempt
- Fresh, frozen or canned - Not exempt
- Meat pies, frozen - Not exempt
- Meat of seals, seal lions and walrus - Not exempt
- Scrap bones and meat, refuse from packinghouses - Not exempt

Milk and cream -
- Anhydrous milk fat made by a continuous separation process directly from milk or cream in the same manner as nonfat dried milk solids - Exempt
- Butterfat, isex, Gold Label (trade name) consisting of over 50% sugar and 2% water and 44% butterfat - Not exempt
- Buttermix/condensed cream, consisting of 45% butter fat 30% sugar and 25% skimmed milk solids - Not exempt
- Casein, produced commercially through specialized processes - Not exempt
- Cheese - see Cheese
- Concentrate, pasteurized and homogenized, with 2/3 of the water removed - Exempt
- Concentrate, consisting of fresh whole milk from which a portion of the water is removed to which no substantial amount of nonexempt substance is added - Exempt
- Concentrate (mixture of fresh cream with skim milk from which a portion of water is removed) - Exempt

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- Condensed - Not exempt
- "Culturemate" - (non-fat dry milk powder, 10% dry phosphate salts, dry process extract, small amounts of dextrose and whey)- Not exempt
- Dry milk solids (essentially the same as powdered milk) - Exempt
- Evaporated milk, in sealed cans - Not exempt
- Frozen - Exempt
- Homogenized - Exempt
- Ice cream mix - (blend of milk, dried skim milk and sugar) - Not exempt
- Lactose - milk sugar, traces of protein and ash, made by condensing sweet cheese whey, crystalizing by cooking, then spinning, drying and bagging - Exempt
- Milk "replacer" containing 10% animal fat - Not exempt
- Milk "replacer" - (blend of 98% ingredients themselves exempt commodities and 2% dietary supplements and flavoring ingredients, not otherwise processed) - Exempt
- Milk "replacer" - (Calf Pab), containing at least 20 nonexempt ingredients (no percentages shown) - Not exempt
- Milk shake mix, composed of powdered milk with substantial amounts of sweetening and flavoring added - Not exempt
- Pasteurized - Exempt
- Powdered - Exempt
- Raw - Exempt
- Raw milk with coloring added to indicate it has been found unfit for human consumption - Exempt
- Skim - Exempt
- Skim, dried - Exempt
- Skim, with two-thirds of water removed, in bulk or unsealed containers - Exempt
- Standardized - Exempt
- Sterilized in hermetically sealed cans - Not exempt
- Vitamin "A" - Exempt
- Whey - see Whey
- Whipped cream, frozen, containing only exempt dairy products,which is mechanically processed into that form - Exempt
- Whole milk with moisture content removed and nothing added - Exempt
- Yogurt, plain or flavored - Not exempt

Milo - see Grains

Mohair - raw, cleaned, or scoured - Exempt

Molasses - Not exempt (see footnote 1)

Moss - see Forest products

Mushrooms - fresh - Exempt

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Nursery stock - see Horticultural commodities

Nutria carcasses - ground, for use as mink feed - Not exempt

Nutria (or coypu) - skinned, whole or chopped - Not exempt

Nutria and rat carcasses - whole, frozen or unfrozen - Not exempt

Nuts -

. Blanched (placed in water hot enough to soften the skins and facilitate removal of kernel, but not sufficient to kill the enzymes) - Exempt
. Cashews, roasted or cooked - Not exempt
. Cashews, scorched (not roasted or cooked, but darkened in color unintentionally by overheating during shelling process) - Exempt
. Coconut, dried, shredded, flaked, or prepared by thread mill or devil mill to produce thread-like particles or granules, not further processed - Exempt
. Coconut meal, see Copra meal
. Macadamia nuts - Exempt
. Peanut meal - Not exempt
. Peanut shells, ground - Exempt
. Peanuts, roasted and salted in the shell - Not exempt
. Pistachio, shells colored with food coloring but not otherwise processed - Exempt
. Raw, shelled or unshelled - Exempt
. Roasted or boiled - Not exempt
. Shelled, raw - Exempt
. Shelled, salted (not roasted or otherwise similarly processed) - Exempt
. Shelled, sprayed or washed with preservative but not candied or flavored - Exempt
. Shells - Exempt
. Shells, ground peanut - Exempt
. Shells, peanut, pelletized, comprised of hulls or shells ground and formed into pellets by application of pressure with steam as binder (similar to production of alfalfa pellets) - Not exempt (see footnote 1)
. Shells, pecan, ground - Exempt
. Shells, pecan, mixed with chemicals equivalent to 10% of the total mixture - Not exempt
. Unshelled, raw - Exempt

Oats - see Grains

Offal - consisting of blood, intestines, viscera, etc., by-product of the slaughtering of animals - Not exempt (see footnote 1)

Oil -

. Oil mint - Not exempt

- Oil, extracted from vegetables, grain, seed, or other commodity - Not exempt
- Oil, fish, when not intented for human consumption - Exempt

Olives - see Fruits and berries

Packaged commodities - Packaging exempt commodities does not affect their exempt status

Pallets - used - Exempt

Peanuts - see Nuts

Peat moss - see Forest products

Pelletized feeds - see Feeds

Pelts - Not exempt

Pet food - Not exempt (see footnote 2)

Pies - frozen - Not exempt

Pigeons - racing - see Birds

Plants - vegetable or flower - see Horticultural commodities

Poles - see Forest products

Popcorn - see Grains

Potash - Not exempt

Poultry and poultry products -
- Additives, such as injected butter, gravy, seasoning, etc., sold in or along with uncooked poultry - do not void the exempt if not in excess of 5% by weight
- Blood of poultry and rabbits from which corpuscles have been removed by centrifugal force (processing by a machine similar to a cream separator) - Exempt
- Broth, dehydrated by spray-drying into a powder - Not exempt
- Carcasses, raw, in marble-size chunks - Exempt
- Cut up, raw - Exempt
- Cut-up, precooked or cooked; same, breaded and/or battered; same, marinated, breaded and/or battered; all frozen or refrigerated - Exempt
- Deboned, cooked or uncooked, fresh or frozen, in rolls or dices - Exempt
- Dehydrated, chunked, process includes boiling,grinding, and drying - Not exempt

. Dinners, cooked and frozen - Exempt
. Dressed, fresh or frozen - Exempt
. Fat, as removed from poultry, not cooked - Exempt
. Fat, skimmed from broth, plain or reduced to powder by spray- drying - Not exempt
. Feathers - Exempt
. Feed - see Feeds
. Frozen - Exempt
. Live - Exempt
. Offal, including blood (natural by-products of the killing and processing poultry for market) - Exempt
. Picked - Exempt
. Pies, cooked, frozen or unfrozen - Not exempt
. Powdered, process includes boiling, fine grinding, and spray- drying - Not exempt
. Rolled in batter but uncooked - Exempt
. Rolls, containing sectioned and deboned poultry, cooked - Exempt
. Sticks, cooked - Exempt
. Stuffed and frozen - Exempt
. Stuffing, in plastic bags, packed with but not in bird - Exempt

Pulp, beet - Not exempt (see footnote 1)

Pulp - sugarcane - Not exempt (see footnote 1)

Puree - see Fruits and berries

Rabbits -
. Rabbits, dressed - Exempt
. Rabbits, wild, skinned - Not exempt

Raisins - see Fruits and berries

Ramie Fiber - see Fibers

Residue - (foots or sediments) remaining after removal of oil from various commodities - Not exempt

Resin - see Forest products

Rice - see Grains

Rock - Not exempt except natural crushed vesicular rock used for decorative purposes

Roots - see Forest Products; Horticultural commodities; Spices and herbs

Rubber -
. Rubber, crude, in bales - Not exempt

. Rubber, latex, natural, liquid, from which water has been extracted and to which ammonia has been added - Not exempt

Rye - see Grains

Sand - Not exempt

Sap - see Forest Products

Sawdust - see Forest Products

Sea Creatures - see Fish

Seasoning or salt - added to a commodity within the exemption in insignificant amounts - not considered to affect exempt status of commodity

Seaweed - dried, ground - Exempt

Seeds -
. Agricultural (transported to the site of agricultural production or to a business enterprise engaged in the sale to agricultural producers of goods used in agricultural production) - Exempt
. Anise, not subject to a manufacturing process - Exempt
. Bird seed - see Feeds
. Cotton - see Cottonseed
. Deawned - Exempt
. Flax - see Flaxseed
. Grass seed - Exempt
. Grass seed, packaged in individual boxes and bags - Exempt
. Hybrid seed corn - Exempt
. Inoculated - Exempt
. Meal made from seeds - see Meal
. Natural - Exempt
. Oil extracted from seeds - Not exempt
. Packets or boxes of seeds in display racks - Exempt
. Scarified - Exempt
. Screened or sized - Exempt
. Seed kits, flower or vegetable, consisting of seeds, soil substitutes, and plant food, in growing tray (punch and grow kits) - Not exempt
. Sesame seeds in hulls, bagged - Exempt
. Sesame seeds, cleaned and dehulled by mechanical process - Exempt
. Siftings and screenings consisting of residue from sieving of seeds (not further processed) - Exempt
. Soybean seeds, in bags on which are attached a small container or inoculant - Exempt
. Spice - see Spices and herbs

. Sprayed for disease control - Exempt
. Sunflower seed hulls, lubricated by spraying with hot water to increase density, formed into loose, crumbling pellets - Exempt
. Tamarind, ground, comprised of seeds removed from pods without boiling cooking, or the like, and processed only
. by cleaning and grinding - Exempt
. Used as seasonings, not subjected to a manufacturing process - Exempt

Shells - see Cocaoa beans; Eggs; Fish; Nuts

Shingle bolts - see Forest products

Shipping devices -used (other than containers or devices used in the transportation of motor vehicles or parts of motor vehicles) - Exempt

Skins -
. Skins, animal - Not exempt
. Skins, seal (sea mammal hides) - Not exempt

Sliced - see commodity name; Fruits and berries; Vegetables; etc.

Sludge - dried sewage - Not exempt

Soil -
. Soil, potting - Not exempt
. Soil, potting or African Voilet Mix consisting of 90% peat, 8% sand and 2% vermiculite - Not exempt
. Soil, top - Not exempt

Sorghum fodder - Exempt

Sorghum grains - Exempt

Soup - frozen - Not exempt

Spanish moss - gathered from trees - Exempt

Spices and herbs -
. Angelica root - Exempt
. Chicory root, natural or dried - Exempt
. Chili powder, consisting of dried, ground chili pepper pods - Exempt
. Chili powder (mixture of ground peppers, spices and herbs, and a small amount of salt) - Exempt
. Cumin seed - Exempt
. Deer, (or deer's) tongue leaves, natural, dried, or processed in a manner similar to that undergone by redried tobacco leaf - Exempt

- Ground, but not further processed - Exempt
- Paprika, ground - Exempt
- Pepper, ground, not further processed - Exempt
- Raw, unground spices - Exempt
- Reconditioned spices, ground (screened for removal of impurities but not further processed) - Exempt
- Seeds - see Seeds
- Sweet basil leaves, dried and separated from stems - Exempt
- Unground, whether seeds, berries, leaves, bark or roots - Exempt

Stone - natural, marble or granite - Not exempt

Stover - Exempt

Straw - Exempt

Sugar - Not exempt

Sugar beets - Exempt

Sugar cane - Exempt

Sugar cane pulp - Not exempt (see footnote 1)

Sugar - raw - Not exempt

Syrup -
- Syrup, cane - Not exempt
- Syrup, maple - Not exempt
- Syrup, raisin - Not exempt

Tankage - consisting of offal from slaughtered animals - Not exempt

Tea - Not exempt

Telephone poles - see Forest products

Textile waste - see Cotton waste

Tobacco -
- Binder tobacco, composed of adhesive materials added to pulverized tobacco, the resultant mixture formed into flat sheets (similar to homogenized tobacco) - Not exempt
- Chopped leaf - Exempt
- Cigars and cigarettes - Not exempt
- Fragments, siftings and dust resulting from processes which produce tobacco items within the exemption (i.e. chopped tobacco leaf, redried leaf, etc.); also that which becomes unusable during preliminary handling prior to the manufacture of nonexempt tobacco items - Exempt

- Homogenized - Not exempt
- Leaf - Exempt
- Redried leaf - Exempt
- Smoking - Not exempt
- Stem meal - Not exempt
- Stemmed leaf - Exempt
- Stems - Exempt
- Tobacco made of ground-up scraps, considered a form of homogenized tobacco - Not exempt

Topsoil - Not exempt

Trees - see Forest products

Turtles - see Fish

Vegetables -
- Bagged - Exempt
- Beans, dried artifically and packed in small container - Exempt
- Cabbage rolls (heads of cabbage pickled in water and salt after which the leaves are cut off and stuffed with a tomato and whole pepper, in jars with juice of pickled cabbage) - Not exempt
- Candied sweet potatoes, frozen - Not exempt
- Canned - Not exempt
- Cauliflower, cured in salt brine, shipped in open unsealed containers - Exempt
- Cooked - Not exempt
- Cooked in water or steam for a period longer than that necessary for the inactivation of the enzymes, or by immersion in oil or fat - Not exempt
- Cucumbers and other vegetables processed into pickles by the ordinary means - Not exempt
- Cucumbers and tomatoes, barrel-cured into Kosher pickles (fresh cucumbers or tomatoes kept in barrel overnight with water garlic, salt, spices and seasonings, then placed in jars and kept under refrigeration) - Not exempt
- Cucumber delight (sliced cucumbers with onions, peppers, sugar and salt, in jars or barrels with juices) - Not exempt
- Cucumbers, salt cured - Exempt
- Cut up, fresh, in cellophane bags - Exempt
- Cured - Exempt
- Dehydrated - Exempt
- Dried, naturally or artifically - Exempt
- French fried onion rings - Not exempt
- French fried potatoes - Not exempt
- Frozen - Not exempt
- Garlic paste, made from fresh crushed garlic cloves heated only enough to deactivate the enzymes, small percentage of preservative added - Exempt

- Garlic powder - Exempt
- Graded - Exempt
- Mushrooms (considered vegetables for purposes of Section 10526) frozen - Not exempt
- Mushrooms - freeze dried (frozen, then thawed, then dehydrated) - Exempt
- Oil, extracted from vegetables - Not exempt
- Onion chips and flakes, dried - Exempt
- Onion powder - Exempt
- Onion powder, made from onions sauteed in oil and then powdered or dehydrated - Not exempt
- Onion rings, frozen, shipped with frozen fish dinners of which they are intended to be a part - Exempt
- Onion, cured in salt brine, shipped in open unsealed containers - Exempt
- Peas, split - Exempt
- Peeled, uncooked - Exempt
- Pepper delight (peppers with vinegar, salt and sugar) - Not exempt
- Pepper hulls, cured in salt brine, shipped in open unsealed containers - Exempt
- Peppers and kraut, stuffed (whole peppers filled with sauerkraut in jars with natural sauerkraut juice) - Not exempt
- Pickled - Not exempt
- Potato by-product made from raw rejects peeled and washed in caustic solution and hot water, dewatered, dried and ground - Exempt
- Potato by-product, consisting of mashed potatoes recovered from drying machines or gathered as spillage from floor during latter stages of processing of instant mashed potatoes - Not exempt
- Potato flakes (cooked and dehydrated flakes of potato) - Not exempt
- Potatoes, candied (sweet), whipped, rissole, or puff - Not exempt
- Potatoes peeled, sliced, blanched or dipped in preservative solution, but not cooked or otherwise processed - Exempt
- Potatoes, peeled and scalded or blanched (not subjected to a greater degree of heat than that necessary to inactivate enzymes) - Exempt
- Potatoes, powdered, prepared from potatoes, washed, cooked, peeled, with moisture removed - Not exempt
- Powdered, onion and garlic - Exempt
- Precooked, pouch-packed, with or without sauce - Not exempt
- Products, the ingredients of which include vegetable matter combined with other commodities - Not exempt
- Quick frozen - Not exempt
- Romanian kraut (shredded cabbage with juice consisting of water, sugar, celery seed and fresh peppers) - Not exempt

. Sauerkraut, pickled by keeping shredded cabbage in a barrel for 36-40 hours, then in cold storage for about 36 hours, then packed in jars with water, sugar, and benzoate of soda (requires refrigeration) - Not exempt
. Sauerkraut, uncooked, pickled, in sealed plastic containers or sealed wooded barrels - Not exempt
. Shelled - Exempt
. Soup, frozen - Not exempt
. Soybean meal - Status pending
. Tomato juice - Not exempt
. Tomato paste, consisting of tomatoes heated to 190° - Not exempt
. Tomato pomace (residue remaining after juice extraction) - Not exempt
. Tomato powder, dehydrated without cooking, (not the residue left after juice extraction) - Exempt
. Tomatoes, in salt brine, to preserve freshness while in transit - Exempt
. Washed, fresh, in cellophane bags - Exempt

Water - and distilled water - Not exempt

Wax -
. Wax, beeswax, crude, in cakes and slabs - Exempt
. Wax, carnauba, as imported in slabs and chunks - Not exempt
. Wax, crude candelilla, boiled in water to which some acid is added, purpose of which is not to change the wax in any way but to remove the wax scales from the leaves of the plant on which it forms, and the resulting residue boiled again to remove excess moisture and debris - Exempt

Whale meat - see Fish

Wheat -
. Wheat - see Grain
. Wheat products - see Feeds; Flour

Whey -
. Whey, powdered or dried - Exempt

. Whey lactose - Exempt
. Whey powder - produced by separating liquid whey, removing butter fat, drying, steam rolling, cutting, bagging for further drying, grinding and packaging - Exempt

Wood - see Forest products

Wool -
. Cleaned and scoured after being imported - Not exempt

- Grease, as obtained from cleaning or scouring process - Exempt
- Imported from any foreign country - Not exempt
- Mixture of blend of imported and domestic wool - Not exempt
- Pulled wool (wool removed from hides after slaughter) - Not exempt
- Raw, cleaned or scoured, but not including wool imported from any foreign country - Exempt
- Scoured, origin unknown - Not exempt
- Tags of domestic wool and mohair (matted and ragged locks as shorn) - Exempt
- Waste (carded, spun, woven, or knitted) - Not exempt
- Yarn - Not exempt

Wreaths - see Forest products

Worms - blood (cultivated in a "farming" type operation in marshy soil) - Exempt

Worms - sea, live (gathered from mud flats, for use as bait) - Exempt

Yeast - brewers' residual, or "bottom yeast" (substance which settles to bottom of vat during fermentation of beer or liquors) - Not exempt

Zoo animals - Not exempt

Source: Interstate Commerce Commission, Motor Carrier Regulations. 1982.

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