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INTRODUCTION

Transportation is of particular importance to the agricultural sector. The location of agricultural production is dependent upon the location of land and water resources, but consumers of agricultural commodities are widely dispersed. The development of agriculture has followed the development of means for overcoming this spatial separation. It has not been very long ago that most agricultural production occurred close to population centers, because of the high cost of transportation. As a result, agriculture was relatively unspecialized. With improvements in transportation, it is now possible for most agricultural commodities to move great distances at relatively low cost. This has enabled agricultural production to achieve a high degree of specialization.

Transportation accounts for a greater share of the delivered cost for agricultural products than is true of most other goods. Agricultural commodities tend to be either highly perishable or to have a low value-to-bulk ratio. Also, the inherently seasonal nature of agricultural production increases shipping costs because of uneven demands made upon the transportation system. For reasons such as these, the nature and location of agricultural production is particularly sensitive to changes in the transport system. The pervasive influence of transportation on economic activity in the agricultural sector ensures that transportation is important in determining the amount and distribution of farm income and the prices paid by consumers for food and fiber products.

Recently, the transport system serving agriculture has been facing a number of stresses and changes, and it has been experiencing problems adapting to new conditions. The purpose of this report is to briefly discuss the major changes that have occurred and are occurring and the problems they have brought, and to discuss how some of these problems are likely to be resolved. The primary purpose is to present information rather than to propose solutions. The discussion is centered on five categories of issues: railroad efficiency, rising energy costs, the export systems, transport regulation, and the road and highway system.

RAIL EFFICIENCY

The U.S. railroad system has been undergoing some difficult times. On the one hand, many rail lines, built during the nineteenth century, when rail was the only viable means of long distance transport, have become obsolete. Faced with new competition and in some cases declines in the industries served, many such lines and indeed entire railroads have lost their financial viability. On the other hand, new demands have been and will be put on other parts of the railroad system, such as increased shipments of export grain to ports. These have caused and will continue to cause short term stresses on the system, and perhaps longer term difficulties if the rail system is not adaptable.
Rail Car Shortages

Probably the single largest problem faced by agricultural shippers in the recent past has been the shortage of rail cars for transporting grain. Shortages of rail cars have increased storage problems at elevators, forcing them to lower prices paid to grain growers. Based on responses to a recent farmers' poll, this has led to a more than $1,500 reduction in annual income for a typical midwestern grain producer. There are a number of causes for the rail car shortage, some of which relate to inefficient management of the existing rail car fleet. However, the basic cause is that the U.S. grain handling system (the key component of which is the railroads) has in the last decade been faced with a bigger task than in the past. This has primarily arisen because of the unprecedented levels of export demand for grain. Even a handling system of the highest efficiency would have faced problems under these conditions. But the U.S. rail system has some built-in inflexibilities that hindered its ability to adapt: railroads are heavily regulated, car interchange and detention rules are cumbersome, and rail management has not been as innovative as it might have been.

The key issue with the rail car problem is uncertainty. If the rail system only had to serve domestic needs, it would not need to be particularly flexible. Domestic grain demands are fairly stable. But export demands are not, and the variability and uncertainty they bring to grain marketing necessitates a flexible grain handling system if problems are to be avoided. The only way to solve the rail car problem is by either reducing the uncertainty brought by unstable export requirements (as by, for example, long term contracts with foreign consumers) or by designing procedures for including the costs of uncertainty into the provision of transport equipment. It may be that more rail cars are needed. But railroads have little incentive to provide them if they may spend much of their useful life standing idle because of a reduction in demand for grain transportation. Alternatively, the amount of storage available can be increased. Car shortages cause less serious problems for shippers who can store grain until cars become available. Probably an expansion of both the car fleet and storage capabilities are required. However, at present there are inadequate incentives to bring this about, primarily because of the inflexibility imposed by rail rate regulations. One way to incorporate needed incentives into the system is through variable or peak rail rates. During periods of high demand, cars will go to those shippers willing to pay the most for them. Railroads investing in new equipment can get a premium for its use during such times and shippers willing to invest in storage can wait until rates are lower to ship their grain. It is likely that, with deregulation, some rate variability will occur. Railroads now have the flexibility to raise or lower rates by specified percentages, and "peak rates" have been used on some occasions. However, such procedures have not been employed on any wide basis. The imposition of such rates currently requires 30 days advance notice. Railroads contend that this requirement severely restricts the usefulness of seasonal rates, since they cannot be made responsive to current conditions.

Contract rates present another means of handling uncertainty. With contract rates, a shipper agrees to ship a designated amount of grain over a given time period. The rate is agreed upon by the shipper and the railroad, with the railroad agreeing to provide the required equipment. Such rates are not available now; whether they will be in the future depends upon regulatory authorities. Some observers have expressed concern that contract rates would favor large shippers at the expense of those who cannot generate large, steady volumes of grain. This is certainly an issue that must be dealt with if and when contract rates are considered. It is discussed further below.

There are ways to more efficiently use the existing rail car fleet. By increasing per diem and demurrage charges for using rail cars, incentives are created to turn them around as fast as possible. The freight car interchange rules governing how cars are returned to the owning railroad have often not led to efficient car use. Changes in these are possible, particularly given the current emphasis on
deregulation. It has been suggested that a free-running grain car fleet, jointly owned by all railroads, be created. This would also alleviate car interchange problems, since there would be less empty miles as cars are returned to their home lines.

In short, the solution of the rail car problem will require a change in incentives faced by shippers and railroads so that all costs, especially those involving uncertainty, can be incorporated into transport decisions. This is an area in which it appears that increased reliance on market forces (as will come if deregulation occurs) will have beneficial impacts.

Rail Abandonment

A rail issue that has received a lot of attention, particularly in the Great Plains but also in Indiana, is that of branch line abandonment. It is fairly clear that there are many lightly used lines that simply are not financially viable and hence should be abandoned. A major fear of shippers (such as grain elevators) served by such lines is that loss of rail service will force them out of business. There is evidence that in many cases where lines have been abandoned, shippers have been able to adapt and survive by switching to alternative modes. Of course some shippers have been and will be adversely affected by loss of rail service.

It is probably true that at least some of the rail lines which are currently strong candidates for abandonment have deteriorated because of poor management. Lines were permitted to decline, causing the quality of transport service to fall, and many shippers turned to other transport modes. If these lines had been maintained, this process could probably have been arrested in some cases. But whatever the reason for the deterioration of these lines, this is past history, and it is useless at this time to do much wringing of hands over poor railroad performance. The fact is that the expense of revitalizing many rail lines exceeds the likely benefits of doing so. On the other hand, there are rail lines which appear to have high potential, if upgraded, to become profitable. But railroads may have insufficient incentives to handle the required investments, because there is considerable uncertainty as to whether an upgraded line will, in fact, generate a sufficient amount of traffic, regardless of how promising it might appear. Since railroads may have little control over potential traffic on an upgraded line, and since many railroad firms have had difficulty obtaining capital funds, they are very reluctant (and often unable) to make this type of investment. Hence, for lines that are potentially viable, governmental assistance, such as provided for in the 4-R Act, is warranted.

Alternatively, individual states can take over branch line operations, which can be returned to private hands when and if profitability is restored. An apparently successful case of this involves a line in West Virginia. Perhaps a better solution, one that has been successfully applied in some cases, is for shipper groups to take over the ownership and management of rail lines. Then those who incur the costs of the line also reap the benefits, and economic incentives are restored.

Railroad Management

Some have attributed all rail problems, not just those dealing with abandonment and car availability, to railroad mismanagement. While there are surely cases where rail management has been ineffective, the case is overstated. Railroads have traditionally operated under a host of regulations and rules, which have limited their ability to adapt to changing circumstances. Also, railroads have a very high level of fixed plant, and when financial difficulties occur (as they do for all businesses), maintenance of this plant is reduced. This makes it very difficult to recover from financial reverses.

Nevertheless, some railroads have survived and prospered while others have become insolvent. Part of this can be attributed to changing regional economies. For example, the Eastern U.S. has experienced a decline in some industries that are major users of rail service, and this has had adverse effects on some rail firms.
However, others serving the same or similar areas have remained financially viable. Similarly, some lines in prosperous areas have failed while most have remained strong. The fact that, among rail firms serving similar areas, some have been much more successful than others implies that a cause for weakness of some firms is poor management, management which lacked the foresight and perception to adapt to changing economic conditions. Also, in some cases railroads have been subsidiaries or larger holding companies and their financial resources have been drained to more profitable enterprises.

There are reasons to believe that the future of railroads will be characterized by more financially healthy firms. Some changes that are affecting the entire economy (particularly rising energy costs) should enhance railroads’ ability to compete with other modes. This, along with new computer technologies that provide management with needed information about railroad operations, may generate a climate in which railroads become more innovative and aggressive in seeking traffic. In addition, mergers among railroads have led to increased efficiency, and more mergers will be forthcoming. Also, the relaxation of some regulatory constraints, especially with respect to rates, may induce innovations in rail transportation. All these factors should contribute to an operating climate in which railroads are better able to adapt to the needs of agricultural shippers.

ENERGY ISSUES

Changing energy costs can have large impacts on the transport sector, for transportation accounts for over 50 percent of the oil consumed in the United States. The mode most likely to be affected by rising costs of energy is truck, since aside from air cargo, shipment of goods by truck is the least energy efficient transport method. In recent years, the agricultural sector has become increasingly reliant on trucks for movement of agricultural inputs and outputs. For this reason, it is possible that rising energy costs will have impacts on agricultural transportation.

How significant these impacts are likely to be and whether they will be reflected in rising prices for inputs and outputs and/or changes in location in production depends upon the ease of substitution among different types of transport serving agriculture and upon the flexibility of production and marketing. Since railroads are generally more energy efficient than trucks, rising energy costs will create incentives for more rail shipping and less via truck, perhaps reversing the recent trend. This is especially true given the realistic possibility of rail electrification, which would greatly increase rail’s relative energy efficiency.

Agriculture may also respond to higher transport costs induced by rising energy prices through geographic production shifts. If production occurs closer to markets, transport costs are of course reduced. However, in many cases the productive efficiency advantages of areas far from consuming areas may far outweigh transport cost differences, even at markedly higher energy prices. In such cases, the primary response is likely to simply involve increased prices for agricultural outputs.

Three sectors of the agricultural economy are heavy users of truck transportation: fruit and vegetable production, grain marketing, and broiler production.

Fruit and Vegetable Production

A very large portion of the fresh produce and many processed fruits and vegetables are grown in the Far West and Florida. Marketing of fresh produce relies almost exclusively on refrigerated trucks, which can move long distances in a short time. It is very doubtful that any significant locational shifts in the production of this type of commodity will occur, for existing areas of production enjoy significant production advantages, especially with respect to climate. Thus, as the costs of trucking rise, some fresh produce is likely to move to rail and/or produce prices will rise. If railroads are able to provide the high speed, efficient service that this type of traffic requires, there may be little or no effect on prices or product movements. In the past, railroads have made very few efforts to compete...
with trucks for produce traffic, because of a claimed lack of adequate rates to cover the costs of the required equipment. Recently, rail rates on produce were deregulated, giving the railroads as much freedom as truckers in setting rates for hauling produce. This, along with rising truck costs, may give railroads adequate incentives to provide the needed equipment and service to handle these perishable commodities. Railroads do provide high-speed service in some types of operations (e.g., piggyback trailers and U.S. mail), and thus there does not seem to be any reason why they could not become an important factor in shipping fresh produce.

Processed fruits and vegetables do not require favorable year-round climates for production. Thus, rising transport costs could have some effect on where they are grown. In years past, Indiana was an important producer of some processing vegetables, and since Indiana is located nearer to many consuming areas than are existing producing areas, increased energy costs, when translated into higher transport charges, would decrease the State's apparent existing disadvantage relative to those areas. However, there is no evidence that this is likely to happen. Even after the recent rather dramatic rises in energy costs, Indiana's processing vegetable industry has continued to contract. Apparently, transport costs are not a significant enough factor in the total delivered cost of processed vegetables and fruits, which are often grown in conjunction with (and complementary to) produce for fresh marketing. Thus, unless energy costs rise rather dramatically, Indiana and other midwestern and eastern states are unlikely to resume their former importance in the processed fruit and vegetable industry.

Grain Marketing

Because of structural changes in the grain marketing industry, trucking has become of greater importance in grain transportation. To take advantage of shipping efficiencies brought by unit trains, the grain marketing system is becoming increasingly characterized by reliance on large subterminals rather than smaller country elevators. To get grain to subterminals, it is generally necessary to truck it longer distances than if it were going to country elevators. As truck fuel prices increase, the advantage of the newer arrangement over the old becomes smaller. It is doubtful that this will have any significant impact upon the grain marketing system that has developed. However, it may arrest any further tendencies toward large grain handling facilities. For example, marketing firms may find it desirable to construct intermediate-sized terminals, large enough to generate unit-train volumes but small enough so that their needs can be supplied from a fairly small grain producing region. In any case, it is likely that rising fuel prices will have some moderate impact on net prices received by grain producers since grain trucking will continue to play an important role in grain marketing.

Boiler Production

The agricultural industry that is likely to be most affected by rising fuel prices is the broiler industry. Virtually all fresh broilers are distributed to major markets by refrigerated trucks, often traveling two or three thousand miles. Production is heavily concentrated in the southern states, all of which are deficit in corn, the most important ingredient in broiler feeds. Thus, corn must be shipped from midwestern states to the South, from which iced broilers are shipped back to the Midwest and to the East. This is economical since production costs in the South are lower than for other areas. However, as transportation costs rise relative to other costs, this situation could easily change. If fuel costs, and hence transportation costs, continue to increase, areas that were once significant broiler producers (such as Indiana) may again become important in this industry.

Exports

In the recent past, export demand for U.S. grains (including soybeans) has increased dramatically. This has not only played an important role in reducing bal-
ance of payments difficulties, it has also been the single most important source of high grain prices. Certainly they are higher than they would have been in the absence of increased export shipments. This is especially important to the United States, since it is by far the world's most important grain exporter. This reflects is relative efficiency in producing and marketing grain, and the sheer size of U.S. producing areas. However, the increased volume of world trade in agricultural products creates incentives for other major producing countries to expand their share of the world grain trade. Some of these such as Argentina and Brazil have increased their productive efficiency and have the capability of increasing their acreage devoted to the cultivation of major grain crops.

But productive efficiency is only one factor that determines how competitive an exporter is on the world grain market. How efficiently grain can be moved from producing areas to foreign destinations also plays a role. The United States currently has an advantage over most competing producers in marketing its grain exports: it has a relatively efficient inland transport system, it has good port facilities, and it is relatively near to major consuming areas abroad.

However, there is evidence that this need not continue, at least to the degree that it exists today. There has been a strong trend toward the use of ever larger ships in international grain movements in the last two decades. Once such ships are underway, their operating costs are very much lower than smaller ships per unit of cargo carried. The use of large vessels leads to a decline in the role of distance in determining transport costs, and thus producers located far from producing areas can reduce their competitive disadvantage. Because of inadequate port facilities (relative to the U.S.), some major producers presently must employ relatively small ships in their export trade. As these countries improve their port facilities (Argentina is currently completing a facility capable of handling 100,000 ton ships), they will improve their competitive position vis-a-vis the United States. In addition, many of the U.S. competitors have quite inefficient inland transport systems. A combination of improvements in these systems, a modernization and expansion of port facilities, and improvements in productive efficiency could significantly erode the competitive advantage the U.S. currently enjoys in world agricultural trade. The importance of this trade to the health of the U.S. farm economy suggests the need for increased attention to the adequacy of the U.S. grain export system. For example, although some U.S. ports are quite efficient, others are not. Also, it has been pointed out above that the movement of grain from producing regions within the U.S. to ports has generated rather serious grain transportation problems of late. There is thus a clear need for U.S. policy makers to take a hard look at the export grain transportation system to determine how it can be improved. This is an issue that should be of interest to all segments of the agricultural economy.

TRANSPORT DEREGULATION

Currently, there is much interest in an support for decreasing economic regulation of the transport sector. Indeed, airlines have already been deregulated, the motor carrier industry will soon be operating under reduced levels of regulation (with a definite possibility of total deregulation in the near future), and railroads now have some rate-making freedom. The reduction and elimination of regulatory constraints on transport firms is bound to have some marked impacts on the transportation system. These in turn will have effects throughout the economy, but particularly on rural areas, which because of their spatial separation, are especially dependent upon transport services.

Overall, the "deregulatory fever" that has gripped transport policy-makers has brought one definite benefit. In the past, regulators viewed as part of their function the preservation of the existing role of each mode within the transport system. Oftentimes this viewpoint precluded or rendered difficult changes that could improve the operation of the overall freight handling system. (Witness the difficulty the
Southern Railroad encountered in introducing its "Big John" grain rates. This was permitted to be imposed only after a protracted court battle necessitated by the ICC fear that competing modes would be financially damaged.) However, with interest in deregulation has come a changed viewpoint, one that appears to be more concerned with the transport system rather than the individual components of the system. When translated into policy, this view will in all likelihood lead to more competition among transport modes. Consequently, the efficiency of the system will be enhanced: each mode will perform those transport services for which it is most suited. This does not mean that total deregulation of all modes is a complete blessing and hence is something to be desired. Certain characteristics of the transport industry (such as the size of some firms) argue against a totally free transport market. Ideally, regulation should serve to correct the failures of the free market. It is generally agreed that the present regulatory system has not done so, and in many cases has just made things worse. But from this it should not be concluded that all regulation is bad. Although it is true that there now exists too much transport regulation, it is apparent that there will always be a need for some.

**Variable Rail Rates**

There are some specific issues relating to deregulation that are of particular interest to agriculture and rural areas. One of these is the consequences of variable rail rates for agricultural shippers, particularly grain marketers. It was noted above that at least a partial solution to the problem of car shortages is seasonal rail rates. This involves regular known increases and decreases in rates at different times during the year. If rail rates were completely unregulated, rates could become quite variable and unpredictable, in the same fashion as barge and truck rates for grain are now. The rate fluctuations of these modes do not create serious problems for grain marketers, and in fact serve to efficiently allocate transport equipment. But the barge industry and grain trucking are both much more competitive than are railroads. Further, railroads are by far the most important mode involved in grain transportation. Hence, variable, unregulated rail rates for grain could create problems for grain marketers, both in terms of uncertainty with respect to transport costs and of difficulties faced by shippers served by only one railroad, free to charge any rate it desires.

Contract rates (as discussed above) are one solution to the problem of variable rail rates. There is strong support for the use of these rates, and they represent an alternative in many cases. However, it is doubtful that they present a viable solution to the problem of variable rates for small shippers. As noted above, unless a large, fairly steady quantity of grain is shipped, a grain marketer cannot generally commit himself to shipping given quantities of grain during specified future periods. Even if a small shipper knew the amount to be shipped in future periods, he is not likely to be in a very strong bargaining position when dealing with a railroad firm.

Hence, variable rail rates, should they become a reality, are likely to pose serious problems for small shippers. Since these are often dependent upon one railroad, with no viable alternative transport available ("captive shippers"), some means must be found to protect small shippers should significant rail deregulation occur. It is worth remembering that the impetus for railroad regulation in the 1800's was the ability of the railroads to take advantage of small agricultural shippers. There is no reason to believe that this cannot recur. For this reason, the wisdom of total rail rate deregulation is questionable. Some protection to shippers who are "at the mercy" of railroads must remain. There are a number of possible ways this could be accomplished. Rail rates could remain regulated, with shippers and railroads having the option of agreeing upon different rates on a contractual basis. (This is similar to the difference in common carrier and contract carrier trucking arrangements.) However, this may give an undue advantage to very large grain handling firms, who may be able to obtain much lower rates than those available to small shippers. A second option is to provide for "regulated con-
tracts," in which shippers unable to successfully negotiate with railroads can appeal to the ICC to specify contractual terms. This solution has been recommended by the Rural Transportation Advisory Task Force, but it is not at all clear how it could be implemented. A third possibility is simply to totally deregulate rail rates, but provide a mechanism such that shippers who feel that the rates they face are unjustifiably high can appeal for rate reductions. Such a mechanism would need to function very quickly, and speed has not characterized the operations of regulatory authorities in the past. A fourth option is for small shippers to form transport cooperatives, performing a function somewhat like freight forwarders. This would help to eliminate the problem of obtaining a steady flow of grain for shipment and would enhance the bargaining power and skill of small shippers. In any case, it is necessary that small shippers be afforded some protection if rail deregulation occurs.

Motor Carriers

While it is certain that some railroad deregulation will occur, it is a distinct possibility that the motor carrier industry will be totally deregulated. This is likely to have more significant impacts upon the nonagricultural sector, than on the farm economy. The trucking of unprocessed agricultural products has not been subject to regulation for years. But increased trucking deregulation is likely to have beneficial impacts upon agriculture. For example, truckers currently need ICC certificates to haul most manufactured goods. Elimination of this requirement will enable truckers hauling agricultural commodities to more easily obtain backhauls. This will reduce overall trucking costs. Similarly, the absence of commodity restrictions will probably lower the costs of moving agricultural inputs (which are regulated) into producing areas.

Supporters of regulated trucking contend that one of the benefits of this regulation is the provision of trucking services to rural areas. To qualify for ICC certificates, trucking firms must agree to provide service to all communities named in the certificate (the "common carrier obligation") or risk its revocation. Many believe that the provision of this service at reasonable rates is unprofitable, and that without this requirement many rural communities would be without motor carrier service.

There is little evidence to support this contention. One study has shown that many communities that are supposed to be served by certain trucking firms in fact are not, suggesting that the common carrier obligation is not strongly enforced. In addition, the present regulatory structure inhibits the formation of specialized firms that may be better able to serve rural areas. For example, United Parcel Service is restricted in the size of parcels it can handle, the number of parcels it can deliver to a single consignee, and so on. This reflects the regulatory viewpoint that has persisted in the past in which all modes and firms are protected from serious competitive inroads. Evidently, the above constraints were imposed on UPS to prevent its competing too strongly with conventional motor carriers.

It has been true that airline deregulation has resulted in a loss of air service to some rural areas. But this appears to be a temporary phenomenon, resulting from flight cancellation by major airlines. Smaller regional and commuter airlines, freed from entry restrictions, have been taking over these routes. Such airlines are better able to economically provide such service, and it likely that an analogous response would be forthcoming with the trucking industry.

Inland Waterways

A final point related to regulation concerns the barge industry. For all practical purposes, barge movement of agricultural commodities (principally grain and soybeans) is completely unregulated. In addition, waterway improvements, necessary for barge transportation, have been provided free of charge by the federal government. This has recently been changed by the passage of a bill imposing user charges on inland waterways. Some have expressed concern that this will have severe impacts
on the barge industry, which is instrumental in the movement of export grain. However, research indicates that this fear is for the most part unfounded. The magnitude of the charge (a 4 cents/gallon fuel tax in 1980, rising to 10 cents/gallon by 1985) is unlikely to raise barge costs enough to endanger the advantage it enjoys over other modes in the areas it now serves. The charge, if passed through to shippers, may result in a very modest decline in grain prices received, perhaps 1 or 2 cents per bushel. However, if the funds collected are used for waterway improvements (for which they are earmarked), agriculture should benefit in the long run. For example, the inadequacy of Lock and Dam 26 on the Mississippi River has created a serious bottleneck to the movement of agricultural commodities. The replacement of this structure (financed by user charges) will provide long-term benefits to the agricultural sector.

ROADS AND HIGHWAYS

The rural road system, including highways and interstates, is faced with some serious problems. The condition of the system is declining, repair and maintenance costs are rising, and because of declining fuel use, tax collections are declining. The major question is, how can this system best be financed? Consider the problem of county roads, which is a particularly serious problem in Indiana. In some areas, the condition of these roads has become a hindrance to the movement of agricultural inputs and outputs. In the farmers' poll referred to above, at least 45 percent of Indiana respondents reported that inadequate roads hampered grain movements. It is evident that new sources of financing for improving such roads must be found. Based on Federal Highway Administration estimates, the amount of expenditures required to maintain rural roads at "tolerable" levels is more than twice current expenditures. Some have proposed increases in property taxes, with the resulting funds to be channeled to road improvements. This proposal is attractive in the sense that the major beneficiaries of improvements (i.e., rural property owners) would pay a large portion of the costs. It has also been recommended that the federal government take increased responsibility for constructing and maintaining major highways, thus releasing state funds for local roads. Whatever policies are used, one thing is clear: more money will be needed for roads if the system is to be kept in even its existing condition, much less improved. It is simply a matter of who is to provide the funds.

With increasing energy costs, there has been support for increasing allowable truck weights (Indiana's limit on major highways 72,000 pounds, is relatively low among states). While this may have some energy saving advantages, it could pose serious problems for road maintenance. As an illustration, engineers use as a rule of thumb the "fourth power" rule, which states that the damage to a road surface caused by an axle varies directly with the fourth power of the weight of that axle. This indicates that heavy vehicles cause a disproportionate share of road deterioration. Given the present condition of the road system, it is doubtful that it would be wise to increase weight restrictions. If such increases are brought about, it would at least be desirable to correspondingly increase highway user charges. This is a pertinent point in view of the fact that truck user taxes have been for the most part unchanged for more than 10 years.

It is important that Indiana citizens become informed about the need for increased road funding within the State. A realistic view must be adopted. It is somewhat unrealistic to on the one hand complain about the condition of Indiana roads and highways and on the other to vociferously protest when there is a danger that fuel taxes or other sources of funds may be increased. Better roads require more money; and if Indiana's road system is to be improved more funding will be needed.
CONCLUSION

This report has presented a short discussion of some of the more important transportation issues that will affect agriculture and rural areas in Indiana and the U.S. in the next decade. The economy is in a state of transition: unprecedented rises in energy costs, increased competition among countries in world trade, social and political changes, all have generated pressures on existing economic activities. The transportation sector has been especially affected by these changes, and this creates a need for some significant adjustments. To facilitate this process, it is important that citizens have information on changes that can be expected, the causes of such changes, and some possible solutions to problems brought by change. It is hoped that this bulletin makes some small contribution toward that end.

REFERENCES

The information in this report came from a variety of sources. A selected list follows:


