Indiana Grain and the Illinois-Mississippi Waterways

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Introduction

Important geographic changes in the marketing pattern of Indiana corn, wheat, soybeans and oats are being effected chiefly by three factors: 1) the development of modern barge traffic on the Illinois, Mississippi, Ohio, Cumberland and Tennessee Rivers; 2) an increasing dependence on truck transportation; and, 3) Indiana's gross income tax on intra-state grain transactions. On one hand, Indiana's gross income tax and the increasing use of trucks are the most direct and noticeable causes effecting current geonomic changes in the marketing of Indiana's grain. On the other hand, the fact that the development of grain traffic on distant waterways is even indirectly affecting the movement of Indiana grain provides an excellent illustration of the complex nature of grain marketing in the United States today.

Transportation and storage are highly important in the marketing of grain. Raw grain is a relatively cheap, bulky, slow-to-spoil commodity requiring storage. For these reasons shippers find it advantageous to move grain by barge. The initial movement of grain from Indiana farms is almost entirely by truck. Trucks are also the prime mover of grain to terminal elevators and processing plants located less than 35 miles from producing farms or local elevators. In addition, trucks are becoming of greater importance in the hauling of grain for distances up to several hundred miles through farmer and local elevator sales to itinerant truckers and in conjunction with barge operators. Rural elevators ship chiefly by rail to processing plants and terminal elevators; this is particularly true of grain moving to eastern markets, to Atlantic ports for export, or to processors for in-transit milling.

A highly generalized pattern of the movement of Indiana's grain to market appears as follows (figure 1):

1. By rail to eastern markets for processing or distribution.
2. By truck and rail to Indianapolis for processing or distribution to the East.
3. By truck and/or rail to Indiana processing plants.
4. By truck and rail to Toledo, Ohio, for processing or reshipment to the East.
5. By truck and rail to Chicago for processing or reshipment to the East.
6. By truck to riparian elevators at Morris, Illinois.
7. By rail to Decatur, Bloomington and Peoria, Illinois.
8. By truck to Danville, Illinois, for processing.
9. By truck to Louisville, Kentucky, and Cincinnati, Ohio, for processing or distribution throughout the South and Southeast.

The combined market value of Indiana's 1952 crop of corn, wheat, soybeans and oats exceeded $700,000,000 and represented an important share of the State's total income for that year. Any changes in the market

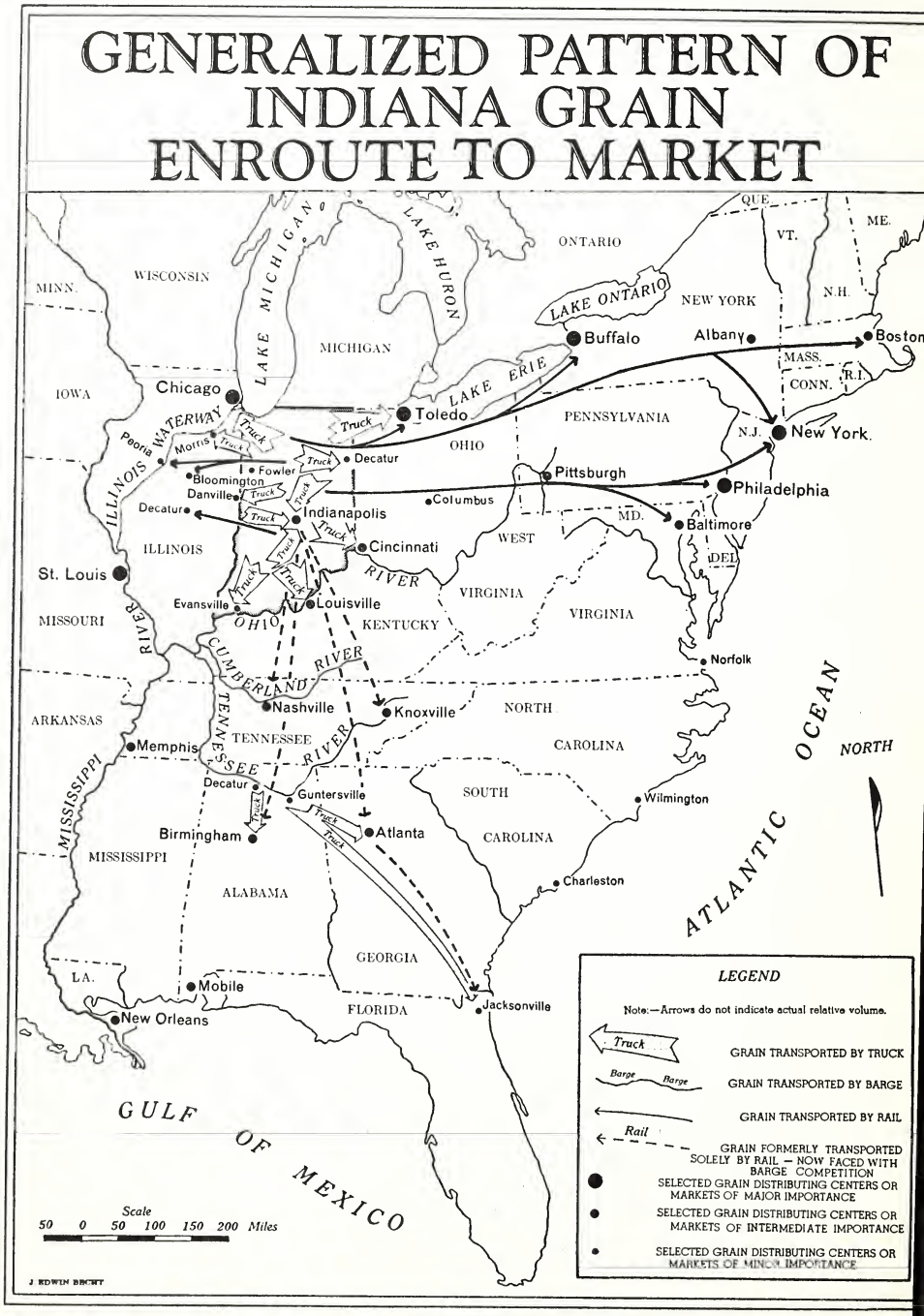
GENERALIZED PATTERN OF INDIANA GRAIN ENROUTE TO MARKET
MINN.
WISCONSIN
LAKE MICHIGAN
LAKE HURON
ONTARIO
QUE.
VT.
ME.
N.H.
NEW YORK
LAKE ONTARIO
MICHIGAN
Buffalo
Albany
Boston
MASS.
R.I.
CONN.
IOWA
Chicago
LAKE ERIE
Toledo
PENNSYLVANIA
N.J.
New York
ILLINOIS WATERWAY
Peoria
Morris
Truck
Decatur
OHIO
Fowler
Bloomington
Danville
Pittsburgh
Philadelphia
Columbus
Indianapolis
MD.
Baltimore
DEL.
ILLINOIS
Cincinnati
WEST
St. Louis
RIVER
VIRGINIA
Evansville
Louisville
MISSOURI
OHIO
KENTUCKY
VIRGINIA
Norfolk
CUMBERLAND RIVER
ARKANSAS
Nashville
Knoxville
NORTH
TENNESSEE
Memphis
TENNESSEE RIVER
CAROLINA
NORTH
ATLANTIC OCEAN
MISSISSIPPI
Decatur
Guntersville
SOUTH
Wilmington
Birmingham
Atlanta
CAROLINA
MISSISSIPPI
Charleston
ALABAMA
GEORGIA
LA.
Mobile
New Orleans
FLORIDA
Jacksonville
GULF OF MEXICO
Scale
50 0 50 100 150 200 Miles
J. EDWIN BECHT
LEGEND
Note:—Arrows do not indicate actual relative volume.
Truck
GRAIN TRANSPORTED BY TRUCK
Barge
GRAIN TRANSPORTED BY BARGE
GRAIN TRANSPORTED BY RAIL
Rail
GRAIN FORMERLY TRANSPORTED SOLELY BY RAIL — NOW FACED WITH BARGE COMPETITION
SELECTED GRAIN DISTRIBUTING CENTERS OR MARKETS OF MAJOR IMPORTANCE
SELECTED GRAIN DISTRIBUTING CENTERS OR MARKETS OF INTERMEDIATE IMPORTANCE
SELECTED GRAIN DISTRIBUTING CENTERS OR MARKETS OF MINOR IMPORTANCE

Figure 1

potential for that grain is important to every taxpayer in the state. To handle this trade a complex commercial structure has developed within the state and includes farmers, local (or rural) elevators, riparian elevators, large and small grain exchanges, terminal elevators, processors, truck-load and carlot dealers and commission men.

Development of Modern Barge Traffic

For the past century Indiana grain producers, located on the eastern fringe of the great mid-west grain producing region, have enjoyed the advantages of relatively low basic rail rates to the east and southeast and, in addition, a relatively short-haul to Chicago—the world's largest grain market. Now, because of low competitive barge-load rates on grain to Chicago and to the Southeastern markets, shippers of Indiana grain find that their counterparts in Illinois and adjacent areas of Minnesota, Iowa and Missouri are successfully competing for much of Indiana's share of those markets. Another change in the marketing pattern of Indiana's grain has taken place in that considerable quantities of grain are being trucked to Illinois and Ohio River elevators—i.e., Morris, Illinois and Evansville, Indiana respectively.

The development of modern barge traffic on the Illinois Waterway has resulted in a new freight rate pattern for Illinois and Indiana corn, wheat, soybeans and oats moving to the Chicago market. Now, Illinois farmers located as far as 250 to 300 miles from Chicago are able to compete with Indiana producers located only 40 to 50 miles from that market. The impact of this new truck-barge, truck and truck-rail rate pattern has been far-reaching and complex, affecting nearly all grain farmers, shippers and processors in those two states.

Since the opening of the Illinois Waterway in 1935 grain shipments on it have reached an annual total exceeding 60,000,000 bushels. More than three-fourths of this total moves upstream and constitutes about 35 percent of all grain reaching Chicago. The balance moves downstream to the important grain centers of St. Louis and New Orleans and to numerous lesser market and distributing points such as Decatur and Guntersville, Alabama and Nashville, Tennessee.

Direct results of low cost water rates into Chicago on the grain marketing pattern of Indiana are: 1) a reduction in the size of the area of northwestern Indiana able to compete with the region of Illinois having newly established, uniformly low rates to the Chicago market; and 2) the widespread use of trucks in conjunction with barge operations. Indirect results are: 1) areal shifts to livestock and other types of farming from cash grain; 2) a decline in the relative importance of local grain markets; and, 3) shifts in the direction of grain moving from areas which formerly shipped to Chicago but which now lie outside producing areas enjoying sufficiently low rates to compete for that market. To date, major Indiana grain exchanges and farmers have not felt this loss of trade keenly because: 1) only the northwestern part of Indiana has been, and is, oriented toward the Chicago market (figure 1); 2) demand has remained at a high level; and 3) Federal price supports moderate the effects of differences in freight rates on grain. However, the effects of these differences in

rates would become highly important in the future if demand should slacken, or if price supports are dropped.

Even more spectacular has been the success that water carriers have made possible for shippers moving grain from Illinois (and points even further to the west and north as well) into the southeastern states. Grain can be shipped from all Illinois Waterway elevators south of the big bend in the Illinois River to major markets in the Southeast at much lower costs than it can be railed from Indianapolis to those same markets. These savings range all the way from 69 cents per hundredweight for such points on the Tennessee River as Guntersville and Decatur, Alabama to 14 cents per hundredweight on grain destined for Jacksonville, Florida—some 440 miles by truck southeast of Guntersville (Table I).

Just how serious the loss of a large share of the southeastern markets has been to Indiana grain dealers is difficult to assess. Records are unavailable that show the amounts formerly shipped from Indiana to those points.[1] However, a record of the annual tonnages of corn, wheat, and oats moving up the Tennessee River indicates that the amounts involved are substantial and of growing importance (Table II). These tonnages have increased from 12 short tons in 1938 to more than an estimated 200,000 short tons in 1953. Approximately two-thirds of this volume is corn and nearly all of the balance is wheat. That this new traffic is hurting the Indiana grain trade is further attested by the fact that a number of southern railroads have filed counter-complaints with the Interstate Commerce Commission contending that present barge line rates and charges are not sufficient to cover the cost of barge operations.[2] Naturally, the future of this traffic hinges upon the outcome of these complaints.

TABLE I

Comparison of Rail Rates From Indianapolis, Indiana to Selected Southeastern Markets With Barge, or Truck-Barge, Rates From Certain Illinois River Points To Those Same Markets*

To	By Rail From Indianapolis	By Barge and Truck *From* Illinois River Points South of the Big Bend	Differences In Favor of Barge and Truck
Atlanta, Georgia	$ .89	$ .47	$ .42
Birmingham, Alabama ..	.86	.35	.51
Guntersville, Alabama ...	.86	.17	.69
Jacksonville, Florida	1.19	1.05	.14
Knoxville, Tennessee	.73	.22	.51
Louisville, Kentucky	.42	.13	.29
Nashville, Tennessee	.65	.19	.46

* Rates in cents per cwt. Rail rates are C/L-I. C. C. A 946 and water rates are B/L-I. C. C. No. 16 and I. C. C. No. 104. Truck data are based upon a cost figure of 1 cent per cwt. for each five miles.

1. Probably of greater significance to Indiana grain dealers has been the development of grain movement by truck to Louisville, Kentucky and Cincinnati, Ohio for transhipment to southeastern markets.

2. I. C. C. docket Nos. 30744 and 30787.

TABLE II

Inbound Grain Traffic On The Tennessee River*

Year	Corn	Wheat	Oats	Total
1938	12	0	0	12
1939	137	5,473	0	5,610
1940	19,011	19,340	2,809	41,160
1941	42,022	69,806	1,216	113,044
1942	31,775	57,188	2,398	91,361
1943	53,743	59,464	4,856	118,063
1944	.....	.....	.....	.....
1945	60,079	51,684	11,098	122,861
1946	25,378	42,623	10,300	78,301
1947	40,445	35,316	7,002	82,763
1948	33,894	25,539	3,321	62,754
1949	64,468	31,774	8,857	105,099
1950	102,638	41,933	14,146	158,717
1951	68,288	56,798	13,701	138,787
1952	135,015	40,837	24,007	199,859

* Source: U. S. Army Engineer; Data in Short Tons.

Increased Dependence on Truck Transportation

The increased use of trucks for hauling Indiana grain, other than from farm to local elevators or nearby processing plants, is relatively new and has made possible the moving of grain by barge. Since 1947 there has been a series of increases in railroad freight rates on grain. Each increase has resulted in a greater spread between truck and truck-barge rates on the one hand and rail rates on the other. This wider spread in rates set in motion a whole series of adjustments, one of which was to greatly increase the number and extent of areas in which trucks can compete with rail. Still another reason for the rapid growth in the use of trucks to haul grain is the recurrent box-car shortage at harvest-time. Grain-shippers, hard pressed to find storage for their grain, are forced to turn to trucks to aid in moving their commodity to terminal elevators. Trucks, thus placed into operation, remain available throughout most of the year.

Trucks have very nearly replaced rail in moving grain from large sections of Indiana. Trucks hauling from almost the entire southeastern part of the state to Louisville, Kentucky and Cincinnati, Ohio have practically replaced the railing of grain from Indiana points to those markets. Similarly, trucks have a near monopoly on the grain trade from the northwestern corner of the state to the Chicago market and to riparian elevators at Morris, Illinois. Trucks also dominate in the movement of grain from the southwestern part of the state to Evansville; and are being used more and more to move grain from the northeastern part of the state to Toledo, Ohio.

Effects of Indiana's Gross Income Tax on Intra-State Grain Transactions

One outstanding result of Indiana's gross income tax on the marketing pattern of grain grown in the state has been the enlargement of producing sections having their most favorable markets outside of Indiana. For example, the radii of the areas that are in a position, rate-wise, to truck grain to riparian elevators at Morris, Illinois, or to Ohio River houses in Evansville rather than to major Indiana markets, are increased from 5 to 10 miles—the equivalent of more than a large county in each case. Similarly, the radii of areas normally trucking grain to the important markets of Chicago, Toledo, Cincinnati, and Louisville have been increased from 5 to 10 miles.

These increases have resulted from the fact that the state gross income tax on intrastate transactions restrict to a degree the operation of the state's grain elevators, carlot dealers, commission men and grain exchanges, most of whom operate on margins of less than 5%. As each grain transaction is taxed one-fourth of one percent of its gross value, even if a loss is incurred, the average tax on a given bushel of grain, after passing through 3 to 4 hands before reaching the final processor, amounts to approximately 1% of its market value. This is usually more than one-fifth of the expectable margin of profit for most commission transactions. For example, if the market price of corn per bushel is $1.80, wheat $2.50, soybeans $2.75 and oats $.90 this cumulative tax on 1% amounts to 1.8 cents, 2.5 cents, 2.7 cents and .9 cents per bushel respectively. These amounts represent more than the price ranges of the major markets on many days and considerably reduce the competitive position of Indiana grain dealers. In brief, the tax encourages the moving of all grain destined to be marketed outside of the state with the least possible number of intra-state transactions; and, as has been pointed out, out-of-state markets include riparian elevators.

Conclusions

The widespread use of barges and trucks are relatively new and their final effects on the marketing of Indiana grain have not yet developed. Barring major decreases in rail freight rates, or rulings adverse to barge operators by the Interstate Commerce Commission, the present trends will continue and the railing of Indiana grain to Chicago and to the Southeastern markets will continue to decline in importance. And, as long as Indiana applies a gross income tax to all intrastate grain transactions, Indiana dealers will tend to deal more and more directly with out-of-state markets and sources of grain. The tax encourages the railing of grain to eastern markets and ports and favors the trucking of grain to Chicago, Toledo, Louisville, Evansville, Danville (Illinois) and to Morris on the Illinois Waterway rather than to the Indiana markets.