

IMPACT OF AGRICULTURAL EXPORTS  
ON THE OKLAHOMA ECONOMY

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## CHAPTER I

### INTRODUCTION

#### GENERAL PROBLEM

Agricultural exports are of great importance to both the farm and nonfarm sectors of the U.S. economy. In past years, they have accounted for one-fourth of cash receipts for all farm products and one-fifth of total U.S. exports (Sharples, Webb and Holland, 1984). Approximately 20 million people are involved in the storage, transportation, processing and merchandising of U.S. farm output, and an additional five million individuals are required to produce seed, fertilizer and other inputs for the production process. The U.S. Department of Agriculture has estimated that for every \$1 billion in farm exports, 35,000 jobs are created, most of them off the farm. In total, one out of every five jobs in the private sector is associated with U.S. agricultural exports (Kendall, 1982)

Historically, the United States has been the world's leading exporter of agricultural commodities. The U.S. share of world agricultural exports has averaged 16 percent annually from 1951 to 1981 while the U.S. share of total world exports has averaged 12 percent during the same period (Mackie, 1983). Also, U.S. agriculture has been more dependent upon trade than any other sector of the economy. In 1979, 26 percent of total farm marketings were exported



as compared to only seven percent of total manufactured goods. With respect to Gross National Product for the same year, only seven percent of total U.S. output was sold in foreign markets (Coffey and Conner, 1983).

During the 1970's, U.S. agricultural exports experienced an unprecedented period of growth, aided by an increase in foreign demand and a relative depreciation in the value of the U.S. dollar. The value of the nation's agricultural exports reached its peak of nearly \$44 billion in 1981, representing a six-fold increase over the figure for 1970. The pattern of U.S. agricultural and nonagricultural trade during the period from 1970 to 1983 is shown in Table I. Nonagricultural exports also exhibited strong growth, but of greater significance was the increase in nonagricultural imports over the decade, fueled in part by higher-priced petroleum imports, which created overall deficits in the U.S. balance of trade. The surpluses generated in agricultural trade, however, helped offset what would have been even larger deficits.

The outlook for agricultural exports in the 1980's has changed considerably from the previous decade. No longer are American farmers encouraged to plant "fence row to fence row" as a response to world-wide food shortages. Instead, farmers are faced with declining export demand brought on by the following factors: (1) a U.S. dollar that remains strong relative to other currencies (created by a huge budget deficit and high interest rates); (2) a worldwide recession in 1981-83 which slowed real income growth, especially in developing countries (important because they make up a significant portion of demand for U.S. farm products); (3) shifts in trade policies of large

TABLE I

U.S. MERCHANDISE TRADE, AGRICULTURAL AND NONAGRICULTURAL,  
OCTOBER-SEPTEMBER, 1970-1984  
(IN BILLIONS OF DOLLARS)

Year	Exports				Imports				Trade Balances		
	Total	Agri-cultural	Nonagri-cultural	Percent Agricultural of Total	Total	Agri-cultural	Nonagri-cultural	Percent Agricultural of Total	Total	Agri-cultural	Nonagri-cultural
1970	41.30	6.96	34.34	17	39.07	5.69	33.38	15	2.23	1.27	.96
1971	43.88	7.96	35.93	18	44.87	6.13	38.74	14	-.99	1.83	-2.82
1972	44.88	8.24	36.63	18	51.86	5.94	45.93	14	-6.99	2.31	-9.29
1973	62.74	14.98	47.76	24	65.26	7.74	57.52	12	-2.52	7.25	-9.67
1974	90.98	21.56	69.42	24	92.03	10.03	82.00	11	-1.04	11.53	-12.57
1975	105.00	21.82	83.18	21	98.69	9.44	89.25	10	6.31	12.38	-6.07
1976	111.79	22.74	89.05	20	114.24	10.49	103.74	9	-2.45	12.25	-14.70
1977	119.12	23.97	95.14	20	142.42	13.36	129.06	9	-23.30	10.62	-33.92
1978	131.56	27.29	104.27	21	165.98	13.89	152.10	8	-34.42	13.40	-47.83
1979	167.62	31.98	135.64	19	193.61	16.19	177.42	8	-25.99	15.79	-41.79
1980	210.23	40.48	169.75	19	236.58	17.28	219.31	7	-26.35	23.21	-49.55
1981	229.20	43.78	185.42	19	254.69	17.22	237.47	7	-25.48	26.56	-52.05
1982	215.05	39.10	175.95	18	248.83	15.48	233.35	6	-33.79	23.61	-57.40
1983	194.14	34.77	159.37	18	245.71	16.37	229.34	7	-51.57	18.40	-69.97
1984	208.0	38.00	170.00	18	314.00	19.00	295.00	6	-106.00	19.00	-125.00

Source: U.S. Department of Agriculture, U.S. Foreign Agricultural Trade Statistical Report, Fiscal Year 1984 ERS, (Washington, 1985).

importing countries designed to maximize agricultural self-sufficiency; and (4) trade barriers such as bilateral agreements between export competitors and food importing nations, Japanese food import barriers and variable levies imposed by the European Community on food imports (Drabenstott, 1983).

The trend in U.S. agricultural export volume since 1975 is shown in Figure 1. After reaching a peak of nearly 164 million metric tons (MMT) in 1980, exports have fallen for three consecutive years, down to 144 MMT in 1983. U.S. agricultural exports by area of destination are presented in Figure 2. Once again, the overall trend is a decline in the amount imported by foreign countries in recent years. The exception lies in exports to Asia, which are increasing due to growth in the regional markets of Japan, South Korea, Taiwan and Hong Kong. Japan currently accounts for approximately 45 percent of U.S. agricultural exports to the area.

Oklahoma has a significant stake in exporting agricultural products. For fiscal year 1983, it ranked 14th in total value of U.S. agricultural exports, shipping nearly \$750 million worth of farm products to foreign destinations. As indicated in Table II, more than 70 percent of Oklahoma's agricultural export sales during the same year involved wheat and wheat products (\$539.2 million for wheat in the total of \$747.9 million of total agricultural exports). Oklahoma ranked third in the nation, behind Kansas and North Dakota, in wheat exports in 1984. Other leading exports in terms of value for the Oklahoma economy are live animals and meat, hides and skins, cotton and linters, animal fats, oils and greases, soybeans and products, and peanuts and products.

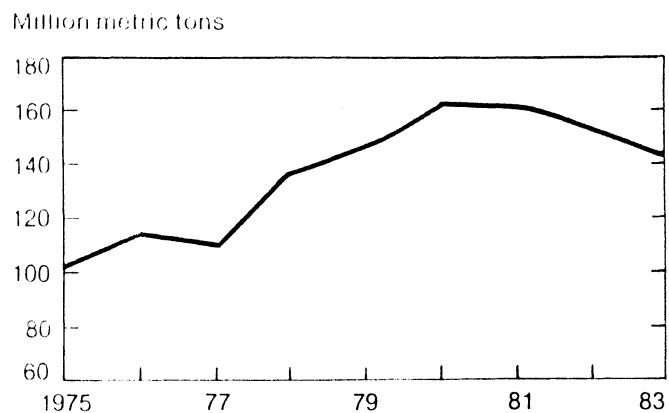
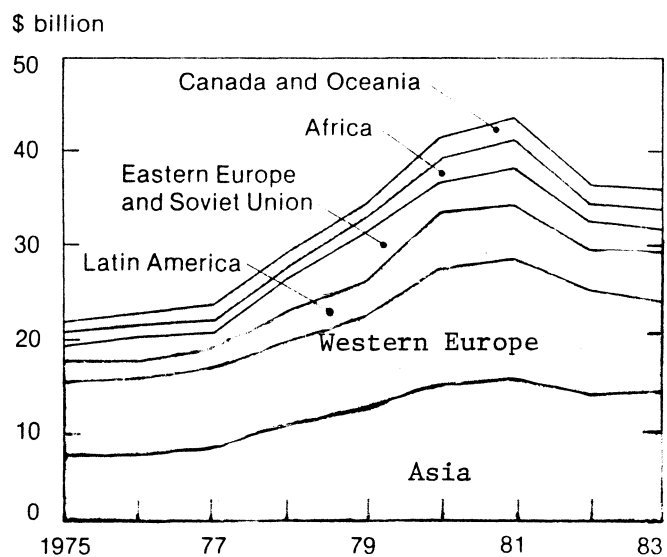


Figure 1. U.S. Agricultural Exports By Volume



Adjusted for transshipments through Canada.

Source: U.S. Department of Agriculture, 1983 Handbook of Agricultural Charts, No. 637, Washington, 1984.

Figure 2. U.S. Agricultural Exports By Destination

TABLE II

ESTIMATED VALUE OF AGRICULTURAL EXPORTS  
BY COMMODITY GROUP FOR OKLAHOMA,  
OCTOBER-SEPTEMBER, 1973-1984  
(IN MILLIONS OF DOLLARS)

Year	Wheat and Products	Live Animals and Meat <sup>a</sup>	Hides and Skins	Cotton and Linters <sup>b</sup>	Fats, Oils and Greases	Soybeans and Products	Peanuts and Products	Nuts and Products <sup>d</sup>	Poultry and Products	Dairy Products	Misc <sup>e</sup>	Total Ag Exports
1973	133.9	9.1	19.9	19.8	10.6	6.8	--c	.3	.5	.1	24.4	241.1
1974	439.8	11.3	16.5	48.1	23.4	10.4	--c	.9	.7	.4	53.2	632.2
1975	388.8	8.8	14.5	34.2	21.3	14.2	9.2	.5	.5	--	42.4	567.3
1976	391.9	12.6	18.7	21.4	15.3	11.5	5.3	.9	1.9	.1	41.7	521.5
1977	243.7	16.0	27.4	28.3	26.7	24.1	13.6	1.2	2.4	.1	37.3	410.3
1978	377.1	19.9	28.2	57.8	25.0	28.4	20.9	1.7	2.6	1.3	42.5	626.2
1979	419.2	30.3	48.3	69.1	33.9	21.8	14.8	2.0	3.4	.8	48.4	709.4
1980	668.0	39.7	30.3	117.8	41.7	31.4	8.8	7.1	5.0	.3	15.2	970.3
1981	697.4	43.9	38.2	45.6	40.7	13.5	8.9	6.1	7.7	.8	15.3	913.8
1982	664.8	44.2	38.4	67.6	34.5	27.3	11.7	4.7	6.0	.4	14.8	911.1
1983	539.2	46.5	43.6	38.2	31.3	18.2	10.1	4.3	2.8	1.1	15.6	747.9
1984	587.4	12.9	16.0	47.0	9.6	18.0	11.3	1.3	3.8	1.2	15.6	724.1

Source: U.S. Department of Agriculture, Economic Research Service, Foreign Agricultural Trade of the United States, Washington, D.C., various issues.

<sup>a</sup> excluding poultry

<sup>b</sup> includes cottonseed oil and products

<sup>c</sup> included with nuts and products for the period 1973 and 1974

<sup>d</sup> excludes peanuts and products

<sup>e</sup> mainly seeds, feeds, fodder and miscellaneous animal products

Oklahoma exports in most commodity groups have experienced a decline in export sales in the past few years, mirroring the national trend in exports (Table II). The proclivity towards increased sales of Oklahoma live animals can partially be explained by the expansion of livestock production in such countries as Canada and Mexico and their need for improved breeding stock. Hides and skins are often imported by Latin American countries having a comparative advantage in the manufacture of leather.

It should be noted that the data in Table II represent an estimate of Oklahoma farm exports based upon a comparison of the state's sales of various commodities and U.S. sales of the same goods. In approximating export shares nationwide, it is assumed that U.S. exports have a proportionate impact on each state producing a particular commodity. Thus, even though a good might not actually be exported, its production represents an opportunity to meet market demand overseas and is used to assess a state's share of national exports. In the case of Oklahoma, given its ready access to Gulf ports via rail and barge transportation, the estimation procedure mentioned above may actually underestimate actual exports from the state. For example, the percentage applied to states' production of wheat to determine export share is 40 percent. The Oklahoma Wheat Commission has estimated that about 80 percent of Oklahoma wheat is exported, the majority of which is transported to the Texas Gulf ports by railcar (Harrison, 1985). Since Oklahoma is located close to the Gulf ports (New Orleans by barge and Galveston-Houston area by rail), it is logical that a high proportion of Oklahoma wheat moves to overseas markets.

### Specific Problem

The importance of agricultural exports to U.S. trade and the overall economy has been fairly well established. Obviously, agricultural producers are the primary beneficiaries of increased agricultural exports. During the 1970's, one of the significant reasons for promoting farm exports was the link between agriculture and other sectors of the national economy in terms of its impacts on employment, output of goods and services and incomes. A growth in agricultural exports translated into healthy increases in other economic sectors by way of "rippling effects." Less attention has been given to impacts of farm product exports on the economies of individual states. Considering the substantial role of agriculture in the state of Oklahoma, an analysis of the primary and secondary effects of agricultural exports on the state's economy may have important implications for the vitality of the economy as a whole.

As the links between the direct and indirect exports of agricultural products and other industries such as transportation, manufacturing, energy, chemical and processing are better understood, it will be easier to evaluate the effects of changing levels of farm exports upon the prosperity of the Oklahoma economy. Once these linkages are determined, private and public decision makers can make long range adjustments with regard to their undertakings by including the additional variable of agricultural exports in their analysis of current and future economic conditions.

The feasibility of ignoring the effects of international trade upon an economy has diminished due to the interdependency of the world marketplace. The changing economic environment facing U.S.

agricultural exports should be of special concern to the related sectors because these sectors will ultimately feel the effects of trade policy just as the very farmers who produce the commodities involved. For example, a decline in the foreign quantity demanded of U.S. wheat will not only affect the immediate producers, but entities involved in input production (seed, fertilizer, farm equipment, etc.), processing, transportation (truck, rail, barge and ship), and marketing of wheat and wheat products.

There are implications that employment, output and incomes received will decrease in the related sectors as a result of the initial decrease in wheat exports. For a state such as Oklahoma, where 70 percent of its agricultural export sales come from wheat, the overall effects could be quite significant.

The estimated value of Oklahoma agricultural exports during fiscal year 1984 was \$724.1 million (Table II). This represents the primary effects of farm exports on the state's economy. The secondary impacts can be approximated by using multiplier analysis; its basic premise being that an increase in the output of one industry will lead to increased employment, income and output of related industries. Employment multipliers estimate the number of farm and nonfarm jobs generated by exports, income multipliers approximate the amount of direct and indirect income created by the production and sales of farm exports, and output multipliers estimate the amount of additional economic activity induced in related industries.

Since foreign demand for U.S. agricultural products is somewhat less stable than domestic demand, decision makers can reach a better understanding of the effects of public policies with regard to



agricultural exports on the entire economy by examining the interrelationships between economic sectors. In addition, by incorporating pertinent variables of international trade into their planning horizon, policy makers can anticipate and prepare for fluctuating levels of agricultural exports and the resultant effects upon the Oklahoma economy.

### Objectives

The purpose of this study is to determine the impacts of Oklahoma's agricultural exports on the state's economy. The specific objectives are to:

- 1) Describe the efforts of national and state government agencies with respect to promotional efforts, trade agreements and other regulations and policies affecting U.S. agricultural exports;
- 2) Describe the promotional efforts of national and state commodity organizations in their efforts to increase farm product exports; and
- 3) Analyze the impacts of agricultural exports on selected sectors of the Oklahoma economy in terms of income, output and employment by using existing input-output multipliers.

### Thesis Organization

A literature review of the input-output multiplier analysis and its applications to agricultural trade and state economies is presented in Chapter II. The methodology used to collect and analyze the primary and secondary data are presented in Chapter III. The role

of national and state government agencies in agricultural exports, focusing upon trade promotion, agreements, regulations and policies is presented in Chapter IV. Also featured in Chapter IV is the role of national and state commodity organizations to promote the sale of farm products overseas. The results of the surveys are presented in Chapter V. The results of the economic impact analysis are presented in Chapter VI as well as likely future trends and possible impacts in the area of agricultural exports. Finally, the summary and conclusions, with limitations of the study and need for further research are presented in Chapter VII. The survey form used in the collection of information from firms exporting agricultural products is presented in the Appendix.

## CHAPTER II

### LITERATURE REVIEW

The expansion of agricultural exports during the 1970's made significant contributions to the U.S. economy as a whole. While helping to offset the growing deficit in nonagricultural merchandise trade, agricultural exports assisted the U.S. in maintaining its economic position in world markets. The growth in agricultural exports brought about increases in income, employment and output not only in the farm sector, but in other sectors as well due to the implicit interindustry relationships.

The importance of agricultural exports to U.S. trade has underscored the need for an expanded research base. In a report on agricultural trade research prepared for the Experiment Station Committee on Organization and Policy (1984), it was concluded that the efforts devoted to trade research are: (1) extremely limited; (2) often individualistic with reference to commodity, country or methodology; (3) nonadditive; and (4) slanted toward short term policy analysis or long term projections. One recommendation given is that "experiment station directors and others responsible for agricultural research need to recognize that U.S. agriculture is now an integral part of the world economy and the world food system."

Trade issues and policies can be just as important to the well-being of the farm sector and related sectors as commodity

programs and other economic legislation. It follows that investment in agricultural trade research at the state level can have important implications for the future economic development of a state. As the focus of this study is to determine impacts of agricultural exports on the economy of Oklahoma, this chapter will look at two pertinent categories of literature. The first section deals with the effects of agricultural trade on an economy using multiplier analysis and the second section looks at input-output studies of the Oklahoma economy.

#### Agricultural Trade Impact Analyses

Using input-output figures for the U.S. economy, Schluter (1980) estimated that in 1979 agricultural exports valued at \$34.7 billion gave rise to total economic output of \$71.1 billion, implying a multiplier of 2.05. Thus, for every dollar of agricultural exports, an additional \$1.05 of output was created in the economy. He determined that approximately 75 percent of this additional activity occurred in the nonfarm sectors. Schulter also reported that approximately 1.1 million jobs were related to U.S. agricultural exports during the same year. Of this figure, 630,000 workers were employed off the farm. With respect to income, Schulter reported an income multiplier of one, implying that for every \$1 of agricultural export sales, an equivalent amount is generated in the form of salaries, profits and taxes.

Schulter indicates, however, that this direct relationship does not reflect the increased purchasing power spread throughout the economy by additional income received from exports. Farm workers are able to buy more of such things as equipment, building supplies and

consumer goods, the net result of which is to stimulate further economic activity. Schuller also traced the income distributed from agricultural exports by particular economic sector. He reported that the farm received 42.3 percent of the income; trade and transportation, 16.5 percent; food processing, 6.3 percent; other manufacturers, 15.8 percent; and other services, 18.8 percent.

White and Miller (1980) developed a model to estimate the marginal impacts of changes in the agricultural sector upon the economy. Their model is nonlinear as opposed to the typical input-output models which measure average effects through their assumptions of linear functions. The model describes the interrelationships among total employment, labor earnings, and personal income. Multipliers for 48 states were derived to measure the impacts of any policy-induced change in farm earnings (at the margin) with implications for the total effect on personal income in the economy. For the Oklahoma economy, the reported change in personal income per \$1 change in agricultural production was \$0.34.

Pagoulatos, et.al. (1980) estimated the impacts of direct and indirect export activity on the state of Missouri for the years 1963 and 1972. Indirect exports were defined as goods produced by local firms, but shipped to producers in other states for further processing before final export. Estimates of indirect exports were derived by first aggregating the information found in U.S. input-output tables to conform to Missouri transactions tables for the two time periods, and then approximating the total dollar sales made by Missouri firms to other states on an industry basis.

An assumption was made that the distribution of Missouri's

out-of-state sales followed a pattern similar to the industry distribution for the U.S. as a whole. Finally, an estimation of the number of intermediate goods sold to other U.S. industries that ultimately became a part of exported products was made by multiplying the dollar amount of intermediate sales made to each industry by exports as a percentage of output for that industry. As a result, it was concluded that between 22 and 25 percent of the average of Missouri's total exports were indirectly exported. In terms of economy-wide impacts, agricultural export sales were responsible for 29 percent of total state business activity, 34 percent of total personal income, 49 percent of total state revenues generated by exports and 34 percent of total local taxes in 1972.

Glover, Ames and Culp (1983) estimated the impact of agricultural exports on the Georgia economy by applying input-output multipliers derived for the U.S. economy to the state's share of national exports. The share of production method developed by the U.S. Department of Agriculture is used to approximate Georgia's share of U.S. agricultural exports. The procedure involves multiplying the percentage share of national production accounted for by the state in one calendar year by the value of the commodity exported from the nation as a whole during the following fiscal year. This procedure is widely used to estimate export shares, but falls prey to the assumption that a proportionate share of a commodity produced in the state is indeed exported.

By applying the multipliers to the value of Georgia's farm exports in 1981, the impacts on various sectors of the economy were assessed in terms of output, employment and income. The conclusions

of the study were: (1) the economic effects of agricultural exports were widely felt by various economic sectors within the state, and (2) although the expansion of agricultural exports has had a positive contribution to Georgia's economy, it has also contributed to economic instability due to the year to year fluctuations of output, employment and income associated with the exports.

Coffey and Conner (1983) used a similar approach to the Glover, et.al. study in estimating the effects of Virginia's agricultural exports on the state's economy. Farm cash receipts from marketings were used to approximate export share of unprocessed agricultural commodities. In the case of processed agricultural products, shipments made by Virginia processing plants were compared to those made by the U.S. agricultural processing industry as a whole for each commodity to estimate the state's share of national exports.

Coffey and Conner also looked at the value-added or "wealth created" by each of the sectors by attaching the value of the inputs to the increase in sales resulting from agricultural exports. It was felt that value-added served as a better indicator of the relative contribution of the various sectors than simply the accumulated sales data. Also considered in the analysis was the total value of commodities moving through Virginia's port system. Half of these commodities were agricultural products. To compute a final figure of total business activity generated by these agricultural exports, the value of Virginia's share of agricultural exports was deducted from the total value of agricultural products leaving the port, then the transportation and warehousing (which is the sector primarily concerned with movement through the ports) multiplier was applied.

The combined first and second round impacts of agricultural exports were estimated at \$1.8 billion.

Schluter and Clayton (1981) looked at the multiplier effects of processed agricultural product exports as compared to raw product export value from the processed product multiplier.

The commodity groups compared to determine the national net effects of raw versus processed exports were flour for wheat, dressed poultry for corn, soybean oil mill products for soybeans, cottonseed mill products for cottonseed and wet corn milling products for corn. The results of the Schluter and Clayton study showed significant economic advantages from increasing the proportion of processed products in the mix of U.S. agricultural exports. For example, in the case of wheat \$1 million of wheat exports can be transformed into \$2.57 million of flour exports; after all the spending rounds occur, this produces \$14.26 million in gross output, 335 jobs and \$3.45 million in personal income. When compared to the total economic effects of raw wheat exports, these figures represent increases of 61 percent, 57 percent and 55 percent in output, employment and income, respectively. An additional conclusion of the study was that the net effect of exporting processed products versus raw products tended to be concentrated in the same regions as the effects of exporting the raw products themselves due to the typical location of agricultural processing plants close to their supply source.

Schreiner, Chang and Flood (1977) developed an interregional input-output model to measure the total effects of alternative U.S. agricultural production levels upon the regional economies of Oklahoma, Texas and the Rest of the U.S. region. Five alternative



scenarios were created to project growth in U.S. agricultural production to 1980 using 1963 base year data. Three of the five scenarios concerned projected increases in the growth rate of agricultural exports, ranging from moderate to high levels. The economic impact variables created for the study were related to employment and income. The impact on employment was measured by changes in total work force and full-time work equivalents. The effects of alternative levels of agricultural production upon income were measured by changes in payroll and proprietor income and value-added. The impact estimates also included the induced consumption effects due to increases or decreases in personal incomes.

The results of the study indicated that projected changes in the growth levels of U.S. agricultural exports had significantly different regional effects. With respect to employment, a projected high export demand had a greater impact on the Oklahoma work force than on the work forces of Texas and the Rest of the U.S. region. The size of the total work force in Oklahoma was projected to increase by 5.8 percent from 1970 to 1980 due to the high export demand scenario as compared to increases of less than two percent in the other two regions. For Oklahoma, the projected change in the agricultural work force was estimated at about 46 percent of the total work force change whereas the agricultural work force change in Texas and the Rest of the U.S. was approximated at less than 34 percent of the total. The projected work force increase over the baseline projection (moderate growth in income and agricultural exports) for Oklahoma was about 13,000 workers.

The impact of alternative U.S. agricultural export levels upon

personal income in the study also indicated significant regional differences. The high export demand alternative was estimated to increase personal income in Oklahoma by \$62.5 million over the baseline projection, representing an increase of nearly three percent in the total 1970 to 1980 projected baseline increase. This increase was found to be about three times greater in Oklahoma than the percentage increase for the other two regions.

#### Input-Output Studies of the Oklahoma Economy

Little and Doeksen (1968) developed an input-output model for the Oklahoma economy to analyze the interdependence of the state's various sectors. Secondary data for the year 1959 were used and industries were aggregated into nine endogenous or processing sectors and seven exogenous or final demand sectors. Agricultural activities were divided into three sectors, livestock and livestock products, crops, and agricultural processing. This classification made it possible to study Oklahoma's main agricultural businesses, wheat and cattle, separately.

Basically, three tables were constructed to describe the interrelationships among the state's industries - interindustry flow, technical coefficients and interdependence coefficients tables. In the interindustry flow of goods and services, each row entry represents the dollar amount of goods or services sold by the producing sector to the purchasing sector represented by each column. The technical coefficients represent the direct purchases of each sector from every other sector per dollar of output. These are only relevant for the processing sectors, thus there are no entries for the

final demand sectors. The interdependence coefficients represent the total change in input requirements as a result of a one dollar change in final demand in a sector. This total change includes the direct and indirect effects resulting from the initial dollar change.

Information in these tables leads to the computation of output, income and employment multipliers for the state. Little and Doeksen also estimated the leakages in the economy, i.e., the net amount of change in total output, income or employment that is generated outside the state as a result of a one dollar increase in final demand, income or employment, respectively, in Oklahoma. The study found that economic activity in livestock and livestock products was highly interdependent with activity in the basic agricultural sectors and manufacturing sector. The agricultural processing sector was found to have the highest output and income multipliers while the manufacturing sector had the greatest employment multiplier.

Doeksen and Little (1969) extended their previous study to analyze the interdependence of the Oklahoma economy by districts. They divided the state into three districts. District I was characterized by small, diversified farm units and was considered to be economically depressed while Districts II and III were characterized by large scale farms and ranches and a well-developed urban and industrial base, respectively. To construct the district models, adjustments were made for production, differences in technology, and the effects of exports and imports among districts. Some of the results were that the agricultural processing sector exhibited the highest income and output multipliers in all three districts and District II had the largest output and income

multipliers for the livestock and crop sectors.

Schreiner, Ekholm and Chang (1977) developed an input-output model of the state's economy using data for 1970 based on 1963 prices. In this study, categories of foreign and state exports were included as exogenous or final demand sectors. In a comparison of final demand levels for 1970 with projected final demand to 1980, it was estimated that total foreign exports would increase by 20.7 percent and state exports by 46 percent. With respect to foreign agricultural exports, it was projected that final demand to 1980 for livestock and products and crops and forestry would fall by three percent and 23 percent, respectively, but would increase for food products by 75 percent. By the same token, final demand for state agricultural exports of livestock and products was projected to increase 30 percent, crops and forestry to increase by 20 percent and food products to increase by 30 percent.

Hirunruk, et.al. (1984) estimated interregional multipliers for output, income and employment based on 1977 data from primary and secondary sources. The resulting multipliers were classified as Type I (measure direct and indirect changes) and Type II (account for direct, indirect and induced effects). In this study, Type I and Type II multipliers for agricultural products ranked in the top ten in magnitude for all sectors considered in the economy.

In summary the literature suggests that agriculture plays a significant role in the economy at both the state and national levels. It appears that the impacts of agriculture upon output of goods and services, income and employment are widespread within an economy (and without the economy if leakages are considered). With respect to

input-output analysis of the impact of agricultural exports on the Oklahoma economy, although accurate, current export data are lacking due to the difficulty of obtaining such information from primary sources, there appears to be an adequate foundation for an impact analysis as suggested by the quality of the literature.

## CHAPTER III

### METHODOLOGY

#### PERSONAL INTERVIEWS WITH EXPORTERS

The first step in the collection of data from primary sources used in this study was the development of a survey form. The survey form was used in personal interviews with exporters of Oklahoma agricultural products to gather information from selected firms and individuals. The main purpose of the survey was to collect: (1) quantitative information such as the volume or value of agricultural products sold in foreign markets and the number of employees associated with these exports; and (2) qualitative data concerning the current situation faced by Oklahoma exporters with regard to such problems as governmental policies, import barriers, health regulations, financing, and transportation.

The survey itself was divided into five parts (Appendix). Part one includes general information about the firm interviewed and the year it began exporting agricultural products. Part two has information on products exported by: country of destination, years exported, volume or value, type of buyer, and transportation method to the export point and foreign country. Part three asks for particular problems encountered by the exporter and includes such potential barriers as letters of credit, import quotas and licenses, tariffs, transportation, grading and veterinarian clearances. In addition,

part three contains a section on how these problems were resolved and which agencies or individuals were helpful in resolving them. Part four concerns marketing methods, including the location of buyers, overseas distribution of the product and freight forwarding. Part five requests any recommendations for potential exporters with respect to locating buyers, negotiating sales, transportation, licenses and financing.

The selection of individuals and firms for personal interviews was based upon recommendations from representatives of the following Oklahoma agencies and organizations: Department of Agriculture, Crop and Livestock Reporting Service, Beef, Wheat, Soybean, Peanut, and Pecan Commissions, Port of Catoosa and Port of Muskogee. From the information given by these groups, 13 interviews were conducted by actual visits, in most cases, to the firms and individuals involved with agricultural exports. Several of these visits included a tour of plant facilities and operations. The county location of the businesses surveyed for this study are shown in Figure 3. The commodities represented among those surveyed are cotton, soybeans, wheat, alfalfa seeds, mung beans, weeping love grass, peanuts, port and pork by products, alfalfa cubes, beef jerky, processed foods (whey powder, flour mixes, popcorn), live cattle and grain sorghum. These businesses were chosen for interviews because they have been active in exporting their products in the past and have a continued interest in doing so in the future.

Data from government agencies, organizations, and commodity groups at the state and national levels describing their efforts with respect to agricultural exports were collected through personal





interviews, presentations and publications of the various organizations.

#### Secondary Data Sources

In addition to data collected from primary sources by way of surveys, secondary data was used in this study to determine the impacts of agricultural exports on the Oklahoma economy. Data from the U.S. Department of Agriculture (Table II) estimating the value of the state's share of farm exports by selected commodity group were compiled to show overall trends in exports and were used as a basis for multiplier analysis. The data from USDA was reported in various issues of Foreign Agricultural Trade of the United States (FATUS) which is published bimonthly and contains volume and value figures for U.S. agricultural exports and imports. FATUS publishes a yearbook that reports approximations of the total value by various commodity groups of each state's farm exports. The reported figures are derived by applying the percentage of total U.S. production for a particular commodity that is exported to the production figure at the state level to estimate the state's share of U.S. exports.

Another source of data came from the U.S. Department of Commerce and Oklahoma Economic Development Department. These agencies supplied export statistics for Oklahoma using a computation method similar to the share of production estimates employed by the USDA.

The International Marketing Division of the Oklahoma Department of Agriculture as well as the Federal Veterinarian in charge of health inspection, located in Oklahoma City, provided data on the number of live animals exported from the state of Oklahoma. The information

included export destinations, number and species of animals shipped and vaccination statistics.

Data for commodity movements along the McClellan-Kerr Navigation system by barge were collected from the U.S. Army Corps of Engineers, Tulsa district. Waterway traffic information for inbound and outbound shipments is reported in tonnage by commodity groups each month. Agricultural products moving via the waterways are reported under the categories of wheat, soybeans and miscellaneous farm products (outbound shipments).

#### State Input-Output Multipliers Used For Impact Analysis

Results of a recent study by Hirunruk, Schreiner and Pongtanakorn (1984) were used to estimate economic impacts of Oklahoma agricultural exports. The authors derived output, income and employment multipliers for 81 sectors of the Oklahoma economy. Multipliers for two sectors of the economy were chosen for the present study; the livestock and livestock products and the crops and other agricultural products sector. Type II multipliers for the two sectors were used because they represent direct, indirect and induced effects of changes in a particular sector on the Oklahoma economy due to the interrelationships of industries. The multipliers were applied to the share-of-production data reported by the USDA to estimate the total impacts of levels of agricultural exports on the Oklahoma economy in terms of output of goods and services, income and employment for the years 1977 to 1983.

The USDA data were divided into two categories, livestock and livestock products and crops and other agricultural products. The

export sales reported for each commodity were thus placed in either the crops sector or the livestock sector. All commodities pertaining to animal agriculture such as dairy products, animal fats, oils and greases, hides, skins, live animals, meat and poultry products were placed in the livestock sector. The remaining commodities were placed in the crops sector. From this designation, it was possible to determine the annual export sales accruing to each of the two sectors.

The next step in the analysis was to apply the pertinent input-output coefficients and multipliers reported in the Hirunruk, Schreiner and Pongtanakorn study to the total value of exports in the crops sector and the livestock sector for each year. The impacts on each sector were determined separately, then added together to estimate the total effects on the economy. The impact of agricultural exports on the output of goods and services in the economy was approximated by directly applying Type II multipliers for the crops and livestock sectors to the aggregated USDA data for each category. The figure reported for total output indicates the linkages between agricultural exports and other sectors of the economy.

Employment impacts were calculated by first determining the direct employment associated with agricultural exports. Since the Hirunruk study used 1977 as the base year, the export values by category (crops and livestock) for subsequent years (1978-84) were adjusted back to 1977 constant prices, using the Consumer Price Index (CPI) as a deflator. Then the Type II multiplier effects were calculated for related economic sectors. Direct employment was estimated by applying employment-output coefficients to the value of exports in the crops and livestock sectors. The coefficients

represent average labor productivity of the processing sectors for the crops and livestock groupings. Jobs generated in other sectors of the economy as a result of exports were determined by application of the Type II multipliers to the direct employment figures. The summation of the multiplier effects indicates the total employment in the economy created by farm product exports.

The effects of agricultural exports on Oklahoma income were approximated in a manner similar to that for employment. Income-output coefficients were applied to export sales data to estimate the direct income associated with agricultural exports. These coefficients represent labor and proprietors' income. Using the figures for the direct income accrued to the crops and livestock sectors, Type II multipliers were applied to determine the direct, indirect and induced impacts in related economic sectors. The summation of the values for both sectors indicates the estimate of total income in the Oklahoma economy ultimately generated by agricultural exports.

## CHAPTER IV

### AGENCIES AND COMMODITY ORGANIZATIONS

#### PROMOTING EXPORTS

One of the objectives of this study is to determine the role of national and state government agencies and commodity organizations with respect to promotional efforts, trade agreements and other regulations and policies affecting U.S. agricultural exports and their competitiveness in world markets. The first section of this chapter examines the role of government agencies at the national and state levels in U.S. agricultural trade and the second section addresses the relationship between national and state commodity organizations and the promotion of farm exports.

#### National and State Government Agencies

One of the earliest efforts to increase the use of U.S. agricultural products in foreign markets was Public Law ( P.L.) 480, the Food for Peace program authorized during the Eisenhower administration. The main objectives of P.L. 480 have been to provide emergency food relief, develop markets for agricultural products, dispose of commodity surpluses and assist developing nations in their process of economic growth. Food for Peace exports fall under three categories. Title I provides for U.S. government financing of sales of farm products to friendly countries by two methods, sales

for dollars or sales for foreign currencies convertible to dollars. Under law, U.S. flag vessels are required to carry at least one-half the Title I cargo shipments.

Title II is a donation program from government to government, through international agencies, emergency relief, feeding programs or other such policies. The U.S. government pays all the shipping costs under Title II administration. Title III authorizes food for development by turning Title I loans into grants. When countries with approved development proposals use proceeds from the domestic sale of Title I commodities (or the goods themselves) for approved projects, the dollar equivalent of the Title I loan is forgiven (Council on World Hunger, Development and Trade, 1984).

Six of the top ten customers for U.S. agricultural exports were once major beneficiaries of P.L. 480: Mexico, Spain, Japan, Egypt, Korea and Taiwan. Seventy percent of the commodities shipped under the program have been shipped under the provisions of Title I. A total of 300 million tons of Food for Peace commodities have gone to more than 100 countries since the program's inception and total outlays have been \$33 billion for U.S. farm products and \$5 billion for transportation (Council on World Hunger, Development and Trade, 1984). In recent years, P.L. 480 products have accounted for only about four percent of U.S. agricultural exports as compared with 25 to 30 percent in the early years of the program.

Another effort to foster U.S. farm sales abroad has been in the form of long-term bilateral trade agreements, most notably with the countries of China and the Soviet Union. These long-term agreements are typically contracted for a period up to five years and specify the

minimum and maximum quantities to be purchased and supplied, respectively. Normally, the price to be received for the commodities is not stipulated.

In 1975, the United States and the Soviet Union signed a five year agreement whereby a minimum of six million metric tons (MMT) of grain would be purchased annually by the Soviets (the U.S. agreed to supply a minimum of eight MMT each year). After the invasion of Afghanistan in 1980, export trade with the Soviets was suspended until the following year. In 1983, the Reagan administration allowed the negotiation of a new long-term trade contract between the Soviet Union and the United States. This recent agreement specifies grain purchases from 9 to 12 MMT annually. The United States currently supplies about 45 percent of Soviet grain imports.

The U.S. and Chinese governments signed a trade agreement in 1980 in which China agreed to buy an annual minimum of six MMT of grain. A significant change in Chinese agricultural production has occurred, however, in the five years since the contract was signed. In 1983, China was the world's largest producer of rice and the second largest producer of wheat (355 MMT in 1983). Although China's grain imports are expected to remain substantial in the near future due to current population growth, it is likely that U.S. wheat exports to the nation will decline significantly in the long run. In addition, an immediate threat to the current long-term trade agreement between the U.S. and China has emerged in the form of disputes over U.S. textile imports from China. The cost of protecting U.S. textile manufacturers may translate into a loss for U.S. wheat producers as China reneges on its grain purchase agreement in retaliation against import quotas imposed by the United States.

The use of blended credit and export payment-in-kind (PIK) programs represent fairly recent efforts by the U.S. policymakers to promote farm exports. Blended credit is the combination of government export credit (GMS-5) and credit guarantees (GSM-102) with commercial credit as a means of reducing the effective interest rate. It has been estimated that one-third of U.S. wheat exported in 1983 was sold through credit programs. GSM-102 credit is used for 25 percent of U.S. wheat exports. It offers credit terms of three years and guarantees 98 percent of the principal and two percent of the interest for its participants. A current example of the blended credit program was the recent U.S.D.A. approval of \$3.86 million in credit to Egypt and Morocco for a wheat purchase of nearly 2.5 million metric tons in 1985 (Southwest Farm Press, Dec. 6 1984).

Export PIK awards a commodity bonus from Commodity Credit Corporation (CCC) stocks to customers who make a commercial sales purchase. This program was instigated in 1983 when the U.S. sold one MMT of wheat flour to Egypt (currently the world's largest wheat flour market), subsidized by CCC wheat carryover. The program made it possible for the U.S. to offer a flour price that was from \$10 to \$15 per ton lower than that offered by the European Community, Egypt's primary supplier. The USDA estimated that the wheat flour sale would double U.S. flour exports (averaging about 1.1 million tons per year) and generate an additional \$150 million in export sales(Southwest Farm Press, Feb. 10, 1983).

In light of the efforts by the U.S. government to foster agricultural exports, it should be noted that U.S. trade policy often involves political considerations which are given greater weight by



policy makers than are economic factors. A good example of this is the use of embargoes. The two most publicized U.S. embargoes have been on soybeans in 1973 (in response to an overblown report of shortages that might have affected animal production in the U.S.) and on grain to the Soviet Union in 1980 as a protest of the invasion of Afghanistan. For whatever political reasons they are imposed, it is clear that embargoes have played a significant role in eroding the reputation of the U.S. as a reliable supplier of the commodities involved.

Government policies with respect to the transportation industry have an important effect upon agricultural exports. Regulations on ocean vessels, railroads, waterways and trucking can impact the competitiveness of farm exports just as significantly as export subsidies, trade agreements, quotas or embargoes. A current case in point is the Cargo Preference Act which requires fifty percent of all government backed exports of agricultural products to be transported on U.S. flag vessels. This Act was created to maintain a strong Merchant Marine for national defense and commercial shipping. The Act has drawn criticism because foreign flag vessels are cheaper sources of transportation than U.S. vessels and exporters can lose their competitive edge due to higher shipping costs.

In addition, a recent court ruling has stated that Cargo Preference rules also apply to the blended credit program. This ruling has caused the USDA to suspend the blended program in 1985 which has created concern among farm exporters who fear that the loss of the export credit guarantees will lead to potential losses in export markets (Southwest Farm Press, March 21, 1985). To

alleviate this high cost transportation problem, it appears that the federal government could make a direct payment subsidy to the U.S. Merchant Fleet to offset the higher transportation costs, and/or remove this 50 percent requirement.

Another policy affecting agricultural exports has been the Staggers Rail Act of 1980. The act was created to allow railroads more freedom in establishing rates and providing services, with the hopes of improving their financially troubled industry. Provisions of this act have allowed railroads to negotiate contract rates with individual shippers which differ from published rates. Although rate increases were common in the initial period after the act was established, they are currently very competitive with rates for barge and truck transportation. A criticism of deregulation has been the rate of track abandonment (due to consolidation of services) and the ultimate fate of captive shippers who have limited transportation alternatives (General Accounting Office, 1983).

The U.S. Department of Commerce (USDC) provides assistance to expedite agricultural exports. The International Trade Administration office of USDC is responsible for international trade fairs, allowing participants from all over the world to display and view agricultural products for export; trade missions which bring U.S. exporters into direct contact with potential foreign buyers; catalog exhibitions held at trade shows or U.S. embassies in which sales brochures, product catalogs or video presentations aid the exhibitor in selling farm products; and World Trade Week held annually in May in which district offices cooperate with state government officials and business organizations to promote awareness of U.S. exports through such

efforts as port and industrial tours, trade seminars and export conferences.

The Department of Commerce works with the Oklahoma Economic Development Department in a joint program of international trade entitled Oklahoma International Export Services (OIES). OIES supplies comprehensive information to interested individuals or firms with respect to exporting. They supply complete market research to match exporters with prospective importers and provide individual counseling and expertise. They also conduct seminars on such export matters as financing, shipping, foreign trade laws and customs regulations. The two Oklahoma offices are in Tulsa and Oklahoma City.

The Oklahoma State Department of Agriculture plays an important role in the promotion of Oklahoma's agricultural products through its International Marketing Division. This Division is responsible for providing technical assistance to potential exporters through information on packaging, transportation, financing, customs regulations, health and sanitation regulations, etc. It also is responsible for representing Oklahoma agricultural producers at international trade fairs and facilitating their exhibitions and presentations to the international trade community. Located in Oklahoma City, the Division maintains a close relationship with the Foreign Agricultural Service of the USDA and the Department of Commerce as well as various trading and freight forwarding companies in the private sector as part of an effort to bring comprehensive export information and expertise to potential exporters. The staff of the International Marketing Division have published a directory of Oklahoma agricultural and food exports, listing products and suppliers

in seven languages in an effort to connect buyers and sellers with Oklahoma farm products.

#### National and State Commodity Organizations

National and state commodity organizations provide an important link in the overall effort to promote U.S. farm products overseas. They work closely with government agencies at the state and national levels in securing and maintaining foreign agricultural markets. For their respective commodities, each organization emphasizes marketing, research and consumer education as important components in the expansion of U.S. agricultural exports. Funding for these organizations comes from a variety of sources, but one of the major sources is from checkoff funds from the sale of farm commodities at the state level. For each quantity sold, a small fee is assessed and collected by the various commodity commissions who in turn remit a portion to affiliated organizations at the national level. The commodity organizations described in this section will involve wheat, soybeans, beef, pecans and peanuts.

Wheat exports are promoted through the efforts of the U.S. Wheat Growers Associations (and accompanying state associations), U.S. Wheat Associates, Inc., and the Foreign Agricultural Service. These groups work together to increase exports of U.S. produced wheat. Areas of emphasis include farm programs, marketing, transportation, research, public information and education. The National Association of Wheat Growers (NAWG) is comprised of 16 state wheat associations and is based in Washington, D.C. NAWG serves in a sense as the wheat farmer's voice to the nation's policymakers. NAWG in cooperation with

U.S. Wheat Associates sponsors trainees from a baking school in the People's Republic of China to the American Institute of Baking in Manhattan, Kansas. The trainees are given demonstrations on how to improve consumer products through the use of U.S. produced wheat. In addition, delegations of wheat buyers from foreign countries are hosted by various national and state organizations. The U.S. Wheat Associates and FAS are also working in China to promote a special blend of noodle flour, consisting of one-half soft white wheat and one-half hard red winter wheat, in an instant noodle factory in Shanghai.

NAWG recently completed research on "Competing Wheat Export Systems," in a effort to better understand the marketing systems of its competitors. A major point of the paper is the role of wheat marketing boards or state trading organizations in facilitating trade on behalf of the wheat producing nations.

The Oklahoma Wheat Commission was established by law in 1965 for the utilization, research and market development of wheat grown in Oklahoma. For every bushel of wheat sold, three quarters of one cent is given to the Commission in the form of checkoff money. The funds are usually collected by grain elevators through deductions from the selling price of each bushel sold by a farmer. The estimated \$1.2 million budget (for 1984) makes the Wheat Commission the largest such organization in the state. The Commission is active with NAWG and U.S. Wheat Associates in promoting wheat exports. The Commission particularly promotes hard red winter wheat, the variety predominately produced in Oklahoma.

The American Soybean Association (ASA) was founded in 1920 and

has 26 affiliated state associations. The group works to expand exports, promote domestic utilization, conduct research and provide consumer education. It sponsors an Expo every year in which representatives from the Soybean Growers' Associations and Commissions at the state level make presentations on how their checkoff funds are allocated and used to promote soybeans. The emphasis of soybean programs is to create awareness, build interest and generate demand for U.S. soybeans in foreign markets. One project sponsored by the ASA and Soybean Growers Associations is the development of a soybean food product that will satisfy the nutritional and taste requirements of the people of India. It is hoped that through product development, domestic demand in India will increase, creating a market for U.S. soybeans in that country.

The Oklahoma Soybean Commission, like its counterpart commodity commissions, is made up of members appointed by the Governor who have an active interest in soybeans, are engaged in growing the commodity, and derive a substantial portion of their incomes from the endeavor. All soybean growers who have paid fees are eligible to vote in the meetings of their respective districts on the activities of the Oklahoma Soybean Commission with respect to the disposition of the checkoff funds. The checkoff for soybeans is one cent per bushel sold.

The Oklahoma Pecan Commission was created in 1973 to promote the production and sale of pecans through research, education, promotion and market development. It is the only such commission in the United States. The checkoff is one-half cent per pound for all pecans grown and sold in Oklahoma.

According to the current executive director, the Commission is currently focusing upon the increase of domestic consumption, not exports. In the past 10 years, national consumption has fallen from 1.6 pounds per capita per year to 1.1 pounds, a decline of 33 percent. Oklahoma is the third largest producer of pecans in the U.S. The Commission spends its funds promoting pecans at state fairs and farm shows as well as supporting research projects. A major marketing problem with pecans is their short shelf life. The high cost and limited amount of freezer and refrigerator space in retail stores contributes to this problem. Currently the Commission is funding a research project at Oklahoma State University to improve the shelf life of pecans.

An additional problem that the Pecan Commission faces is an erratic source of income from checkoffs due to the high variability in pecan production. The checkoff income received in 1981 was \$101,000 as compared to approximately \$7,000 in 1983. The variation in production is due to a large acreage of unmanaged trees which seem to have a cycle of high and low production years.

The Oklahoma Beef Commission was established by law in October 1982 to: (1) provide programs to increase the consumption of beef, maintain present markets and create new and larger markets for live cattle and beef products; and (2) support research and educational activities concerning the beef industry. It is funded by a checkoff fee of 25 cents for each animal sold within or from the state. This assessment applies to any method of sale, whether it be by livestock auction market, packing houses, direct shipments from ranchers, etc. Fifty percent of the checkoff money is sent to the National Livestock

and Meat Board which is responsible for the promotion of beef through research, education and advertising. Also, there is a coordination of Oklahoma advertising with national advertising efforts. For example, the National Board contracts with state grocery stores to display particular advertisements promoting meat products.

An additional priority of the Oklahoma Beef Commission is to support the activities of the U.S. Meat Export Federation in its international efforts to foster meat and meat product sales. In the past, the Federation dealt directly with foreign governments to promote beef, a practice which proved to be tedious and often futile. It currently sends representatives to foreign cities to give demonstrations on the quality of U.S. beef in a effort to cultivate foreign demand. Funding for the Meat Federation comes from private groups as well as state commissions. The U.S. government now has a matching program in which it contributes one dollar for every dollar donated by private firms.

The Oklahoma Beef Commission has worked statewide to bring beef preparation ideas to the public through demonstrations at state and local fairs as well as providing home economics teachers across the state with educational materials. The Commission also has recently given a research grant to Oklahoma State University to study new product development.

According to the current president of the Commission, price and trade barriers are the biggest factors affecting beef exports. Australia and New Zealand, through lower pricing practices, have succeeded in penetrating developing country markets where demand for beef is relatively new and quality is not a major consideration.



Trade barriers often involve health requirements and feed additives. West Germany, for example, requires that all its meat imports be processed in plants where no wooden handled knives are used.

The Oklahoma Peanut Commission is associated with the National Peanut Council and the Peanut Growers Association. Its operating budget from checkoff funds is approximately \$185,000 per year. The checkoff for peanuts is \$2 per ton of commodity sold. According to the present Executive Director of the Oklahoma Peanut Commission, between \$36,000 and \$60,000 of the current budget is remitted to the National Peanut Council for research and market development; \$32,000 goes to the Oklahoma Peanut Growers' Association; \$40,000 is sent to Oklahoma State University for crop research and \$50,000 is spent on the development and distribution of educational materials throughout Oklahoma.

The National Peanut Council involves representatives from all phases of peanut production - growers, shellers, manufacturers, and brokers - in the promotion of peanuts. It is divided into committees that deal directly with areas such as exports, research and consumer education. Currently, the National Peanut Council has allocated \$1.2 million to support 40 overseas projects in 16 countries. In 1984, an overseas office was opened in the Netherlands to promote U.S. peanut sales in Europe.

The Oklahoma Peanut Commission promotes Oklahoma peanuts through various activities. It distributes educational materials to consumers in the form of cookbooks and brochures at state fairs and conventions and by mail. It is also involved with home economic students across the state, Future Farmers of America and 4-H clubs through contests

and demonstrations, and county food shows.

The biggest importer of U.S. peanuts is Canada, which utilizes peanut products in a similar manner as the U.S. Most foreign countries have limited uses for peanuts, so part of the foreign market development strategy incorporated by peanut organizations includes demonstrations on the variety of peanut uses.

Oklahoma was ranked sixth in peanut production nationwide in 1984, producing 96,000 tons. The U.S. exported 400,000 tons of peanuts during the same year.

## CHAPTER V

### RESULTS OF THE SURVEY

A summary of selected Oklahoma exports by foreign destination and method of transportation, based upon information from the 13 exporting firms surveyed, is presented in Table III. A significant proportion of Oklahoma agricultural commodities have been imported by middle to lower income countries. With respect to transportation, the most common method used to ship products to the point of export was by truck. It should be noted, however, that the transportation method for Oklahoma wheat which represents Oklahoma's primary agricultural export in terms of volume and value, is railcar to the Houston-Galveston area ports. Ocean freight was the most frequent method of cargo movement to the final destination, due to the bulk characteristics of many of the agricultural products. Among those firms shipping by ocean vessel, two cited the Cargo Preference Act and its requirements for a certain percentage of exports to be shipped on U.S. flag vessels as a cost hinderance in their ability to compete in export markets. It was suggested that the present U.S. policy of maintaining a strong Merchant Marine could create a loss of export markets in the future.

The firms surveyed were asked to describe any problems or barriers they had encountered in exporting their agricultural products. The most frequently cited problem (8 out of 13 exporters

TABLE III  
 SELECTED OKLAHOMA EXPORTS BY DESTINATION AND METHOD  
 OF TRANSPORTATION BASED ON INTERVIEWS  
 WITH 13 EXPORTERS, 1984 .

Product	Export Destination	Export Point	M.O.T. to Export Point <sup>a</sup>	M.O.T. to Foreign Destination
raw peanuts	Canada, Japan, England Germany	Detroit, Houston	rail, truck	rail and container vessel
beef jerky	England	Oklahoma City	truck	air
weeping love grass and alfalfa seed	Japan, Italy, Holland South Africa, Brazil, Canada, Argentina	Houston	truck	container vessel
pork and pork by products	Japan, Caribbean, South America	Oakland, California New Orleans, Houston	truck	container vessel
wehy powder flour mixes popcorn	Trinidad, Japan, Taiwan Indonesia	Los Angeles, Miami	truck	container vessel
live cattle	Iran, Iraq, Saudi Arabia Greece, Phillipines, Japan, Mexico, Korea	Chicago	truck	air
soybeans	Brazil, USSR, PRC, Chile	New Orleans, Houston	barge, rail	bulk vessel
wheat	Peru, Japan, Germany, Egypt, Israel, Nigeria, Colombia, Iraq, Mexico, Sri Lanka, India, Czecho- slovakia, Caribbean, Central America, Jordan, Portugal			

<sup>a</sup>M.O.T.: method of transportation

interviewed), especially in relation to the overall decline in U.S. farm exports was the relative strength of the U.S. dollar against major world currencies. The high price of U.S. exports has allowed foreign competitors to capture a greater percentage of market share in the 1980's than during the 1970's, when the dollar had a lower relative value. All the firms surveyed had experienced a decline in export shipments in the last three years, and some had temporarily suspended exports during 1984 in response to price competition from foreign suppliers. In some cases, the transportation cost alone from the U.S. to the importing country was greater than the price quoted by foreign competitors.

Another common complaint among those surveyed was the use of unfair trading practices by export competitors, particularly the European Community. The EC system of variable import duties and low export prices for its products (through heavy subsidies to farmers) has essentially blocked many Oklahoma farmers in their efforts to compete. Health and sanitation regulations were also mentioned as barriers to effective agricultural export trade. With respect to pork imports, the EC does not allow the use of any wooden handled implements such as knives, brooms, etc. in the processing plants from which it buys pork. In addition, packaging and labeling requirements, especially in the case of processed foods such as beef jerky were reported as responsible for hindering export sales.

Exporters of live cattle indicate that the lack of available information on worldwide animal requirements as well as the lack of exporting facilities for live animals in Oklahoma were problems. Currently, animal export isolation is conducted at the farm with

weekly inspections made by a local veterinarian. The results are sent to the Animal Health Division of the Oklahoma Department of Agriculture. Only two types of disease testing are done at the federal office in Oklahoma City (brucellosis and tuberculosis). All other tests must be sent to the Oklahoma State University Diagnostic Laboratory or the National Disease Laboratory in Ames, Iowa. Exporters cited the absence of a consolidated export facility as an obstacle to efficient animal exportation.

Some of the firms surveyed indicated that the lack of international departments in Oklahoma banks and their general inexperience in working with export financing created problems. Several of the exporters use out-of-state banks to handle their letters of credit.

With respect to marketing methods, about one-third of those surveyed were in direct contact with the importers and used a freight forwarder to handle the movement of their products overseas. The remainder indicated that they used export agents, either domestic or foreign, to market their products. Export buyers were located through the help of trade shows, banks, agricultural trade offices of U.S. embassies, the USDA, Southern U.S. Trade Association (SUSTA), trading companies and international marketing coordinators at the Oklahoma Department of Agriculture.

A "shopping list" of recommendations for potential exporters was provided by the 13 exporters surveyed. To locate buyers in foreign countries, it is helpful to obtain information about consumer demand trends for export expansion as well as a list of consumer products currently being imported by the country through contact with the

agricultural trade office at the U.S. embassy in a particular country. Some of Oklahoma's agricultural products that have export potential in the future are frozen livestock semen, live embryos, and edible wheat products. In addition, containerized shipments traveling by ocean freight are becoming more attractive since they require less handling and overall inspections than other packaging systems and are less subject to pilferage. There is a need for more state and local involvement in the promotion of agricultural exports and research of potential foreign markets. Top management personnel in Oklahoma agribusiness firms should be educated about the importance of agricultural exports to the long-term growth and development of their firms. The current percentage of total production being exported by those firms surveyed is typically in the range of one to fifteen percent.

The dollar amount or quantity exported in 1983 by the firms surveyed, the year they began exporting, and the number of employees working directly with the export products are presented in Table IV. Total export sales figures range from \$30 million for pork and pork by products (the Oklahoma share was not reported) to \$4,000 for beef jerky. The range of total employees working with exports was from 1 to 300. The two firms with the smallest number of employees were involved in brokerage, not actual production. The data in Table IV do not represent a homogeneous comparison of firms exporting agricultural products, but serve as a representation of the variety in size, products and number of employees of selected exporters.

There are many limitations to direct comparisons between these firms. Some exporters, for example those selling alfalfa cubes, beef

TABLE IV

SELECTED OKLAHOMA EXPORTS BY FIRM, AMOUNT AND NUMBER  
OF EMPLOYEES INVOLVED IN EXPORTS, 1983, BASED  
ON 13 EXPORTERS SURVEYED

Exports By Firm	Year Began Exporting	Total \$ Amount or Quantity Exported in 1983	Number of Employees Involved with Exports
alfalfa cubes	1978	\$38,280	8
wheat and soybeans	1972	1,125,000 bushels	25
wheat and milo	1964	88,733,985 bushels	270
wheat and soybeans	1974	519,366 bushels	43
raw peanuts	N.A.	5,400 tons	9
raw peanuts	1981	1,300,000 pounds	50 <sup>a</sup>
live cattle	1975	240 animals	2
processed foods	1978	\$34,000	1
pork and by products	N.A.	\$30,000,000 <sup>b</sup>	125 <sup>c</sup>
candy	N.A.	200,000 pounds	300
weeping love grass seed	1977	\$785,000	16
beef jerky	1983	200 pounds	10

N.A.: year not available

<sup>a</sup>during peak season; otherwise 25

<sup>b</sup>total for corporate division

<sup>c</sup>months per year



jerky, live cattle and processed foods, sell their products directly to overseas buyers. Others involved with raw agricultural commodities such as peanuts, wheat and soybeans are often part of large firms that have production facilities in several states, or they sell their products to large export firms that obtain farm products from many different sources. The net result is indirect exports of agricultural products which makes it difficult to identify the actual amount of farm products produced in Oklahoma that are sold in foreign markets.

## CHAPTER VI

### ECONOMIC IMPACTS OF OKLAHOMA AGRICULTURAL EXPORTS

#### TRANSPORTATION IMPACTS

Agricultural exports have a significant impact upon the transportation industry of the Oklahoma economy. The proximity of Oklahoma to Gulf ports facilitates the export movement of agricultural commodities produced not only in Oklahoma, but originating from surrounding states as well. The primary modes of transportation to export points are truck, railcar and barge. The movement of farm product exports typically has been linked to the area of the state from which the commodity originates and the particular delivery point for the product. For example, most of Oklahoma's wheat production is concentrated in the western half of the state and the export point for the variety produced, hard red winter wheat, is Houston. Trucks usually operate on short hauls, carrying the wheat from producers to elevators and rail is used to transport the majority of the grain from Oklahoma elevators to the Gulf export point (Houston - Galveston area generally). In the case of soybeans, which are produced in the eastern part of Oklahoma, trucking is used to move the soybeans to elevators along the McClellan-Kerr Navigation System where barges transport the commodity to New Orleans for export.

In recent years there have been some changes in the transportation sector which have caused increased competition among

the carriers of the agricultural commodities. Both the Staggers Rail Act and the Motor Carriers Act of 1980 have deregulated the railway and trucking industries, respectively, allowing them greater flexibility in negotiating long-haul shipping contracts and setting competitive rates. Although barge shipment has historically been a low-cost transportation method in the state, due to its capacity to move large quantities of agricultural commodities, the increasingly competitive rates charged by railroads and motor carriers have reduced or eliminated the competitive edge of water transportation by barge. Actual barge shipment remains low-cost, but the short-haul transportation costs to move the export commodities to the waterway have caused the overall cost of barge transportation.

Tonnage data for agricultural products moving outbound along the McClellan-Kerr Navigation System from 1972 to 1984 are presented in Table V. The amount of farm products moving out of Oklahoma along the waterway has averaged about 22 percent of total outbound barge shipments per year since the navigation system began operating in the early 1970's. Although not all the commodities moving by barge from Oklahoma ports originate in Oklahoma (since wheat has been hauled to Oklahoma ports from Kansas and Colorado) or ultimately end up as exports, it should be noted that the waterway system plays an important role in the transportation of Oklahoma agricultural products. The fact that the waterway exists as an alternative means of transportation has served to put pressure on both railroads and trucking companies to keep their rates competitive.

The proportion of Oklahoma wheat and soybeans transported by barge represented 15 percent and 47 percent, respectively, of total

TABLE V  
 AGRICULTURAL COMMODITIES SHIPPED BY BARGE, OKLAHOMA  
 SEGMENT OF McCLELLAN-KERR NAVIGATION  
 SYSTEM, 1972-1984  
 (IN SHORT TONS)

Year	Wheat	Soybeans	Farm Products <sup>a</sup>	Total All Agricultural Products	Outbound Total for All Products Shipped	Percentage Agricultural Products of Total Outbound Products
1972	--	9,386	--	9,386	521,438	2
1973	--	--	66,188 <sup>b</sup>	66,188	282,839	23
1974	--	--	199,900 <sup>b</sup>	199,900	416,075	48
1975	235,775	51,564	--	287,339	520,518	55
1976	241,109	112,286	--	353,395	1,255,553	28
1977	160,464	73,077	283,065	516,606	2,015,766	26
1978	198,260	101,250	292,370	591,880	2,758,354	22
1979	330,174	80,350	284,821	695,345	2,839,541	25
1980	--	--	852,370 <sup>b</sup>	852,370	3,772,709	23
1981	663,051	79,284	208,097	950,432	3,979,421	24
1982	515,664	62,991	228,842	807,497	3,179,234	25
1983	636,342	55,110	137,145	879,097	2,696,011	33
1984	702,993	74,102	128,417	905,512	3,227,102	28
Totals	3,734,332	699,400	2,681,215	7,114,947	29,205,431	24

<sup>a</sup> primarily corn, oats, barley, rye, flax seed, flour and vegetable products  
<sup>b</sup> includes wheat and soybean tonnage

Source: Department of the Army, Tulsa District Corps of Engineers

Oklahoma production in 1983. In 1984, waterway shipments of wheat represented 12 percent and soybeans 60 percent of Oklahoma production (Oklahoma Department of Agriculture and Tulsa District, U.S. Army Corps of Engineers).

#### Output of Goods and Services Impacts

The total output of goods and services created by Oklahoma's agricultural exports was estimated by directly applying the output multipliers derived by Hirunruk, Schreiner and Pongtanakorn to the state's share of national exports (reported in Table II). The Type II output multipliers reported for the livestock and livestock products sector and the crops and other agricultural products sector were 5.31 and 3.52, respectively. The interpretation of these multipliers is as follows: an increase of one dollar in final demand in the livestock sector would cause the output in all sectors to increase by \$5.31. In the case of crops and other agricultural products sector, a change of one dollar in final demand would cause the output of all sectors of the economy to change by \$3.52. Included in these figures are the induced effects from changes in total output resulting from increased consumer spending.

To determine the impact of farm exports on Oklahoma's economic output, the data from Table II (for the period 1977-1984) were aggregated into either the livestock sector or the crops sector. The appropriate output multipliers then were applied and a summation of the effects made. The estimated impact of agricultural exports on total output of the Oklahoma economy are presented in Table VI. In 1977, Oklahoma's farm product exports of \$410.3 million created total

TABLE VI

ESTIMATED OUTPUT GENERATED BY OKLAHOMA  
 AGRICULTURAL EXPORTS, 1977-1984  
 (MILLIONS OF DOLLARS)

Year	(1) Estimated Total Value of OK Exports	Total Value Accruing to Each Sector		Type II Effects		
		(2) Crops	(3) Livestock	(4) Crops	+ (5) Livestock	= (6) Total Output
1977	410.3	337.7	72.6	1,188.7	385.5	1,574.2
1978	626.2	528.4	97.8	1,860.0	519.3	2,379.3
1979	709.4	592.7	116.7	2,086.3	619.7	2,706.0
1980	970.3	853.3	117.0	3,003.6	621.3	3,624.9
1981	913.8	782.5	131.3	2,754.4	697.2	3,451.6
1982	911.1	787.6	123.5	2,772.4	655.7	3,428.1
1983	747.9	622.6	125.3	2,191.6	655.3	2,856.9
1984	724.1	680.6	43.5	2,395.7	230.9	2,626.7

Sources: U.S. Department of Agriculture. Economic Research Service. Foreign Agricultural Trade of the United States. (Washington, D.C., various issues)

Vorawoot Hirunruk, Dean F. Schreiner and Chaipant Pongtanakorn, Input-Output Multipliers for Oklahoma. Research Report P-857, Stillwater: Oklahoma Agricultural Experiment Station, October, 1984.

output in the economy of \$1.574 billion. When agricultural exports reached their peak value in 1980, the Oklahoma economy experienced an increase in the output of goods and services of more than \$3.6 billion. The relationship between farm exports and the rest of the economy also is illustrated by the recent decline in the value of Oklahoma's exports. The decrease of \$23.8 million in agricultural exports from 1983 to 1984 caused the total output of the economy to fall from \$2.8 billion to \$2.6 billion (Table VI).

#### Employment Impacts

With respect to employment, Hirunruk, et. al., reported Type II multipliers of 3.73 and 2.00 for the livestock and crops sectors, respectively. An employment multiplier of 3.73 implies that each person directly employed in the livestock and livestock products sector is associated with 2.73 additional workers in related sectors of the economy. To estimate the number of jobs created by agricultural exports in the state of Oklahoma, 1977 employment output coefficients derived by Hirunruk were used. For the livestock and livestock products sector, a coefficient of 0.03408 was applied; this means that for every \$1,000 of output in the sector, the direct employment requirement is 0.03408 persons (based on 1977 prices). With respect to the crops and other agricultural products sector, an employment coefficient of 0.04875 was utilized. These coefficients were applied to 1977 Oklahoma farm export sales data to estimate the number of jobs directly created by exports. Adjustments were made to subsequent year sales (deflated by CPI) to derive initial employment for those years. Thus, for example, the direct employment associated

TABLE VII

ESTIMATED EMPLOYMENT GENERATED BY OKLAHOMA  
 AGRICULTURAL EXPORTS, 1977-1984  
 (NUMBER OF EMPLOYEES)

Year	Initial Employment		Type II Effects		
	(1) Crops	(2) Livestock	(3) Crops	(4) Livestock	(5) Total
1977	16,463	2,474	32,926	9,228	42,154
1978	23,927	3,094	47,854	11,541	59,395
1979	24,112	3,319	48,224	12,380	60,604
1980	30,596	2,931	61,192	10,933	72,125
1981	25,418	2,982	50,836	11,123	61,959
1982	24,083	2,641	48,166	9,851	58,017
1983	18,525	2,607	37,050	9,724	46,774
1984	19,349	866	38,698	3,230	41,928

Sources: Total value for each category of exports as shown in columns (2) and (3) of Table VI were multiplied by the crops employment-output coefficient of 0.04875 and the livestock employment-output coefficient of 0.03408, respectively to obtain initial employment for each of the two categories of exports.

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with export sales in both the crops and livestock sectors in 1984 was 20,215 jobs (from Table VII, (1)+(2)).

Type II employment multipliers were applied to the estimates to determine the total number of jobs generated in the Oklahoma economy, including the induced effects by agricultural exports. The results are reported in Table VII. In 1980, more than 72,000 jobs were estimated to have been linked to agricultural exports. The decline in exports since 1980 has led to a significant loss of jobs throughout the economy. The decrease in total employment in 1984 attributable to a decline in exports was estimated at more than 4,846 jobs from the previous year.

#### Income Impacts

The direct, indirect and induced effects of Oklahoma agricultural export sales upon income in the state can be estimated using income-output coefficients and Type II income multipliers derived by Hirunruk, Schreiner and Pongtanakorn. The income-output coefficients estimate the direct income effect of a dollar change in total output for a particular sector. The pertinent coefficient reported for the crops and other agricultural products sector as well as the livestock and livestock products sector was 0.10825. Thus, for every \$1,000 of output in either the crops or the livestock sector, the accrued income to households is \$108.25. This income represents payments for labor and proprietorship. The direct income associated with the \$724.1 million of exports from both the crops and livestock sectors in 1984 was \$78.4 million ( $\$724,100,000 \times 0.10825 = \$78,383,825$ ) (Table VIII).

The income multipliers for the Type II effects were 9.05 for the

TABLE VIII

ESTIMATED INCOME GENERATED BY OKLAHOMA  
 AGRICULTURAL EXPORTS, 1977-1984  
 (IN MILLIONS OF DOLLARS)

Year	Initial Crop Sales For Export	Initial Livestock Sales For Export	Total Export Sales	Initial Income <sup>a</sup>			Type II Multiplier Effects		
				Crops	Livestock	Total	Crops <sup>b</sup>	Livestock <sup>c</sup>	Total
1977	337.7	72.6	410.3	36.6	7.9	44.5	249.3	71.1	320.5
1978	528.4	97.8	626.2	57.2	10.6	67.8	390.1	95.8	486.0
1979	592.7	116.7	709.4	64.2	12.6	76.8	437.6	114.3	552.0
1980	853.3	117.0	970.3	92.4	12.7	105.1	630.0	114.7	744.6
1981	782.5	131.3	913.8	84.7	14.2	98.9	577.7	128.0	706.3
1982	787.6	123.5	911.1	85.3	13.4	98.7	581.5	121.0	702.5
1983	622.6	125.3	747.9	67.4	13.6	81.0	459.7	122.7	582.4
1984	680.6	43.5	724.1	73.7	4.7	78.4	502.6	42.5	545.1

Sources: U.S. Department of Agriculture, Foreign Agricultural Trade of the United States, Economic Research Service, Washington, D.C. various issues.

Vorawoot Hirunruk, Dean F. Schreiner and Chaipant Pongtanakorn, Input-Output Multipliers for Oklahoma, Research Report P-857. Oklahoma Agricultural Experiment Station, Oklahoma State University, Stillwater, October 1984.

a)multiplied by income coefficient of 0.10825

b)the income multiplier for crops is 6.82

c)the income multiplier for livestock is 9.05

livestock sector and 6.82 for the crops and other agricultural products sector. In 1980, total income of approximately \$745 billion was generated in the Oklahoma economy from agricultural exports, including the induced increase in consumer expenditures within the state. The current slump in agricultural exports also has affected total income in the state. The decline in 1984 export levels created an estimated loss of more than \$37 million in total income for the state.

As can be seen from the results reported in Tables VI, VII, and VIII, the linkages between agricultural exports and other sectors of the Oklahoma economy go beyond the initial impacts with respect to output of goods and services, income and employment in the agricultural sectors. Related sectors of the economy experience the "ripple effect" from export sales, as additional output, income and employment are generated by indirect or induced impacts.

#### Future Trends and Possible Impacts of Agricultural Exports

The future of U.S. agriculture, given the relatively stable domestic demand for farm products, rests significantly upon the growth of world trade. During the period from 1965 to 1980, developing countries increased their total volume of agricultural imports from all sources by 6.8 percent per year and the developed nations increased their volume of farm imports by 2.4 percent per year (Mackie, 1983). The demand for low-valued agricultural imports such as grains, oilseeds and cotton has grown most rapidly in the middle to low income countries while the developed countries have been the principal markets for the higher-valued farm imports such as fresh

fruit and vegetables, meat, and animal feeds.

Although the depressed world economy in recent years has slowed the growth of world food demand in general, there are reasons to believe that economic recovery is forthcoming and the agricultural import demand by developing countries will continue to grow substantially in the future. A recent study by Winrock International (1983) estimates that import demand for grain will grow significantly in nations of Asia, Africa, the Middle East and the Soviet Union while demand for processed farm products will maintain steady growth in the developing countries.

The expansion of world agricultural trade has been accompanied by an increase in restrictive trade policies between nations and a movement away from free market orientation. Tariffs, export subsidies, quotas, embargoes, and other nontariff trade barriers have become increasingly prevalent in the world marketplace as governments implement political and economic policies through trade intervention.

The future impacts of world trade barriers upon U.S. agricultural trade will depend, to a large extent, upon the trade policy formulated and carried out by U.S. governmental authorities. Currently, there is a clamor for retaliatory measures in response to unfair trading practices by U.S. competitors and trading partners. Historically, the U.S. has maintained a free market orientation in world trade, but this may change as U.S. exporters become edged out of their markets by the trading tactics of other countries.

The National Commission on Agricultural Trade and Export Policy (1985) has recently issued a report specifying ways to improve agricultural exports. The major objectives of U.S. trade policy as

recommended by the Commission should be to: (1) reorganize the government's agricultural trade apparatus to quell the often conflicting and confusing policies from this Nation; (2) revitalize financing mechanisms and export development programs so that unfair foreign trade practices can be countered successfully; and (3) reorient and revive agricultural export programs so that "food first" becomes America's foreign aid policy again.

In anticipation of future trends and possible impacts of agricultural exports, it is recommended that U.S. trade become a priority concern among government policymakers at the state and national levels. The U.S. needs to take steps to improve its balance of trade while promoting an open trading system in the world economy. By taking a more active role in international trade, the U.S. has the potential to improve its own trading position as well as foster long-term development of the world economy.

## CHAPTER VII

### SUMMARY AND CONCLUSIONS

Oklahoma has an important stake in exporting its agricultural products. Nationwide, it ranked 14th in total value of U.S. agricultural exports in 1983. It was the third largest exporter of wheat and wheat products during the same period. Other important agricultural exports in terms of value for the Oklahoma economy are livestock, cotton, soybeans and peanuts and the products of these commodities.

Agriculture is not the only sector of the Oklahoma economy affected by exports. Other industries such as transportation, manufacturing, energy, chemical and processing are subject to fluctuations in the levels of farm exports as a result of strong linkages between agriculture and related sectors of the economy. The importance of agricultural exports to the Oklahoma economy, therefore, is inherently tied to the multiplier effects of exports upon the output of goods and services, income and employment of associated industries within the state.

Primary data from surveys of selected exporters of agricultural products in the state were collected to gather information on volume or value exported and the current situation facing exporters in relation to the general decline in U.S. farm product exports of the past few years. Secondary data were obtained from USDA, U.S.

Department of Commerce, Corps of Engineers and the International Marketing Division of the Oklahoma Department of Agriculture, among others, to determine the impacts of exports on the Oklahoma economy.

Survey respondents identified problems in exporting associated with the overall strength of the dollar, unfair trading practices of competitors such as the European Community and Japan with respect to quotas, tariffs, subsidies and pricing strategies, and government policies that protect certain transportation industries. Also identified were health and sanitation regulations as well as packaging and inspection requirements and delays in financing. All of the firms surveyed reported a decline in exports in recent years. Several had suspended export shipments temporarily in response to trade barriers of importing nations and pricing practices of foreign competitors.

As indicated by survey results, the most common method of transportation to the export point was by truck. This can be explained by the fact that a majority of firms interviewed exported speciality or value-added products requiring particular transportation considerations. It should be noted, however, that the majority of Oklahoma wheat, which is the number one export in terms of volume and value for the state, travels to Gulf ports by railcar. The most frequent method of shipment to foreign destination was by ocean freight (container vessel).

One-third of the firms surveyed were in direct contact with their buyers and utilized the services of a freight forwarder to handle the movement of their product overseas. The remaining two-thirds reported using either foreign or domestic export agents to market their products abroad.

With respect to the general improvement of exporting Oklahoma agricultural products to foreign markets, a common recommendation given by those surveyed was the need for more state and local involvement in the promotion of farm exports as well as more extensive research of foreign markets. Among those firms selling commodities for which a state or national commodity organization exists, the general consensus is that these groups provide a valuable service to producers by promoting farm products through research, education and marketing projects. It is believed that the check-off dollars are justified for the overall benefit of the various commodities represented. Since the promotion of agricultural products has historically been oriented toward domestic markets, it is hoped that the recent trend in foreign export promotion will receive greater attention in the future by the commodity organizations.

Economic impacts of agricultural exports on the Oklahoma economy were estimated using USDA share of production data and previously derived input-output multipliers for the Oklahoma economy. The results indicated a significant relationship between agricultural exports and the levels of output of goods and services, employment and income in the state. During the height of Oklahoma export sales in 1980, an estimated \$3.6 billion in goods and services, \$745 million in total income and 72,000 jobs were created due to direct, indirect and induced effects of agricultural exports upon related sectors of the economy. The current decline in agricultural export sales in recent years also has affected the Oklahoma economy. From 1983 to 1984, an estimated decrease of \$230 million in total output, 4,846 jobs and \$37 million in income has occurred throughout the economy as a result of



the multiplier effects of waning farm exports.

Information from the Corps of Engineers with respect to the movement of agricultural products along the Arkansas River by barge indicates the portion of Oklahoma exports traveling out of the state and to Gulf ports via the waterway system. In 1984, 12 percent of Oklahoma wheat and 60 percent of Oklahoma soybeans moved out of the state along the Navigation System.

Recently, U.S. and state government agencies have taken a more active role in the promotion of agricultural exports. Programs such as Food for Peace, bilateral trade agreements with China and the Soviet Union, blended credit and export payment in kind have been utilized to foster U.S. export trade in the world marketplace. The Department of Commerce works with its auxiliary state agencies to promote exports through international trade shows and missions, seminars on fundamental matters of export trade, information about import demand in nations all over the world and individual counseling and assistance from representatives of the state offices. The Oklahoma Department of Agriculture, through its International Marketing Division, works closely with the Foreign Agricultural Service, USDA and the Department of Commerce as a liason between Oklahoma agricultural exporters and foreign buyers by providing information and expertise in the area of exports.

The national and state commodity organizations serve as a network for the producers of agricultural commodities in the promotion of domestic and foreign consumption. Oklahoma has established by law, seven commodity commissions for the purpose of fostering farm product consumption through research, marketing and educational programs.

These commissions are for wheat, soybeans, pecans, peanuts, beef, pork and wool. The commissions are entitled to a small portion of the annual proceeds from commodity sales in the state, part of which is remitted to the affiliate organizations at the national level. The overall organizational system of commodity groups serves to bring the problems of growers and producers to the attention of policymakers in an effort to promote foreign and domestic utilization of the various commodities.

#### Limitations of the Study and Need for Further Research

It is difficult to determine actual levels of Oklahoma farm products being sold in overseas markets. The share of production method of approximating the amount of agricultural exports by state does not properly capture the exports of states such as Oklahoma where as much as 80 percent of the state's wheat is exported (based on figures from the Oklahoma Wheat Commission). The proximity of Oklahoma to Gulf ports indicates the likelihood of a greater than proportionate share of U.S. production of wheat being exported from Oklahoma.

In describing the relationship between state and national government agencies, organizations and commodity groups and the export of U.S. agricultural products overseas, no attempt has been made to evaluate the promotional efforts of such groups. The focus of the present study is to describe the activities of the various organizations in their efforts to increase foreign sales of U.S. agricultural products. The need for future research lies in determining the benefits and costs to agricultural producers of the

particular agencies and organizations in an attempt to evaluate the overall effectiveness of their promotional activities.

Impact analysis is limited by the quality of data utilized. While secondary data can provide adequate approximations, the need for primary data collection is important for determining accurate and long-term effects of agricultural exports upon the economy. Policymakers need to be aware of the relationships implied by input-output multiplier studies to anticipate the effects of changes in export levels upon the related sectors of the economy.

This study does not report optimum levels of exports to be achieved by the Oklahoma economy nor does it recommend subsidizing or promoting the agricultural sector above other sectors of the economy. The emphasis of the present study is to describe the relationship between agricultural exports and associated industries of the economy in an effort to better understand the impacts of export fluctuations on the state economy as a whole. As the world economy grows more interdependent, it becomes increasingly important to consider the impacts of international trade upon the growth and development of the economy. The need for further research lies in understanding the relationship between farm product exports and the output, income and employment of related sectors of the economy.

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APPENDIX  
 SURVEY FORM FOR OKLAHOMA  
 AGRICULTURAL EXPORTERS

CONFIDENTIAL

EXPORTS OF OKLAHOMA AGRICULTURAL  
 AND RELATED PRODUCTS  
 DEPARTMENT OF AGRICULTURAL ECONOMICS  
 OKLAHOMA AGRICULTURAL EXPERIMENT STATION  
 OKLAHOMA STATE UNIVERSITY  
 STILLWATER, OKLAHOMA 74078  
 1984

I. General

Name of Person Interviewed \_\_\_\_\_ DATE \_\_\_\_\_

Title of Interviewee \_\_\_\_\_

Name of Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

In what year did you begin exporting products to other countries? \_\_\_\_\_

II. Exports

a. What products (including live animals) have you exported, and to which countries?

Countries to which Exported	PRODUCT(S) EXPORTED <sup>(a)</sup>						
	1984	1983	1982	1981	1980	1979	1978
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

a) Write in product or products which you exported

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## II b. Products Exported in 1983 (or most recent year exported)

<u>PRODUCT</u>	<u>VOLUME OR VALUE</u>	<u>TYPE OF BUYER<sup>a)</sup></u>	<u>EXPORT POINT</u>	<u>METHOD OF TRANSPORT TO EXPORT POINT<sup>b)</sup></u>	<u>M.O.T. TO FOREIGN COUNTRY<sup>b)</sup></u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

a) Private Firm, Government, or Other (Specify)

b) Rail, Truck, Barge, Plane, Bulk Vessel, Container Vessel

III. Problems

a. Do you use an export agent in the U.S.? Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, who do you use? \_\_\_\_\_

b. Indicate Any Problems Encountered in Exporting Agricultural Products.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

c. Types of Problems You or Your Agent Have Encountered in the Past:

	<u>PROBLEM</u>		<u>COSTS OR OTHER (SPECIFY)</u>
Export License	YES	NO	_____
Veterinarian Clearances	YES	NO	_____
Domestic or Foreign Letters of Credit	YES	NO	_____
Foreign Import License	YES	NO	_____
Foreign Import Quotas	YES	NO	_____
Taxes or Tariffs	YES	NO	_____
Financing	YES	NO	_____



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III c. (CONTINUED) Types of problems you have encountered in the past:

	<u>PROBLEM</u>	<u>COSTS OR OTHER (SPECIFY)</u>
Transportation	YES ___ NO ___	_____
Grading	YES ___ NO ___	_____
Receipt of Payment	YES ___ NO ___	_____
Theft	YES ___ NO ___	_____
Insurance Payment	YES ___ NO ___	_____
Other	YES ___ NO ___	_____

III d. How were these problems resolved? \_\_\_\_\_

III e. Who or what agency has helped you resolve these problems? \_\_\_\_\_

IV. Marketing Methods

a. Do you hire a freight forwarder or handle the movement of the export yourself?

\_\_\_\_\_

b. Do you have an overseas agent to supervise the distribution of your product?

\_\_\_\_\_

c. How did you locate your buyers? \_\_\_\_\_

\_\_\_\_\_

V. Recommendations for Other Potential Exporters

a. Contacting buyers: \_\_\_\_\_

\_\_\_\_\_

b. Negotiating the sale \_\_\_\_\_

\_\_\_\_\_

c. Contracts, licenses, etc. \_\_\_\_\_

\_\_\_\_\_

d. Transportation \_\_\_\_\_

\_\_\_\_\_

e. Payment \_\_\_\_\_

\_\_\_\_\_

VITA *J*

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