

## What Kind of Industry is Best for Oklahoma?

ARTHUR H. DOERR, University of Oklahoma, Norman

Perhaps the question posed by the title of this paper is invalid. It may be that Oklahoma should have no significant percentage of its gross product produced by manufacturing. On the assumption, however, that such an attitude is negative thinking this paper explores the manufacturing assets of the state in terms of present and possible future industrial patterns. Postulation of future manufacturing patterns is predicated upon an examination of population trends, an analysis of extant industries in terms of type and distribution, an inventory of available and foreseeable future physical and cultural resources, an assessment of current governmental climate, an educated guess as to future political trends, an examination of national industrial development and a critical look at the efficacy of various selling agencies, such as the Industrial Development Commission and the local Chamber of Commerce.

Demographic trends for Oklahoma are uncertain. A variety of agencies predict different futures for Oklahoma's population. The Bureau of Business Research of The University of Oklahoma predicts a rather dramatic population increase in the next two decades. The writers and editors of *U.S. News and World Report* postulate that there will be a slight population increase by 1975. The editors of *Modern Times* speculate that Oklahoma's population will decline somewhat. In this prediction they are joined by the U.S. Bureau of the Census, which also assumes a modest decline in population. From this welter of antithetical evidence it appears safe to assume that Oklahoma's population will not increase or decrease dramatically in the next twenty years. For that reason the author assumes that the population will, between now and 1975, oscillate between 2,000,000 and 2,500,000. The labor force will fluctuate in response to economic conditions, industrial demands, and the labor climate.

Manufacturing has more than kept pace with population growth in the first half century of the state's existence. Dates and corresponding statistics which approximately gauge industrial growth in the last fifty years are presented below without attempt at elaboration.

Date	Number of Estab.	Production Workers	Value Added
1904	495	5,456	\$ 8,065,000
1929	1,658	31,695	\$149,404,000
1954	2,131	60,572	\$580,633,000

Oklahoma can in no way, however, be considered a significant industrial state. Only four counties, Tulsa, Oklahoma, Okmulgee, and Kay have more than 3,000 production workers employed in manufacturing, and only eleven of the seventy-seven counties have more than 1,000 so employed. Only Duncan, Miami, Muskogee, Oklahoma City, and Tulsa, of the cities with a population greater than 10,000, have as many as 1,000 production workers employed in manufacturing.

Oklahoma's industrial infancy is exemplified by the preponderance of indigenous industries and manufacturing establishments designed to service a local market. Food and kindred products, printing and publishing, non-electrical machinery, fabricated metal products and lumber and wood products are the only industry groups which number more than 100 establishments in the state. On the other hand only tobacco manufactures, of the Census of Manufacturing categories, is not represented in Oklahoma. In the three "industrial" counties a comparable dominance pattern to that of the state as a whole is evident.

Six manufacturing industry groups number between 40 and 100 establishments. These are, in descending order of establishment incidence, furniture and fixtures, stone, clay and glass products, miscellaneous, chemicals and allied products, apparel and related products and transportation equipment. Two other groups, petroleum and coal products and primary metals number more than 30 establishments.

Of the preceding group of primary, secondary, and tertiary significance several industries are ubiquitous and/or definitely raw material oriented or difficult to assess quantitatively. Hence these industries, i.e., food and kindred products, printing and publishing, lumber and wood products, petroleum and coal products and the miscellaneous group will be ignored in the analysis of principal situative agents.

A composite location factor check list utilized by the most important lending agencies of the country to assess the merits of loan requests is useful in determining the attractions possessed by Oklahoma for specific industries. For example, for non-electrical machinery the most significant situative factors are the availability of a specialized market and the presence of a pool of skilled labor. In the framework of Oklahoma, of course, the direct market response is to the petroleum industry. Labor has evolved with the oil industry and has been attracted by the existence of machinery manufacturing.

Comparable brief assessments will be made for each of the other major industry groups. Fabricated metal products exhibit a comparable response to significantly similar situative agents, as those for non-electrical machinery, and no attempt will be made, therefore, to elaborate on this industry group.

In the furniture and fixtures industry paramount importance is placed on skilled workmen and a local consumer market. The skills in Oklahoma, like Topsy, just grew and the modest market is a reflection of a low per capita income and low population densities. Undoubtedly the availability of raw materials has had some role in the evolution of the furniture industry, although it is considered to be of little importance by the "experts."

Stone, clay, and glass products respond simultaneously and almost equally to the nearness of raw materials, the availability of bulk transportation, power, and coal and other fuels. The obvious juxtaposition of these basic ingredients in Oklahoma create a resource climate very favorable to the evolution, development and expansion of industries within this group.

Chemicals and allied products industries are attracted by the availability of raw materials, bulk transport, power, fuels and processing water. The significance of the petro-chemical industries in Oklahoma show an obvious affinity for petroleum and natural gas as raw materials and power fuels.

Apparel and finished products demand a reservoir of female laborers who have the ability to learn special skills. The existence of a market is also deemed important, but the market for products of this industry is universal.

Transportation equipment industries, of the type encountered in Oklahoma, yield to the blandishments of a labor pool with the capacity to learn new skills. No doubt a desire to decentralize the aircraft industry, plus the unprecedented demands of World War II gave the necessary impetus for the establishment of such an industry group in Oklahoma.

Oklahoma's primary metals industries are fairly small and are ori-

ented towards local consumer demands. The availability of labor, power and fuel are significant attracting forces as well.

Oklahoma's basic resources are considerable, but by no means unlimited. The human resource is largely intangible, but Oklahoma possesses an unemployed reservoir of workers. In addition large numbers of Oklahomans, who have emigrated elsewhere because of limited economic opportunity in the state would no doubt be anxious to return if jobs were available. In addition, because of a relatively low per capita income a large potential parasitic labor supply is accessible. Oklahomans apparently are intelligent enough, ambitious enough and persistent enough to effectively learn the most complex tasks and perform them well if the record of established manufacturing industries is a justifiable measurement criterion.

Natural resources are varied, but the following discussion is indicative of the most significant resources readily available. Fuel is present in abundance. Oklahoma ranks fourth in the production of petroleum in the United States and fifth in terms of proved reserves. In natural gas Oklahoma is within the top five states in both reserves and production. A healthy power industry epitomized by the energetic Oklahoma Gas and Electric Company dependent upon carbo-electricity and hydro-electricity assures a dependable and expanding electricity supply.

Oklahoma ranks fourteenth in coal reserves with something over 27,000,000,000 tons of recoverable high grade bituminous coal. The present production of coal in Oklahoma is rather small, normally amounting to less than 2,000,000 tons annually.

Non-fuel minerals are much less significant than fuels in the economic picture of Oklahoma. For example, in 1952 fuels were valued at over \$574,000,000 and non-fuel minerals were worth about \$47,250,000. However, lead, sand and gravel, stone (other than limestone for cement and lime), zinc, and limestone for cement, gypsum, lime, pumice and pumicite, salt, ground sand and sandstone and dimension limestone (the latter materials as a group) were valued at more than \$1,000,000 each. Assessing these materials qualitatively it would appear that lead and zinc and associated derivatives, such as cadmium and germanium are declining in relative significance and the rapid depletion of Tri-State ores is to be anticipated. On the other hand excellent quality glass sand, gypsum, limestone and pumicite are available in abundance, and reserves are large.

Nonmineral resources of considerable import include the forests of southeastern Oklahoma and the abundant supply of water in the eastern two-fifths of the state. All in all Oklahoma may be termed to be well, but not munificently, endowed with human and natural resources attractive to industries.

The governmental climate of Oklahoma has tended to be conservative and the tax structure may be termed neither good nor bad. Traditional conservatism points toward holding the tax line, and this may prove to be attractive to some industries. A recent administrative record of concern for material development augurs well for the evolution of a first class highway system, and the possible establishment of a major Arkansas River waterways development. On the other hand archaic laws such as prohibition, loosely enforced, create an undesirable atmosphere of illegality, and eliminate a major source of revenue which will ultimately have to be obtained by new or increased taxes. Support for high quality higher education at Oklahoma State University, The University of Oklahoma, and the various state-supported colleges is inadequate. The research function, and the technical skills development at the major state institutions has been seriously curtailed by heavy work loads and low salaries which repel many

very capable faculty people. The general absence of thoroughgoing leadership on the technical level may well continue to be repugnant to industries which demand such technical skills.

In spite of many deterrents the national trend is towards a decentralization of industry. Industrial tycoons are looking away from the crowded urban scene increasingly towards those areas with "elbow room." Oklahoma qualifies with an abundance of "the wide open spaces." In part this trend towards industrial dispersion is a natural consequence of increasing land values, high labor costs, labor difficulties and obsolescence in established industrial regions. On the other hand the increasing population expansion and the shifting locus of population demand both an absolute and areal expansion.

No analysis, however incomplete, would be worthwhile unless some logical evaluation of the various industrial "selling" agencies were undertaken. Various state agencies, local civic groups and state-wide groups sporadically make attempt to lure industries to the state. Annual junkets to the industrial northeast are designed to extol the virtues of Oklahoma as a future home for industry "X." Some spectacular successes have attended such efforts, such as the attraction of the Western Electric Plant to Oklahoma City, the new overall plant which was lured to the decaying coal town of Coalgate, and the variety of industries which have been attracted to Oklahoma City by an aggressive, virile and knowledgeable Chamber of Commerce. That these agencies have attracted some industries is proof, I believe, that they could and should play a definite and important role in the future industrial picture of the state. Their efficacy could be greatly increased if their proposals were couched in specific terms of a particular type of industry to migrate to a certain spot in Oklahoma. A precise inventory of the vital needs of "X" industry and a complete listing and evaluation of town(s) "Y"'s attributes should be of considerable interest to the eastern industrialist.

On reflection a qualitative evaluation of the state's industrial appeal indicates a variety of handicaps and a surprising number of attributes. Handicaps include an onerous "Okie" reputation in the minds of many, a less than salubrious climate, a conservative, even archaic, governmental machinery, a limited local market, and the general absence of industry in being. Attributes include a labor pool, reasonable tax structure, abundant water in the eastern two-fifths of the state, favorable fuel picture, and a limited but varied natural resource base. With financial support Oklahoma State University and The University of Oklahoma along with The Frontiers of Science Program have the necessary brains to provide significant scientific contributions to industry. In fact the proposed development of a research park on the north campus of The University of Oklahoma if completed will be of inestimable value to the state in the attraction of industry from elsewhere.

What kind of industry then is best for Oklahoma? To this observer it would appear that stone, clay, and glass products should expand in response to excellent quality raw materials and low cost, abundant fuel. The dry western three-fifths of the state, along with smaller communities in the east should make optimum use of its parasitic labor pool to attract apparel and related industries. The abundant hydrocarbons should serve as a magnet to expand old chemical industries and to attract new ones. Proximate location to the aircraft centers within the state and in Kansas and Texas should foster the evolution of a major electronics industry within the state. That such an industry is practical has been demonstrated by the phenomenal success of Dorsett Laboratories in Norman and others. In addition the well-established industries already mentioned could logically show a modest expansion.