AN ANALYSIS OF THE ECONOMY OF ARIZONA

by

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INTRODUCTION

In recent years the population of Arizona has been increasing at a rapid rate. The expanded populace presents a challenge to the Arizona economy which must provide the ways and means of supporting this population. It is hoped that the analysis of the Arizona economy presented here will help enumerate the basic characteristics of the State's economy and by doing so will furnish a means of evaluating the ability of the economy to support its present, as well as its potential, population.

Economics as a science is the study of man's efforts to satisfy unlimited human wants by the most efficient possible use of the limited factors of production -- land, labor and capital. Thus an analysis of any economy, whether it be city, state, or national must be fundamentally concerned with the use of these three basic productive factors.

The chapters in this discussion which pertain primarily to the first productive factor, land, are agriculture and mining. It will be seen that for many years agriculture and mining have been important foundations upon which the Arizona economy has, to a large extent, operated. The State's labor resources are especially important to the performance of its economy; consequently, labor as a productive factor is emphasized in the chapters on employment and income. Capital in the sense of financial assets is discussed in Chapter X along with insurance and real estate; capital in the sense of producers' goods is treated primarily in the chapter which discusses Arizona manufacturing.

Other important economic sectors included in this analysis of the aggregate economy of Arizona are construction, transportation-communications-public utilities, wholesale trade-retail trade-services, government, and the tourist industry. Another chapter discusses the important resource, water, and its relationship to the economy. The blending together of each individual sector and facet of the State's economic structure, just like the blending of a puzzle after the individual pieces have been placed in proper position, furnishes a complete picture of the whole or aggregate economy.

In writing this paper, it was necessary that a wide variety of source material be utilized. This policy had to be followed because each economic sector analyzed has an individual essence with many characteristics differing from each of the other sectors. Thus, government publications were especially useful as a source since they are able to encompass such a wide scope of interests. Survey of Current Business, published by the U. S. Department of Commerce; Employment and Earnings, published by the U. S. Department of Labor; and Arizona Agriculture, published by the University of Arizona, to mention just a few, provided valuable information. Among the many other sources, periodicals such as Sales Management magazine with its annual "Survey of Buying Power" and commercial publications such as the Arizona Statistical Review, published by the Valley National Bank, proved extremely helpful in this analysis of the Arizona economy.

CHAPTER I

POPULATION

> For the first time in the world's history pleasant living conditions -- amenities -- instead of more narrowly defined economic advantages are becoming the sparks that generate significant population increase, particularly in the United States.[1]

This quotation from an article written by Edward L. Ullman does much to explain Arizona's phenomenal growth in population. Tables I-1 and I-2 reflect the trend in Arizona's population. In each year shown in Table I-1, Arizona realized a population gain over the previous year listed. This resulted in a population of 8.7 per square mile by 1954, not a dense population by any means, but much more dense than the .4 inhabitants per square mile of 1880. However, the increase, when pictured on an annual basis, reached a low point of 2.0 per cent in the 1920-1940 period. The growth rate accelerated again between 1940 and 1950, showing an annual increase of 4.1 per cent. This increased still more to 6.2 per cent during the 1950-1951 period and to 9.3 per cent during the 1951-1952 period. Although still large, the average annual population increase fell from 9.3 in 1951-52 to 6.9 and 6.8 during 1952-53 and 1953-54 respectively.

Table I-2 shows that only Nevada led Arizona in rate of population growth during the years 1950 to 1953. The Arizona gain over this period was 24.1 per cent.

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1. Ullman, Edward L., "Amenities As a Factor In Regional Growth," Arizona Business and Economic Review, April 1954, p. 1.

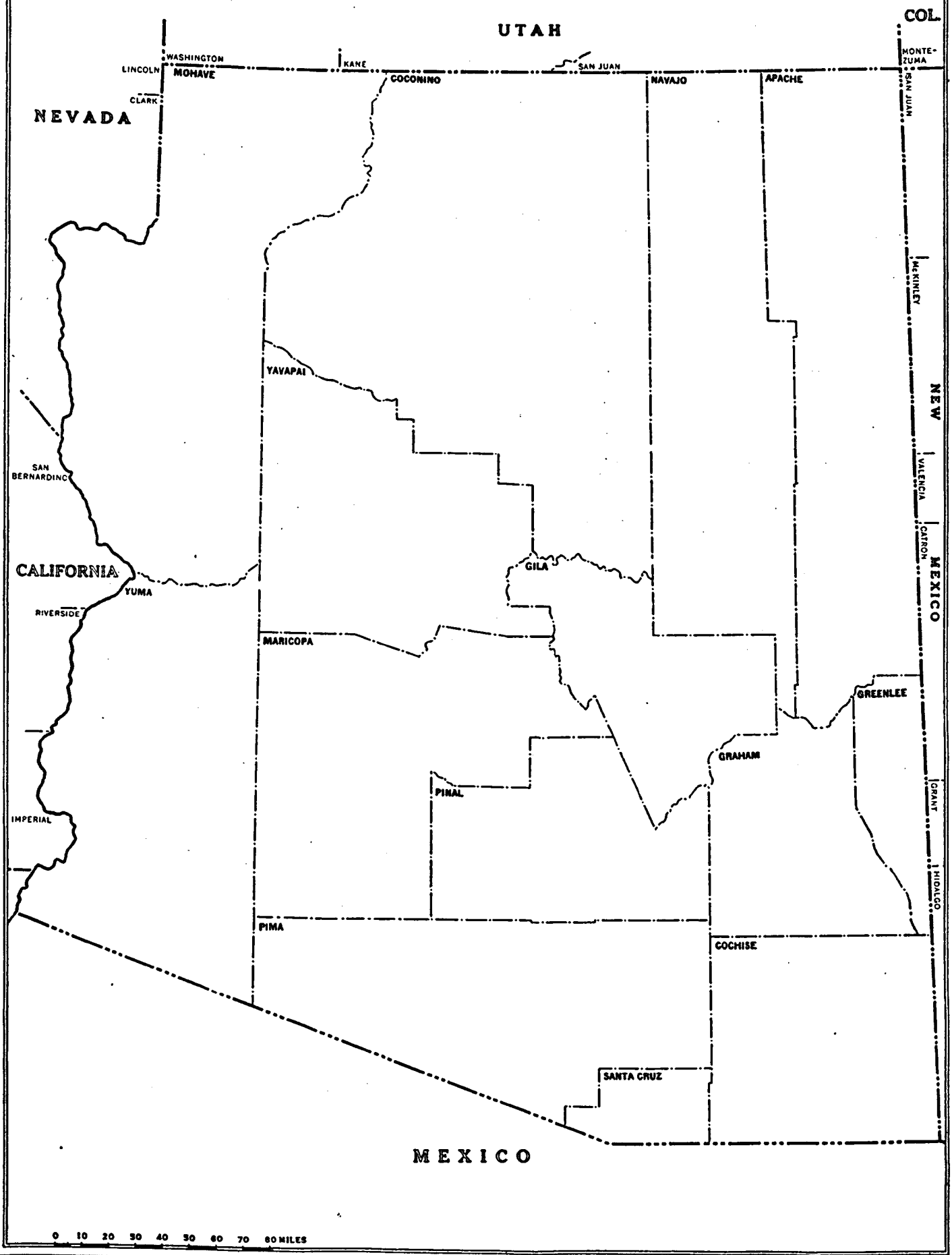

TABLE I-1

THE GROWTH OF ARIZONA'S POPULATION, 1880-1954[2]

Year	Population	Increase (%)*	Population Per Square Mile
1880	40,440	--	.4
1900	122,931	5.7	1.1
1920	334,162	5.1	2.9
1940	499,261	2.0	4.4
1950	749,587	4.1	6.6
1951	796,000	6.2	7.1
1952	870,000	9.3	7.7
1953	930,000	6.9	8.2
1954	993,000	6.8	8.7

* For 1880-1950, the rates of increase are averages.

TABLE I-2

ARIZONA RANKS SECOND IN RATE OF POPULATION GROWTH, 1950-1953[3]

State	1950 Population	1953 Population	Per Cent Increase
Nevada	160,083	206,000	28.7
ARIZONA	749,587	930,000	24.1
Florida	2,771,305	3,353,000	21.0
California	10,586,223	12,190,000	15.1
Delaware	318,085	358,000	12.5
New Mexico	681,187	758,000	11.3
Maryland	2,343,001	2,541,000	8.5
Connecticut	2,007,280	2,162,000	7.7
Texas	7,711,194	8,298,000	7.6
Michigan	6,371,766	6,852,000	7.5

2. Sources: 1880-1950 population data, U. S. Department of Commerce, 1950 United States Census of Population, Vol. II, Part 3, p. 21. 1951-1954 population data, Valley National Bank, Arizona Progress, March 1955. 1880-1950 population per square mile, U. S. Department of Commerce, Statistical Abstract of the United States, 1954, p. 11.

3. Source: Valley National Bank, Arizona Statistical Review, 1954 edition, p. 42.

TABLE I-3

POPULATION CHANGES IN SELECTED ARIZONA CITIES, 1940-1950[4]

City	Population 1940 Census	Population 1950 Census	Per Cent Change 1940-1950
Eloy	579	3,580	518.3
Chandler	1,239	3,799	206.6
Scottsdale	743	2,032	173.5
Casa Grande	1,545	4,181	170.6
Tempe	2,906	7,684	164.4
Mesa	7,224	16,790	132.4
Yuma	5,325	9,145	71.7
Coolidge	2,537	4,306	69.7
Safford	2,266	3,756	65.7
Phoenix	65,414	106,818	63.3
Flagstaff	5,080	7,663	50.8
Tucson	35,752	45,454	27.1
Miami	4,722	4,329	(-)8.4
Williams	2,622	2,152	(-)17.9
Bisbee	5,853	3,801	(-)35.1

The primary purpose of Table I-3 is to bring to light the fact that Arizona's growing population is not confined to the two major metropolitan areas, Phoenix and Tucson. This table reveals that several Arizona cities led Phoenix and Tucson in rate of population growth between 1940 and 1950 (please note that the table refers to selected cities only. There are other unlisted cities which also increased in population by a greater rate than did Phoenix and Tucson during this period). However, in all fairness to Phoenix and Tucson, it must be pointed out that much of the population growth in the Phoenix and Tucson areas took place adjacent to, but outside of, the political units of these two cities. Still the general conclusion must remain that the Arizona population growth is not a two-

4. Source: Arizona Statistical Review, 1954, op. cit., p. 5, Table I-2.

city affair. On the contrary, as shown by Table I-3, many cities are sharing in the expansion.

The Bisbee and Miami population declines between 1940 and 1950 give evidence of a slowdown in mining for the state during that period. However, in more recent years mining is on the upswing in Arizona. Hence, population decreases such as occurred in these mining towns have probably been reversed.

TABLE I-4

ARIZONA POPULATION GROWTH BY COUNTIES, 1950-1955[5]
(April 1950 = 100)

County	Population January 1, 1955
Apache	114.1
Cochise	113.6
Coconino	129.2
Gila	113.0
Graham	111.6
Greenlee	125.7
Maricopa	138.3
Mohave	97.5
Navajo	112.7
Pima	149.0
Pinal	132.2
Santa Cruz	109.1
Yavapai	101.6
Yuma	139.6
Total Counties	133.2

Table I-4 presents further evidence that Arizona's growth in population is not confined to the Phoenix (Maricopa County) and Tucson (Pima County) areas. This table showing county-by-county changes in population

5. Source: "Survey of Buying Power," Sales Management, LXXIV (May 10, 1955), p. 92.

between 1950 and 1955 reveals that all but one Arizona county increased in population during this period. Only Mohave County shows a decrease and that is a mere 2.5 per cent. The State as a whole increased 33.2 per cent in population according to the Sales Management magazine statistics. Pima County has the greatest rate of increase and is followed by Yuma, Maricopa, Pinal, Coconino, and Greenlee in that order. Each of these counties just mentioned have gains of 25 per cent or more during the period.

TABLE I-5

ARIZONA RANKS SECOND IN PROJECTED GROWTH OF POPULATION, 1950-1960[6]

State	Population 1950 Census	Estimated 1960 Population	Per Cent Increase
Nevada	160,083	273,000	70.5
ARIZONA	749,587	1,212,000	61.7
Florida	2,771,305	4,280,000	54.4
California	10,586,223	15,413,000	45.6
New Mexico	681,187	903,000	32.6
Delaware	318,085	418,000	31.4
Oregon	1,521,341	1,983,000	30.3
Maryland	2,343,001	2,988,000	27.5
Utah	688,862	871,000	26.4
Michigan	6,371,766	7,995,000	25.5

6. Source: Arizona Progress (March 1955), op cit., Table I-1, based on U. S. Department of Commerce projections for 1960.

TABLE I-6

POPULATION TRENDS IN MARICOPA AND PIMA COUNTIES,
1940 AND 1950 TO 1960 AND 1965
WITH PROJECTIONS[7]

Year	Population	Per Cent of State Population
	Maricopa County	
1940 Actual	186,193	37.3
1950 Actual	331,770	44.3
1955 Estimated (Jan. 1)	459,000	45.9*
1960 Projected	575,000	47.4
1965 Projected	700,000	49.0
	Pima County	
1940 Actual	72,838	14.6
1950 Actual	141,216	18.8
1955 Estimated (Jan. 1)	210,500	21.1*
1960 Projected	250,000	20.6
1965 Projected	300,000	21.0

* Based on population estimates for State of Arizona, Maricopa, and Pima Counties by Sales Management Magazine.

The previous tables in this section have shown the rapid rate of population growth that the State has already experienced. Tables I-5 and I-6 indicate that the growth will carry on into future years. Only Nevada among the forty-eight states seems destined to show a greater rate of population increase than Arizona during the decade of the fifties. Table I-6 reflects the continued expansion of Maricopa and Pima Counties toward projected populations of 700,000 and 300,000 respectively for the year 1965. In addition, Maricopa County seems to be headed for a progressively greater

7. Sources: Arizona Progress (March 1955), op. cit., Table I-1; "Survey of Buying Power," Sales Management, op. cit., p. 126, Table I-4.

proportion of the State's population as the years move on toward 1965. The Pima County movement toward a greater proportion is less pronounced than that of Maricopa County.

TABLE I-7

PERCENTAGE DISTRIBUTION OF POPULATION OF STATES WITHIN THE MOUNTAIN REGION, 1953 WITH PROJECTIONS TO 1960 AND 1965[8]

State	Per Cent Distribution 1953	Per Cent Distribution 1960*	Per Cent Distribution 1965*
Mountain	100.00	100.00	100.00
ARIZONA	16.67	18.80	20.21
Montana	11.19	10.25	9.67
Idaho	11.00	10.47	10.13
Wyoming	5.41	5.15	4.99
Colorado	25.30	24.42	23.83
New Mexico	13.36	13.45	13.46
Utah	13.43	13.28	13.16
Nevada	3.64	4.18	4.55

* Projected estimate.

Among the eight states in the mountain region, Arizona was exceeded in 1953 only by Colorado in percentage distribution of population, 25.30 per cent of the population in this region living in Colorado and 16.67 in Arizona during the year mentioned. United States Department of Commerce population projections to 1960 and 1965 indicate that Arizona will close the gap between itself and Colorado considerably between now and these two future years. The Department of Commerce predicts that in 1960 Arizona will hold 18.80 percent of the mountain region population and this will increase to 20.21 percent by 1965. During this same time Colorado will

8. Source: Current Population Reports (Washington: U. S. Dept. of Commerce, Bureau of the Census, February 20, 1955), Series P-25.

drop, according to the projections, from 25.30 in 1953 to 24.42 and 23.83 in 1960 and 1965 respectively. Table I-7 also reveals that Montana, Idaho, Wyoming, and Utah will decrease in percentage distribution between 1953 and 1965. Nevada and New Mexico will share the percentage gains along with Arizona.

TABLE I-8

DISTRIBUTION OF ARIZONA POPULATION BY URBAN AREA OF 2,500 OR MORE, 1900-1950[9]

Urban Area	Per Cent of Total Population					
	1900	1910	1920	1930	1940	1950
Places of 2,500 and More	15.9	31.0	36.1	34.4	34.8	36.5

Table I-8 indicates the general trend toward a greater distribution of population in urban areas of Arizona. The change is from 15.9 per cent of the population living in urban areas of 2,500 or more in 1900 to 36.5 per cent during the census year of 1950. In this trend, Arizona may be considered as partaking in an overall trend for the United States economy as a whole during the past half century.

The final table in this section on population shows the distribution of the State's population according to counties. Maricopa and Pima Counties are considerably ahead of the other counties in total population as well as in population per square mile. The range among the fourteen Arizona counties in population per square mile is from a sparse .6 persons in

9. Source: U. S. Census of Population, 1950 (Washington: U. S. Department of Commerce, Bureau of the Census, 1952), II, p. 6.

northeastern Arizona's Mohave County to Maricopa County's 49.8 persons. Arizona's largest county in land area, Coconino, supports a population of only 1.7 persons per square mile while little Santa Cruz County with its principal city of Nogales supports a population per square mile of 8.2 persons.

TABLE I-9

COUNTY DISTRIBUTION OF ARIZONA POPULATION AND POPULATION PER SQUARE MILE, JANUARY 1, 1955[10]

County	Land Area in Square Miles	Population	Population Per Square Mile
Apache	11,174	31,700	2.8
Cochise	6,256	35,800	5.7
Coconino	18,573	30,900	1.7
Gila	4,750	27,300	5.7
Graham	4,610	14,500	3.1
Greenlee	1,874	16,100	8.6
Maricopa	9,226	459,000	49.8
Mohave	13,260	8,300	.6
Navajo	9,911	33,200	3.3
Pima	9,241	210,500	22.8
Pinal	5,378	57,100	10.6
Santa Cruz	1,246	10,200	8.2
Yavapai	8,091	25,400	3.1
Yuma	9,985	39,100	3.9
State Total	113,575	999,100	8.8

10. Sources: Arizona County Base Book, 1954 (Tucson: University of Arizona, Bureau of Business Research, 1954); "Survey of Buying Power," Sales Management, op. cit., Table I-4.

CHAPTER II

EMPLOYMENT

TABLE II-1

YEARLY PERCENTAGE CHANGES (APRIL TO APRIL) IN TOTAL NONAGRICULTURAL EMPLOYMENT AND IN EMPLOYMENT BY INDUSTRY SECTORS, 1950-1955[1]

	Percent Change in Employment				
Industry	1950-1951	1951-1952	1952-1953	1953-1954	1954-1955
Total Nonagric.	13.0	5.9	8.1	-0.1	4.6
Manufacturing	19.0	32.0	26.4	-11.7	18.2
Mining	7.0	2.5	0.8	5.6	3.8
Construction	36.3	-8.5	27.0	8.4	-16.5
Transportation, Comm., & Public Utilities	11.1	-10.0	5.8	-9.1	0.5
Trade	8.8	6.3	7.2	0.4	3.7
Finance, Insurance, & Real Estate	9.6	8.8	11.3	8.7	12.0
Services, Misc.	25.4	13.4	7.5	0.4	5.8
Government	4.3	4.4	5.9	1.3	7.2

Table II-1 shows that aggregate nonagricultural employment in Arizona increased each succeeding April between 1950 and 1955, except for a very slight decline in April of 1954 from April of 1953. The mining and quarrying, trade, finance-insurance-real estate, services and government categories all increased percentagewise in employment over the previous April for each of the years measured while the remaining three categories show at least one period of percentage decrease. April of 1954 reveals a sizable decline of 11.7 per cent in manufacturing as compared to April of 1953; however, this decline was more than offset by the 18.2

1. Source: Arizona's Current Employment Developments (Phoenix: Employment Security Commission of Arizona, May 15 issues for 1951 through 1955).

per cent increase for April of 1955. The most stable industry category during the five year period was finance-insurance-real estate, which at no time dropped below a percentage gain of 8.7 per cent. The obvious explanation for the fact that the low points for most of the industries occur in the April 1953-54 period is the nationwide recession which took place during that time. The growth of Arizona's economy is evidenced by the predominance of percentage gains rather than declines throughout the table.

TABLE II-2

TOTAL NONAGRICULTURAL EMPLOYMENT AND EMPLOYMENT BY INDUSTRY, STATE OF ARIZONA, APRIL 1950-APRIL 1955 [2]

INDUSTRY	Number of Employees		% Change
	April 1950	April 1955	
Total Nonagric	158,500	212,300	33.9
Manufacturing	14,700	30,500	107.5
Mining	11,400	13,800	21.1
Construction	11,300	16,200	43.4
Transp., Comm. & Ut.	20,800	20,900	0.5
Trade	40,900	52,800	29.1
Finance, Ins. & Real Estate	5,200	8,400	61.5
Services, Misc.	19,700	27,300	38.6
Government	34,500	43,200	25.2

Table II-2 reveals the progressive expansion of Arizona's non-agricultural economy. The month of April in 1955 found a total of 212,300 involved in nonagricultural employment pursuits, a dynamic gain of 33.9 per cent over April of 1950. Only the transportation-communications-public utilities category has a percentage decrease during this five year comparison period while manufacturing, on the other hand, leads

2. Source: Loc. Cit., Table II-1.

the increases with an encouraging 107.5 per cent gain. This is encouraging because much of the hope of a great Arizona future lies in the development of its manufacturing. More will be said about this point elsewhere in this analysis of the Arizona economy. In addition, the finance-insurance-real estate, construction, services, transportation-communications-public utilities, government and mining sectors all show encouraging employment gains.

TABLE II-3

PERCENTAGE CHANGES IN NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY DIVISION, ARIZONA AND U. S., 1940-1950 AND 1950-1954 [3]

INDUSTRY	% Change, 1940-50		% Change, 1950-54	
	U. S.	Arizona	U. S.	Arizona
Total Nonagric.	39.53	59.27	7.92	27.65
Mining	- 2.95	- 8.88	- 13.39	19.46
Construction	80.29	188.09	8.31	38.01
Manufacturing	38.84	74.15	6.82	71.61
Transp. & Pub. Ut.	31.06	51.23	0.77	9.28
Whols. & Ret. Trade	38.97	68.85	8.84	23.78
Finance, Ins. & Real Estate	26.56	178.94	15.89	43.39
Services, Misc.	46.62	28.30	10.87	25.00
Government	42.93	74.74	12.03	20.35

Table II-3 adds further evidence of Arizona's growing economy. This growth was very much present during the 1940-1950 decade as is shown by the 59.27 per cent increase in aggregate nonagricultural employment

3. Sources: Employment and Payrolls (Washington: U. S. Department of Labor, Bureau of Labor Statistics, April 1953), pp. 39, 56.73; Employment and Earnings, U. S. Department of Labor, Bureau of Labor Statistics (Washington: U. S. Government Printing Office, May 1954), pp. 49, 66-74; Employment and Earnings, U. S. Department of Labor, Bureau of Labor Statistics (Washington: U. S. Government Printing Office, May 1955), pp. 49, 64-72.

during that period. This was nearly twenty percentage points in excess of the average increase for the U. S. as a whole. Only in the mining category did a decrease in employment occur, and in most sectors Arizona employment increased by more than the national average. The figures for 1950-54 show a continuance of the growth of the forties as well as better balance in that every industry sector, even mining which declined during the 1940-1950 decade, has greater employment than in 1950.

Evident here, also, is the important growth of manufacturing in Arizona. In the 1950-1954 period manufacturing employment increased by 71.61 per cent. This large gain becomes even more momentous when one considers that the average increase for the nation was only 6.82 per cent during the same period.

TABLE II-4

PERCENTAGE INCREASES IN TOTAL NONAGRICULTURAL EMPLOYMENT, MARICOPA, PIMA, AND ALL OTHER COUNTIES, MONTH OF APRIL, 1952-55[4]

County	% Change, April 1952-April 1955
Maricopa	17.9
Pima	3.6
All Others	8.9

The above table indicates that in April of this year, Maricopa County has a 17.9 per cent increase in total nonagricultural employment over the corresponding month in 1952. This is greater than the Pima County increase by a considerable amount and also exceeds the average

4. Source: Arizona's Current Employment Developments (May 15 issues for 1952 through 1955), Op. Cit., Table II-1.

increase during this period of the remaining twelve Arizona counties.

TABLE II-5

AVERAGE WEEKLY AND AVERAGE HOURLY EARNINGS, ARIZONA NONAGRICULTURAL EMPLOYMENT, 1950-1955 [5]

INDUSTRY	April 1950 Average Weekly Earnings	April 1950 Average Hourly Earnings	April 1955 Average Weekly Earnings	April 1955 Average Hourly Earnings
Manufacturing	$ 61.10	$ 1.45	$ 79.56	$ 1.95
Copper Mining	71.90	1.57	106.38	2.18
Contract Const.	71.10	1.88	100.47	2.63
Utilities	59.00	1.46	74.57	1.81
Trade	48.40	1.21	62.46**	1.48**
			74.70*	1.84*

* Wholesale Trade
** Retail Trade

Copper mining leads the five industries shown in table II-5 in average weekly earnings each year while contract construction pays the highest average hourly earnings for the years shown. This means that although employees in contract construction are payed more per hour than those in copper mining, they do not work, on the average, as many hours per week.

Arizona's growth in nonagricultural employment between 1950 and 1954 was 43,700 workers, which in percentage terms is 27.65 per cent. The Phoenix Area which is essentially the same as Maricopa County had a greater proportion of Arizona's aggregate nonagricultural employment in 1954 than it did in 1950, the 1954 percentage being 48.7 per cent and the 1950 percentage being 46.0 per cent. For the same period, the

5. Source: Arizona's Current Employment Developments (May 15 issues for 1951 and 1955), Op. Cit., Table II-1.

Tucson Area which is essentially the same as Pima County decreased from a proportion of 20.8 per cent in 1950 to 20.3 per cent in 1954 while the remaining twelve counties also decreased slightly in proportion from 33.2 per cent to 31.0 per cent. This information is given in table II-6 of this chapter. It appears that Phoenix is gradually gaining a greater proportion of the State's total nonagricultural employment. This does not mean, however, that the other counties are actually decreasing in total nonagricultural employment. It does mean that the Phoenix Area is assuming or achieving industrialization more rapidly than the remainder of the State.

TABLE II-6

PERCENTAGE DISTRIBUTION OF AVERAGE ANNUAL NONAGRICULTURAL EMPLOYMENT IN ARIZONA FOR THE TWO MAJOR URBAN AREAS AND REMAINDER OF STATE, 1950-1954 [6]

	Arizona		Phoenix Area*		Tucson Area**		Remaining Counties	
	Number Employed	%	Number Employed	%	Number Employed	%	Number Employed	%
Year	(Average Annual Employment)							
1950	158,000	100.0	72,600	46.0	32,900	20.8	52,500	33.2
1951	176,800	100.0	82,400	46.6	38,500	21.8	55,900	31.6
1952	192,400	100.0	88,800	46.2	43,900	22.8	59,700	31.0
1953	202,400	100.0	96,300	47.6	43,700	21.6	62,400	30.8
1954	201,700	100.0	98,200	48.7	40,900	20.3	62,600	31.0
% Increase 1950-54	27.65 %		35.26 %		24.31 %		19.23 %	

* Essentially the same as Maricopa County.
** Essentially the same as Pima County.

6. Source: Employment and Earnings, May 1955, Op. Cit., pp. 64, 73, Table II-3.

TABLE II-7

PERCENTAGE DISTRIBUTION OF AVERAGE ANNUAL NONAGRICULTURAL EMPLOYMENT BY INDUSTRY CATEGORIES, ARIZONA, TWO MAJOR ARIZONA URBAN AREAS, AND THE UNITED STATES, 1954 [7]

	Arizona		Phoenix Area*		Tucson Area**		United States	
	Number Employed	%	Number Employed	%	Number Employed	%	Number Employed	%
Total Nonagricultural	201,700	100.0	98,200	100.0	40,900	100.0	48,285,000	100.0
Mining	13,500	6.7	200	0.2	1,700	4.2	770,000	1.6
Manufacturing	26,600	13.2	15,600	15.9	4,900	12.0	15,989,000	33.1
Construction	16,700	8.3	8,700	8.9	3,200	7.8	2,527,000	5.2
Transp., Comm. & Pub. Ut.	20,000	9.9	8,900	9.1	5,000	12.2	4,008,000	8.3
Wholes. & Retail Trade	51,000	25.3	28,600	29.1	10,000	24.5	10,498,000	21.7
Services	25,500	12.6	12,900	13.1	6,600	16.1	5,629,000	11.7
Finance, Ins. & Real Est.	7,600	3.8	5,100	5.2	1,400	3.4	2,114,000	4.4
Government	40,800	20.2	18,200	18.5	8,100	19.8	6,751,000	14.0

* Essentially the same as Maricopa County.
** Essentially the same as Pima County.

7. Source: Employment and Earnings, May 1955, Op. Cit., pp. 49, 64-73, Table II-3.

The statistics for the year 1954, as listed in table II-7, do much to reveal the basic characteristics of our economy here in Arizona. The last column in the table presents data for the United States. This data will serve as a yardstick, against which I will measure the various elements of the Arizona economy in an attempt to derive the fundamental employment characteristics of the State's economy at the present time.

Arizona's percentage of employment in mining is 6.7 per cent. This is more than four times as great as the percentage in mining for the country as a whole. However, it is significant to note that the 6.7 per cent employed in mining in Arizona still does not represent the sizable proportion of total employment in Arizona which many people think that it does. The preceding statement, however, is not meant in any way to underplay the importance of mining to the State's economy. This importance, which will be discussed under mining later in this paper, is by all means greater than the proportion of workers employed in mining establishments reveals. It may also be observed from the table that the Phoenix and Tucson areas, especially the former, employ less in mining than the State average.

The manufacturing statistics contain some surprising information. Despite the fact that Arizona leads the nation in rate of manufacturing employment growth for the years 1950-54,[8] only 13.2 per cent are employed in manufacturing in Arizona. This is far below the national average of 33.1 per cent employed in manufacturing. Manufacturing employment is not

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8. cf., p. 52, post.

a large sector of Arizona's total employment. Even in Arizona's two primary urban areas, manufacturing employment is considerably below the national average.

Construction employment for Arizona is 8.3 per cent while the United States average is slightly below this at 5.2 per cent. In this category, the Phoenix and Tucson percentages are similar to that of the State. Transportation, communications and public utilities also comprise a slightly higher percentage in Arizona than for the United States— 9.9 per cent as opposed to 8.3 per cent. The Tucson area percentage of 12.2 per cent undoubtedly is explained by the importance of interstate railroad employment in the Tucson area. "The Southern Pacific Railroad is one of the largest industries in Tucson, for it employs over 3,000 people and has a local annual payroll of more than $ 12,000,000."[9]

Wholesale and retail trade for the State represents almost one quarter of the aggregate nonagricultural employment, 25.3 per cent to be specific. This is more than the 21.7 per cent national average. The 29.1 per cent for the Phoenix area apparently reflects the importance of Phoenix as the State's primary trade center. Services in Arizona are 12.6 per cent of the total which is slightly above the 11.7 per cent average for the nation. Phoenix is slightly above the Arizona average at 13.1 per cent and Tucson has 16.1 per cent in service employment. The high figure for Tucson is evidently a result of the prime importance of the Tucson area in the Arizona tourist industry.

Finance, insurance and real estate establishments employ 3.8 per cent

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9. "Tucson," Monthly Business Review of Federal Reserve Bank of Dallas, XXXVIII (June 1, 1953).

of Arizona's total nonagricultural labor force. This is slightly below the 4.4 per cent average for the United States as a whole. The final category shown in the table, government, finds Arizona at 20.2 per cent — considerably above the national average of 14.0 per cent. Both Phoenix and Tucson have government employment percentages slightly below the Arizona average, but well above the average for the nation. Government ranks third in percentage of employment nationally, but second in Arizona. Table II-8 will show this to be true, also, as far back as 1940.

TABLE II-8

DISTRIBUTION OF TOTAL NONAGRICULTURAL EMPLOYMENT, UNITED STATES AND ARIZONA, 1940, 1950, and 1954 [10]

INDUSTRY	1940		1950		1954	
	U. S.	Arizona	U. S.	Arizona	U. S.	Arizona
Total Nonagric.	100.0	100.0	100.0	100.0	100.0	100.0
Mining	2.9	12.5	2.0	7.1	1.6	6.7
Construction	4.0	4.2	5.2	7.6	5.2	8.3
Manufacturing	33.7	9.0	33.5	9.8	33.1	13.2
Transp. & Pub. Ut.	9.4	12.2	8.9	11.6	8.3	9.9
Wholesale & Retail Trade	21.7	24.6	21.5	26.1	21.7	25.3
Finance, Ins., & Real Estate	4.4	1.9	4.1	3.4	4.4	3.8
Services, Misc.	10.8	16.0	11.3	12.9	11.7	12.6
Government	13.1	19.6	13.5	21.5	14.0	20.2

Having noted the industry-by-industry distribution in 1954 of Arizona's nonagricultural labor force in table II-7, the next step will be to analyze table II-8. This latter table will show how the distribution has changed since the selected years 1940 and 1950. This data reveals that mining,

10. Sources: Employment and Payrolls, April 1953, Op. Cit., pp. 39, 56-73, Table II-3; Employment and Earnings, May 1955, Op. Cit., pp. 49, 64-72, Table II-3.

transportation-public utilities, and services have become increasingly smaller proportions of the total employment while construction, finance-insurance-real estate, and manufacturing have become increasingly larger proportions. The remaining two categories, wholesale-retail trade and government, gained in percentage distribution between 1940 and 1950, but have declined slightly since 1950. However, in each case, the 1954 distribution is greater than the 1940 distribution.

TABLE II-9

ARIZONA AS A PERCENTAGE OF U. S. NONAGRICULTURAL EMPLOYMENT, BY INDUSTRY, 1940, 1950, and 1954.[11]

INDUSTRY	1940	1950	1954
Total Nonagric.	.3096	.3531	.4177
Mining	1.3537	1.2710	1.7532
Construction	.3245	.9077	.6608
Manufacturing	.0825	.1035	.1663
Transp. & Pub. Ut.	.4015	.4601	.4990
Wholesale & Retail Trade	.3515	.4271	.4858
Finance, Insurance & Real Estate	.1338	.2905	.3595
Services, Misc.	.4572	.4018	.4530
Government	.4627	.5625	.6043

The distribution of Arizona employment as a percentage of United States totals (table II-9) shows not only a considerable increase in total non-agricultural employment between 1940 and 1954, but also an increase in each specific sector except that of services. This latter category shows only a slight decline. Thus table II-9 indicates that Arizona is becoming a

11. Loc. Cit., Table II-8.

more substantial segment of the aggregate U. S. economy.

TABLE II-10

EMPLOYED LABOR FORCE, ARIZONA, BY INDUSTRY GROUP, 1940-1950 [12]

INDUSTRY	In Thousands		% Distribution	
	Total 1950	Total 1940	Total 1950	Total 1940
Total Employed	238,695	148,973	100.0*	100.0*
Agric., Forestry, & Fisheries	35,599	32,305	14.9	21.7
Mining	10,940	12,806	4.4	8.6
Construction	20,444	8,890	8.6	6.0
Manufacturing	20,986	12,564	8.8	8.4
Transp. Comm., & Pub. Utilities	21,132	11,714	8.9	7.9
Wholesale and Retail Trade	52,376	27,534	21.9	18.5
Finance, Ins., & Real Estate	7,276	2,960	3.0	2.0
Services	53,803	32,227	22.5	21.6
Government	12,727	5,756	5.3	3.9
Not Reported	3,862	2,217	1.6	1.5

* Due to rounding, subtotals may not equal 100 per cent.

Table II-10 differs from the preceding employment tables in that it refers to the total labor force, including agriculture. This table is a result of the 1950 census of population and thus is not as current as the other tables used in the employment chapter of this paper. The primary information to be derived here is the considerable decline of agricultural employment as a proportion of the total labor force in the decade of the forties.

Table II-11, just as most of the other tables in this chapter, gives

12. Source: U. S. Census of Population, 1950 (Washington: U. S. Department of Commerce, Bureau of the Census, 1952), II, pp. 30-31.

TABLE II-11

RANKING OF ARIZONA AS COMPARED TO OTHER STATES AND DISTRICT OF COLUMBIA IN RATE OF NONAGRICULTURAL EMPLOYMENT GROWTH, BY INDUSTRY, 1940-50, 1950-54[13]

INDUSTRY	Rate of growth in Nonagricultural Employment Arizona Ranking Among 48 States and D. C.	
	1940-1950	1950-1954
Total Nonagricultural Employment	7th	2nd
Mining	28th*	6th
Construction	5th	5th
Manufacturing	5th	1st
Transp., & Pub. Utilities	8th	4th
Wholesale & Retail Trade	5th	3rd
Finance, Ins., & Real Est.	2nd	2nd
Services, Misc.	41st	2nd
Government	4th	9th

* Decrease for Arizona

evidence of the growth trend in the State's economy. This table significantly reveals that Arizona ranks second during the 1950-54 period in rate of growth of total nonagricultural employment. In addition, Arizona ranks among the top ten states during this period for rate of increase in each of the eight industry sectors comprising aggregate nonagricultural employment. As noted earlier, it is first in rate of manufacturing growth while in the finance-insurance-real estate, and service categories it ranks second. The high growth rate in services since 1950 is an indication of the growing importance of the tourist industry to the State's economy.

13. Sources: Employment and Payrolls, April 1953, Op. Cit., pp. 56-73, Table II-3; Employment and Earnings, May 1954, Op. Cit., pp. 66-74, Table II-3; Employment and Earnings, May 1955, Op. Cit., pp. 64-72, Table II-3.

CHAPTER III

INCOME

TABLE III-1

ARIZONA RANKS SECOND IN RATE OF INCOME GROWTH, 1950-1953[1]

State	Income (Aggregate) 1950	1953	% Gain
Nevada	$ 303,000,000	$ 448,000,000	47.9
ARIZONA	931,000,000	1,370,000,000	47.2
S. Carolina	1,763,000,000	2,403,000,000	36.3
Florida	3,387,000,000	4,586,000,000	35.4
Michigan	10,242,000,000	13,723,000,000	34.0
California	18,621,000,000	24,856,000,000	33.5
Ohio	12,620,000,000	16,840,000,000	33.4
Conn.	3,598,000,000	4,744,000,000	31.9
New Mexico	775,000,000	1,021,000,000	31.7
Delaware	628,000,000	825,000,000	31.4

Corresponding to Arizona's rapid growth in population and employment is the growth of Arizona income. Table III-1 shows that Arizona ranked second among the forty-eight states in rate of income growth between the years 1950 and 1953. The Arizona increase, a very high 47.2 per cent, was exceeded only by Nevada's 47.9 per cent growth. The third ranking state, South Carolina, was almost eleven percentage points behind Arizona in rate of income growth. Between 1950 and 1953, Arizona's aggregate income passed the one billion dollar mark, expanding from $931 million dollars to $1.37 billion dollars during the period.

Table III-2 reveals the growth of Arizona's aggregate and per capita

1. Source: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 42.

TABLE III-2

CHANGES IN AGGREGATE AND PER CAPITA INCOME PAYMENTS TO INDIVIDUALS IN ARIZONA, 1929-1954[2]

Year	Aggregate Income	Annual % Change	Per Capita Income	Annual % Change
1929	$ 245,000,000	----	$ 573	----
1939	227,000,000	- .7*	461	- 2.0*
1950	931,000,000	28.2*	1,235	15.3*
1951	1,145,000,000	23.0	1,438	16.4
1952	1,308,000,000	14.2	1,508	4.9
1953	1,370,000,000	4.7	1,473	- 2.3
1954	1,425,000,000**	4.0	1,435**	- 2.6

* Average Annual percentage change on simple rather than compound basis.
** Preliminary data.

income between 1929 and 1954. The greatest percentage gain in aggregate income since 1950 occurred in the 1950-51 period when the increase measured 23.0 per cent. This gain was not primarily a reflection of greater population as is indicated by the 16.4 per cent growth in per capita income during the same period. The decline in per capita income between 1952 and 1954 may be partially explained by the nationwide recession of that period of time.

Table III-3 indicates that the growth of aggregate income in Arizona, as shown in the previous tables, is part of a more extensive regional expansion in the eleven western states as a whole. For example, in 1939 the states of the West collectively comprised 12.1 per cent of total income in the nation. By 1952 this proportion had become 15.2 per cent,

2. Sources: Survey of Current Business, U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce (Washington: U. S. Government Printing Office, August 1954), p. 15; Arizona Business and Economic Review, IV (April 1955), 7, based on U. S. Department of Commerce data.

TABLE III-3

THE WESTERN STATES* AS A PERCENT OF TOTAL U. S. ANNUAL INCOME PAYMENTS TO INDIVIDUALS, 1939-1952, WITH PROJECTIONS TO 1960 and 1975[3]

Region	1939**	1947**	1952**	Estimated*** 1960	1975
The West as a % of Total U. S. Income	12.1	14.7	15.2	15.7	17.5

* The western states are ARIZONA, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.
** Data from U. S. Department of Commerce.
*** Data from Stanford Research Institute.

TABLE III-4

REGIONAL PER CAPITA INCOME PAYMENTS AS A PERCENTAGE OF NATIONAL PER CAPITA INCOME, 1953[4]

Region	% of U. S. Average Income Per Capita
Southwest	84
Arizona*	86
New Mexico	79
Oklahoma	78
Texas	87
New England	107
Middle East	116
Southeast	68
Central	110
Northwest	90
Far West	116

* Preliminary U. S. Department of Commerce reports for 1954 indicate that the Arizona per capita income was $1,435 and the U. S. per capita income $1,680, which places Arizona at 85.41 per cent of the national average.

and future estimates place the percentage held by the eleven western states

3. Source: A. C. Prendergast, "Facing the West's Future," Western Industry, XX (January 1955), 37.

4. Source: Survey of Current Business, August 1954, Op. Cit., p. 10, Table III-2.

at 17.5 per cent by the year 1975.

Despite the successive gains in aggregate income for Arizona, the State in 1953 and again in 1954 had a per capita income figure at only 86 per cent of the national per capita income. The Southwest as a region could boast of only 84 per cent as compared to New England at 107 per cent, the Far West at 116 per cent, among others. Arizona leads New Mexico and Oklahoma which have 79 and 78 per cent, respectively, of the national per capita income; consequently, Arizona does not have the lowest percentage among the four Southwestern states.

TABLE III-5

MAJOR SOURCES OF INCOME PAYMENTS AS A PERCENTAGE OF TOTAL INCOME, IN THE NATION, SOUTHWEST, AND ARIZONA, 1953[5]

	Agri-cultural Income	Govt. Income Payments	Mfg. Payrolls	Trade & Service Income	Constr. Payrolls	Mining Payrolls
Continental United States	5.3	15.9	25.7	26.0	4.0	1.4
Southwest	8.7	19.0	12.5	26.5	4.4	5.3
ARIZONA	15.6	19.4	7.6	25.6	6.2	4.5

Table III-5 presents a very significant comparison of the sources of income payments in Arizona as compared to the Continental United States and the Southwest. It may be noted that 15.6 per cent of Arizona's aggregate income payments arise in agriculture. This is nearly triple the 5.3 per cent figure for the United States as a whole. In fact, the Arizona percentage is nearly double the 8.7 per cent figure for the southwestern

5. Source: Survey of Current Business, August 1954, Op. Cit., p. 11, Table III-2.

region. In government income payments, Arizona and the Southwest possess a greater proportion than the nation. However, sources of income payments arising in manufacturing are only 7.6 per cent of the Arizona total and 12.5 per cent of the southwestern total as compared to a proportion of 25.7 per cent for the Continental United States.

Regarding income payments originating from trade and services, Arizona approximates the southwestern and national averages. In construction payrolls, Arizona's percentage is 6.2, which is greater than the 4.4 per cent figure for the Southwest and the 4.0 figure nationally. Mining payrolls are responsible for 4.5 per cent of Arizona's income payments. This is more than three times the United States average, but is slightly less than the 5.3 per cent for the Southwest as a region.

TABLE III-6

MAJOR SOURCES OF GROSS ARIZONA INCOME, 1946-1954 [6]

Year	Crops	Livestock	Manufacturing*	Mining	Tourists*
1946	$102,955,000	$60,273,000	$ 86,000,000	$114,986,000	$60,000,000
1947	112,192,000	75,860,000	117,000,000	182,753,000	75,000,000
1948	143,065,000	85,894,000	136,000,000	196,208,000	90,000,000
1949	163,918,000	70,481,000	129,000,000	177,894,000	100,000,000
1950	184,654,000	94,211,000	142,000,000	201,034,000	100,000,000
1951	229,031,000	130,938,000	214,000,000	235,289,000	120,000,000
1952	267,912,000	116,932,000	292,000,000	220,686,000	135,000,000
1953	315,621,000	99,502,000	312,000,000	242,572,000	150,000,000
1954	261,696,000	103,090,000	300,000,000	239,974,000	160,000,000
% Gain, 1946-54	154.2	71.0	248.8	108.7	166.7

* Manufacturing volume and tourist expenditures are estimates by Valley National Bank Research Department.

6. Source: Arizona Progress (Phoenix: Valley National Bank, June 1955).

TABLE III-7

ANNUAL WAGE PAYMENTS TO "COVERED" EMPLOYEES IN ARIZONA, 1950-1954 [7]

INDUSTRY	1950	1954	% Gain
Construction	$ 41,106,636	$ 80,723,202	96.4
Manufacturing	47,616,326	110,695,271	132.5
Mining	47,309,124	72,132,728	52.5
Services, Misc.	51,608,917	82,032,789	59.0
Transp. & Util.	34,102,380	55,502,920	62.8
Wholesale & Retail Trade	102,163,615	157,952,199	54.6
Total	$323,906,998	$559,039,109	72.6

Table III-6 exhibits the major sources of Arizona's gross income for the 1946-1954 period of time. Although each of the five major sources show sizable growth between 1946 and 1954, the greatest gain was registered by manufacturing with 248.8 per cent. The predominance of manufacturing growth in the State over growth in the other sectors of the economy is also indicated in table III-7. This table reveals that during the 1950-1954 period, wage payments to employees in manufacturing increased at a greater rate than in any other type of payment in employment covered by the social security laws.

Referring once again to table III-6, it is of interest to note that in 1954 manufacturing was the largest single source of gross income in the State. However, if crops and livestock were to be united under the common title "agriculture", manufacturing would then rank second as a gross income source. The apparent discrepancy between tables III-5 and III-6 regarding the importance of manufacturing is explained by the fact that table III-5 refers to manufacturing payrolls or income payments only, while table III-6

7. Source: Loc. Cit., Table III-6.

refers to the dollar value of manufacturing output. Dollar value of manufacturing output, which is the same as gross income, is a vastly different concept than the manufacturing payrolls referred to in table III-5.

Regarding wage payments to employees covered by social security, as indicated in table III-7, the wholesale and retail trade category comprises the largest segment in 1954 with $157,952,199. The importance of another sector, government, as an income source is described by the following quotation:

> "A major source of employment and payrolls in Arizona, not included in the covered employment figures, is government service. This comprises federal civilian employees and local government employees of the state, counties, cities and school districts. There are now about 43,000 people thus employed in Arizona. Salary payments to this group, which does not include military personnel, now amount to about $150 Millions annually. Including the military, the figure would be around $200 Millions. This means that government service is by all odds the largest source of payrolls in the state of Arizona, exceeding in amount the payments made by wholesale and retail establishments. Of course, the latter fields contain some self-employed and commission salesmen, so that total compensation payments would still rank first." [8]

Thus it is quite easy to realize the magnitude of government-created income as a source of income in the State.

Arizona ranks second among the eight mountain states and fourth among the eleven western states (The western states equal combination of mountain and pacific states) in net effective buying income for the year 1954. This information is given in table III-8 which appears on following page. Thus, the disposable income available for spending in Arizona, amounting to

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8. Loc. Cit., Table III-6.

TABLE III-8

EFFECTIVE BUYING INCOME* ESTIMATES FOR ELEVEN WESTERN STATES, 1954[9]

Region and State	Net Dollars	% of U. S.	Per Capita	Per Family
Mountain				
ARIZONA	$ 1,379,624,000	.5493	$ 1,381	$ 4,957
Colorado	2,238,871,000	.8915	1,499	4,899
Idaho	828,173,000	.3298	1,338	4,629
Montana	1,003,162,000	.3994	1,604	4,976
Nevada	423,448,000	.1686	1,984	6,377
New Mexico	1,040,540,000	.4144	1,313	5,005
Utah	1,058,657,000	.4215	1,379	5,032
Wyoming	546,233,000	.2176	1,750	5,855
Pacific				
California	$23,264,519,000	9.2639	$ 1,816	$ 5,490
Oregon	2,661,073,000	1.0596	1,590	4,892
Washington	4,480,047,000	1.7840	1,744	5,396
Total U. S.	$251,132,566,000	(100)	$ 1,545	$ 5,274

* Disposable income available for spending.

$1,379,624,000, was second only to Colorado's $2,238,871,000 among the eight mountain states. The three coastal states, California, Oregon, and Washington, exceeded Arizona's effective buying income total for the year. Arizona's income represents .5493 per cent of the United States total, which gives the State a strong second-ranking position among the states of the mountain region since third-ranking Utah is considerably lower at .4215 per cent.

In per capita and per family income, Arizona does not rate as well as it does in effective buying power. Arizona is fifth among the eight mountain states and eighth among the eleven western states in per capita

9. Source: "Survey of Buying Power", Sales Management, LXXIV (May 10, 1955), 218.

income while it is sixth among the mountain states and again eighth among the eleven western states in income per family.

TABLE III-9

EFFECTIVE BUYING INCOME* ESTIMATES FOR ARIZONA COUNTIES, 1954 [10]

County	Net Dollars	% of U. S.	Per Capita	Per Family
Apache	$ 18,468,000	.0073	$ 583	$ 3,130
Cochise	49,891,000	.0199	1,394	4,752
Coconino	33,609,000	.0134	1,088	4,481
Gila	37,320,000	.0148	1,367	4,911
Graham	15,621,000	.0063	1,077	4,339
Greenlee	24,549,000	.0097	1,525	5,988
Maricopa	668,663,000	.2663	1,457	5,020
Mohave	12,109,000	.0048	1,459	4,844
Navajo	27,428,000	.0109	826	3,609
Pima	320,937,000	.1278	1,525	5,314
Pinal	61,989,000	.0247	1,086	4,335
Santa Cruz	13,485,000	.0054	1,322	5,187
Yavapai	37,941,000	.0151	1,494	4,992
Yuma	57,614,000	.0229	1,474	5,286
State Total	$1,379,624,000	.5493	$1,381	$4,957

* Disposable income available for spending.

The range in disposable income available for spending among the counties of Arizona extends from the $12,109,000 of Mohave County to a large $668,663,000 in Maricopa County. Per capita income was smallest in Apache County where it amounted on a shockingly low figure of $583 in 1954. Navajo County was not much better off at $826 income per capita. On the other hand, Pima and Greenlee Counties enjoyed the highest buying incomes per capita, each having an average of $1,525. Greenlee also leads in per family buying income with an average of $5,988, a figure much

10. Source: "Survey of Buying Power," Sales Management, Op. Cit., pp. 231-232, Table III-8.

higher than the $3,130 and $3,609 of Apache and Navajo Counties, respectively.

CHAPTER IV

AGRICULTURE

Between 1945 and 1954, Arizona led all states in rate of farm income growth. The gain during this nine year period was a phenomenal 157 per cent. This was more than double the growth in second-ranking Arkansas. The $141,729,000 farm income of Arizona expanded into $364,786,000 in 1954, to account for the large percentage increase. Arizona's 1952 and 1953 farm incomes had been even greater in value than that of 1954, the decline in the latest year being largely a result of crop acreage reductions by the federal government. The primary acreage reduction was in cotton where 1953's total of 682,000 acres dropped to 420,000 acres in 1954.

TABLE IV-1

ARIZONA RANKS FIRST IN RATE OF FARM INCOME GROWTH, 1945-1954 [1]

State	1945	1954	% Gain
ARIZONA	$ 141,729,000	$ 364,786,000	157
Arkansas	311,930,000	540,961,000	73
Illinois	1,188,705,000	1,956,148,000	65
Indiana	703,603,000	1,136,251,000	61
Mississippi	331,691,000	520,060,000	57
New Mexico	119,748,000	186,600,000	56
Iowa	1,509,564,000	2,347,221,000	55
New Jersey	219,226,000	336,826,000	54
Texas	1,274,009,000	1,894,159,000	49
N. Carolina	629,069,000	926,491,000	47

Source: Arizona Progress (Phoenix: Valley National Bank, April 1955).

Table IV-2 shows that the 1945-1954 farm income growth was characterized by a 191.9 per cent growth in crop income and a 97.9 per cent gain in livestock income. Hence, crop income was more responsible than livestock income for the great increase in farm income for the period. Yet the importance of livestock income to Arizona cannot be underestimated.

> Except for the very low forage producing region in the southwestern section and the comparatively small acreage of scattered irrigated lands, the entire State can be considered a grazing domain for range livestock and game animals.[2]

The $103,090,000 livestock income of 1954, although smaller than the crop income of $261,696,000, still comprises an important segment of Arizona farm income.

TABLE IV-2

ARIZONA CROP AND LIVESTOCK INCOME, 1945-1954[3]

Year	Crop Income	Livestock Income	Total Farm Income
1945	$ 89,648,000	$ 52,081,000	$141,729,000
1946	102,955,000	60,273,000	163,228,000
1947	112,192,000	75,860,000	188,052,000
1948	143,065,000	85,894,000	228,959,000
1949	163,918,000	70,481,000	234,399,000
1950	184,654,000	94,211,000	278,865,000
1951	229,031,000	130,938,000	359,969,000
1952	267,912,000	116,932,000	384,844,000
1953	315,621,000	99,502,000	415,123,000
1954	261,696,000	103,090,000	364,786,000
Per cent Gain, 1945-1954	191.9	97.9	157.4

2. E. B. Stanley and W. Armer, The Cattle Ranching Industry in Arizona (Tucson: University of Arizona, Agricultural Experiment Station, July 1951), p. 1.

3. Source: Arizona Progress (Phoenix: Valley National Bank, April 1955).

TABLE IV-3

PERCENTAGE CHANGE IN CASH INCOME FROM ARIZONA FARM AND RANCH PRODUCTION, BY TYPE OF COMMODITY, 1950-1954 [4]

Type of Commodity	% Change, 1950-54
Cotton Lint and Cottonseed	55.9
Cattle and Calves	29.6
Lettuce and other Vegetable crops	16.7
Commercial Feed Grain	100.0
Dairy Products	25.0
Alfalfa and other Hay	22.2
Others	7.4
Total Value	39.2

Table IV-3 demonstrates the percentage gains in cash farm income by type of commodity in the years since 1950. Although all commodities show an increase, commercial feed grains show the greatest growth, much of this coming after the cotton acreage reduction. Table IV-4 indicates this in its data showing that the acreage devoted to grains jumped from 253,000 acres in 1953 to 500,000 acres during 1954. Barley and grain sorghums were primarily responsible for the increase. On the other hand, cotton acreage, which amounted to 682,000 acres in 1953, fell to 420,000 acres in 1954. Less acreage was devoted to citrus and alfalfa in 1954 than in 1945, but more was devoted to cotton, grains, and vegetables according to table IV-4. Total acreage for all five crop categories increased from 775,000 acres in 1945 to 1,250,000 acres in 1954.

4. Sources: Arizona Agriculture, 1952 (Tucson: University of Arizona, Department of Agricultural Economics, 1952), p. 1; Arizona Agriculture, 1953, p. 1; Arizona Agriculture, 1954, p. 2; Arizona Agriculture, 1955, p. 1.

This specifically refers to irrigated crops; the true total thus would be slightly higher if dry-land crops were included.

TABLE IV-4

NUMBER OF ACRES DEVOTED TO MAJOR CROPS IN ARIZONA AND TOTAL ACRES IRRIGATED, 1945-1954 [5]

Type of Crop	Number of Acres					
	1945	1950	1951	1952	1953	1954
	(In Thousands)					
Alfalfa	232	201	195	191	183	201
Cotton	155	273	557	664	682	420
Grains	206	327	192	217	253	500
Vegetables	75	95	97	100	95	85
Citrus	20	19	19	20	18	18
Acres Irrigated*	775	915	1,100	1,300	1,300	1,250

The % Gain in irrigated acreage, 1945-1954, is 61.29 %.

* Figures represent both irrigated crops and irrigated pasture. Acreage double cropped is counted but once.

During the years 1951, 1952, and 1953 Arizona's crop acreage was strongly dominated by cotton. This lack of diversity was a potential weakspot in the Arizona economy, since cotton is very much subject to varying market conditions. Hence, the government reduction in cotton acreage during the past two years may actually be doing the Arizona economy a favor by helping make the economy's farm sector more diversified. In 1954, grains received more acreage than did cotton in Arizona. Estimates for 1955 by the Department of Agricultural Economics at the University of Arizona

5. Sources: Arizona Agriculture, 1946 (Tucson: University of Arizona, Department of Agricultural Economics, January 1946), p. 18; Arizona Agriculture, 1951, p. 17; Arizona Agriculture, 1952, p. 16; Arizona Agriculture, 1953, p. 18; Arizona Agriculture, 1954, p. 18; Arizona Agriculture, 1955, p. 18.

indicate that the same situation will prevail during 1955.[6] In addition, the acreage reductions seem to have stimulated greater productivity in Arizona cotton farming. U. S. Department of Agriculture statistics show that Arizona's 1954 average yield of 968 pounds lint per acre is considerably greater than the 743 pounds lint average for 1953 and the 555 average for the years 1943 through 1952 in the State.[7] Table IV-4, in addition to its information concerning acreage per type of major crop, also reveals the significant 61.29 per cent gain in acres irrigated in the State since 1945.

It may be noted, however, that the 1954 figure for irrigated acreage is slightly below that of 1952 and 1953. This is largely due to the government acreage reductions already described. Included, also, in the 1954 total are seven to eight thousand acres of new land which were irrigated in Yuma County during the year. 2,160 acres of this were on the Colorado Indian Reservation and another 2,000 acres were in the Wellton-Mohawk Division of the Gila Project.[8]

The distribution of irrigation by counties shown in table IV-5 brings to light the dominance of Maricopa County in this respect. 530,000 acres are irrigated in Maricopa County with all major crop categories being adequately represented. The importance of Maricopa County in agriculture goes beyond its relation to the economy of Arizona in that it was the nation's

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6. Arizona Agriculture, 1955, Op. Cit., p. 2, Table IV-4.

7. Annual Crop Summary—1954 With Comparisons (Phoenix: U. S. Department of Agriculture, Agricultural Marketing Service, The Federal Crop and Livestock Reporting Service for Arizona, December 29, 1954).

8. Arizona Agriculture, 1955, Op. Cit., p. 3, Table IV-4.

TABLE IV-5

DISTRIBUTION OF IRRIGATED ACREAGE IN ARIZONA, BY COUNTIES, 1954[9]

Acres

County	Alfalfa	Cotton	Grains	Vegetables	Misc.	County Total*
Apache	4,200		13,500	900	600	13,000
Cochise	4,500	16,950	61,100	500	1,200	85,000
Coconino	1,100		8,800	300	4,300	5,000
Graham	6,000	15,900	8,400	30		35,000
Greenlee	1,000	2,100	2,800	100		6,000
Maricopa	82,000	152,950	218,700	48,000	14,050	530,000
Navajo	3,400		14,900	400		13,000
Pima	1,400	28,300	5,800	400	270	48,000
Pinal	22,000	163,950	102,300	1,600		290,000
Santa Cruz	600	2,100	1,100	50		5,000
Yavapai	4,100		6,000	200	1,700	17,000
Yuma	70,000	37,250	54,500	32,000	3,360	170,000
Total	201,000	420,000	500,000	85,000	25,600	1,250,000

* Figures represent both irrigated crops and irrigated pasture. Acreage double cropped is counted but once. Hence, the figures for the individual crops may not add up to the total.

fourth ranking county in gross cash farm income for the year 1954, according to Sales Management magazine. Only three California counties among all the counties of the nation were able to outrank Maricopa County in gross cash farm income.[10]

Pinal County with 290,000 irrigated acres follows Maricopa within the State. Then come Yuma, Cochise, and Pima in that order. The two counties with the least irrigated acreage are Coconino and Santa Cruz, each with five thousand acres. The small irrigated acreage for Coconino is a result of its altitude which provides more adequate rainfall while

9. Arizona Agriculture, 1955, Op. Cit., p. 18, Table IV-4.

10. "Survey of Buying Power", Sales Management, LXXIV (May 10, 1955), 124.

the smallness of Santa Cruz County does much to explain its representation in this category. Maricopa County leads the other counties in acres devoted to grains, vegetables, and alfalfa while Pinal County is the leader in cotton acreage.

TABLE IV-6

PERCENTAGE DISTRIBUTION OF ARIZONA'S GROSS CASH FARM INCOME, BY COUNTY, 1954 [11]

County	Gross Cash Farm Income	% of State Total
Apache	$ 5,960,000	1.7
Cochise	10,195,000	2.9
Coconino	6,513,000	1.8
Gila	3,696,000	1.0
Graham	14,472,000	4.1
Greenlee	1,983,000	0.6
Maricopa	159,920,000	45.3
Mohave	2,529,000	0.7
Navajo	7,033,000	2.0
Pima	16,285,000	4.6
Pinal	74,121,000	21.0
Santa Cruz	3,224,000	0.9
Yavapai	8,492,000	2.4
Yuma	38,758,000	11.0
State	$ 353,181,000*	100.0

* This total is slightly different from the total in tables IV-1 and IV-2.

Table IV-6 displays gross cash farm income estimates by Sales Management magazine. Maricopa County emphasizes its position as the State's leading agricultural county by its 45.3 per cent share of Arizona's aggregate agricultural income. Pinal and Yuma Counties follow Maricopa County in that order, just as they do in the irrigated acreage table. However, Pima County

11. "Survey of Buying Power," Sales Management, Op. Cit., p. 80.

which ranks fifth in irrigated acreage behind Cochise County, leads Cochise in gross cash farm income.

TABLE IV-7

GROWING SEASON IN ARIZONA, BY COUNTY [12]

County and place of measurement	Growing Season in Days
Apache (Springerville)	127
Cochise (Bisbee)	239
Coconino (Flagstaff)	118
Gila (Globe)	229
Graham (Thatcher	205
Greenlee (Clifton)	267
Maricopa (Phoenix)	304
Mohave (Kingman)	212
Navajo (Winslow)	168
Pima (Tucson)	245
Pinal (Florence)	250
Santa Cruz (Nogales)	229
Yavapai (Prescott)	143
Yuma (Yuma)	348

By referring to table IV-7, it is evident that the leadership of Maricopa, Pinal and Yuma Counties in farm income is derived partly from the long growing season enjoyed by these three counties. The Yuma growing season, in fact, is only a few days short of the maximum possible growing season of 365 days.

The fertility of the Arizona soil when water reaches it, as well as the idealness of the Arizona climate for certain types of agriculture, is evidenced by table IV-8. This table shows that the 1954 average yields

12. Source: Climate and Man, U. S. Department of Agriculture (Washington: U. S. Government Printing Office, 1941), pp. 761-764.

TABLE IV-8

AVERAGE YIELD PER ACRE OF SELECTED FARM CROPS, ARIZONA AND UNITED STATES, 1954 [13]

Crop	Unit	Yield Per Acre	
		Arizona Average	U. S. Average
All Wheat	bushels	28.0	18.0
Oats	bushels	45.0	35.6
Barley	bushels	52.0	28.5
All Sorghums	bushels	45.0	19.0
Corn	bushels	16.0	37.1
Flaxseed	bushels	24.5	7.3
Potatoes	bushels	322.0	252.8
All Cotton	pounds lint	968.0	339.0
Alfalfa Hay	tons	2.90	2.15
Grain Hay	tons	1.70	1.22
All Hay	tons	2.60	1.43

of Arizona exceed the U. S. average yields in wheat, oats, barley, sorghums, flaxseed, potatoes, cotton, alfalfa hay, grain hay, and all hay. Arizona lagged behind the national average only in corn, among the crops listed. There are, undoubtedly, other crops not listed in this table that find Arizona behind the U. S. average; however, this table does serve to demonstrate the high productivity achievable among certain crops favored by Arizona's climatic and soil conditions.

As would be expected from the previous discussion and tables, Maricopa County is the leader in agricultural employment among the State's fourteen counties. This information is given in table IV-9. Maricopa County is followed in agricultural employment by Pinal, Yuma, and Apache Counties. It is quite interesting to note that Apache County, which has only 1.7

13. Source: Annual Crop Summary--1954 With Comparisons, Op. Cit., Footnote 7.

TABLE IV-9

COUNTY DISTRIBUTION OF AGRICULTURE EMPLOYMENT IN ARIZONA, APRIL 1955 [14]

County	Number Employed	% of State Total
Apache	3,700	9.2
Cochise	1,500	3.7
Coconino	1,600	4.0
Gila	500	1.2
Graham	1,300	3.2
Greenlee	300	0.8
Maricopa	15,500	38.6
Mohave	300	0.8
Navajo	2,500	6.2
Pima	2,300	5.7
Pinal	4,800	11.9
Santa Cruz	400	1.0
Yavapai	1,000	2.5
Yuma	4,500	11.2
State Total	40,200	100.0

per cent of the gross cash farm income, has 9.2 per cent of the agricultural employment. On the other hand, Pinal County with 21.0 per cent of the farm income has only 11.9 per cent of the total Arizona agricultural employment. Among other reasons, these differences might be the result of greater productivity (output per unit of input) in Pinal County as compared to Apache County.

In conclusion, it may be noted that agriculture remains now, as in the past, an important sector of the Arizona economy. The future outlook for Arizona farming appears bright, although it is quite evident that farming alone will not be able to support Arizona's expanding populace. An agricultural economy is not conducive to the support of a large population.

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14. Source: Information received directly from the Arizona State Employment Service, Phoenix, June 7, 1955.

CHAPTER V

MINING

Mining is a basic segment of the economy of Arizona, and by far the most important ore mined in the State is copper. The predominance of copper is not a new situation, but one which has been true since the earliest days of Arizona history. Table V-1 displays this indisputable fact. As far back as 1915 copper comprised 88 per cent of the output of major metals in the State. By 1954 this proportion had grown to 93.7 per cent. In the interval between 1915 and 1954, only during the depression days of the thirties did copper become significantly reduced in proportion as one of Arizona's major metals. Thus it appears that copper is a metal quite susceptible to cyclical fluctuations of the general United States economy and for this reason it is not the soundest possible foundation for an economy.

In the more recent period 1940-1954, according to Table V-1, the dollar value of copper output in the State increased from $63,544,000 in 1940 to $224,829,000 in 1954. This is a gain of 253.8 per cent. During the same fourteen year period, the dollar value of gold and silver output dropped while lead and zinc followed copper in significant increases. The five metals together increased in total dollar value by 192.1 per cent, jumping from $82,167,000 in 1940 to $239,975,000 in 1954.

In 1954 Arizona remained the largest copper-producing state in the United States, with a 44-percent margin over Utah, the

second largest producer, and ranked second in asbestos, fourth in silver, sixth in gold, seventh in lead, and tenth in zinc.[1]

Certainly Arizona deserves the title which it so often receives -- "The Copper State". However, in addition to copper and the other major metals shown in Table V-2, the State also produced such metals as mercury, molybdenum, manganese, tungsten, and uranium during 1954.

TABLE V-1

DOLLAR VALUE OF ARIZONA MINERAL PRODUCTION OF FIVE MAJOR METALS, SELECTED YEARS, 1915-1954[2]

(000 Omitted)

Year	Copper	Gold	Silver	Lead	Zinc	Total	Copper as % of Total
1915	$ 75,682	$ 4,556	$2,872	$ 654	$ 2,259	$ 86,023	88.0
1920	101,750	4,961	5,920	958	118	113,707	89.5
1925	102,617	4,226	5,116	1,789	557	114,305	89.8
1930	74,217	3,073	1,891	422	78	79,681	93.1
1935	23,076	8,461	4,745	623	294	37,199	62.0
1940	63,544	10,318	5,031	1,327	1,947	82,167	77.3
1945	77,545	2,703	2,530	3,933	9,252	95,963	80.8
1950	167,773	4,141	4,820	7,123	17,176	201,034	83.5
1951	201,281	4,063	4,635	6,018	19,292	235,289	85.5
1952	191,528	3,932	4,255	5,319	15,651	220,686	86.8
1953	225,883	3,949	3,938	2,470	6,332	242,572	93.1
1954*	224,829	3,973	3,923	2,421	4,829	239,975	93.7
Per cent change 1940 to 1954	253.8	-61.5	-22.0	82.4	148.0	192.1	

* Preliminary

1. "Mineral Production in Arizona in 1954," Mineral Industry Surveys, Op. Cit., p. 1

2. Sources: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 34; "Mineral Production in Arizona in 1953," Mineral Industry Surveys (Washington: U. S. Dept. of the Interior, Bureau of Mines, Nov. 15, 1954), p. 7; "Mineral Production in Arizona in 1954," Mineral Industry Surveys (Washington: U. S. Dept. of the Interior, Bureau of Mines, Dec. 23, 1954), p. 6

TABLE V-2

PHYSICAL QUANTITY OF ARIZONA MINERAL PRODUCTION, MAJOR METALS, 1950-1954[3]

Year	Tons			Fine Ounces	
	Copper	Lead	Zinc	Silver	Gold
1950	403,301	26,383	60,480	5,325,441	118,313
1951	415,870	17,394	52,999	5,120,985	116,093
1952	395,719	16,520	47,143	4,701,330	112,355
1953	393,525	9,428	27,530	4,351,429	112,824
1954*	378,500	8,900	21,750	4,335,000	113,500
Per cent change 1950-1954	-6.15	-66.27	-64.04	-18.60	-4.07

* Preliminary

Table V-2 reveals that each of the five major metals in Arizona declined in physical quantities produced during the 1950-1954 period. By comparison with Table V-1 of this section, it is interesting to note that despite a greater production of copper in 1952 than in 1954, the 1954 dollar value of copper is considerably larger than that of 1952 -- and during this time the general price levels of the nation did not rise significantly. One obvious reason for the decline in production of minerals in Arizona since 1950 is the cessation of hostilities in Korea. The 1954 decline in copper production from the 1953 figure was partly due to the strikes which occurred in 1954.

3. Sources: "Mineral Production in Arizona in 1953," Mineral Industry Surveys, Op. Cit., p. 7, Table XL; "Mineral Production in Arizona in 1954," Mineral Industry Surveys, Op. Cit., p. 6, Table XL; Minerals Yearbook, 1951, U. S. Department of the Interior, Bureau of Mines (Washington: U. S. Government Printing Office, 1954), p. 1112.

Actually the future of Arizona copper mining as well as Arizona mining in general is far from bleak. New developments in recent years will do much to stimulate production in the years to come. In a publication of the Arizona State Employment Service dated June 1954, the mining outlook is appraised as follows:

> The most promising industry in the state is mining where copper producers have scheduled development to take place over the next several years valued at over $200 million. Largest project is the San Manuel mine, northeast of Tucson, where Magma Copper, will spend about $125 million in developing a new mine; production should start in 1956. Other mines where expansion is under way are the Copper Queen mine near Globe and the Bagdad mine some 70 miles northwest of Prescott.[4]

The total cost of the new mining developments will be around $192,000,000.[5] Such a large-scale, statewide developmental program has already had its favorable effects on Arizona mining employment. A new town, San Manuel, with a purchase price valued at $1,650,000 is a part of the new mining development.

> The proven ore body at San Manuel is of tremendous size; 6,000 feet long, 2,000 feet wide, 2,500 feet deep, lying 700 feet beneath the surface -- and contains about 500 million tons of ore, with a .78 percent copper content.[6]

Hence the Arizona mining picture is dynamic and encouraging.

Table V-3 displays the proportion of Arizona copper output to total United States output for selected ten year periods since 1910. From a proportion of 27.33 per cent in 1910, Arizona rapidly expanded its national importance in copper production to 45.58 of the United States total in 1920.

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4. Basic Economic Data, (Phoenix: Employment Security Commission of Arizona, June 1954), p. 2.

5. W. J. Haltigan, "Arizona Copper Mining Expansion," The Labor Market and Employment Security, (May 1954), p. 15.

6. Ibid., p. 12.

The 1954 proportion is practically identical to that of 1920, the figure for last year being 45.26 per cent. Thus over a period of 34 years Arizona has maintained its position of magnitude in the United States copper industry.

TABLE V-3

ARIZONA AND UNITED STATES COPPER OUTPUT IN SHORT TONS, SELECTED YEARS, 1910-1954[7]

Arizona and United States	Output in Short Tons					
	1910	1920	1930	1940	1950	1954
Arizona	148,746	279,128	288,095	281,169	403,301	378,500
United States	544,119	612,275	705,074	878,086	909,343	836,251
Arizona as per cent of United States	27.33	45.58	40.86	32.02	44.35	45.26

Table V-4 shows the valuation for tax purposes of large producing Arizona mining companies during 1954. The largest valuation -- $79,703,059 -- is that of the Phelps Dodge branch at Morenci.[8] Thus Greenlee County leads the eight counties listed in total valuation. The next largest single mine valuation is that of the Ajo Branch of Phelps Dodge, it being valued at $34,424,080. The total valuation for all producing mines is $168,677,612.

7. Sources: W. G. V. Balchin and N. Pye, "Recent Economic Trends in Arizona," The Geographical Journal, CXX (June 1954), 168; "Monthly Copper Report Number 38," Mineral Industry Surveys, (Washington: U. S. Department of the Interior, Bureau of Mines, 1955), p. 3.

8. Frank J. Tuck, Arizona Daily Star (Tucson), February 24, 1955, p. 6: "In addition to the ten large active copper mines, there are 13 small copper mines . . . The field engineers report a total of the 28 lead-zinc-copper-gold-silver mines active in the state." In addition the article reports 43 active manganese mines and 25 active tungsten mines.

TABLE V-4

VALUATION FOR TAX PURPOSES OF ALL PROPERTY ASSESSED TO PRODUCING MINING COMPANIES IN ARIZONA, 1954[9]

County and Name of Mine	Total Valuation (For Tax Purposes)
COCHISE	
Coronado Copper Co.	$ 293,965
Phelps Dodge Corp. (Copper Queen Branch)	7,153,361
	$ 7,447,326
GILA	
Castle Dome Copper Co.	$ 142,011
Christmas Copper Co.	150,000
Inspiration Cons. Copper Co.	15,569,060
Miami Copper Co.	6,326,458
	$ 22,187,529
GRAHAM	
Athletic Mining Co.	$ 135,265
GREENLEE	
Phelps Dodge Corp. (Morenci Branch)	$ 79,703,059
PIMA	
Phelps Dodge Corp. (Ajo Branch)	$ 34,424,080
PINAL	
Kennecott Copper Co.	$ 14,595,960
Magma Copper Co.	4,539,258
	$ 19,135,218
SANTA CRUZ	
American Smelting and Refining Co.	$ 240,565
YAVAPAI	
Bagdad Copper Co.	$ 3,798,950
Shattuck Denn Mining Co.	1,605,662
	$ 5,404,612
TOTALS	$168,677,654

9. Twenty-Second Biennial Report of the State Tax Commission of Arizona (Phoenix: Arizona State Tax Commission), pp. 37-38.

It must be remembered, however, that the valuation figures listed in the table are for tax purposes and thus are not full actual valuation amounts. Nevertheless, the very size of the total figures for tax purposes shown in Table V-4 demonstrates the tremendous value of and the capital investment involved in the leading mines of Arizona.

Despite the large investment by the copper interests in Arizona, the State's copper industry has virtually no refining and fabrication. In other words, after mining and smelting has taken place, the copper leaves Arizona for distant points where further processing of the metal occurs. In developmental plans for the Arizona economy, it might be well to investigate the possibilities of developing copper refining and fabrication facilities within the State.

TABLE V-5

COUNTY DISTRIBUTION OF MINING EMPLOYMENT IN ARIZONA, APRIL 1955[10]

County	Number Employed	Per Cent of State Total
Apache	200	1.4
Cochise	1,900	13.8
Coconino	100	0.7
Gila	2,800	20.3
Graham	000	0.0
Greenlee	2,300	16.7
Maricopa	300	2.2
Mohave	200	1.4
Navajo	000	0.0
Pima	1,800	13.1
Pinal	3,100	22.5
Santa Cruz	200	1.4
Yavapai	700	5.1
Yuma	200	1.4
State Total	13,800	

10. Information received directly from Arizona State Employment Service, Phoenix, June 7, 1955.

Pinal County holds a larger share of Arizona mining employment than any other county with 3,100 of the State total of 13,800 mine workers. Gila County with 2,300 employees in mining comprises a second-ranking position of 20.3 per cent of the State total mining employment. Two counties, Graham and Navajo, registered no mining employment for April of 1955.

Mining has long been a basic factor in the Arizona economy and it will continue, in light of recent developments, to be a prominent segment of the State's economy in the years ahead.

CHAPTER VI

MANUFACTURING

The manufacturing sector of Arizona's economy has made considerable strides forward in recent years. Table VI-1, which is based on the very latest statistics, reveals a most promising aspect of the manufacturing sector of the State's economy. This table shows that Arizona led all other states in rate of growth in manufacturing employment from 1950 to

TABLE VI-1

ARIZONA LEADS NATION IN RATE OF GROWTH IN MANUFACTURING EMPLOYMENT [1]

State	Number Employed * 1950	1954	% Gain
ARIZONA	15,500	26,600	71.61
Kansas	92,400	132,500	43.39
California	759,700	1,039,100	36.77
New Mexico	12,200	16,100	31.96
Florida	97,700	128,600	31.62
Nevada	3,300	4,300	30.30
Oklahoma	65,600	83,400	27.13
Texas	353,200	424,800	20.27
Nebraska	49,800	58,100	16.66
North Dakota	5,900	6,600	11.86

* Annual Average.

1954. Arizona's percentage increase of 71.61 per cent in manufacturing employment is far ahead of the state ranking second, Kansas, which has a 43.39 per cent gain for the corresponding period. This table also gives

1. Source: Employment and Earnings (Washington: U. S. Department of Labor, Bureau of Labor Statistics, May 1955), p. 67.

evidence of the westward movement of manufacturing in general. Nine of the ten leading states in rate of manufacturing employment growth are west of the Mississippi River, Florida ranking fifth being the only exception. Hence, the increase in manufacturing in Arizona is not an isolated movement but, on the contrary, is part of a more extensive regional movement.

TABLE VI-2

GROWTH IN DOLLAR VOLUME OF ARIZONA MANUFACTURING, 1940-1954 [2]

Year	Dollar Value of Manufacturing Output (Smelter Operations Excluded)
1940	$ 29,000,000
1941	36,000,000
1942	50,000,000
1943	70,000,000
1944	94,000,000
1945	105,000,000
1946	86,000,000
1947	117,000,000
1948	136,000,000
1949	129,000,000
1950	142,000,000
1951	214,000,000
1952	292,000,000
1953	312,000,000
1954	300,000,000
% Gain, 1940-1954	934.48

Arizona manufacturing increased in dollar volume by a percentage of 934.48 per cent between 1940 and 1954 according to table VI-2. The growth during this time was steady with the dollar value decreasing from that of the previous year on only two occasions, 1946 and 1949. Table VI-3 indicates

2. Source: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 2.

TABLE VI-3

ARIZONA RANKS FOURTH IN NATION IN GROWTH OF MANUFACTURING PAYROLLS, 1952-1953 [3]

State	% Gain in Manufacturing Payrolls
Michigan	20
Indiana	15
Kentucky	15
Arizona	14
Florida	13
Louisiana	13
Tennessee	13
Missouri	13
Ohio	13

that during the 1952-1953 period, Arizona ranked fourth in growth of manufacturing payrolls, being preceded by Michigan, Indiana, and Kentucky. The Arizona gain for the period was fourteen per cent. This was six per cent behind the leader, Michigan, but only one per cent behind Indiana and Kentucky.

The previous tables add proof to the fact that Arizona is making rapid strides in the development of a more industrialized economy. Despite these accomplishments, it still must be realized that Arizona, at the present time, is not highly industrialized. As was noted in the chapter on income, the national average for source of income payments derived from manufacturing payrolls was 25.7 per cent in 1953 while the Arizona average was only 7.6 per cent. Yet the future carrys promise of new achievements in the movement toward a more balanced economy for the State. Indeed, manufacturing

3. Source: Survey of Current Business, U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce (Washington: U. S. Government Printing Office, August 1954), p. 13.

must be the basis of a more balanced Arizona economy.

In realization of this fact, the College of Business and Public Administration and the Bureau of Business Research at the University of Arizona sponsored a statewide industrial development workshop during March of 1955. A few comments from some of the outstanding speakers at this workshop emphasize some of the opportunities available for industrial development in Arizona:

> R. W. F. Schmidt, manager of the Tucson Airport Authority: "The future of central and southern Arizona is fabulous. Sandwiched between California and Texas, the Pacific coast and the Gulf coast, with the expanding market of Mexico at its door, this section of Arizona has a problem not what it has to offer, but of how judiciously it goes about offering." [4]
>
> C. H. Zachry, president of the Southern Union Gas Company, commented upon the industrial survey sponsored by his company to study four northern Arizona counties some two years ago. He reported that northern Arizona has mountains, forests, and minerals which are now being utilized only to a limited degree. He described the transportation facilities of the northern part of the State, giving as examples the Santa Fe Railroad, U. S. Highway 66, airports and airlines, motor freight, and buses. According to Zachry, industrial sites are no problem in northern Arizona. He voiced the opinion that concentration should be upon smaller plants employing from 3 to 200 workers. Zachry suggested that it would be advisable to obtain branch plants of large companies, since there is a desire by many companies to put branch plants in smaller communities. [5]
>
> Jay A. Barbeau, traffic manager of AiResearch Manuf. Co., Phoenix, said that he could foresee the time when Arizona would be a major distributing center, but that one obstacle is the freight rate structure that has governed the flow of traffic into and out of Arizona for many years. He added that groups were now at work to have these rates reduced. [6]

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4. Dorothy Kalil, Arizona Daily Star (Tucson), March 19, 1955, Section B, p. 1.

5. From notes taken in person at the Arizona Statewide Industrial Development Workshop, University of Arizona, March 18-19, 1955.

6. Dorothy Kalil, Op. Cit., p. 1.

> Arthur S. Mann, manager of the industrial department of the Tucson Chamber of Commerce, said that Arizona and the West can obtain industry because of climate and supply of skilled workers.[7]

> James A. Rork, director of the Arizona State Employment Service, said that Arizona's human resources provide an adequate labor supply in light of present needs as well as a potential labor force capable of fulfilling all requirements resulting from industrial expansion in the State.[8]

In a publication by the Arizona State Employment Service during March of 1955, mention is made of the potential involved in greater future employment of the Arizona Indian population in industry. The article states:

> "One of Arizona's greatest unused labor assets is to be found in its 71,000 Indian population marginally employed in the great reservations that make up about one-third of the land area of the State. The majority of Indians, of course, are unskilled, of a culture vastly different from our own and cannot be immediately integrated into the routine of industrial production as most American workers can. However, employers that have used Indian workers in large numbers have been quite pleased with the results. The selection of Bellemont (near Flagstaff) as the site of the Navajo Ordnance Depot was partly based upon the large number of Indian workers available from the Navajo Indian Reservation—currently well over half the workers at the Depot are Indians. Despite the great employment gains in the past decade of Arizona's Indian population, it is estimated that there still are about 10,000 workers that could be employed if industrial jobs were forthcoming."[9]

Hence, there can be no doubt concerning the availability of adequate labor reserves in Arizona for industrial expansion. In addition to the Indian population just mentioned, the continual influx of new inhabitants into the State enhances the labor reserve situation.

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7. Loc. Cit.

8. Loc. Cit.

9. Arizona's Human Resources (Phoenix: Arizona State Employment Service, March 1955), p. 3.

TABLE VI-4

PLANT AND EQUIPMENT EXPENDITURE ESTIMATES FOR ELEVEN WESTERN STATES, 1950-1975 [10]

Year	(In Millions of 1952 $) 11 Western States	Total U. S.	West as % of U. S.
1950	$ 2,630	$ 20,435	12.9
1953	3,490	27,690	12.6
1960	4,010	31,350	12.8
1965	4,600	35,400	13.0
1970	5,290	40,100	13.2
1975	5,980	44,610	13.4

Table VI-4 indicates the projected expansion of western industry as far in the future as 1975. These estimates by the Stanford Research Institute show that the eleven western states should comprise 13.4 per cent of the U. S. total of plant and equipment expenditures by 1975. This is a greater proportion than the 12.9 per cent of 1950 and the 12.6 per cent of 1953. Not only will Arizona be a member of this regional movement, but it should also strive to become one of the leading states in this expansion.

One of the most promising prospects of future Arizona industry exists in the Tucson area, namely the electronics industry. General Emil Lenzner of Fort Huachuca says that potentially Tucson can become the electronics center of the World.[11] Another aid to Arizona industrialization would be actualization of the much talked-about oil refinery in the Florence-Coolidge area of central Arizona. Two new pipelines—one from California and another from Texas—are to be built, but the final decision as to whether these lines will carry the necessary crude oil for the refinery rests with the

10. Source: A. C. Prendergast, "Facing the West's Future," Western Industry, XX (January 1955), 37, estimates by Stanford Research Institute.

11. Unsigned Article, Arizona Daily Star (Tucson), February 24, 1955, p. 7.

Interstate Commerce Commission.[12]

TABLE VI-5

COUNTY DISTRIBUTION OF MANUFACTURING EMPLOYMENT IN ARIZONA, APRIL 1955 [13]

County	Number Employed	% of State Total
Apache	800	2.5
Cochise	1,500	4.7
Coconino	2,100	6.6
Gila	600	1.9
Graham	200	0.6
Greenlee	400	1.3
Maricopa	18,000	56.8
Mohave	100	0.3
Navajo	600	1.9
Pima	6,200	19.6
Pinal	200	0.6
Santa Cruz	100	0.3
Yavapai	500	1.6
Yuma	400	1.3
State Total	31,700	100.0

County distribution of Arizona manufacturing employment, as shown in table VI-5, is very unevenly distributed. A very high proportion of 56.8 per cent of the State's manufacturing employees are in Maricopa County while another 19.6 per cent are in Pima County. Hence, the Phoenix and Tucson areas together comprise 76.4 per cent of the state total. Mohave and Santa Cruz Counties, on the other hand, together comprise only 0.6 per cent of Arizona's manufacturing employment. It seems advisable that in the future development of Arizona manufacturing, the expansion of industries into sections of the State not now industrialized should be a primary consideration.

12. Interview with Floyd A. Rains, Industrial Manager of Phoenix Chamber of Commerce, courtesy of Dr. Casaday, University of Arizona Bureau of Business Research, June 13, 1955.

13. Information received directly from the Arizona State Employment Service, Phoenix, June 7, 1955.

The development of manufacturing in Arizona must be a comprehensive project which will not only lead to still greater industrialization in Phoenix and Tucson, but which also will encompass other areas of the State. The growth of manufacturing in Arizona in recent years has been encouraging; however, this growth must continue--preferably at an accelerated rate--if the economy of the State is to achieve the economic balance that is desired.

CHAPTER VII

CONSTRUCTION

Tables included in the employment and income chapters have already indicated the growth of the Arizona construction industry during the last fifteen years. The percentage growth of construction employment in Arizona between 1940 and 1950 was 188.1 per cent, a figure much in excess of the national average growth of 80.3 per cent for the period. The growth of Arizona construction employment also carried forward through 1954 with the percentage gain between 1950 and 1954 being a healthy 38 percent as against a national gain of 8.3 per cent. In both the 1940-1950 and 1950-1954 periods, Arizona ranked fifth among the forty-eight states and the District of Columbia in percentage growth of construction employment.

Table VII-1 of this chapter adds even greater evidence of the progress being made by the Arizona construction industry. The dollar volume of construction expenditures within the State has increased 260 per cent between 1946 and 1954. Yearly increases in construction expenditures have occurred since 1949 without interruption. The 1954 dollar volume was a sizable $270,000,000 or $20,000,000 greater than the 1953 total. These construction expenditure estimates made by the Valley National Bank are based on a study of building permits, wage payments to construction workers, and reports by contractors to the Arizona State Tax Commission.

Table VII-2 also exhibits the growth of the Arizona construction industry. It displays the increase in valuation of new construction for Phoenix and Tucson since 1947. The Phoenix valuation figure grew from $9,885,030 in 1947

TABLE VII-1

VALUE OF ARIZONA CONSTRUCTION REACHES NEW HIGH IN 1954[1]

Year	Dollar Volume of Construction Expenditures*
1946	$ 75,000,000
1947	100,000,000
1948	125,000,000
1949	100,000,000
1950	125,000,000
1951	160,000,000
1952	200,000,000
1953	250,000,000
1954	270,000,000
% Gain, 1946-1954	260

* Valley National Bank estimates.

TABLE VII-2

BUILDING PERMITS ISSUED IN LEADING ARIZONA CITIES, 1947-54[2]

Year	Valuation of New Construction*	
	Phoenix	Tucson
1947	$ 9,885,030	$ 7,826,202
1948	16,413,417	10,492,549
1949	12,094,168	9,228,499
1950	15,700,161	9,064,148
1951	20,696,272	6,621,266
1952	13,182,472	6,720,127
1953	16,296,491	7,870,235
1954	18,141,104	8,131,921
% Change, 1947-1954	83.5	3.9

* Confined to corporate city limits.

1. Source: Arizona Progress (Phoenix: Valley National Bank, June 1955).

2. Sources: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 16; Arizona Progress (Phoenix: Valley National Bank, March 1955).

to $18,141,104 during 1954. This represented a gain of 83.5 per cent. The Tucson gain was considerably smaller, being only 3.9 per cent. It must be remembered that the figures in the table are confined to corporate city limits, and a large amount of new construction activity takes place outside the political city limits of cities.

Most of Arizona's smaller cities also show increased construction activity during recent years. Table VII-3 presents 1947-1954 data for twelve of the State's smaller cities. Mesa, among this group, had the greatest percentage growth in valuation of building permits issued for new construction. It will be noticed in this table that building permit valuation totals fluctuate considerably from year to year. Hence, the percentage decreases in 1954 as compared to the 1947 totals in Douglas, Prescott, and Winslow do not necessarily indicate any economic difficulties in these three Arizona cities.

Construction Review, a publication of the United States Departments of Labor and Commerce, lists the number of new dwelling units (housekeeping only) for which building permits were issued during 1954 in Arizona at 11,810. This same publication also places the valuation of building permit activity in Arizona during 1954 at $145,100,000.[3]

Table VII-4 presents a county-by-county distribution of lumber, building materials, and hardware sales during 1954 in Arizona. This information serves, at least to a moderate degree, as an construction indicator. The State's 1954 total of $100,712,000 in this category, indeed, speaks well of construction activity in Arizona during the year. Nearly half of this aggregate

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3. Construction Review, U. S. Departments of Labor and Commerce (Washington: U. S. Government Printing Office, April 1955), pp. 25-26.

TABLE VII-3

BUILDING PERMITS ISSUED IN SMALLER ARIZONA CITIES, 1947-1954 [4]

(Valuation of New Construction--Confined to Corporate City Limits)

Year	Mesa	Tempe	Flagstaff	Yuma
1947	$ 983,959	$ 1,022,489	$ 1,414,960	$ 1,446,189
1948	1,163,945	909,705	457,850	1,133,950
1949	2,018,271	755,650	465,835	1,304,892
1950	2,715,644	1,733,020	2,430,080	1,087,157
1951	3,425,449	2,074,337	592,350	647,634
1952	3,287,026	1,421,602	914,540	2,172,462
1953	3,489,612	1,024,325	2,463,095	1,924,324
1954	4,224,299	2,868,982	2,461,762	1,753,717
% Gain, 1947-1954	329.3	180.6	74.0	21.3

Year	Glendale	Chandler	Casa Grande	Nogales
1947	$ 539,461	$ 425,000	$ 417,625	$ 197,290
1948	615,894	457,600	607,446	315,752
1949	501,995	660,046	463,185	236,800
1950	815,943	513,180	1,096,610	324,161
1951	1,258,851	409,150	759,900	299,355
1952	1,293,012	364,115	1,052,725	177,591
1953	1,446,852	419,650	1,657,300	388,997
1954	1,724,395	1,144,895	1,081,741	557,643
% Gain, 1947-1954	219.7	169.4	159.0	182.7

Year	Douglas	Prescott	Globe	Winslow
1947	$ 646,933	$ 549,876	$ 226,291	$ 173,745
1948	427,423	671,765	348,913	196,255
1949	881,290	269,338	643,855	486,718
1950	278,825	460,046	671,825	159,610
1951	243,195	435,500	169,807	130,930
1952	323,182	459,875	199,634	222,200
1953	296,486	495,594	351,319	358,479
1954	426,457	384,033	247,803	165,410
% Gain, 1947-1954	- 34.1	- 30.2	9.5	- 4.8

4. Sources: Arizona Statistical Review, 1954, Op. Cit., p. 16, Table VII-2; Arizona Progress (March 1955), Op. Cit., Table VII-2.

TABLE VII-4

CONSTRUCTION INDICATOR
ESTIMATES OF ARIZONA LUMBER-BUILDING MATERIALS-HARDWARE SALES, 1954-1955 [5]

County	Lumber-Building Materials-Hardware Sales, 1954	% of State Total
Apache	$ 310,000	0.3
Cochise	3,656,000	3.6
Coconino	1,465,000	1.5
Gila	1,118,000	1.1
Graham	2,504,000	2.5
Greenlee	254,000	0.3
Maricopa	49,584,000	49.2
Mohave	125,000	0.1
Navajo	1,587,000	1.6
Pima	21,933,000	21.8
Pinal	5,968,000	5.9
Santa Cruz	853,000	0.9
Yavapai	2,159,000	2.1
Yuma	9,196,000	9.1
State Total	$ 100,712,000	100.0

TABLE VII-5

COUNTY DISTRIBUTION OF CONSTRUCTION EMPLOYMENT IN ARIZONA, APRIL 1955 [6]

County	Number Employed	% of State Total
Apache	100	0.6
Cochise	300	1.9
Coconino	200	1.2
Gila	100	0.6
Graham	100	0.6
Greenlee	100	0.6
Maricopa	8,800	54.3
Mohave	100	0.6
Navajo	100	0.6
Pima	3,100	19.1
Pinal	1,400	8.7
Santa Cruz	100	0.6
Yavapai	300	1.9
Yuma	1,400	8.7
State Total	16,200	100.0

5. Source: "Survey of Buying Power," Sales Management, LXXIV, (May 10, 1955), 104.

6. Source: Information received directly from Arizona State Employment Service, Phoenix, June 7, 1955.

amount was spent in Maricopa County while another large segment of sales was in Pima County. The lowest county sales for lumber, building materials, and hardware was that of Mohave County where $125,000 was spent.

Table VII-5 shows that Maricopa and Pima Counties are the leaders in construction employment. Maricopa County has 8,800 construction workers or 54.3 per cent of the state total while Pima County has 3,100 construction employees, which is 19.1 per cent of the total. Thus, 73.4 per cent of Arizona's construction employees are in Maricopa and Pima Counties. This combined percentage of the two counties for construction employment correlates quite closely to the combined percentage of the two counties in lumber-building materials-hardware sales, the latter being 71.0 per cent. Hence, the use of table VII-4 as a construction indicator seems justified.

Several counties have only 100 construction employees, which amounts to 0.6 per cent of the state total for each of these counties. On the other hand, four counties—Maricopa, Pima, Pinal, and Yuma—have more than 1,000 construction workers. The expansion of construction activity in statewide, aggregate terms has been significant in Arizona since 1940; yet, this construction activity is taking place on a much more intensive scale in some counties than in others.

CHAPTER VIII

TRANSPORTATION, COMMUNICATIONS, AND PUBLIC UTILITIES

Transportation, communications, and public utilities is an economic sector varied in many respects and thus difficult to analyze. This sector will be treated here in the order of the three categories comprising the title of the sector. First of all, however, it might be well to refer briefly to a few facts brought out in the chapter on employment. These points refer to the sector as a whole. Table II-3 on employment noted that between 1940 and 1950 the percentage growth in Arizona transportation-communications-public utilities employment was 51.23 per cent, a figure considerably greater than the 31.06 per cent gain for the nation during the same period. The growth continued during the 1950-1954 period with a gain for Arizona of 9.28 per cent against a national growth of just 0.77 per cent. Table II-8 in the earlier chapter reveals that for the three years listed—1940, 1950, and 1954—there was a slightly greater proportion of total nonagricultural employees working in the transportation-communications-public utilities industry of Arizona than in the U. S. as a whole.

Discussing first of all motor vehicle transportation in Arizona, table VIII-1 displays the growth of this type of transportation in the State since 1912. During that year there were only 1,852 motor vehicles in Arizona. In 1954 there were 412,793. The last few years have seen

TABLE VIII-1

ARIZONA MOTOR VEHICLE REGISTRATION, 1912-1954 [1]

Year	Number of Motor Vehicles Registered
1912	1,852
1920	34,619
1930	114,258
1940	149,901
1950	294,139
1951	318,152
1952	357,701
1953	392,569
1954	412,793
% Gain, 1950-1954	40.33

TABLE VIII-2

MOTOR VEHICLES REGISTERED IN ARIZONA, BY COUNTIES, 1953-1954 [2]

County	Number of Motor Vehicles Registered 1953	1954	% Change
Apache	3,234	3,570	10.4
Cochise	18,864	17,944	- 4.9
Coconino	10,539	10,446	- 0.9
Gila	10,312	11,025	6.9
Graham	5,890	5,814	1.3
Greenlee	5,383	5,491	2.0
Maricopa	189,914	203,675	7.2
Mohave	4,063	4,125	1.5
Navajo	7,310	7,729	5.7
Pima	78,596	81,557	3.8
Pinal	17,035	18,304	7.4
Santa Cruz	4,025	4,054	0.7
Yavapai	11,476	11,949	4.1
Yuma	20,756	21,596	4.0
Government	5,172	5,514	6.6
State Total	392,569	412,793	5.2

1. Sources: Factual Review, 1954 (Phoenix: Arizona State Highway Department, 1954), p. 50; Arizona Progress (Phoenix: Valley National Bank, April 1955).

2. Source: Arizona Progress, Op. Cit., Table VIII-1.

TABLE VIII-3

ARIZONA RANKS SECOND IN GROWTH OF MOTOR VEHICLE REGISTRATIONS, 1950-1953 [3]

State	1950	1953	% Increase
Nevada	77,142	106,645	38.2
ARIZONA	270,799	359,199	32.6
Florida	984,838	1,300,592	32.1
Wyoming	127,007	163,154	28.4
Alabama	685,812	859,710	25.4
S. Carolina	578,802	716,329	23.8
Delaware	108,272	133,970	23.7
Tennessee	858,111	1,047,002	22.0
Georgia	897,518	1,081,403	20.5
Maryland	684,748	819,897	19.7

a tremendous growth in the number of motor vehicles registered in the State. The year 1950 had only 294,139 registered, which when compared with the 412,793 registered in 1954, indicates a growth of 40.33 per cent during this period.

The increase in registrations of motor vehicles was 5.2 per cent between 1953 and 1954. This is displayed in table VIII-2, which gives a county-by-county distribution of registrations within the State. Between the years 1953 and 1954, Apache County had the greatest percentage gain in registrations, 10.4 per cent, while two counties, Cochise and Coconino, actually show decreases. Table VIII-3 exhibits the growth of Arizona motor vehicle registrations as compared to other leading states in rate of growth, the measurement period being 1950-1953. Only Nevada could show a motor vehicle registration growth rate greater than that of Arizona during this period.

Motor fuel consumption is a good indicator of motor vehicle use

3. Source: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 43.

TABLE VIII-4

MOTOR FUEL CONSUMPTION IN ARIZONA, BY COUNTIES, 1953-1954 [4]

County	Number of Gallons consumed* 1953	1954	% Change
Apache	7,962,380	8,046,928	1.1
Cochise	17,689,065	19,446,722	9.9
Coconino	18,213,598	17,576,205	- 3.5
Gila	8,902,160	9,586,496	7.7
Graham	5,157,857	4,974,824	- 3.5
Greenlee	3,666,309	3,748,744	2.2
Maricopa	134,751,429	139,417,755	3.5
Mohave	7,153,889	6,973,997	- 2.5
Navajo	13,382,752	13,104,179	- 2.1
Pima	55,052,969	53,524,892	- 2.8
Pinal	18,742,883	18,690,389	- 0.3
Santa Cruz	5,875,757	6,169,708	5.0
Yavapai	11,514,328	11,789,966	2.4
Yuma	23,332,318	23,817,662	2.1
State Total	331,397,694	336,868,467	1.7

* Federal Consumption Excluded

during a given period. This information is given in table VIII-4. Eight of the counties show an increase in motor fuel consumption and the remaining six show a decrease during the period. The State as a whole shows an increase of 1.7 per cent between 1953 and 1954 in the consumption of motor fuels. As would be expected because of their larger populations, Maricopa and Pima Counties lead the other counties in number of gallons of motor fuel consumed.

Table VIII-5 relates the distribution, by counties, of transportation employment in Arizona as of April, 1955. Maricopa County, with 10,000 employed as transportation workers, leads the other counties. Pima County's

4. Source: Arizona Progress (April 1955), Op. Cit., Table VIII-2.

TABLE VIII-5

COUNTY DISTRIBUTION OF TRANSPORTATION EMPLOYMENT IN ARIZONA, APRIL 1955 [5]

County	Number Employed	% of State Total
Apache	500	2.4
Cochise	700	3.3
Coconino	600	2.9
Gila	200	1.0
Graham	100	0.5
Greenlee	100	0.5
Maricopa	10,000	47.8
Mohave	200	1.0
Navajo	1,100	5.2
Pima	4,900	23.4
Pinal	600	2.9
Santa Cruz	200	1.0
Yavapai	500	2.4
Yuma	1,200	5.7
State Total	20,900	100.0

4,900 employees places it second to Maricopa County in transportation employment. At the other extreme, Graham and Greenlee Counties have only 100 transportation employees each. Thus, Graham and Greenlee Counties combined comprise only 1 per cent of the State's total while Maricopa County alone has 47.8 per cent of the total.

Table VIII-6 presents a list of different types of transportation lines serving the important cities of the State. Phoenix is in an exceptionally good situation with four airlines, four air freight lines, two railroads, and thirty motor freight lines. Only the Globe-Miami area, among the cities listed, is not served by an airline and each of the cities is served by at least one motor freight line and one railroad.

5. Source: Information received directly from Arizona State Employment Service, Phoenix, June 7, 1955.

TABLE VIII-6

TRANSPORTATION LINES FROM SELECTED ARIZONA CITIES, 1953 [6]

City	Airlines	Air Freight	Motor Freight	Railroads
Douglas	2	2	2	1
Flagstaff	1	1	3	1
Globe-Miami			2	1
Phoenix	4	4	30	2
Prescott	2		3	1
Safford	1	1	1	1
Tucson	2	2	15	1
Winslow	1		1	1
Yuma	1		8	1

Two important transcontinental railroads transverse the State. The Atchison, Topeka and Santa Fe Railway serves northern Arizona with its mainline paralleling U. S. Highway 66 across the State. The mainline of the Santa Fe extends for 385 miles in Arizona.[7] The Southern Pacific Railroad is an important transportation asset to the southern part of Arizona. Its mileage in Arizona is slightly more than 392 miles for the mainline with a total for all lines of the Southern Pacific in Arizona being 1,188.85 miles.[8] This makes the Southern Pacific Arizona's leading railroad in total mileage since the next largest railroad in the State, the Santa Fe, has 828.11 miles of track.[9] Table VIII-7 gives a distribution of railroad mileage by counties. Maricopa's 345.09 miles of railroad track leads the other counties of the State. Total railroad trackage for

6. Source: Western Resources Handbook (Stanford, California: Stanford Research Institute, Department of Industrial Economics), Vol. III.

7. Twenty-Second Biennial Report of the State Tax Commission of Arizona (Phoenix: Arizona State Tax Commission), pp. 41-42.

8. Loc. Cit.

9. Loc. Cit.

TABLE VIII-7

ARIZONA RAILROAD, TELEPHONE, AND TELEGRAPH MILEAGE, BY COUNTIES, 1954 [10]

County	Railroad Mileage	% of State Total	Telephone & Telegraph Mileage	% of State Total
Apache	121.98	5.4	1,606.50	0.2
Cochise	309.00	13.7	26,547.58	3.6
Coconino	208.69	9.2	8,553.69	1.1
Gila	46.17	2.0	5,870.00	0.8
Graham	90.18	4.0	4,311.93	0.6
Greenlee	41.05	1.8	10,139.66	1.4
Maricopa	345.09	15.2	421,309.28	57.0
Mohave	106.16	4.7	3,511.10	0.5
Navajo	127.37	5.6	5,022.05	0.7
Pima	132.42	5.9	194,053.05	26.3
Pinal	200.23	8.8	15,618.27	2.1
Santa Cruz	56.37	2.5	3,829.24	0.5
Yavapai	265.71	11.7	11,913.65	1.6
Yuma	214.69	9.5	26,535.99	3.6
State Total	2,265.11	100.0	738,822.09	100.0

Arizona is 2,265.11 miles. Greenlee County has the least railroad trackage among the counties of the State.

The next aspect of the transportation-communications-public utilities sector of the economy to be considered will be communications. Table VIII-7, in addition to its information concerning railway track mileage, also presents the total mileage of telephone and telegraph lines in Arizona. The State total is 738,822.09 miles with Maricopa County having a sizable 57 per cent share of this aggregate amount for the State. This indicates, of course, correlation between population and the need for telephone and telegraph facilities.

Growth in the number of telephones used is an indicator of economic progress. Table VIII-8 shows that in the ten year period beginning in 1944

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10. Source: Twenty-Second Biennial Report of the State Tax Commission of Arizona, Op. Cit., pp. 47-49, 65-68, Footnote 7.

TABLE VIII-8

NUMBER OF TELEPHONES IN SERVICE, PHOENIX, TUCSON, AND REMAINDER OF STATE, 1944-1954 [11]

As of Dec. 31	Phoenix Exchange	Tucson Exchange	Remainder of State	State Total
1944	30,320	18,609	28,797	77,726
1945	32,441	19,608	29,531	81,580
1946	38,507	24,321	35,257	98,085
1947	46,179	25,688	38,614	110,481
1948	55,552	26,937	43,289	125,778
1949	62,718	35,994	45,154	143,866
1950	66,747	39,635	48,629	155,011
1951	72,830	43,731	53,764	170,325
1952	80,059	49,597	59,377	189,033
1953	93,990	54,022	61,852	209,864
1954	102,607	57,075	68,662	228,344
% Gain, 1944-54	238.41	206.70	138.43	193.78

TABLE VIII-9

NUMBER OF PEOPLE PER TELEPHONE IN ARIZONA AND U. S., 1944-1954 [12]

Year	Arizona Average	U. S. Average
1944	7.7	5.2
1945	7.4	5.0
1946	6.5	4.5
1947	6.1	4.2
1948	5.6	3.9
1949	5.1	3.7
1950	5.0	3.6
1951	4.9	3.4
1952	4.8	3.3
1953	4.6	3.2
1954	4.5	3.1

11. Source: Arizona Progress (Phoenix: Valley National Bank, March 1955).

12. Source: Loc. Cit., Table VIII-8.

and ending in 1954, the number of telephones in service in Arizona increased from 77,726 to 228,344. This represents a phenomenal gain of 193.78 per cent. The gains in the Phoenix and Tucson areas were even greater percentagewise than the state average. Table VIII-9 displays the steady increase in telephone service throughout the nation as well as in Arizona. The year 1944 found an average number of 7.7 people per telephone in Arizona and 5.2 in the United States as a whole. By 1954 this figure had decreased to 4.5 people per telephone in Arizona and 3.1 nationally.

Arizona has fourteen daily newspapers with a circulation on weekdays of 226,760 and a Sunday circulation of 154,102 (Table VIII-10). The Arizona Republic, published in Phoenix, is the leader in both daily and Sunday circulation. Cities with two newspapers are Prescott, Yuma, Phoenix, and Tucson. Arizona is likewise well represented in radio communications, according to table VIII-11. The State has twenty-nine radio stations. Phoenix and Tucson lead the state with six radio stations apiece and Yuma is next with three. In all, there are sixteen cities represented by Arizona's twenty-nine radio stations. At the present time, the State has seven television stations. This seems to be an adequate representation when one considers that Arizona's population is only now attaining the one million mark. Phoenix has three of the television stations with nearby Mesa having another. Hence, the Phoenix area has more television facilities than any other area of the State with four stations available to listeners. Unfortunately, there are some areas of the State where television reception is not adequate at the present time.

TABLE VIII-10

AVERAGE DAILY NEWSPAPER CIRCULATION IN ARIZONA, 1954 [13]

(English Language Newspapers)

Town	Name of Paper	1954 Average Circulation
Bisbee	Review	3,500 3,500*
Douglas	Dispatch	3,422 3,427*
Flagstaff	Arizona Daily Sun	6,195
Mesa	Tribune	3,957
Nogales	Herald	2,790
Phoenix	Arizona Republic	82,572 114,096*
	Gazette	53,748
Prescott	Arizona Courier-Journal	541
	Courier	4,892
Tempe	News	3,500
Tucson	Arizona Star	26,717 33,079*
	Citizen	28,054
Yuma	Sun	573
	Sun and Arizona Sentinel	6,299
Total Estimated Circulation of morning and evening papers		226,760
Total Estimated Circulation of Sunday papers		154,102

* Sunday Circulation

13. Source: N. W. Ayer and son, Directory—Newspapers and Periodicals, 1955 (Philadelphia: N. W. Ayer and Son, Inc., 1955), pp. 50-54, 1194.

TABLE VIII-11

NUMBER OF RADIO AND TELEVISION STATIONS IN ARIZONA, BY CITY, 1954-1955 [14]

City	Number of Radio Stations	Number of Television Stations
Bisbee	1	
Clifton	1	
Coolidge	1	
Douglas	1	
Flagstaff	2	
Glendale	1	
Globe	1	
Kingman	1	
Mesa	1	1
Nogales	1	
Phoenix	6	3
Prescott	1	
Safford	1	
Tucson	6	2
Winslow	1	
Yuma	3	1
Total	29	

On the next page, table VIII-12 exhibits the growth of postal receipts of Arizona cities since 1950 The postal receipts in Phoenix grew from $2,447,505 in 1950 to $3,862,949 in 1954, an increase of 57.83 per cent. The Tucson percentage gain was slightly larger than that of Phoenix for the period. Glendale and Scottsdale had percentage gains in postal receipts of more than 100 per cent and thus led all other cities in percentage increase between 1950 and 1954. Scottsdale postal receipts grew from $40,552 in 1950 to $100,986 in 1954, the percentage gain being 149.02 per cent. The Glendale gain was 117.51 per cent for the period.

14. Sources: Arizona Republic (Phoenix), June 16, 1955; Arizona 1954-1955 Roadmap (Phoenix: Arizona State Highway Commission).

TABLE VIII-12

GROWTH OF POSTAL RECEIPTS IN SELECTED ARIZONA CITIES, 1950-1954 [15]

City	1950 Postal Receipts	1954 Postal Receipts	% Change
Phoenix	$ 2,447,505	$ 3,862,949	57.83
Tucson	1,184,273	1,879,820	58.73
Yuma	127,733	232,983	82.39
Mesa	136,704	221,678	62.15
Prescott	119,260	161,095	35.07
Glendale	66,099	143,775	117.51
Flagstaff	90,076	128,511	42.66
Scottsdale	40,552	100,986	149.02
Tempe	65,749	100,127	52.28
Douglas	80,492	96,618	20.03
Chandler	60,586	90,175	48.83
Nogales	63,272	77,256	22.10
Casa Grande	40,349	71,963	78.35
Globe	54,599	71,917	31.71
Bisbee	49,033	70,688	44.16
Winslow	54,498	69,208	26.99
Safford	46,994	58,563	24.61
Coolidge	37,254	51,984	39.53
Kingman	40,112	47,950	19.54
Holbrook	27,365	40,514	48.05

The considerable growth in Arizona postal receipts since 1950 serves as a favorable indicator of economic progress in the State.

The final category to be considered in this discussion of the transportation-communications-utilities sector of the Arizona economy is utilities. Gross revenues of utilities in Arizona expanded from $32,261,881 in the 1946-47 period to $96,609,347 during 1953-54. This is shown in table VIII-13. The greatest percentage increase was in Pima County with a gain of 253.07 per cent. Apache County was the only county showing a decrease. Maricopa and Pima Counties, respectively, led the aggregate totals during both 1946-47 and 1953-54. During the former period,

15. Sources: Arizona Statistical Review, 1954, Op. Cit., pp. 38-39, Table VIII-3; Arizona Progress (May 1955), Op. Cit., Table VIII-1.

TABLE VIII-13

GROSS REVENUES OF UTILITIES IN ARIZONA, BY COUNTIES, 1946-47, 1953-54 [16]
(Fiscal Year Totals By Counties, Including Communication Companies)

County	1946-47	% of State Total	1953-54	% of State Total	% Change, 1946-47 to 1953-54.
Apache	$ 491,747	1.5	$ 168,402	0.2	- 65.76
Cochise	1,474,751	4.6	4,018,297	4.2	172.47
Coconino	702,212	2.2	1,877,637	1.9	167.38
Gila	1,743,382	5.4	3,990,060	4.1	128.86
Graham	641,264	2.0	1,338,096	1.4	108.66
Greenlee	747,144	2.3	2,414,265	2.5	223.13
Maricopa	14,681,722	45.5	48,024,764	49.7	227.10
Mohave	490,467	1.5	662,743	0.7	35.12
Navajo	688,675	2.1	1,939,240	2.0	181.59
Pima	5,455,574	16.9	19,262,276	19.9	253.07
Pinal	2,290,713	7.1	6,700,646	6.9	192.51
Santa Cruz	429,927	1.3	962,444	1.0	123.86
Yavapai	1,403,053	4.4	2,391,734	2.5	70.46
Yuma	1,021,250	3.2	2,858,743	3.0	179.92
State	$ 32,261,881	100.0	$ 96,609,347	100.0	199.45

TABLE VIII-14

ELECTRICITY KILOWATT-HOUR SALES FOR ARIZONA,
1940-1954 [17]

Year	Kilowatt-hour Sales
1940	638,489,000
1950	1,667,592,000
1951	1,877,748,000
1952	2,175,260,000
1953	2,545,057,000
1954	2,834,852,000
% Gain, 1940-1954	343.99
% Gain, 1950-1954	69.99

16. Source: Arizona Statistical Review, 1954, Op. Cit., p. 36, Table VIII-3.

17. Source: Bureau of Business Research, University of Arizona, based on data from the Edison Electrical Institute, New York.

gross revenues from utilities in Maricopa County were 45.5 per cent of the State's total and this grew to 49.7 per cent during the latter period. Correspondingly, Tucson also gained in proportion between the two periods, the change being from 16.9 per cent to 19.9 per cent.

Table VIII-14 reveals the increase in use of electricity in Arizona since 1940. The gain percentagewise between 1940 and 1954 was 343.99 per cent and the gain since 1950 has been a significant 69.99 per cent. In 1954, electricity sales amounted to 2,834,852,000 kilowatt-hours in Arizona. Another indication of the growth of the utilities industry in Arizona since 1950 is given in table VIII-15. This table gives the number

TABLE VIII-15

NUMBER OF GAS AND ELECTRIC UTILITY CONNECTIONS FOR PHOENIX AND TUCSON (COMBINED), 1950-1954 [18]

Year	Number of Utility Connections	
	Gas	Electric
1950	87,449	108,697
1951	98,606	118,197
1952	109,271	128,675
1953	120,772	136,145
1954	130,549	146,280
% Gain, 1950-54	49.28	34.57

of gas and electric utility connections for Arizona's two major cities for the years 1950 through 1954. The percentage growth in gas utility connections was 49.28 per cent while the gain in electric utility connections

18. Sources: Arizona Statistical Review, 1954, Op. Cit., p. 37, Table VIII-3; Arizona Progress (January 1955), Op. Cit., Table VIII-1.

in Phoenix and Tucson was 34.57 per cent. In 1954, there were 130,549 gas utility connections and 146,280 electric utility connections in the two major cities of the State.

> "In reality, the state's economy is very largely based on natural gas. For better than one-half of Arizona's supply of electric energy originates in steam plants whose boilers are fired by natural gas and this proportion will grow higher in the years immediately ahead. Remaining basic energy requirements other than electric power are met almost entirely by natural gas..... In summary, Arizona is rather well off in establishing its existing energy base primarily on natural gas and to a lesser extent on hydro power, has nothing to lose from any future development of nuclear energy, and stands definitely to gain from possible advances in the technology of solar energy." [19]

These words do well in emphasizing the importance of natural gas to the economy of Arizona. With four major pipelines now carrying natural gas to the State, Arizona is well served by this type of utility. Although the State itself does not produce much natural gas, the proximity of Arizona to the gas fields of nearby states is an important economic asset. Statistics released by the American Gas Association for the year 1953 show that total gas sales of utilities in Arizona were 638.1 millions of therms. From this aggregate amount, 472.6 millions of therms went for industrial uses.[20] Consequently, the importance of gas to the industrial economy of Arizona can easily be envisioned.

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19. J. C. Weissmiller and J. Shirer, "Arizona's Energy Base, 1949-1952, Part II, Natural Gas," Arizona Business and Economic Review, III (May 1954), 8.

20. Gas Facts (New York: American Gas Association, Bureau of Statistics, 1954), p. 111.

CHAPTER IX

WHOLESALE TRADE, RETAIL TRADE, AND SERVICES

In the chapter on employment, many of the tables indicated the growth of the trade and service sector of the Arizona economy. Table II-3 in the earlier section shows that wholesale and retail trade employment in Arizona increased at rates greater than the average gain for the nation between both 1940-1950 and 1950-1954. Service employment, although showing a considerable gain in Arizona between 1940-1950, still did not increase at as rapid a rate as the national growth. However, since 1950 the gain in Arizona service employment has been 25 per cent. This is greater than the 10.87 per cent national growth since 1950. Table II-8 reveals that trade and service employment in the State, as a proportion of aggregate state nonagricultural employment, is above the distribution for the nation as a whole. This reflects, to some extent, the importance of the tourist industry to the Arizona economy since much of the tourist industry is of a service character. Table II-11 demonstrates that in the 1940-1950 period Arizona ranked fifth among the states in rate of growth in wholesale and retail trade employment, but only forty-first among the states in service employment growth. However, during the 1950-1954 period Arizona had risen to third place in rate of growth in wholesale and retail trade employment and had made an astounding jump from forty-first to second in rate of growth in service employment.

TABLE IX-1

ARIZONA LEADS NATION IN GROWTH OF RETAIL SALES, 1950-1954 [1]

State	1950 Retail Sales	1954 Retail Sales	% Gain, 1950-54
ARIZONA	$ 676,594,000	$ 1,005,655,000	48.63
Delaware	376,261,000	517,264,000	37.47
Nevada	204,113,000	277,998,000	36.19
California	11,454,534,000	15,485,103,000	35.18
Virginia	2,300,987,000	2,950,595,000	28.23
Ohio	7,615,119,000	9,705,665,000	27.45
Wyoming	321,060,000	407,637,000	26.96
Florida	2,810,451,000	3,561,210,000	26.71
Louisiana	1,851,415,000	2,325,921,000	25.62
Maryland	2,051,819,000	2,577,240,000	25.60

TABLE IX-2

GROWTH OF RETAIL SALES IN ARIZONA AND MOUNTAIN STATES, 1950-1954 [2]

State	1950 Retail Sales	1954 Retail Sales	% Gain, 1950-54
ARIZONA	$ 676,594,000	$ 1,005,655,000	48.63
Colorado	1,357,115,000	1,670,834,000	23.11
Idaho	625,648,000	709,782,000	13.44
Montana	600,556,000	728,995,000	21.38
Nevada	204,113,000	277,998,000	36.19
New Mexico	569,028,000	697,404,000	22.56
Utah	657,066,000	773,975,000	17.79
Wyoming	321,060,000	407,637,000	26.96
Total	$ 5,011,180,000	$ 6,272,280,000	25.16

Thus having seen evidence of the progress being achieved in the trade and service industry of the State, we now turn to a more comprehensive analysis of this sector of the State's economy. Table IX-1 presents

1. Sources: "Survey of Buying Power," Sales Management, LXVI (May 10, 1951), 146; "Survey of Buying Power," Sales Management, LXXIV (May 10, 1955), 218.

2. Sources: Loc. Cit., Table IX-1.

additional evidence of the growth of the trade sector of the Arizona economy. By comparing the estimated retail sales of all the states in 1950 with their estimated sales in 1954, we find that Arizona ranks first in rate of growth of retail sales between 1950 and 1954. The percentage gain for Arizona is 48.63 per cent, which is more than eleven percentage points ahead of second ranking Delaware. The 1950 Arizona retail sales were $676,594,000 as compared to 1954 retail sales of $1,005,655,000. Since Arizona led the nation in rate of growth in retail sales for the 1950-1954 period, it obviously led the other seven states of the mountain region. However, table IX-2 is presented here in order to display more specifically the relation of Arizona's growth in retail sales to that of the mountain region as a whole. The closest state in rate of growth of retail sales in the mountain region, according to this table, is Nevada. Nevada shows a gain of 36.19 per cent. Thus, Arizona with its gain of 48.63 per cent is not only considerably ahead of its nearest rival for leadership, Nevada, but also is far ahead of the 25.16 per cent average rate of growth in retail sales for the eight states of the mountain region considered as a region.

Each of Arizona's counties, except Mohave, registered an increase in retail sales during the 1950-1954 period, according to table IX-3. Mohave's sales dropped from $9,709,000 in 1950 to $9,011,000 in 1954, a decline of 7.19 per cent. At the other extreme, Pinal County shows the greatest percentage gain, 92.92 per cent, brought about by a growth of retail sales from $24,988,000 to $48,207,000. Table IX-3 also gives the 1950 and 1954 distribution of Arizona retail sales by counties. In 1954

TABLE IX-3

COUNTY DISTRIBUTION OF ARIZONA RETAIL SALES, 1950 and 1954 [3]

County	1950 Retail Sales	% of State Total	1954 Retail Sales	% of State Total	% Change 1950-54
Apache	$ 6,261,000	0.9	$ 8,680,000	0.9	38.63
Cochise	27,621,000	4.1	36,055,000	3.6	30.53
Coconino	22,511,000	3.3	28,972,000	2.9	28.70
Gila	18,476,000	2.7	20,073,000	2.0	8.64
Graham	11,280,000	1.7	13,818,000	1.4	22.50
Greenlee	8,022,000	1.2	10,104,000	1.0	25.95
Maricopa	331,776,000	49.0	499,840,000	49.7	50.65
Mohave	9,709,000	1.4	9,011,000	0.9	- 7.19
Navajo	16,621,000	2.5	27,103,000	2.7	63.06
Pima	135,199,000	20.0	210,857,000	20.9	55.96
Pinal	24,988,000	3.7	48,207,000	4.8	92.92
Santa Cruz	11,833,000	1.8	14,699,000	1.5	24.22
Yavapai	23,725,000	3.5	25,593,000	2.5	7.87
Yuma	28,572,000	4.2	52,733,000	5.2	84.56
State	$676,594,000	100.0	$1,005,655,000	100.0	48.63

Maricopa and Pima Counties held a greater share of aggregate sales than in 1950. Navajo, Pinal, and Yuma were the other counties holding a greater proportion of Arizona's retail sales in 1954 than in 1950. Apache County held the same proportion at the end of the period that it had in the beginning while the remaining eight counties show smaller proportions at the end of the period measured.

Table IX-4 exhibits a county distribution of trade employment in the State. It may be observed from the table that 57 per cent of the aggregate number of trade employees in the State are in Maricopa County. More than 30,000 of the State's 52,800 trade workers are employed in the county just mentioned. On the other hand, Apache and Greenlee Counties each have only 200 employees working in trade activities.

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3. Sources: "Survey of Buying Power," Sales Management (May 10, 1951), Op. Cit., pp. 154-155, Table IX-1; "Survey of Buying Power," Sales Management (May 10, 1955), Op. Cit., pp. 231-232, Table IX-1.

TABLE IX-4

COUNTY DISTRIBUTION OF TRADE EMPLOYMENT IN ARIZONA, APRIL 1955 [4]

County	Number Employed	% of State
Apache	200	0.4
Cochise	1,700	3.2
Coconino	1,200	2.3
Gila	900	1.7
Graham	600	1.1
Greenlee	200	0.4
Maricopa	30,100	57.0
Mohave	500	1.0
Navajo	700	1.3
Pima	10,400	19.7
Pinal	1,700	3.2
Santa Cruz	1,000	1.9
Yavapai	1,100	2.1
Yuma	2,500	4.7
State Total	52,800	100.0

Just as was true in the case of trade employment, service employment also finds Maricopa County the leader. The table giving this information may be found on the following page. Maricopa County has 21,200 service employees out of the state total of 44,100. This represents a proportion of 48.1 per cent, which is somewhat less than the 57 per cent Maricopa County proportion for trade employment. Pima County, which ranked second in trade employment with 19.7 per cent of the state total, also is second in service employment, 26.3 per cent of the aggregate state figure. This apparently reflects the importance of Tucson as a tourist area. Mohave, Apache, and Greenlee Counties have the fewest service employees, each having three hundred doing this type of work.

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4. Source: Information received directly from Arizona State Employment Service, Phoenix, June 7, 1955.

TABLE IX-5

COUNTY DISTRIBUTION OF SERVICE EMPLOYMENT IN ARIZONA, APRIL 1955 [5]

County	Number Employed	% of State
Apache	300	0.7
Cochise	1,400	3.2
Coconino	1,800	4.1
Gila	1,000	2.2
Graham	500	1.1
Greenlee	300	0.7
Maricopa	21,200	48.1
Mohave	300	0.7
Navajo	700	1.6
Pima	11,600	26.3
Pinal	1,900	4.3
Santa Cruz	400	0.9
Yavapai	1,400	3.2
Yuma	1,300	2.9
State Total	44,100	100.0

Table IX-6, on the next page, sets forth evidence of an alarming situation within the economy of the State, namely, the wide variance in retail sales per capita in 1954. The Apache County per capita sales figure for 1954 of $274 is certainly an astoundingly low amount. Even Greenlee ($628), Gila (735), Navajo (815), and Pinal ($844) Counties have per capita retail sales which are quite low. The highest per capita sales amounts were held by Santa Cruz and Yuma Counties. Santa Cruz County's per capita retail sales were $1,441 and Yuma's were $1,349. The fact that some county per capita retail sales figures are low is not an encouraging economic situation. The range of per capita retail sales between Apache County's $274 and Santa Cruz County's $1,441 is, indeed, a wide variance.

5. Source: Loc. Cit.

TABLE IX-6

PER CAPITA RETAIL SALES IN ARIZONA, BY COUNTIES, 1954[6]

County	(Jan. 1, 55) County Population	(1954) County Retail Sales	Retail Sales Per Capita
Apache	31,700	$ 8,680,000	$ 274
Cochise	35,800	36,055,000	1,007
Coconino	30,900	28,972,000	938
Gila	27,300	20,073,000	735
Graham	14,500	13,818,000	953
Greenlee	16,100	10,104,000	628
Maricopa	459,000	499,840,000	1,089
Mohave	8,300	9,011,000	1,086
Navajo	33,200	27,103,000	815
Pima	210,500	210,857,000	1,002
Pinal	57,100	48,207,000	844
Santa Cruz	10,200	14,699,000	1,441
Yavapai	25,400	25,593,000	1,008
Yuma	39,100	52,733,000	1,349
State	999,100	$1,005,655,000	$ 1,007

Maricopa County led the other counties in aggregate retail sales with $499,840,000 and Pima County ranked second with $210,857,000. Then followed Yuma, Pinal, and Cochise Counties in that order.

The food category of retail sales, among the five major groups listed in table IX-7, comprises the greatest amount of the State's aggregate retail sales of $1,005,655. Automotive, general merchandise, furniture-household-radio, and drug sales follow in that order of importance. Maricopa and Pima Counties, the State's two most populous counties, lead in each category of sales.

Table IX-8 shows the growth of trade with Mexico through the Arizona Customs District. The headquarters port of the Arizona Customs District

6. Source: "Survey of Buying Power," Sales Management (May 10, 1955), Op. Cit., pp. 231-232, Table IX-1.

TABLE IX-7

RETAIL SALES BY TYPE OF OUTLET, BY COUNTIES, 1954 [7]
(In Thousands of $)

County	Food	General Merchandise	Household, Furniture, & Radio	Automotive	Drug	Total
Apache	$ 1,377	$ 4,056	$ 184	$ 887	$ 171	$ 8,680
Cochise	9,717	5,212	1,080	6,499	1,151	36,055
Coconino	4,724	4,148	1,045	5,618	681	28,972
Gila	5,180	4,282	557	2,943	776	20,073
Graham	2,423	1,115	1,131	3,132	341	13,818
Greenlee	3,324	3,050	358	1,312	234	10,104
Maricopa	105,313	49,859	33,607	100,987	17,676	499,840
Mohave	1,905	1,943	106	1,503	188	9,011
Navajo	5,186	6,390	824	3,537	977	27,103
Pima	49,355	26,618	14,318	33,882	10,095	210,857
Pinal	15,572	2,817	1,834	7,188	1,888	48,207
Santa Cruz	2,939	5,135	704	1,929	797	14,699
Yavapai	5,866	1,849	1,192	5,966	880	25,593
Yuma	11,941	5,624	1,507	8,131	1,545	52,733
State	$ 224,822	$122,098	$ 58,447	$ 183,514	$37,400	$1,005,655

TABLE IX-8

U. S. TRADE WITH MEXICO, ARIZONA CUSTOMS DISTRICT, 1940-1954 [8]

Year	Value of Exports	Value of Imports	Total Value
1940	$ 4,027,000	$ 2,859,000	$ 6,886,000
1945	19,861,000	22,509,000	42,370,000
1950	21,935,000	24,390,000	46,325,000
1951	40,515,000	32,050,000	72,565,000
1952	41,177,000	35,791,000	76,968,000
1953	43,100,000	42,400,000	85,500,000
1954*	42,300,000	25,400,000	67,700,000

* Estimate for August.

7. Source: Loc. Cit., Table IX-6.

8. Sources: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 33; Letter received from U. S. Department of Commerce Field Office, Phoenix, June 22, 1955.

is Nogales. It may be noticed that the value of both exports and imports has increased considerably since 1940.

CHAPTER X

FINANCE, INSURANCE, AND REAL ESTATE

The development of banking and finance in Arizona during recent years has been encouraging according to Tables X-1 and X-2. The first table reveals that Arizona led all states in growth of bank capital between December 31, 1950 and December 31, 1954. At the former date

TABLE X-1

ARIZONA TOPS NATION IN BANK CAPITAL GROWTH, DECEMBER 31, 1950 TO DECEMBER 31, 1954 [1]

State	(12-31-50) Capital Funds	(12-31-54) Capital Funds	% Gain
ARIZONA	$ 30,280,771	$ 50,373,831	66.4
Florida	133,685,963	197,494,372	47.7
Texas	487,880,884	715,466,776	46.6
Oregon	94,289,544	132,481,404	40.5
Wyoming	16,665,819	23,305,614	39.8
Michigan	348,345,400	474,339,483	36.2
Louisiana	107,642,677	145,750,511	35.4
Arkansas	62,035,484	83,715,004	34.9
S. Dakota	32,798,191	44,008,048	34.2
Nebraska	90,040,139	120,748,325	34.1

Arizona banks had capital funds amounting to $30,280,771, but this had grown to $50,373,831 by December 31, 1954. Thus, a percentage gain of 66.4 per cent occurred during the four year period. This growth was nearly twenty percentage points greater than that of Florida, the second

1. Source: Arizona Progress (Phoenix: Valley National Bank, July 1955).

TABLE X-2

ARIZONA RANKS THIRD NATIONALLY IN RATE OF BANK DEPOSIT GROWTH, DECEMBER 31, 1950 TO DECEMBER 31, 1954 [2]

State	(12-31-50) Deposits	(12-31-54) Deposits	% Gain
Nevada	$ 178,107,517	$ 279,843,576	57.1
Florida	2,009,447,750	2,958,643,984	47.2
ARIZONA	475,409,934	698,870,098	47.1
New Mexico	360,850,927	490,747,469	36.0
N. Carolina	1,748,741,385	2,343,419,523	34.0
Utah	589,722,592	785,991,793	33.3
Louisiana	1,841,867,771	2,419,449,119	31.3
California	14,248,882,769	18,356,174,359	28.8
Texas	7,443,571,290	9,534,524,436	28.1
Colorado	1,215,834,727	1,551,305,528	27.6

ranking state in bank capital growth during the period.

Arizona also was among the leading states in rate of bank deposit growth between December 31, 1950 and December 31, 1954. Nevada was first with a percentage gain of 57.1 per cent. Arizona ranked third with a growth of 47.1 per cent as its deposits grew from $475,409,934 to $698,870,098 during the period.

Table X-3 denotes the growth of bank deposits in the State yearly from 1940 through 1954. The percentage growth since 1940 has been a phenomenal 598.11 per cent. The 1950-1954 growth was an encouraging 47.36 per cent. Table X-4 gives further proof of the expansion of banking and finance in Arizona during recent years. Debits to individual deposit accounts comprise a generally accepted indicator of economic and business conditions. In Arizona's two leading cities, bank debits have

2. Source: Loc. Cit., Table X-1.

TABLE X-3

GROWTH OF DEPOSITS IN ARIZONA BANKS BETWEEN 1940 AND 1954 [3]

Year (As of Dec. 31)	Total Deposits
1940	$ 99,561,558
1941	112,379,147
1942	172,749,840
1943	229,373,652
1944	288,547,848
1945	369,537,757
1946	394,743,965
1947	413,434,908
1948	424,717,559
1949	417,492,357
1950	471,669,035
1951	536,096,163
1952	617,261,001
1953	641,833,880
1954	695,052,812
% Gain, 1940-1954	598.11
% Gain, 1950-1954	47.36

TABLE X-4

GROWTH OF BANK DEBITS IN PHOENIX AND TUCSON, 1950-1954 [4]

Year	Phoenix	Tucson
1950	$ 2,610,488,000	$ 753,746,000
1951	3,229,388,000	966,210,000
1952	3,625,599,000	1,127,537,000
1953	3,647,253,000	1,277,255,000
1954	3,931,547,000	1,314,387,000
% Gain, 1950-1954	50.60	74.38

3. Sources: Arizona Statistical Review, 1954 (Phoenix: Valley National Bank, 1954), p. 18; Arizona Progress (April 1955), Op. Cit., Table X-1.

4. Sources: Arizona Statistical Review, 1954, Op. Cit., p. 19, Table X-3; Arizona Progress (January 1955), Op. Cit., Table X-1.

risen significantly since 1950. The gain in Phoenix was from $2,610,488,000 to $3,931,547,000 (50.60 per cent) while the bank debits in Tucson increased from $753,746,000 to $1,314,387,000 (74.38 per cent) between 1950 and 1954.

The evidence of growth in finance and banking sector of the Arizona economy, as set forth in the tables already shown, is very encouraging. Capital is necessary to finance industrial expansion as well as other dynamic economic developments within the State's economy. There can be no doubt that the greater the financial facilities of the economy, the greater also will be the capability of significant economic development within the economy.

Purchases of regular ordinary life insurance in the State in 1954 amounted to $131,000,000.[5] In 1954, according to Life Insurance Fact Book, the total number of life insurance policies in force amounted to 635,000 in Arizona, which in dollar value was $1,239,000,000. This amounted to $3,900 per family, not a particularly large amount. In fact, there were some forty-four states (including the District of Columbia) which ranked ahead of Arizona in life insurance per family.[6]

An indicator of real estate activity is the number of deeds recorded. Table X-5 presents the total number of real estate deeds recorded in Maricopa and Pima Counties yearly since 1950. In 1954 there were 30,733 deeds recorded in the State's largest county in population,

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5. Life Insurance Fact Book, 1955 (New York: Institute of Life Insurance, 1955), p. 20.

6. Ibid., p. 10.

TABLE X-5

GROWTH IN NUMBER OF REAL ESTATE DEEDS RECORDED IN MARICOPA AND PIMA COUNTIES, 1950-1954 [7]

Year	Maricopa County	Pima County
1950	24,179	10,801
1951	25,419	12,149
1952	26,748	13,678
1953	28,044	11,476
1954	30,733	12,461
% Gain, 1950-1954	27.10	15.36

TABLE X-6

COUNTY DISTRIBUTION OF FINANCE-INSURANCE-REAL ESTATE EMPLOYMENT IN ARIZONA, APRIL 1955 [8]

County	Number Employed	% of State Total
Apache		0.0
Cochise	200	2.4
Coconino	200	2.4
Gila	100	1.2
Graham		0.0
Greenlee		0.0
Maricopa	5,700	67.8
Mohave		0.0
Navajo	100	1.2
Pima	1,500	17.8
Pinal	100	1.2
Santa Cruz	100	1.2
Yavapai	200	2.4
Yuma	200	2.4
State Total	8,400	100.0

7. Sources: Arizona Statistical Review, 1954, Op. Cit., p. 15, Table X-3; Arizona Progress (January 1955), Op. Cit., Table X-1.

8. Source: Information received directly from Arizona State Employment Service, Phoenix, June 7, 1955.

Maricopa, while Arizona's next most populous county, Pima, recorded 12,461 real estate deeds. The Maricopa County total represents a percentage increase of 27.10 per cent over 1950 and the Pima County figures show a gain of 15.36 per cent.

The final table in this chapter exhibits the distribution of finance-insurance-real estate employment among the fourteen counties of Arizona. Maricopa County has 67.8 per cent of the total number of employees in this sector of the economy. Apache, Graham, Greenlee, and Mohave Counties show little employment in this type of work.

CHAPTER XI

GOVERNMENT

Growth of the government sector of the Arizona economy is not a development of the last two or three years. Table II-3 in the earlier chapter on employment reveals that between 1940 and 1950 the growth in government employment in the State was 74.74 per cent as compared to a national average growth of 42.93 per cent for the same period. The earlier table also shows that government employment in Arizona increased at a more rapid rate than the national average gain during the 1950-1954 period. Table II-12 in the employment section indicates that Arizona ranked fourth among the states in growth of employment in the government sector between 1940-1950 and ninth during 1950-1954. Thus we can deduce that government employment has been increasing at a more rapid rate in this State than it has in the nation as a whole.

Table XI-1 in this chapter on the government sector of the economy gives a more specific analysis of the growth in this sector than do the earlier tables. It displays the significant fact that federal (civilian), state, and local segments of the aggregate government sector all have registered noteworthy gains in employment since 1950. The aggregate percentage growth between October 1950 and October 1954 was 22.66 per cent with local government having the greatest individual percentage gain, 31.97 per cent. The growth in state government employment was 20.67 per cent and in federal employment, 12.33 per cent for the period. Thus we

see that the expansion of the government sector is characterized by growth in all three segments -- federal, state, and local.

Government employment and income as proportions of total or aggregate employment and income are greater in Arizona than in the United States taken as a whole. This was indicated in the sections on employment and income earlier in this paper. However, a brief repetition here seems justified. Table II-7 in the chapter on employment demonstrates that during 1954 government employment in Arizona comprised a sizable 20.2 per cent of non-agricultural employment while in the United States as a unit it comprised only 14 per cent of total nonagrcultural employment. The Phoenix area had 18.5 per cent and the Tucson area had 19.8 per cent of their total nonagricultural employment in the government sector. Thus Phoenix and Tucson are both well above the national average in this regard, but are slightly below the average for Arizona. Table III-5 in the chapter on income reveals, as would logically be expected from what previously has been said, that income payments originating in government employment are greater as a percentage of total income in Arizona than they are for the nation as a whole. However, the proportion of government income payments in Arizona are only slightly greater than the proportion for the Southwestern states considered as a unit, 19.4 per cent as compared to 19.0 per cent. This indicates that the greater importance of the government sector in Arizona is closely related to an added emphasis on this economic sector throughout the whole southwestern region.

Table XI-2 in this chapter exhibits percentage distribution of government employment in Arizona among the federal, state, and local segments of the

TABLE XI-1

GROWTH OF FEDERAL, STATE, AND LOCAL GOVERNMENT EMPLOYMENT IN ARIZONA, OCTOBER, 1950 AND OCTOBER, 1954[1]

Year (Oct.)	Number of Government Employees			
	Federal (Civilian)*	State	Local	All Govt. Total
1950	12,868	6,679	15,705	35,252
1954	14,455	8,060	20,727	43,242
Per cent gain, 1950-1954	12.33	20.67	31.97	22.66

* Federal data are from Bureau of Labor Statistics.

TABLE XI-2

PERCENTAGE DISTRIBUTION OF FEDERAL, STATE, AND LOCAL GOVERNMENT EMPLOYMENT IN ARIZONA, OCTOBER 1950 AND OCTOBER 1954[2]

Year (Oct.)	Percentage Distribution of Government Employees			
	Federal (Civilian)	State	Local	All Govt. Total
1950	36.5	18.9	44.6	100.0
1954	33.4	18.7	47.9	100.0

total government sector. Inboth 1950 and 1954 local government employment was the greatest proportion of total employment in government, its 1950 share being 44.6 per cent and its 1954 share being 47.9 per cent. Federal

1. Sources: State Distribution of Public Employment in 1950 (Washington: U. S. Dept. of Commerce, Bureau of the Census, March 1951), p. 10; State Distribution of Public Employment in 1954 (Washington: U. S. Dept. of Commerce, Bureau of the Census, May 9, 1955), p. 13.

2. Sources: State Distribution of Public Employment in 1950, Op. Cit., p. 16; Table LXXXVI; State Distribution of Public Employment in 1954, Op. Cit., p. 13, Table LXXXVI.

(civilian) government employment ranked second during both years, but showed a decrease from 36.5 per cent in 1950 to 33.4 per cent in 1954. The third segment of total government, state government, registered 18.9 per cent of total government employment in 1950 and 18.7 per cent in 1954.

Some notion of the importance of government to the Arizona economy can be grasped from the realization that in October, 1954, the payroll for just state and local governments in the State amounted to $8,190,000.[3] Nearly half of the 28,787 state and local government employees in Arizona during October of 1954 were employed in educational activities while those employed in highway work ranked second behind education.[4] The Valley National Bank in Arizona Progress for June, 1955 states that government employees in the State earn $150 million annually.[5]

Geographical distribution of government employment (excluding military personnel) in the State finds the Phoenix and Tucson areas combined having 26,300 of the 40,800 government employees in Arizona, during April of 1955. This data may be found in Table II-7 in the chapter on employment. This large proportion for the Phoenix and Tucson areas is not surprising, however, in light of the population in these areas and the fact that so many of the government employees are working in education, which has a high correlation with population.

In summary it may be noted that government employment has been increasing in Arizona over the past fourteen years. Yet it is not increasing at

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3. State Distribution of Public Employment in 1954, Op. Cit., p. 14.

4. Ibid., p. 18.

5. Arizona Progress (Phoenix: Valley National Bank, June 1955).

as fast a rate as some other sectors of the Arizona economy. Table II-8 in the employment section shows that in 1950 government employment was 19.6 per cent of total nonagricultural employment in Arizona. By 1950 this proportion had risen to 21.5 per cent, but since 1950 the proportion has fallen to 20.2 per cent despite the increase in actual numbers of government employees during the time. Hence government employment, though showing significant growth, is growing at a rate slightly below the growth rate for nonagricultural employment as a whole in the State. Yet this should not overshadow in any way the importance of the government sector to the economy of Arizona.

CHAPTER XII

THE TOURIST INDUSTRY

In tourism the Arizona economy possesses perhaps its greatest asset for future development. The Arizona scene provides variety in climate, scenery, and historical interest adequate to meet the needs of nearly every conceivable tourist desire. Whether it be the profound dignity of the Grand Canyon or the high forests of the White Mountains which the tourist desires, Arizona can suit his needs. Other attractions, among which are Oak Creek Canyon and the Indian reservations, are too numerous to mention. Probably the only major tourist asset which Arizona cannot offer to the tourist is an ocean; however, the Arizona climate is probably much better off because of its lack of immediate proximity to moist ocean air.

Table XII-1 exhibits the growth in Arizona's tourist industry since 1949. These figures compiled by the Bureau of Business Research at the University of Arizona reveal a 33.33 per cent gain in tourist expenditures by out-of-state tourists between 1949 and 1954 and, if 1955 estimates prove to be accurate, the percentage growth since 1949 in Arizona tourist expenditures will be 40.74 per cent. Between 1949 and 1952 the tourist expenditures registered yearly gains. However, the 1953 total was the same as that for 1952 and the 1954 figure is slightly smaller. The obvious explanation for this leveling off of out-of-state tourist expenditures in Arizona during 1953 and the slight drop in 1954 is found in the nationwide recession which occurred during this time. The table also reveals that

Southern Arizona tourist expenditures declined in both 1953 and 1954 from the previous year while Northern Arizona expenditures declined just between 1953 and 1954. This seems to indicate that the Southern Arizona tourist industry is more susceptible to national cyclical fluctuations than the Northern Arizona part of the industry.

TABLE XII-1

ESTIMATED EXPENDITURES IN ARIZONA BY OUT-OF-STATE TOURISTS, BY REGION, 1949-1955[1]

Year	Northern Arizona	Southern Arizona	State Total
1949	$27,000,000	$108,000,000	$135,000,000
1950	30,000,000	115,000,000	145,000,000
1951	33,000,000	132,000,000	165,000,000
1952	37,000,000	148,000,000	185,000,000
1953	40,000,000	145,000,000	185,000,000
1954	39,000,000	141,000,000	180,000,000
1955*	41,000,000	149,000,000	190,000,000
Per Cent Increase 1949-1954	44.44	30.55	33.33
Per Cent Increase 1949-1955*	51.85	37.96	40.74

*Preliminary

The Northern Arizona tourist industry has shown greater percentage growth since 1949 than the Southern Arizona segment of Arizona tourism. Nevertheless, the Southern Arizona tourist industry still holds a considerable lead over its northern counterpart in total dollar volume.

Table XII-2 displays the growth in hotel and lodging employment in the State during successive Januarys between 1947 and 1955. The percentage gain for the increase from 4,400 employees to 5,000 employees during this

1. Source: Bureau of Business Research, University of Arizona.

period is 13.63 per cent. The 1954 figure shows a slight decline from 1953, apparently because of the already discussed national recession at this time. An encouraging aspect to be deduced from the tables already discussed in this section is the fact that the Arizona tourist industry did not undergo a serious decline during the recession. Both tables so far discussed evidence the comparatively minor consequences occurring in the Arizona tourist industry as a result of the national recession.

TABLE XII-2

EMPLOYMENT IN ARIZONA HOTELS AND LODGING PLACES, JANUARY 1947 - JANUARY 1955[2]

Year (January)	Employment
1947	4,400
1948	4,700
1949	4,700
1950	4,400
1951	4,700
1952	4,500
1953	5,000
1954	4,900
1955	5,000
Per Cent Increase 1947-1955	13.63%

Tourism, despite being smaller in volume in Northern Arizona than in Southern Arizona, is more important to the economy of that section of the State than the Southern Arizona industry is to the southern part. This is shown in Table XII-3 which reveals out-of-state highway travel as a percentage of total travel. In 1954, more than 58 per cent of Northern Arizona

2. Source: Loc. Cit., based on Arizona Employment Security Commission data.

highway travel was by out-of-state tourists while the percentage for the same year in Southern Arizona was just 35.6 per cent. The Arizona average for 1954 was 44.2 per cent. Thus we see that the tourist industry is of more basic importance to Northern Arizona than it is to Southern Arizona or to the State as a whole.

Tables XII-4 and XII-6 help one to understand why Arizona is such an attraction for tourists as well as to those seeking permanent homes. By referring to the chart it may be recognized that a wide temperature variation exists among the fourteen counties during both winter and summer. For example, in January one may enjoy either the 27.2 degrees at Flagstaff in beautiful Coconino County or may enjoy the 54.6 degrees in Yuma, the choice depending upon the tourist's individual preference. Needless to say, more choose Yuma and the southern section of the state during the winter period and as a result the Southern Arizona tourist industry is largely, but not exclusively, of the winter tourist variety. The July temperatures range from an average of 65.2 degrees at Flagstaff to 91.0 degrees at Yuma. Again the tourist has a wide choice depending upon his preference, but the Northern Arizona area of the Arizona tourist industry obviously assumes greater importance during the summer months. The seasonal characteristics of the northern and southern Arizona tourist industries are more specifically shown in Table XII-5.

Besides being served by more than adequate railroad, airline, and bus services, Arizona is crossed by such important transcontinental highways as U. S. Highways 66, 60, 70, and 80, as well as the important north-south route, U. S. 89. The latter highway has assumed even greater prestige since the completion of the new Mexican West Coast highway to Mexico City

TABLE XII-3

OUT-OF-STATE TRAVEL AS A PER CENT OF TOTAL HIGHWAY TRAVEL IN ARIZONA*, 1941 AND 1949-1954[3]

Year	Northern Arizona	Southern Arizona	Total Arizona
1941	59.5	30.8	41.8
1949	56.8	39.5	45.4
1950	56.6	36.7	43.9
1951	59.7	38.6	46.0
1952	62.8	37.4	46.3
1953	61.2	35.8	45.1
1954	58.7	35.6	44.2

*As represented by annual average 24-hour vehicle miles traveled by out-of-state passenger cars on rural sections of Arizona state highway routes.

TABLE XII-4

JANUARY AND JULY AVERAGE TEMPERATURES IN ARIZONA, BY COUNTY[4]

County and Place of Measurement	January Average	July Average
Apache - Springerville	31.1	66.3
Cochise - Bisbee	46.4	76.3
Ccconino - Flagstaff	27.2	65.2
Gila - Globe	44.1	82.3
Graham - Thatcher	43.9	82.8
Greenlee - Clifton	45.5	85.4
Maricopa - Phoenix	51.8	90.3
Mohave - Kingman	43.3	82.3
Navajo - Winslow	31.2	77.2
Pima - Tucson	49.6	85.1
Pinal - Florence	50.6	90.0
Santa Cruz - Nogales	46.3	79.8
Yavapai - Prescott	35.0	72.5
Yuma - Yuma	54.6	91.0

3. Source: Bureau of Business Research, University of Arizona, based on Arizona Highway Department data.

4. Source: Climate and Man, U. S. Department of Agriculture (Washington: U. S. Government Printing Office, 1941), pp. 761-764.

because it has become the United States connecting point with the new Mexican highway. John P. Arnold writes:

> Highway 89 should be considered a northward extension of Mex. 15 into the United States. It runs to the Canadian border and intersects all of the important east-west highways of this country. It also transfers to the Canadian highway system and the Alaska highway, and thus there is a continuous thoroughfare -- a major portion of the Pan-American system -- from Fairbanks, Alaska, to the Guatemalan border.[5]

Hence the completion of the Mexican West Coast Highway has added importance to the existence of U. S. Highway 89 in Arizona. Table XII-7 displays this fact.

TABLE XII-5

INDEX OF SEASONAL VARATIONS IN SOUTHERN AND NORTHERN ARIZONA'S TOURIST TRADE[6]

Month	Index of Occupancy* - All Types of Accommodation	
	Northern Arizona	Southern Arizona
Average Month = 100%		
January	58	122
February	66	137
March	73	125
April	92	102
May	106	87
June	142	80
July	137	80
August	155	78
September	117	81
October	107	93
November	73	104
December	74	111

*Computed for period March 1949 through September 1954.

5. John P. Arnold, Arizona Daily Star (Tucson), February 24, 1955, p.2.

6. Source: J. Shirer, "New Measures of Arizona's Tourist Trade," Arizona Business and Economic Review, IV (May 1955), p. 3.

TABLE XII-6

SUNSHINE AT SELECTED LOCATIONS IN THE WEST[7]

State	City	Average Annual Number of Hours of Sunshine	Per Cent of Possible Sunshine
ARIZONA	Phoenix	3,752	84
	Yuma	4,031	90
California	Fresno	3,557	80
	Los Angeles	3,217	72
	San Francisco	2,935	66
Colorado	Denver	2,971	67
Idaho	Pocatello	2,827	63
Montana	Helena	2,666	58
Nevada	Reno	3,370	76
New Mexico	Albuquerque	3,408	77
Oregon	Portland	2,153	48
Utah	Salt Lake City	3,067	69
Washington	Seattle	2,049	43
Wyoming	Cheyenne	2,926	66

Table XII-6, which exhibits a comparative picture of sunshine at a number of western locations, speaks well indeed for Arizona. This table, in fact, does much to reveal the primary reason why so many tourists come to Arizona. Phoenix has an annual average of 3,752 hours of sunshine which is 84 per cent of all possible sunshine, while Yuma with 4,031 hours of sunshine per year has 90 per cent of possible sunshine. Compare this with the 43 per cent in Seattle, the 48 per cent in Portland, and the 58

7. Source: Western Resources Handbook (Stanford, California: Stanford Research Institute, Dept. of Industrial Economics), Vol. I, based on U. S. Department of Commerce data.

per cent in Helena and you can see why tourists choose Arizona as a vacation place.

TABLE XII-7

TOURIST VEHICLES AND TOURISTS ENTERING MEXICO THROUGH NOGALES, 1954 and 1955[8]

Month	Vehicles		Persons
	1954	1955	1955
January	1,920	3,298	6,294
February	1,994	2,921	6,185
March	1,681	2,583	4,872
April	1,893	2,865	5,119
May	1,611	2,333	4,068
Totals	9,099	14,000	26,538

In conclusion, it must be admitted that tourism holds great potentiality in relation to Arizona's future economic picture. It already is an important sector of the State economy, as evidenced by the 1954 expenditures by out-of-state tourists amounting to some $190,000,000. Yet, the future can hold an even greater significance for Arizona tourism. The general trend throughout the nation in recent times has been toward more leisure time and greater emphasis on vacationing. Many factors are responsible for this, among them such factors as automation, paid vacations, and motor vehicle improvements standing out in importance. Arizona must attempt to derive its share of this national emphasis on tourism. Possessing the scenic, climatic, and historical attractions to bring the tourist to Arizona, the State must see that more and more tourists do come.

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8. Source: John P. Arnold, Arizona Daily Star (Tucson), July 1, 1955, p. 7.

Arizona Highways, published by the State Highway Department, for years has been doing a fine job of selling Arizona. The contributions by this publication have been considerable. Arizona must realize the important potential involved in further development of tourism within the State, and then take the necessary steps to achieve this objective.

CHAPTER XIII

WATER

> "Arizona, as we know, lies in what is termed an arid section of the united states. This, of course, implies that the state lies in an area that normally receives relatively small annual precipitation as compared with areas of other climatic structures, such as the Pacific Northwest, the Mississippi Valley or the eastern states." [1]

Rainfall in Arizona is quite variable according to such factors as elevation and location. Table XIII-1 in this chapter shows average annual precipitation at selected stations in the fourteen counties of the State. The range extends from a minimum of 3.58 inches at Yuma in southwestern Arizona (and near sea level in elevation) to 20.92 inches at Flagstaff (elevation 6,895) in northern Arizona.

Besides the Colorado River, the principal rivers in Arizona which provide the all-important item, water, to Arizona's cities and irrigated farms are the Gila, Verde, and the Salt. The Verde River, which flows generally southeastward through central Arizona towards its confluence with the Salt, has two dams, Bartlett and Horseshoe. These have a combined reservoir capacity of 322,000 acre feet of water.[2] The Salt River has four important dams, all situated northeast of Phoenix. These are the Stewart Mountain, Mormon Flat, Horse Mesa, and Roosevelt Dams. The

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1. L. R. Jurwitz, "Rainfall in Arizona," Arizona Highways, XXX (July 1954), p. 8.

2. W. G. V. Balchin and N. Pye, "Recent Economic Trends in Arizona," The Geographical Journal, CXX (June 1954), p. 161.

largest of these is Roosevelt Dam. The combined reservoir capacity of these Salt River dams is 1,755,000 acre feet of water.[3] Another sizable dam, Coolidge, is located on the Upper Gila River and has a reservoir capacity of 1,200,000 acre feet.[4]

TABLE XIII-1

AVERAGE PRECIPITATION IN ARIZONA, BY COUNTY[5]

County and Place of Measurement	Annual Average Precipitation, In Inches
Apache (Springerville)	13.14
Cochise (Bisbee)	19.53
Coconino (Flagstaff)	20.92
Gila (Globe)	16.50
Graham (Thatcher)	9.65
Greenlee (Clifton)	13.17
Maricopa (Phoenix)	7.62
Mohave (Kingman)	10.94
Navajo (Winslow)	8.34
Pima (Tucson)	11.16
Pinal (Florence)	10.31
Santa Cruz (Nogales)	16.12
Yavapai (Prescott)	20.71
Yuma (Yuma)	3.58

The proposed Central Arizona Project would be a considerable economic asset to the State of Arizona. This undertaking is a proposed reclamation project which plans to take 1,200,000 acre feet of water from the Colorado River at Lake Havasu, north of Parker Dam, lift it 985 feet by pump, and then allow the water to flow by gravity a distance of 245 miles to Maricopa and Pinal Counties where it can be utilized for agricultural purposes. The project primarily involves construction of

3. Ibid., p. 158.

4. Loc. Cit.

5. Source: Climate and Man, U. S. Department of Agriculture (Washington: U. S. Government Printing Office, 1941), pp. 761-764.

Bridge Canyon Dam above Lake Mead; pumping stations at Parker; and the necessary aqueduct and canals to carry the water to the central part of Arizona. Included within the general sphere of the planned Central Arizona project also would be Coconino Dam on the Little Colorado River for silt control; Butte Dam above Florence and below the meeting of the San Pedro and Gila Rivers; Charleston Dam on the Upper San Pedro River, and other improvements necessary to help the water situation of the State.[6] However, before such a project could be undertaken, the state-by-state legal allotments of the Lower Colorado Basin water must be determined. One thing is certain, namely, that should the Central Arizona Project ever reach realization, the State will greatly profit from the generous quantities of added water which will become available.[7]

Another advantage to Arizona from further development of the Colorado River would be increased hydroelectric power. Regarding present Colorado River developments, Arizona receives roughly about one-half of the power generated at Parker Dam, one-seventh of Hoover Dam power and one-half of the power generated at Davis Dam.[8] The proposed Bridge Canyon project would greatly facilitate the satisfying of Arizona's power needs. In addition, if the proposed Marble Canyon and Glen Canyon projects should be undertaken, the power requirements of Arizona would be even more fully

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6. The Central Arizona Project (Phoenix: The Central Arizona Project Association), p. 1.

7. cf. Appendix A., post.

8. J. C. Weissmiller and J. Shirer, "Arizona's Energy Base, 1949-1952, Part I: Electric Power," Arizona Business and Economic Review, III (March 1954), p. 6.

TABLE XIII-2

TOTAL COST OF WATER PER ACRE OF IRRIGATED LAND AND TOTAL COST PER ACRE-FOOT OF WATER, WESTERN STATES, 1949 [9]

Western States	Total Cost of Water to Farms	
	Cost Per Acre of Irrigated Land	Cost Per Acre-Foot of Water*
ARIZONA	$ 14.78	$ 3.70
California	9.85	3.18
Colorado	1.77	0.61
Idaho	2.83	0.53
Kansas	2.63	1.55
Montana	1.39	0.42
Nebraska	3.40	1.79
Nevada	0.87	0.29
New Mexico	5.33	1.84
North Dakota	3.14	1.31
Oklahoma	2.99	5.98
Oregon	2.47	0.73
South Dakota	1.73	1.08
Texas	6.60	2.87
Utah	1.94	0.63
Washington	6.64	1.28
Wyoming	1.15	0.44
Western States	$ 5.38	$ 1.58

* Average cost per acre of irrigated land divided by calculated average quantity of water per acre.

satisfied. The estimated undeveloped water power for Arizona as of January, 1953, was placed at 3,291,000 kilowatts.[10] The development of only a portion of this amount could greatly enhance the economic future of Arizona.

Table XIII-2 provides indisputable evidence of the value of water to the economy of Arizona. The fact that the cost of water per acre of

9. Source: U. S. Census of Agriculture, 1950, U. S. Department of Commerce, Bureau of the Census (Washington: U. S. Government Printing Office, 1952), Vol. III, p. 67.

10. Statistical Abstract of the United States, 1954, U. S. Department of Commerce, Bureau of the Census (Washington: U. S. Government Printing Office, 1954), p. 552.

TABLE XIII-3

TOTAL COST OF WATER PER ACRE OF IRRIGATED LAND AND TOTAL COST PER ACRE-FOOT OF WATER, ARIZONA COUNTIES, 1949 [11]

County	Total Cost of Water to Farms	
	Cost Per Acre of Irrigated Land	Cost Per Acre-Foot of Water*
Apache	$ 2.78	$ 1.03
Cochise	12.79	**
Coconino	2.32	1.05
Gila	4.91	1.53
Graham	9.96	1.69
Greenlee	6.16	1.50
Maricopa	15.31	3.92
Mohave	8.53	2.13
Navajo	3.98	1.66
Pima	16.77	4.09
Pinal	16.09	6.19
Santa Cruz	13.64	**
Yavapai	7.12	1.58
Yuma	15.15	2.75
State	$ 14.78	$ 3.70

* Average cost per irrigated acre divided by calculated average quantity of water per acre.
** Average not given because number of enterprises reporting quantity of water was not sufficient to provide satisfactory data.

irrigated land is greater in Arizona than in any of the other western states is indicative of its relative scarcity and value in the State. According to the Agricultural Census of 1950, the average cost of water per acre of irrigated land for the western states in 1949 was $5.38 while the Arizona cost was $14.78. The cost per acre-foot of water for agriculture was greater in Arizona than in any of the other western states, except Oklahoma. The western states' average cost per acre-foot of water to farms in 1949 was $1.58 while the Arizona cost was $3.70.

11. Source: U. S. Census of Agriculture, 1950, Op. Cit., p. (1-17), Table XIII-2.

Table XIII-3 shows a county distribution of water costs to farms in Arizona. It is significant that the State's leading agricultural counties, Maricopa and Pinal, have very high water costs both per acre of irrigated land and per acre-foot of water. There can be no underestimation of the importance of water to the economy of the State. Every effort must be made to utilize to best advantage all potential water resources belonging to Arizona.

CHAPTER XIV

CONCLUSIONS

Throughout this analysis of the Arizona economy one prevailing tendency has dominated the scene -- GROWTH. The Arizona economic picture is a dynamic one involving change and expansion. First, we noted the rapid rate of population growth occurring in the State. The gain between 1953 and 1954 alone was 6.8 per cent and the Arizona population has now reached the one million mark. This increase in population has taken place percentagewise in all except one Arizona county for the 1950-1955 period; and the percentage decrease in this one county was not great. We also saw that Arizona is destined to hold a greater share of the population of the mountain states in 1960 and 1965 than its present proportion.

The employment chapter revealed to us the growth in State employment, the factor which must necessarily expand along with population in order to support the added population. During the 1950-1954 period Arizona nonagricultural employment increased at a more rapid rate than the national averages in each specific category of such employment. The income chapter indicated the growth in Arizona income, just as the succeeding chapters exhibited economic expansion in the various sectors of the Arizona economy. Latest reports even have mining in Arizona on the upturn after a general percentage decrease in production during the 1950-1954 period.

When a state has a rapidly increasing population such as Arizona's, it is very necessary to have an expanding, balanced, and healthy economy if serious problems of an economic nature are to be avoided. It appears definite that Arizona's economy is growing and expanding along with the population. However, one serious danger spot in the Arizona economic picture still remains -- lack of diversification. An index of diversification of the economies of the various states published in December of 1953 shows that Arizona ranked thirty-fourth among the states in degree of economic diversification.[1] This lack of balance in the economy is probably not as serious as the number thirty-four ranking would lead one to believe since the median index was 71.6, not greatly ahead of Arizona's 64.4 index.[2] Yet a lack of diversification or balance does exist, at least to some degree, and every possible step to give the State a more diversified economy should be utilized.

It is a commonly accepted principle that an agricultural economy is not conducive to the support of a large population. Yet agricultural income comprises 15.6 per cent of total income payments in Arizona while for the nation as a whole it comprises just 5.3 per cent of aggregate income. This is just one example of the lack of diversification in the economy of the State. Another example can be found by considering the role played by manufacturing as an income payment source in Arizona. Statistics show that manufacturing payrolls are responsible for 7.6 per cent of total income payments in Arizona, a not too encouraging proportion when one considers the 25.7 per cent share contributed by manufacturing to the

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1. J. Shirer, "Economic Diversification in Arizona," Arizona Business and Economic Review, II (December 1953), p. 1.

2. Loc. Cit.

aggregate income payments of the nation. Thus despite the rapid strides in Arizona manufacturing during recent years, the achievements have still not been great enough to bring manufacturing to its desired importance as a sector of the Arizona economy. It is encouraging, however, that such organizations as the Arizona Development Board have been instituted in order to help bring greater industrialization to the Arizona economic scene. There is every reason to believe that continuing successes will be realized in the movement toward a more diversified State economy. A favorable decision by the Interstate Commerce Commission in the freight-rate question would prove to be a significant impetus to Arizona industrialization. Arizonans should take pride in the industrial achievements of the past few years, but should also realize that continued efforts are necessary in order to further industrialize the economy.

The tourist industry and manufacturing comprise the general economic sectors which should receive special emphasis in Arizona's economic future. The role of manufacturing or industrialization has just been discussed; the tourist industry now merits a few remarks. We saw in the tourist industry chapter that a 33 per cent gain was registered between 1949 and 1954 in out-of-state tourist expenditures in Arizona. This indication of an expanding Arizona tourist industry is most encouraging. Americans are more and more becoming vacation enthusiasts. Automation, paid vacations, improved automobiles, and the like are making tourism an economic sector of greater magnitude in the United States. Arizona has considerably more to offer tourists than most states and thus should, by all means, make every effort to capitalize on the trend toward more vacations and leisure.

In the forty-three years that Arizona has been a state the Arizona economy has realized admirable growth and progress. Deserts have been conquered for agriculture; precious water has been gathered into reservoirs; irrigation systems have been constructed; cities have been built; manufacturing has become increasingly more important; and Arizona's greatest natural asset -- a superb climate -- has been used as a foundation for a successful tourist industry. The first half of the Twentieth Century has thus seen estimable accomplishments in the Arizona economic scene. Nevertheless, there is every reason to believe that Arizona's greatest accomplishments lie in the years ahead.

APPENDIX A

TOTAL NEW WATER DEVELOPED UNDER THE CENTRAL ARIZONA PROJECT[1]

Source of Water	Acre-Feet
Colorado River	1,200,000
Less aqueduct losses	250,000
Total	950,000
Developed on Verde River by Horseshoe Dam enlargement	42,000
Developed on Gila River:	
Buttes Dam	64,000
Developed in upper Gila area	19,000
Total	83,000
Developed on San Pedro River by Charleston Dam	7,000
Total new water developed	1,082,000

1. Source: Hearings Before the House of Representatives Committee on Interior and Insular Affairs on H. R. 1500 and H. R. 1501 Authorizing the Construction, Operation, and Maintenance of a Dam and Incidental Works in the Main Stream of the Colorado River at Bridge Canyon, Together with Certain Appurtenant Dams and Canals, and for Other Purposes, 82nd Congress, 1st Session, Part 1, Serial No. 2, p. 73.

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