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Valley inflation held near 1 percent in fourth quarter

Phoenix area inflation continued at a moderate pace during fourth quarter 1989. The seasonally adjusted increase of 1.0 percent was in the middle of the 0.7 to 1.3 percent range that prevailed in 10 of the 12 quarters between the beginning of 1987 and the end of 1989.

Prior to seasonal adjustment, the Metropolitan Phoenix Consumer Price Index rose 0.6 percent to 127.8 (1982-84 = 100). After four consecutive quarters of annual increases between 5.0 and 5.4 percent, the gain from year-end 1988 to year-end 1989 was only 4.3 percent.

The acceleration in the inflation rate was short-circuited in mid-1989 by Federal Reserve Board actions, a weakening economy and returned stability in agricultural prices. The relatively slow economy in the Phoenix area has helped hold inflation in check, particularly in housing, so that the annual inflation rate in the Phoenix area has slipped below the national average.

COMPONENT INDEXES

Fourth quarter inflation rates varied considerably by major category (see Table 1). Large gains in the transportation and other goods and services categories were partially negated by deflation in the apparel and upkeep and entertainment groupings.

Food and Beverages

For the second consecutive quarter, food and beverage prices were nearly stable. An increase in food away from home prices was offset by lower prices for grocery items and alcoholic beverages.

The index for three food-at-home sub-categories — fruits and vegetables; meats, poultry, fish and eggs; and cereals and bakery products — declined. In contrast, the

Annual rate lower than U.S.

advance in the dairy products subgroup was the largest in three years. In several cases, including beef and poultry, prices were lower at year-end 1989 than at year-end 1988.

Housing

Housing inflation during the fourth quarter was slightly greater than in the three prior quarters, even though shelter costs

barely changed. Renters' costs increased modestly while homeowners' costs declined marginally (see Table 2). Inflation in the rest of the housing category was somewhat greater, especially household furnishings and operations, which had shown a large decrease in the third quarter.

Compared to year-end 1988, housing costs were less than 2 percent higher at year-end 1989. Both renters' costs and homeowners' costs were barely more than 2 percent higher, while electricity rates were hardly different and piped gas rates were lower.

Transportation

High inflation returned to the transportation category in the fourth quarter following a one-quarter interruption. Gasoline prices and airline fares were mostly responsible for the acceleration. Each rose more than 7 percent in the fourth quarter; their annual increases were in excess of 14 percent. In contrast, car prices and auto insurance rates were nearly stable.

Transportation costs rose nearly 8 percent during the year, with increases of more than 12 percent for used cars, motor fuels, public transportation and vehicle rental and registration.

Medical Care

Health care inflation moderated considerably during the fourth quarter of 1989. Prescription drug prices and health insurance premiums advanced significantly (health insurance premiums rose 18 percent during 1989), but little change was measured in the professional medical services and hospital and related services sub-categories. The annual increase, however, exceeded 9 percent in each of the latter two

I N S I D E	
4th Quarter CPI	Cover
Average Size, Average Wage	3
Mobility	4
Population Projections	6
Business Location Factors	8
Revenue/Expenditure Update	9
October Coincident Indexes	10
December Purchasing Survey	10
November Leading Index	11
AZ Economic Indicators	12

TABLE 1

PERCENT CHANGES IN METROPOLITAN PHOENIX CONSUMER PRICE INDEX

Expenditure Category	Relative Importance	Seasonally Adjusted from Preceding Quarter							
		1st 1988	2nd 1988	3rd 1988	4th 1988	1st 1989	2nd 1989	3rd 1989	4th 1989
ALL ITEMS	100.0	0.8	1.3	0.9	2.0	1.1	1.3	0.9	1.0
Food and Beverages	16.5	0.9	2.0	1.3	1.4	1.9	1.9	0.1	0.1
Housing	41.7	1.0	0.2	0.4	1.7	-0.1	0.4	0.6	1.0
Apparel and Upkeep.....	6.1	2.3	2.9	3.6	1.5	0.7	0.3	5.6	-3.2
Transportation	19.3	-0.5	2.4	1.0	3.1	3.0	1.9	-0.7	3.7
Medical Care	6.8	0.3	3.3	0.4	2.8	1.2	2.3	4.6	0.9
Entertainment	4.6	1.2	0.1	1.2	3.6	2.1	3.7	1.6	-3.1
Other Goods and Services	5.0	2.2	0.9	0.8	1.1	1.2	1.4	0.4	3.6

TABLE 2

METROPOLITAN PHOENIX CONSUMER PRICE INDEX
Fourth Quarter 1989

Expenditure Category	Index (1982-84 = 100)		Percent Change from	
	Last Quarter	This Quarter	Last Quarter *	Year-Ago Quarter
ALL ITEMS	127.0	127.8	1.0	4.3
Food and Beverages	127.2	126.6	0.1	4.0
Food	126.3	125.7	0.5	4.2
Food at Home	131.3	129.2	-0.6	4.7
Cereal and Bakery Products	147.4	144.6	-1.4	8.6
Meats, Poultry, Fish, and Eggs	120.1	115.7	-3.1	-0.7
Dairy Products	117.8	121.9	3.5	9.5
Fruits and Vegetables	177.7	166.5	-3.2	5.2
Other Food at Home	119.2	120.3	1.7	3.9
Food Away from Home	121.8	123.6	1.6	5.1
Housing	119.5	119.1	1.0	1.8
Shelter	117.9	118.0	0.1	2.1
Renters' Costs**	118.8	119.9	0.9	2.5
Homeowners' Costs**	121.8	121.6	-0.2	2.1
Fuel and Other Utilities	129.8	125.0	2.3	3.1
Gas (piped) and Electricity	126.6	115.8	2.3	0.5
Household Furnishings/Operations	115.0	117.1	3.5	0.2
Apparel and Upkeep.....	132.4	128.7	-3.2	3.2
Transportation	126.0	130.3	3.7	7.9
Private Transportation	125.2	128.8	3.4	7.3
New and Used Cars	134.7	134.3	-0.7	1.1
Motor Fuels	82.6	88.6	10.8	17.4
Public Transportation	125.2	133.3	5.1	12.2
Medical Care	163.4	164.9	0.9	9.3
Entertainment	147.2	150.1	-3.1	3.6
Other Goods and Services	138.5	143.2	3.6	6.6

TABLE 3

METROPOLITAN PHOENIX AND UNITED STATES CONSUMER PRICE INDEXES
Fourth Quarter 1989

Expenditure Category	Percent Change from Last Quarter***		Percent Change from One Year Ago	
	Phoenix	United States	Phoenix	United States
ALL ITEMS	0.6	1.0	4.3	4.7
Food and Beverages	-0.5	0.9	4.0	5.4
Housing	-0.3	0.2	1.8	3.8
Apparel and Upkeep.....	-2.8	6.2	3.2	1.8
Transportation	3.4	0.6	7.9	3.9
Medical Care	0.9	2.1	9.3	8.5
Entertainment	2.0	1.0	3.6	5.2
Other Goods and Services	3.4	2.2	6.6	5.5

*Seasonally adjusted **Base period is second quarter 1983. ***Not seasonally adjusted

Source (Tables 1, 2 and 3): Metropolitan Phoenix data compiled by the Center for Business Research, College of Business, Arizona State University; other data in Table 3 are from the U.S. Department of Labor, Bureau of Labor Statistics.

categories as well as in the overall medical care category.

Other Categories

Following a big jump in the third quarter, apparel and upkeep prices fell in the fourth quarter, the first drop in three years. Entertainment costs also declined, by the most since seasonal adjustment began in 1984, with decreases in three of the four subcategories. The annual increase in both entertainment and apparel dropped below the all-items average after a period in which they greatly exceeded the average.

In contrast, the rise in the other goods and services category was the greatest in at least six years, as moderate-to-large gains were recorded in five of six subgroups. The quarterly increases in the tobacco products and toilet goods categories were the greatest since seasonal adjustment began; the annual advances in personal care services and school books and supplies exceeded 10 percent.

COMPARISON AREAS

Fourth quarter inflation was less in the Phoenix area than nationwide, with considerable differences in several of the major categories, most notably transportation (see Table 3), where differences in the annual rate were smaller, though still sizeable. The overall inflation rate in the Phoenix area was slightly less than the national average; it has closely tracked the national rate for the last four years.

OUTLOOK

After a spurt in the rate in late 1988 and early 1989, inflation backed off during the second half of 1989, dropping the annual rate in the Phoenix area below 5 percent. Little evidence exists that the rate will change much during 1990 from the 1 percent per quarter rate of late 1989.

A conservative forecast, however, should include the possibility of somewhat higher inflation during one quarter of 1990, as occurred in each of the last three years. Thus, the annual rate of inflation probably will return to the 5 percent range during 1990.

The 1990 annual average inflation rate is likely to be near the 4.9 percent average of 1989. The annual average rates will be discussed in the March issue of *Arizona Business*.

- Tom R. Rex
Research Manager

Arizona's average weekly wage is near \$400

The average weekly wage in Arizona varies widely both by industry and by county. By industry, mining has the highest wage (see Table 1). Agriculture and retail trade have, by far, the lowest average wage; each employ considerable part-time and/or seasonal labor.

In addition to hours worked, differences in required education and skills occur by industry, helping to explain the variation in the average wage. Wages for a standardized position may vary by industry in a much different way from the overall average wage.

By county, the overall average wage (see Table 2) varies not only for the reasons described above, but also because of differing industrial structures. The ratio of a county's average wage to the state total may range greatly by industry. For example, Greenlee County's average wage leads the state because most of its jobs are in the mining industry. The average wages in several Greenlee County industries are well below the state average.

Though the average wage in Maricopa County exceeds that of Pima County by 11 percent, the difference by industry ranges from 24 percent higher in Maricopa County in the finance, insurance and real estate sectors to 4 percent greater in Pima County in the manufacturing industry. The average wage in non-urban Arizona is lower in every major industry than in either of the urban counties.

The average number of workers employed per establishment also varies by industry and by county. In most industries, however, between 70 and 80 percent of the establishments have fewer than 10 people on the payroll. Other than government, the only noticeable exception is manufacturing. In all counties, the proportion of businesses with fewer than 10 employees is within the range of 67 to 82 percent.

Only 3 percent of the establishments in Arizona employ at least 100 workers (see Table 2). Manufacturing and mining have the highest percentage of establishments with at least 100 employees, except for government. Yavapai County has relatively few large employers.

- Tom R. Rex
Research Manager

TABLE 1

ARIZONA LABOR FORCE DATA BY INDUSTRY First Quarter 1989

	Average Weekly Wage			Employers Percent with:	
	Dollars	Percent of State Average	Number	Less than 10 Employees	At least 100 Employees
Agriculture	\$225	58%	2,528	74%	2%
Mining	652	167	283	74	5
Construction	401	103	9,902	79	1
Manufacturing	537	137	4,289	57	6
TCPU*	527	135	2,550	70	4
Wholesale Trade	493	126	7,776	78	1
Retail Trade	233	60	14,725	69	3
FIRE**	489	125	7,741	85	2
Services	341	87	29,049	81	2
Government:					
State & Local	432	110	1,327	40	20
Federal	492	126	295	30	28
TOTAL	391	100	80,663	76	3

*Transportation, Communications and Public Utilities

**Finance, Insurance and Real Estate

Note: Sum of industries does not equal state total because of a small number of employers in other unspecified industries.

Source: Center for Business Research, College of Business, Arizona State University, from Arizona Department of Economic Security data.

TABLE 2

LABOR FORCE DATA BY COUNTY First Quarter 1989

	Average Weekly Wage			Employers Percent with:	
	Dollars	Percent of State Average	Number	Less than 10 Employees	At least 100 Employees
Apache	\$356	91%	499	73%	6%
Cochise	358	92	1,690	77	2
Coconino	321	82	2,282	74	2
Gila	380	97	774	78	2
Graham	320	82	418	73	2
Greenlee	531	136	125	71	2
La Paz	297	76	349	67	2
Maricopa	414	106	49,964	76	3
Mohave	294	75	2,155	78	2
Navajo	350	90	1,203	79	3
Pima	368	94	13,234	75	3
Pinal	357	91	1,707	75	4
Santa Cruz	296	76	927	73	2
Yavapai	307	79	2,603	82	1
Yuma	284	73	2,009	68	4
STATE TOTAL	391	100	80,663	76	3

Note: Sum of counties does not equal state total because of a small number of employers who could not be allocated to a county.

Source: Center for Business Research, College of Business, Arizona State University, from Arizona Department of Economic Security data.

National mobility statistics provide perspective on AZ growth

Between 16 and 20 percent of the American population change their residence in any given year, slightly less than during the 1950s, according to the annual survey of geographical mobility by the U.S. Bureau of the Census. A greater proportion of those living in the West move each year: between 21 and 24 percent.

In the mid-1980s, more than 42 million Americans moved each year, more than 26 million remaining in the same county. In any year, between 60 and 65 percent of the moves are from one dwelling to another in the same county. The yearly variation in these local moves is a little greater than the variation in interstate moves, which are a

little less numerous than moves outside the county of previous residence, but within the same state. Economic conditions, in particular, cause variations in the proportion of local residence changes.

CHARACTERISTICS OF MOVERS

In 1987, the latest year for which data are available, 18.1 percent of the American population moved to a different dwelling.

By Age

Young adults and their children change residence most frequently, with the peak occurring between the ages of 20 and 24 (Table 1). Elderly move far less frequently. When those older adults do relocate, however, their move more frequently is outside the county than any other age group.

Other Characteristics

Among household types in 1987, the most frequent movers — both locally and interstate — were non-relatives living in a non-family household. The next most mobile were other relatives in a family household and non-family householders. Renters of all types were more likely to relocate than homeowners; 35 percent of renters in 1987 had moved in the prior year, compared to 10 percent of homeowners.

Based on education of the householder, those with a bachelors degree were most likely to move. While those with graduate degrees had the next highest proportion of

interstate movers, total moves by this group were below average. Householders with high school or less education moved less frequently, particularly those with only an elementary school education; most of these people, however, are older.

Whites migrated more across states than either Blacks or Hispanics, but moved the least overall. Urban blacks were most mobile within local areas. Males of each race moved in greater numbers than females.

Based on labor force status, excluding those in the armed forces, unemployed people moved the most, those not in the labor force moved the least. By income, those at each extreme were least mobile. By occupation, among males, service workers moved the most, farm workers the least. Along with administrative support occupations, service workers moved the most within the same MSA, but salesmen migrated the most between MSAs. In contrast, the most mobile females were saleswomen, laborers and executives; the least mobile were farm workers and those engaged in transportation.

Geographically, people in the West moved the most; those in the Northeast changed their dwelling barely one-half as much. Those living outside MSAs had the fewest local relocations.

INTERSTATE MIGRATION

Economically, interstate moves are more important than local moves. This is especially true in a state like Arizona that is heavily dependent on migration.

Rates by Age

Historically, interstate migration rates have been highest among young adults, with the peak occurring in the early 20s. This group also has experienced high variability in the rate over time, ranging since 1948 from 5.4 percent (in 1987) to 10.2 percent. Beyond the early 20s, both rates and variability decrease, with the annual percentage of those 65 and older migrating interstate ranging from only 0.7 to 1.6 percent. For those who moved in 1987, the age pattern is shown in Figure I.

The variability of mobility rates results primarily from two factors. First, the rates follow cycles corresponding to the size of the age cohorts, which is most influenced by fluctuating numbers of births. For example, migration rates of the baby-boom

TABLE 1

PROPORTION OF THE POPULATION THAT MOVED IN 1987

By Age	Percent
TOTAL	18.1
Less than 5 years old	26.7
5-9	19.9
10-14	16.1
15-19	17.0
20-24	34.7
25-29	31.8
30-34	22.8
35-44	16.5
45-64	9.0
65 or older	5.3

Source: Current Population Reports — Geographical Mobility: March 1986 to March 1987, U.S. Department of Commerce, Bureau of the Census.

FIGURE I

NATIONAL INTERSTATE MIGRATION RATES BY AGE, 1987



Source: Current Population Reports — Geographical Mobility: March 1986 to March 1987, U.S. Department of Commerce, Bureau of the Census.

generation have been lower than rates of preceding generations because of the size of their cohort. Second, the economic cycle has some slight impact, reflecting variations in job availability. Each factor most affects young adults.

The overall migration rate ranges less widely — from 2.6 to 3.7 — than that of the age groups. It has been relatively low in the 1980s; it was relatively high from the early 1960s into the early 1970s. This decline in rate largely resulted from the much greater number of young adults, as low depression era births gave way to the baby boom.

Numbers by Age

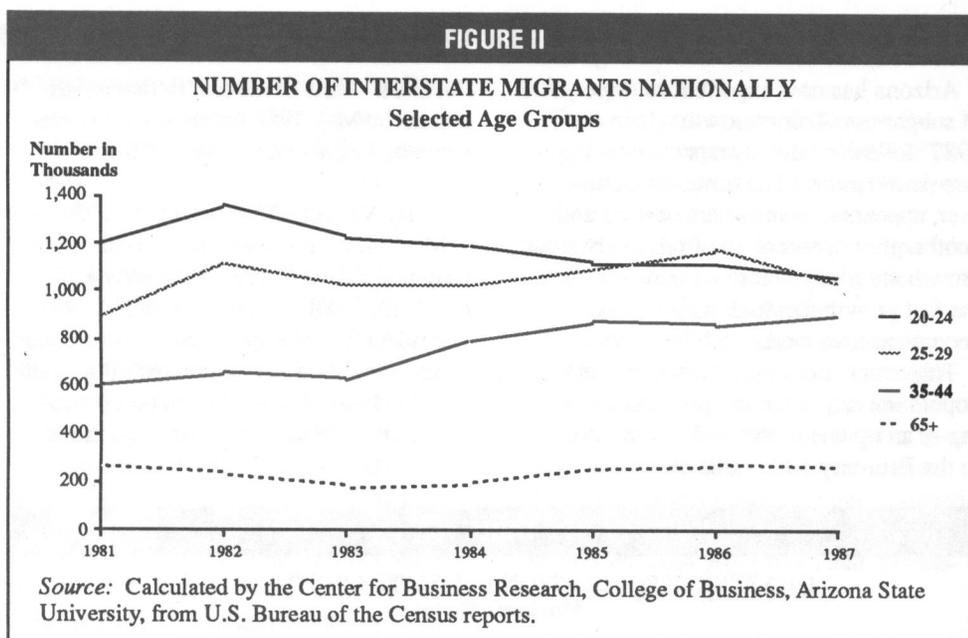
The number of interstate migrants has fluctuated annually but held within a 6 to 7 million range since 1963. The number had advanced from a little more than 4 million in the late 1940s. The relative constancy of the overall flow since 1963 reflects varying periods of peak numbers of migrants by age group.

Interstate migration in the 20 to 24 age group peaked at about 1.4 million in various years between the late 1960s and early 1980s, corresponding to the high number of births between the late 1940s and early 1960s. The number has since declined with the cohort size to about one million. The migration rate should begin to rise, flattening out the decline in number.

In contrast, the number in the 25 to 29 age group reached peaks of about 1.1 million during the 1980s, while the number of 35 to 44 year olds migrating interstate is still rising (see Figure II). The number of migrants in the 45 and older age group has increased only slightly, corresponding to relatively small changes in cohort size. The numbers also are much smaller: only a little more than 30,000 per year per single year of age from 45 to 64, compared to more than 200,000 migrants per year for each year of age from 20 to 24.

Arizona

Annual data by state are not available except for estimates of total net migration. The 1980 census, which provided age-specific data for the five-year period of 1975-80, showed that net migration of all age groups to Arizona was much greater than the national average. However, the comparative strength of the flow to Arizona was least for young adults (20-24) and greatest for older adults (55-74), even



though young adults accounted for the bulk of the state's migration. This comparative strength (vs. the national average) was quite similar to that of Florida, but different from that of other Sunbelt states such as Texas and California.

Migration rates to Arizona vary widely with the economic cycle. By age group, the variations likely are similar to the national pattern — greater variation in migration rates of young adults and little variation among the elderly.

FORECAST

Given the historical relationships described in this article and the largely predictable age distribution of the national population over the next several years or longer, some predictions can be made regarding national interstate migration. While the overall migration rate is unlikely to change much, remaining near the level of the 1980s (2.7 to 3.0), the total number of migrants should rise out of the 6 to 7 million range of the last 25 years. Interstate migrants may number 7.5 million by the mid-1990s, then hold near that level until after 2010.

Thus, the increase in interstate migrants may approach 10 percent over the next few years. The age groups with the largest increases are likely to be the very young, due to the greater number of births nationally, and the elderly. Some age groups, particularly 25-34, could see a decrease in the total number moving. Generally, however, declining cohort size should be largely offset by an increasing migration rate.

Implications for Arizona

The number of migrating young adults — who provide Arizona its greatest number of new residents — probably will hold near the levels of the 1980s. The number of migrating elderly probably will increase. Thus, everything else equal, Arizona should continue to add population from migration of about the same, or greater, number as in the past.

Currently, however, not everything else is equal. The construction-real estate-finance slump in Arizona coupled with somewhat less successful economic development efforts have translated to slower growth in the last three years, which probably will persist for at least three more years (see article on page 5). When the Arizona economy regains its former vigor, particularly in terms of job creation, migration of the working age population should return to former levels (but not to the level of the mid-1980s boom).

Migration of the elderly should gradually increase, assuming that Arizona remains as attractive to this group as in the past. This assumption may be shaky, however. More retirement communities are sprouting across the Sunbelt, leading to more competition. Further, the growing problems of Arizona's two urban areas and the lack of much geographic alternative within the state could result in lesser flows of retirement and pre-retirement aged Americans to the state.

— Tom R. Rex
Research Manager

Slow population growth to persist three more years

Arizona has now experienced three years of subpar population growth (since early 1987) following three years of booming population gains. The downcycle, however, appears to be nowhere near its end; another three years or so of relatively slow growth are likely before Arizona resumes the fast growth to which its populace has become accustomed.

This article presents information on both population estimates and projections, serving as an update to the analysis presented in the February 1989 issue of *Arizona*

Business. Most of the text in that article and in the May 1988 article remains relevant and has not been repeated here.

REVISIONS TO ESTIMATES

Minor revisions were made to the quarterly population figures previously estimated for 1988 and 1989. A total of 4,000 was added to the populations of Maricopa County and Arizona, with most of the gain in net natural increase, based on updated figures for 1988 and revised projections for 1989. The revised quarterly series for

Maricopa County is shown in Table 1.

Annual figures, as of July 1, are shown in Table 2. Despite record net in-migration in the mid-1980s, the annual average for the 1980s was slightly lower than for the 1970s in the Phoenix area. Two down cycles in the 1980s (compared to just one cyclical trough in the 1970s) lowered the annual average figures. Elsewhere in the state, average migration flows were considerably lower in the 1980s.

FORECAST ACCURACY

Though the population and related forecasts issued during the last couple of years originally were viewed by some as pessimistic, it continues to be true that where those projections were in error, they were too high, not too low. For example, one year ago, the forecast for fiscal year 1988-89, for which one quarter of actual data were available, was quite accurate. However, the modest improvement projected for 1989-90 now seems unlikely. The one quarter already estimated, plus other information, does not give much hint of improvement by mid-1990. Instead, migration flows for 1989-90 are likely to be similar to those of the two prior years.

The current forecast calls for modest recovery to begin during 1990-91 (see Table 3), as described below. Yet risks remain so that even this outlook could prove to be optimistic.

OUTLOOK - NEXT FIVE YEARS

The baseline forecast calls for the moderate economic and population growth of the last two years to continue, though slight improvements are likely to begin later in 1990. A gradual recovery is anticipated until around 1993-94, when condi-

TABLE 1

QUARTERLY POPULATION ESTIMATES IN THOUSANDS Maricopa County

Quarter/Year	Population	Change	Net Migration	Net Natural Increase
3/85	1,838*	22	17	5
4/85	1,858	20	15	5
1/86	1,880	22	17	5
2/86	1,901	21	16	5
3/86	1,920	19	14	5
4/86	1,940	20	14	6
1/87	1,956	16	10	6
2/87	1,969	13	8	5
3/87	1,983	14	8	6
4/87	1,994	11	6	5
1/88	2,007	13	7	6
2/88	2,016	9	4	5
3/88	2,026	10	4	6
4/88	2,039	13	7	6
1/89	2,051	12	6	6
2/89	2,062	11	5	6
3/89	2,073	11	5	6

*Special census count

Source: Center for Business Research, College of Business, Arizona State University.

TABLE 2

POPULATION CHANGE (In Thousands)

Fiscal Year	Total Change				Net Migration			
	Arizona	Maricopa	Pima	Non-urban	Arizona	Maricopa	Pima	Non-urban
1981	81	51	12	18	52	36	7	9
1982	73	44	14	15	43	28	9	6
1983	72	43	13	16	42	27	8	7
1984	104	70	16	18	73	53	11	9
1985	123	86	18	19	90	67	13	10
1986	126	85	18	23	92	65	13	14
1987	103	68	14	21	67	46	9	12
1988	79	47	13	19	42	25	7	10
1989	75	46	10	19	36	22	4	10
	AVERAGES							
1961-70	47	30	9	8	24	19	5	0
1971-80	94	54	18	22	70	42	14	14
1981-89	93	60	14	19	60	41	9	10

Source: Center for Business Research, College of Business, Arizona State University (1981-date) and U.S. Bureau of the Census (1961-80).

Complete report available

An update to the January 1989 report "Population Estimates and Projections," which analyzes conditions in Arizona and three major subdivisions — metropolitan Phoenix, metropolitan Tucson, and non-urban Arizona — is available. The report includes numerous tables of data as well as discussions of methodology, historical population growth, current population estimates and near-term and long-term population projections. Copies are available from the Center for Business Research, College of Business, Arizona State University, Tempe, Arizona 85287; (602) 965-3961.

tions finally reach the point of allowing another boom to begin.

A number of factors influence this forecast. The construction-finance-real estate slump currently is the foremost factor. The most likely scenario assumes that no more surprises occur and, with time, a new equilibrium will be reached with lower vacancy rates and a true need to increase building activity. The low scenario includes the possibility of further financial-real estate problems, which make the recovery even slower and balkier. In contrast, the optimistic scenario assumes the problems are worked through faster.

The national economy always plays a role in the local forecast. The middle scenario assumes that a full-fledged national recession does not occur during the next five years. However, should interest rates rise and the national economy decline, the local economy will suffer as well, stalling any recovery and postponing the next strong expansion by yet another year.

The success of local economic development efforts also is an important factor to consider in making population projections. The baseline forecast assumes little change from recent conditions. However, should efforts to attract new firms, especially those in manufacturing, be successful, the recovery could progress more rapidly.

This is assumed in the optimistic scenario. In the most likely situation, net migration to Arizona should gradually increase in response to improving employment opportunities, approaching "average" conditions in 1992-93 before jumping into boom level growth in 1993-94. The next boom, like those in the 1970s, is likely to be not as strong as that of the mid-1980s.

The pessimistic outlook calls for the recovery to proceed about one year later than in the baseline forecast. Growth finally approaches average in 1993-94 and exceeds average in 1994-95. In the optimistic scenario, the recovery occurs about one year ahead of the baseline.

LONG-TERM OUTLOOK

The baseline long-term outlook begins when the Arizona economy recovers from its current malaise. The forecast assumes that conditions will be much like those during most of the 1970s and 1980s. Total population gains should be somewhat greater than in the past, as the larger population results in greater net natural increase and as gains in retirement-aged population nationally, though primarily after 2005, results in greater migration of elderly to the state. Employment-related migration should change little. Decreases in the number of young adults (those in their 20s)

should be largely offset by big gains in those aged in their 30s and 40s. (See article on pages 4-5.)

The low scenario (see Table 4) at the state level corresponds to the 1990-2010 population change projected in 1988 by the U.S. Bureau of the Census. The lesser gains result primarily from the aging of the population, resulting in less migration, fewer births and more deaths.

Greater population growth than in the middle scenario could result from higher birth rates and greater net migration. Higher migration is based on various assumptions, including that other western and southwestern states continue to experience economic difficulties and that local policies are both pro-growth and successful in economic development.

- Tom R. Rex
Research Manager

TABLE 3

LATEST POPULATION ESTIMATES AND SHORT-TERM POPULATION PROJECTIONS (In Thousands)

Fiscal Year	Total Population				Change			
	Arizona	Maricopa	Pima	Non-urban	Arizona	Maricopa	Pima	Non-urban
1988	3,498	2,016	653	829	79	47	13	19
1989	3,573	2,062	663	848	75	46	10	19
1990	3,654	2,108	676	870	81	46	13	22
1991	3,742	2,160	689	893	88	52	13	23
	Net Natural Increase				Net Migration			
1988	37	22	6	9	42	25	7	10
1989	39	24	6	9	36	22	4	10
1990	40	24	6	10	41	22	7	12
1991	40	24	6	10	48	28	7	13

Source: Center for Business Research, College of Business, Arizona State University.

TABLE 4

POPULATION PROJECTIONS BY DECADE, FOUR SCENARIOS (In Thousands)

	1980	1990			2000				2010			
	Census	Middle	DES	Low	Middle	High	DES	Low	Middle	High	DES	
Total Population												
Maricopa County	1,509	2,108	2,133	2,695	2,805	2,875	2,801	3,165	3,560	3,700	3,490	
Pima County	531	676	692	800	835	905	877	905	1,010	1,155	1,075	
Non-urban Arizona	677	870	889	1,025	1,080	1,120	1,123	1,150	1,305	1,415	1,375	
Arizona	2,717	3,654	3,714	4,520	4,720	4,900	4,801	5,220	5,875	6,270	5,940	
Ten-Year Population Change												
Maricopa County	538	599	624	587	697	767	668	470	755	825	689	
Pima County	180	145	161	124	159	229	185	105	175	250	198	
Non-urban Arizona	223	193	212	155	210	250	234	125	225	295	252	
Arizona	941	937	997	866	1,066	1,246	1,087	700	1,155	1,370	1,139	

Source: Center for Business Research, College of Business, Arizona State University. 1980 Census data are from the U.S. Bureau of the Census. The 'DES' columns represent updated population projections from the Arizona Department of Economic Security.

Business location factors are clue to economic growth

Factors important to firms moving or sitting new facilities vary by company and by situation. Even surveys that attempt to generalize as to the most important factors to such firms frequently are not in agreement. However, some of the confusion can be cleared by providing different listings by type of facility.

Important factors for high-technology, research and development, and headquarters facilities tend to be similar, but much different from the list of factors important to manufacturing or distribution facilities. These two lists of factors, derived from a variety of sources, are shown in Table 1.

EVALUATION OF FACTORS

Arizona rates more highly on the manufacturing/distribution list than on the high-tech/r&d/headquarters list. Most business climate studies focus on the former, explaining the state's generally high ratings in such studies.

Though an evaluation of how Arizona compares on each factor is largely subjective, due to difficulty of measurement and/or various ways to measure, some general conclusions can be reached. On the manufacturing list, Arizona probably rates favorably on the top factor, worker productivity. The distance to other major popula-

tion centers probably reduces the transportation rating, but air facilities and improving highway facilities may be viewed positively. Community receptivity to industry likely is as high in Arizona as anywhere in the nation.

On the fourth factor, business taxes, Arizona is about average; on proximity to customers, Arizona likely does not compare favorably because of its distance to other population centers. But the state probably rates well on each of the next three factors: availability of skilled workers, availability of energy, and property/construction costs. Thus, on most of the top eight factors, the state compares favorably.

In contrast, the ninth-ranked factor, quality of life, is not a positive feature for Arizona, a fact that some Arizonans may dispute. In one survey, quality-of-life factors, rated in order of performance, were education, environment, crime rate, climate, and traffic congestion. On each of the first three items, Arizona's metro areas, at least, do not compare favorably.

Arizona spends less per pupil than the national average, has mediocre test scores, suffers from a very high dropout rate, and has fewer university campuses than any other state of approximately its size. A variety of environmental issues are perceived

to be major problems both among Arizona residents and federal regulators, but little has been done to address them. Though the violent crime rate is about average, Arizona's overall crime rate is exceeded in only two states.

The state's poor comparison on these factors does not greatly affect the state's ability to attract manufacturing/distribution facilities, since quality of life is not that important a factor. In attracting the more desirable high-tech/r&d/headquarters facilities, quality of life becomes a real problem since it is the top-ranked factor. Further, the state does not rate highly on three of the other top five factors: proximity to other company facilities, number of well-regarded university campuses, and personal preference of executives. Thus, even though the state rates from average to above average on the other factors on the list, its poor comparison on four of the five most highly rated factors helps to explain the state's poor performance in attracting such facilities in the last few years.

The controversial topic of incentives did not rate very highly on any of the surveys conducted to determine the most important business location factors. In recent years, the importance of incentives seems to be particularly great in the case of larger facilities, and even then only after narrowing the list to a few finalists.

TAXES/PUBLIC SPENDING

Given the state's structural budget deficit and the recent Fiscal 2000 report, an evaluation of the factors from a public finance perspective is relevant. On the manufacturing/distribution list, the positives that result from public spending do not greatly outweigh the negatives that result from higher taxes. Factors negatively affected by higher taxes include the fourth-ranked factor of business taxes and, indirectly, the eighth-ranked factor of costs of property and construction. On the other hand, the state's attractiveness would rise from increased spending on transportation (ranked second) and quality of life.

On the high-tech/r&d/headquarters list, however, the benefit of increased public spending would greatly outweigh the cost of higher taxes. Each of the quality-of-life concerns, the top-rated overall factor, require additional spending; more efficient use of funds, while desirable, is not suffi-

TABLE 1

BUSINESS LOCATION FACTORS

	Rank	
	R&D ¹	Mftg. ²
Quality of Life for Employees ³	1	9
Proximity ⁴	2	5
Worker Availability ⁵	3	6
Near University	4	L
Personal Preference of Executives	5	L
Costs of Property and Construction	6	8
Efficient Transportation Facilities ⁶	7	2
Business Taxes	8	4
Community Receptivity to Industry	9	3
Worker Productivity	L	1
Availability of Energy	L	7

¹Research and development/high-technology/headquarters facilities

²Manufacturing/distribution facilities

³Quality of life factors, in order of importance: education, environment, crime rate, climate, traffic congestion

⁴R&D: proximity to other company facilities; Mftg: proximity to customers

⁵R&D: availability of technical/professional workers; Mftg: availability of skilled workers

⁶R&D: for people; Mftg: for materials, products

L: rank greater than 9

Source: Center for Business Research, College of Business, Arizona State University, from a variety of location studies.

cient to raise Arizona's poor rating very far. Further, more spending on universities and transportation would be beneficial. In contrast, the factors adversely affected by higher taxes are less important on this listing.

As reported in the November issue of *Arizona Business*, this increased spending is desired by the Arizona business community and has been proven to have at worst a neutral relationship with overall economic growth.

ARIZONA'S PERFORMANCE

Arizona's recent mediocre (or worse) performance in attracting new facilities results from a variety of issues. The state is clearly at a competitive disadvantage on a

number of location factors, particularly quality of life. The state always will be hampered by its location.

More than location factors are involved in determining the state's performance, however. At the same time that the number of domestic facility sitings — whether new or relocations — has decreased, the state's competition for such facilities has increased, as highly sophisticated economic development efforts have become common throughout the nation. Arizona's fragmented and decentralized approach probably has hurt the effort as well.

PROGNOSIS

The state's worsening performance in attracting firms during the 1980s results not

from a deterioration in its efforts, but rather from general inaction at a time when the competition was advancing. Progress, however, has been made in the past year toward increasing funding for economic development efforts as well as mounting a more coordinated, planned effort.

The best economic development effort in the nation, however, would only go so far when important issues such as education, the environment and crime continue to deteriorate in a comparative sense through a lack of action. Further, the outlook for attacking these problems is not very positive at this time.

— Tom R. Rex
Research Manager

Taxes and expenditures remained near average in 1987

Arizona's overall revenues and expenditures remained near the national average in 1987, according to the latest information available from the Advisory Commission on Intergovernmental Relations (ACIR). Per capita revenues and taxes each were just below the national average (see Table 1), with federal intergovernmental revenues particularly low, ranking 48th among the states. Within the tax structure, collections from the sales tax were quite high (ranked fifth), with income tax collections — both corporate and individual — quite low.

Per capita expenditures were higher than the national average in most categories, but these aggregate figures include both capital expenditures (e.g. building infrastructure

such as new schools) and operations. Because Arizona's population growth has been, and will continue to be, nearly the fastest in the nation, the need to build infrastructure also is among the greatest. These infrastructure expenditures largely account for the very high per capita spending on corrections, highways and police (each of which ranked among the top five nationally). In contrast, the state's expenditures for public welfare and health were well below national norms, ranking 38th and 45th respectively.

Per capita tax collections as a percent of the national average declined in the early 1980s from the historical norm of about 100 to less than 90 before returning to the mid-90s. Likewise, the expenditure ratios

fell from more than 100 to the mid-90s before returning to slightly more than 100.

The most comprehensive public finance measures — tax capacity and tax effort — are not yet available for 1987. In each case, Arizona's 1986 index was 99, showing that both the ability to raise funds from taxes and the tax burden were barely below the national average. Arizona's tax capacity has gradually increased over time while the tax effort remains below that of the 1960s and 1970s, though higher than that of most of the 1980s.

— Tom R. Rex
Research Manager

TABLE 1

ARIZONA STATE AND LOCAL PER CAPITA REVENUES AND EXPENDITURES, 1987

Revenues			Expenditures		
	Dollars	Percent of U. S.		Dollars	Percent of U. S.
Total Revenue	\$2,640	94%	Total Expenditures	\$2,803	104%
Federal Intergovernmental	347	74	K-12 Education	698	108
Total Own Source	2,293	98	Higher Education	341	138
Total Tax	1,595	96	Public Welfare	214	65
Property	468	94	Health and Hospitals	126	54
Sales	554	139	Highways	364	170
Individual Income	225	65	Police	128	127
Corporate Income	59	63	Other Expenditures	932	102
Other Taxes	289	87			
Current Charges	293	83			
Other Revenues	405	124			

Source: Advisory Commission on Intergovernmental Relations.

Moderate economic growth occurred in October

Economic growth was moderate across Arizona in October according to the coincident economic indexes. The index for the Phoenix area advanced 0.7 percent to 151.4 (1982=100), the Tucson area index rose 0.9 percent to 137.8, while the index for non-urban Arizona gained 0.4 percent to 135.7. In each case, the index value was at a record high. The composite index for the state rose 0.7 percent to 146.2.

A sharp improvement in the unemployment rate was responsible for nearly all of the advance in the coincident indexes. The rates in the urban counties were the lowest since 1984 and among the lowest on record; the one-month improvement was the greatest on record, except for May 1989 in Maricopa County.

The unemployment rate has been extremely volatile in recent years and has been substantially revised at the end of the last couple of years. Thus, the monthly pattern is subject to change. Further, any improvement that may have occurred in the rate during 1989 probably is a sign of reduced population inflows and of discouraged workers dropping out of the labor force, rather than an indication of economic strength.

Commercial building activity in October remained at levels among the lowest on record in the urban counties. Employment gains provided most of the differential in the growth rate of the coincident indexes.

In the six months through October, non-urban Arizona led the state's economic

growth, with subpar gains occurring in the urban areas. A stable, rather than declining, construction industry in rural Arizona was the biggest cause of its superior growth. Pima County experienced the slowest growth as its construction industry slipped the most and other employment gains were moderate.

Preliminary figures for November indicate a continuation of moderate growth, led by Pima County and trailed by non-urban Arizona.

— Tom R. Rex
Research Manager

Purchasing indicators decline slightly in December

November's economic stall became a slight downturn in December. New orders received from customers and production declined at the greatest rate since December 1982. Employment also dropped for the second consecutive month. The rate of inflation continues to come down, with its smallest increase in over four years.

Additional declines in new order rates, production, and employment may occur in the first quarter of 1990. However, inventory levels pose no threat to the economy, and the very low inflation rate means that interest rates can be reduced as needed to revive economic growth.

CAPITAL EXPENDITURE PLANS

The special question, asked each December, covers *anticipated expenditures* for new plant and equipment during 1990. The results indicate that 1990 will be a better year. Expenditures will be substantially higher than in 1989, which was a year of very slow growth. Evidently Arizona firms feel that the economy will pick up in 1990 and that additional productive capacity will be needed.

— Harold Fearon

Dr. Fearon is Director of the Center for Advanced Purchasing Studies at Arizona State University.

TABLE 1

DECEMBER PURCHASING SURVEY

Key Indicators	Percent of Purchasing Managers Indicating Each Response (December compared to November)		
	Higher	Same	Lower
Prices paid for major commodities	17	69	14
Delivery time from vendors	22	64	14
Purchased materials inventory level	17	38	45
New orders received	28	33	39
Production	25	41	34
Employment	17	63	20
Purchases	33	32	35

TABLE 2

ANTICIPATED EXPENDITURES FOR NEW PLANT AND EQUIPMENT

Key Indicators	Percent of Purchasing Managers Indicating Each Response		
	Higher	Same	Lower
1990 compared to 1989	41	35	24
1989 compared to 1988	31	31	38
1988 compared to 1987	42	28	30
1987 compared to 1986	53	34	13
1986 compared to 1985	48	33	19
1985 compared to 1984	53	28	19
1984 compared to 1983	53	31	16
1983 compared to 1982	27	26	47

Source (Tables 1 and 2): Purchasing Management Association of Arizona, Purchasing Management Association of Southern Arizona, and the Northern Arizona Group.

The Economic Club of Phoenix

As the world moves steadily closer to an interactive global economy, it is increasingly important to stay informed about events and trends affecting the local, national and international economies. For nearly 400 Valley business leaders, The Economic Club of Phoenix helps provide that information.

The Economic Club of Phoenix, established in 1985 by the ASU College of Business and its Dean's Council of 100 advisory and support group, has three main goals: to foster the discussion of economic and business issues among the academic, business, government and labor sectors of the Phoenix area; to keep business leaders abreast of rapidly

changing national and international economic issues; and to strengthen the Valley's economic development base while enhancing the professional momentum of club members. The ECP also serves as a support group for the College of Business.

In addition to an annual economic forecasting luncheon and monthly breakfast or luncheon meetings with national business experts, Economic Club members are also invited to the ASU Economic Outlook Center's morning seminar series and other lectures, seminars, conferences and special events sponsored by the College of Business. Recent speakers include Nobel-laureate economist Milton Friedman, CNN Vice President Lou Dobbs, then-FAA Ad-

ministrator T. Allan McArtor, and Dow Chemical Co. President and CEO Frank Popoff.

Economic Club members also receive *Arizona Blue Chip*, a monthly newsletter featuring a consensus forecast for the Arizona economy; *Arizona Business*; and *Business*, a magazine featuring people, events and issues of significance to the College of Business. Dues are \$500 a year, payable annually or semi-annually, and can be charged to MasterCard or VISA.

For more information about membership in The Economic Club of Phoenix, call the College of Business Development Office, (602) 965-3700.

Arizona leading index rises

The Arizona Index of Leading Economic Indicators increased in November to 118.2. The November number was .2 percent higher than the revised 118.0 number for October 1989 and 1.3 percent below the November 1988 number of 119.8 (1982 = 100). The index has now increased in five of the last six months.

Hours worked in manufacturing, money supply, Maricopa County residential building permits, inventories and employment were positive influences. Sensitive prices, production, delivery times and new orders were negative influences.

ANALYSIS

Figure 1 shows a noticeable difference in the index when the last six months (June–November) are compared to the prior six months (December–May). However, it would be hasty to assume that this variance in the index portends a major upswing in Arizona's economy in the near future.

The money supply is the component of the index with the most dramatic shift between the two periods. The first period saw the money supply increase for one month and fall for five while in the second period the money supply rose for six straight

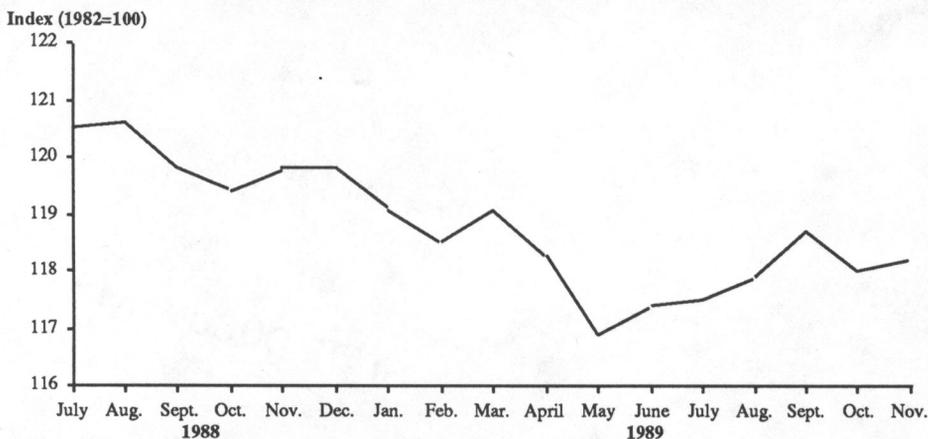
months. The only other component to experience a major positive shift was hours worked in manufacturing which changed from three up and three down months to five up and one down. Sensitive prices shifted in the opposite direction from four up and two down months to one up and five down months. The remaining six components have shown essentially no shift in pattern between the two periods.

The upturn in the leading index can be traced to a positive shift in direction for two components and a relative lack of direction for six others. For this reason, we must be careful not to place too much importance on the upturn in the index, given its narrow scope. However, the increases in the index do suggest that Arizona will see modest improvement of the economy in 1990.

– Tracy L. Clark, *Economist*
Economic Outlook Center

FIGURE 1

ARIZONA INDEX OF LEADING ECONOMIC INDICATORS



Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

The Arizona leading index is based on 9 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Percent Change from Year Ago	
					Value	Percent Change
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	2nd Qtr.	64.256	1.1	7.0	NA	NA
Arizona - 1982 Dollars	2nd Qtr.	49.644	0.2	2.3	NA	NA
COINCIDENT ECONOMIC INDEXES						
(1982 = 100)						
Arizona	Oct.	146.2	0.7	4.0	NA	NA
Metropolitan Phoenix	Oct.	151.4	0.7	4.1	NA	NA
Metropolitan Tucson	Oct.	137.8	0.9	2.2	NA	NA
Non-urban Arizona	Oct.	135.7	0.4	5.7	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	4th Qtr.	127.8	0.6	4.3	NA	NA
INDEX OF LEADING ECONOMIC INDICATORS (1982 = 100)						
Arizona	Nov.	118.2	0.2	-1.3	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	Oct.	159,639	-28	-36	2,320,547	-21
Pima County	Oct.	10,270	-57	-64	302,410	-23
Balance of State	Oct.	59,272	-14	25	631,015	6
Arizona	Oct.	229,181	-27	-30	3,253,972	-17
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	Oct.	874	-14	-44	11,892	-37
Pima County	Oct.	79	-68	-77	2,732	-41
Balance of State	Oct.	831	-28	13	9,231	10
Arizona	Oct.	1,784	-26	-32	23,855	-25
HOME SALES						
Maricopa County - Number	Nov.	3,680	-15	13	42,370	-10
Maricopa County - Median Price	Nov.	84,000	1.8	2.4	81,500	1.4
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	3rd Qtr.	96	6.7	6.7	NA	NA
Metropolitan Phoenix - Resale Homes	3rd Qtr.	130	9.2	9.2	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	Dec.	9.6	-1.0	-9.4	NA	NA
POPULATION ESTIMATES (In Thousands)						
Maricopa County	3rd Qtr.	2,073	0.5	2.3	NA	NA
Arizona	3rd Qtr.	3,592	0.5	2.2	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	Oct.	3,449	-16.1	-4.1	37,989	2.1

NA = Not Applicable

Source: Center for Business Research, Arizona Real Estate Center, and Economic Outlook Center, College of Business, Arizona State University.

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