

GREENLEE

EMPLOYMENT GROWTH
2001-03

-2.1

2001-06

-1.2

STANFORD 9
2002

Language **41**
Math **57**
Reading **40**

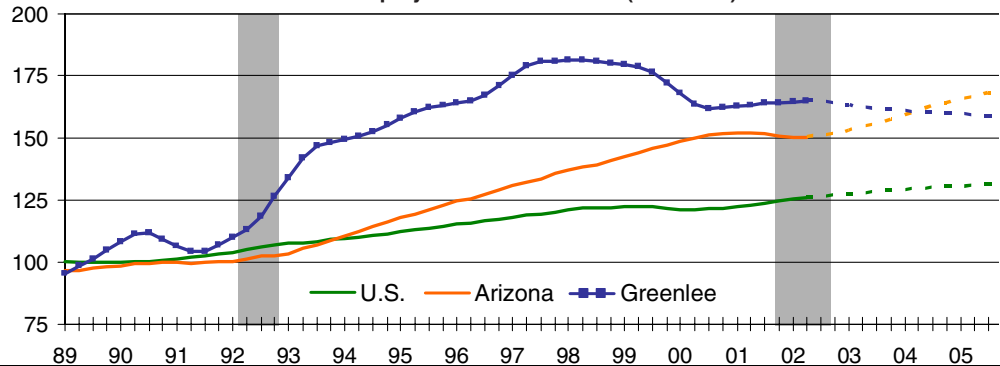
EDUCATIONAL ATTAINMENT 2000

12.2%

POVERTY RATE

9.9%

Relative Employment Performance (1991=100)



1995	1996	1997	1998	1999	2000	2001	Indicators	2002	2003	2004	2005	2006
0.45	0.49	0.57	0.60	0.72	0.69	0.76	Gross Product, C\$B	0.71	0.73	0.75	0.76	0.77
34.9	10.3	14.5	6.2	20.5	-4.6	10.3	% Change	-6.2	2.1	2.5	1.3	1.8
4.3	4.5	4.8	5.0	5.3	5.4	5.3	Total Employment (000)	5.0	5.0	5.1	5.0	4.9
22.1	6.6	5.9	3.7	7.2	1.3	-2.9	% Change	-4.0	-0.1	0.6	-1.4	-1.0
6.7	7.9	7.2	8.1	8.7	5.4	9.0	Unemployment Rate	10.6	10.6	10.5	11.0	11.6
12.9	8.6	3.4	-2.5	-4.6	9.2	-2.1	Personal Income Growth	-4.2	1.0	3.4	1.3	1.6
8.9	9.0	9.1	8.9	8.5	8.6	8.3	Population (000)	8.0	7.9	7.8	7.7	7.6
5	1	6	2	2	5	1	Single-Family Permits	1	1	1	1	1
0	0	0	0	0	0	0	Multifamily Permits	0	0	0	0	0
52.7	57.3	60.3	61.9	63.1	66.8	71.5	Existing Home Price (\$Ths)	73.5	76.4	80.5	83.0	86.7
33	39	41	69	57	48	90	Mortgage Originations (\$Mil)	65	53	57	57	62
0.1	0.1	0.0	-0.2	-0.4	-0.4	-0.4	Net Migration (000)	-0.4	-0.3	-0.2	-0.2	-0.2
12	25	37	49	50	52	43	Personal Bankruptcies	45.1	41.7	39.2	39.8	39.6

INDUSTRY OPPORTUNITIES

Opportunities for economic development include:

- Tourism

ANALYSIS

Recent Performance. Local payrolls in Greenlee County have stabilized over the past year. Current employment levels are only three-quarters of peak levels at the end of 2000. However, until such a recovery takes place, secondary services and retail industries will continue to stagnate. A significant amount of out-migration, coupled with flat permit issuance for residential construction, reflect the area's poor labor market conditions.

Mining. The GNL economy is entirely dependent on the copper-mining firm, Phelps Dodge, which operates the largest copper mine in North America at Morenci. Over the years, technological advances in copper production have resulted in diminished labor needs and, consequently, shrinkage of the local workforce, which is employed either directly or indirectly by the mining industry. Last year's steep fall in global copper prices led to a sharp drop in copper production. While local mining payrolls fell by 10% over this period and migration outflows accelerated, the worst is now over.

GNL's dominant copper-mining industry is poised to benefit from an appreciation of world copper prices. An improvement in U.S. copper demand, coupled with sharp supply cutbacks, has contributed to an appreciation of global copper prices beginning early this year. As the U.S. economic recovery gains traction next year, local copper production is expected to increase somewhat, which will help give a much-needed boost to the local economy.

Workforce. An important competitive advantage for the GNL workforce is its hardy work ethic and strong community norms, which are in part reflected in the county's favorable social indicators. That said, the area's very small labor force, coupled with a lack of college-educated workers, presents a challenge in attracting fast-growing high-tech companies to GNL. This limits employment growth to relatively low-skill positions in services, mining and trade industries. The share of the adult

population with a university degree is barely half of the national average, ranking GNL near the bottom of Arizona counties. This, in turn, affects the county's income growth potential. More positively, the area has significantly lower rates of poverty, crime, and high school dropouts than most other Arizona counties.

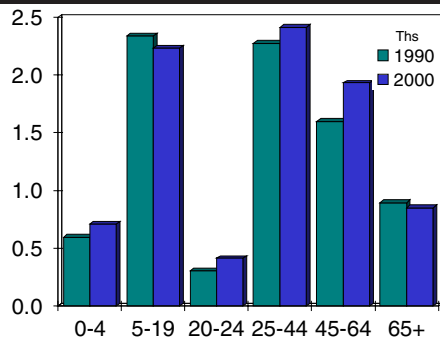
Demographics. Population growth has closely tracked the boom-bust cycle of copper mining, but in general, Arizona's smallest county in terms of population keeps getting smaller. Gains from migration inflows in the early 1990s were largely wiped out by outflows over the past five years as the copper industry retrenched yet again. The county has a high share of renters, reflective of the preferences of a highly mobile workforce.

Permit issuance for residential construction has been flat for the past few years. New development largely consists of modest single-family homes in unincorporated areas of the county. Industrial diversification through large-scale commercial or industrial development is limited by the preponderance of public lands.

The Greenlee County economy will encounter sluggish growth in the near term. The mining industry is currently performing below potential, but it is expected to ratchet up production a bit in response to rising copper prices. However, GNL's reliance on copper mining makes the area susceptible to boom-bust cycles associated with volatile copper prices. A lack of growth industries, coupled with a highly mobile workforce that leaves when jobs disappear, will hurt population growth. Other constraints to the area's development include a small and shrinking labor force, a tiny amount of private land, and low educational attainment. Consequently, GNL will be a below average performer over the extended forecast horizon.

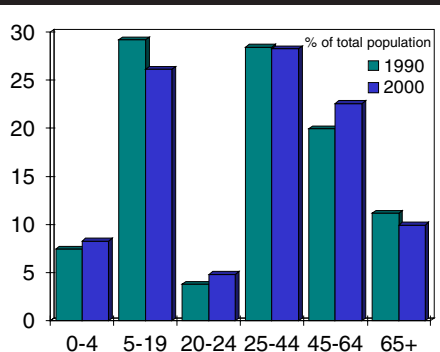
Bryan Gobin
December 2002

POPULATION BY COHORT



Source: Census Bureau

POPULATION DISTRIBUTION



Source: Census Bureau

EMPLOYMENT & INDUSTRY

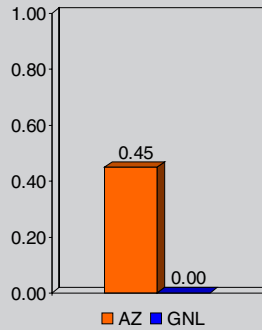
TOP EMPLOYERS

Copperroom Restaurant & Lounge
 Kempton Chevrolet, Buick, Geo
 Morenci Health Care Center
 Morenci Water and Electric Company
 Phelps Dodge Corporation

Source: Arizona Department of Commerce

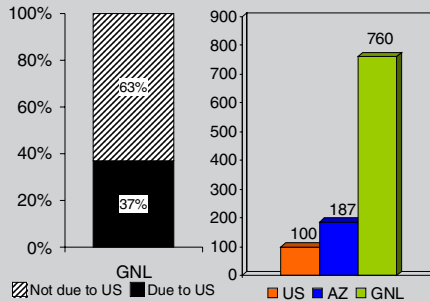
Employment Figures Unavailable

INDUSTRIAL DIVERSITY



EMPLOYMENT VOLATILITY

DUE TO U.S. FLUCTUATIONS **RELATIVE TO U.S.**



Public

Federal	123
State	150
Local	676

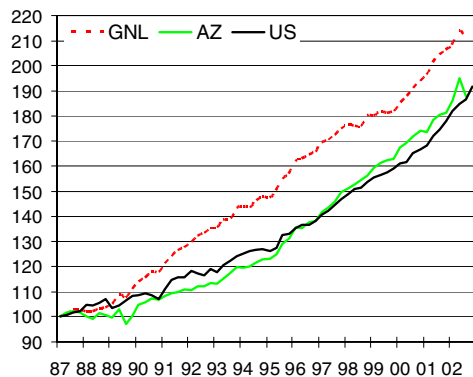
2001

COMPARATIVE EMPLOYMENT AND INCOME

Sector	% of Total Employment			Average Annual Earnings		
	GNL	AZ	US	GNL	AZ	US
Mining	51.9%	0.4%	0.4%	\$27,843	\$42,760	\$64,853
Construction	18.4%	7.3%	5.1%	\$48,813	\$35,534	\$37,846
Manufacturing	1.9%	9.3%	13.4%	\$6,118	\$52,820	\$50,161
Durable	0.0%	77.2%	60.1%	NC	\$56,574	\$52,419
Nondurable	100.0%	22.8%	39.9%	\$6,118	\$40,158	\$46,703
Transport/Utilities	4.2%	4.9%	5.4%	\$17,090	\$42,761	\$50,161
Wholesale Trade	0.2%	4.9%	5.1%	\$603,497	\$47,228	\$49,721
Retail Trade	5.3%	18.6%	17.8%	\$19,577	\$19,835	\$19,357
Finance, Ins., Real Estate	0.0%	6.6%	5.8%	\$60,259	\$31,403	\$42,743
Services	0.0%	31.3%	31.1%	NC	\$30,334	\$33,327
Memo: Health Services	0.0%	6.8%	7.9%	NC	\$41,149	\$40,060
Government	18.1%	16.6%	15.9%	\$21,556	\$38,727	\$41,557

Source: Percent of total employment - BLS, 2001; Avg annual earnings - BEA, 2000; Economy.com

HOUSE PRICES



Source: NAR, Economy.com, 1987Q1 = 100, NSA

LEADING INDUSTRIES

SIC	Industry	Employees (000)
102	Copper ores	2.7
GVSL	Total state and local government	0.8
162	Heavy construction, except highway	0.4
150	Res & nonres building construction	0.3
161	Highway and street construction	0.3
GVF	Total federal government - civilian	0.1
271	Newspapers	0.1
PH	Private household workers	0.1
415	School buses	0.1
491	Electric services	0.1
493	Combination utility services	0.1
554	Gasoline service stations	0.0
FR	Farms	0.0
492	Gas production and distribution	0.0
565	Family clothing stores	0.0
Total leading industry employment		5.1
High-tech employment		0.0
As % of total employment, all industries		0.0

Source: BLS, Economy.com, 2001

MIGRATION FLOWS

Into Greenlee County **Number of Migrants** **Median Income**

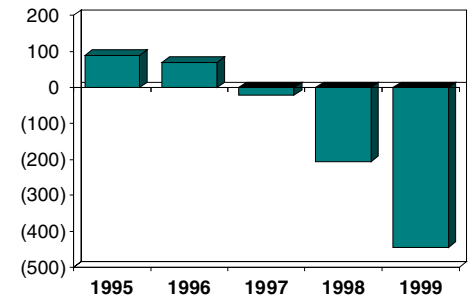
Graham County	79	31,666
Pima County	51	18,999
Maricopa County	33	21,874
Pinal County	31	29,999
Total Immigration	499	28,675

From Greenlee County

Graham County	146	36,499
Maricopa County	140	29,582
Pima County	87	20,832
Yavapai County	33	44,999
Cochise County	32	32,499
Total Outmigration	797	32,716

Net Migration -298 -4,041

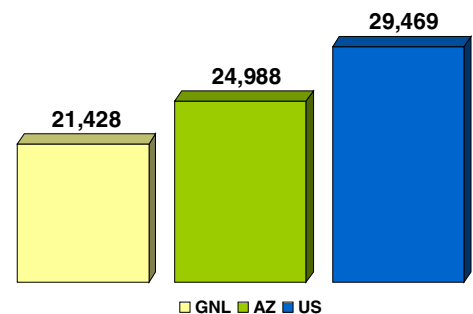
Net Migration, GNL



	Domestic	Foreign	Total
1995	82	7	89
1996	66	4	70
1997	-32	10	-22
1998	-203	-3	-206
1999	-452	8	-444

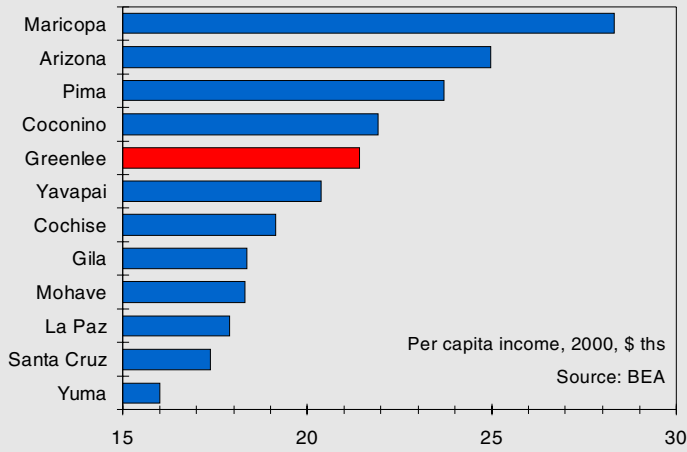
Source: IRS (top), 2001; Census Bureau, 1999

PER CAPITA INCOME

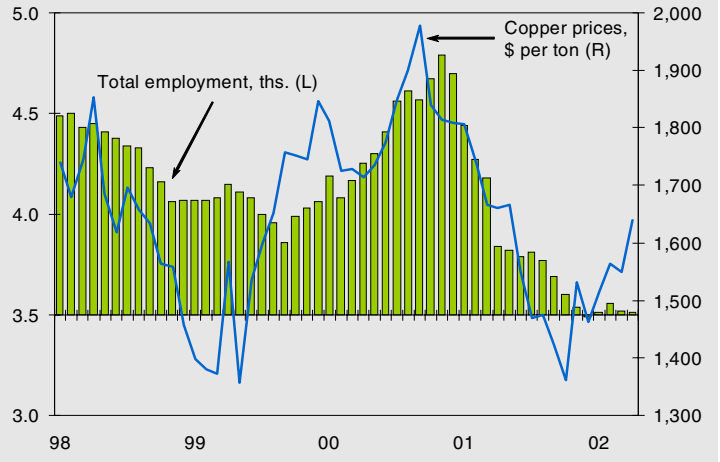


Source: Bureau of Economic Analysis, 2000

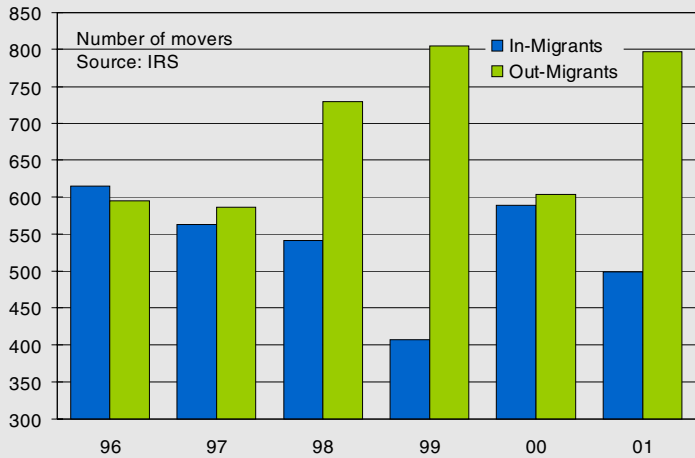
Local Incomes Supported by High-paying Mining Jobs



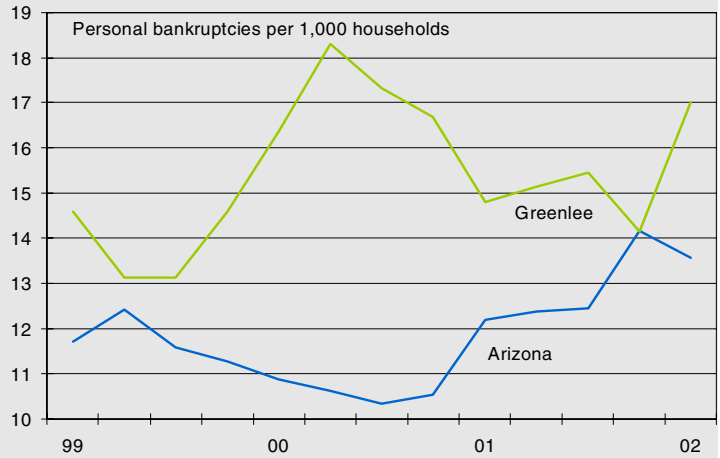
Local Employment Is Sensitive to Copper Prices



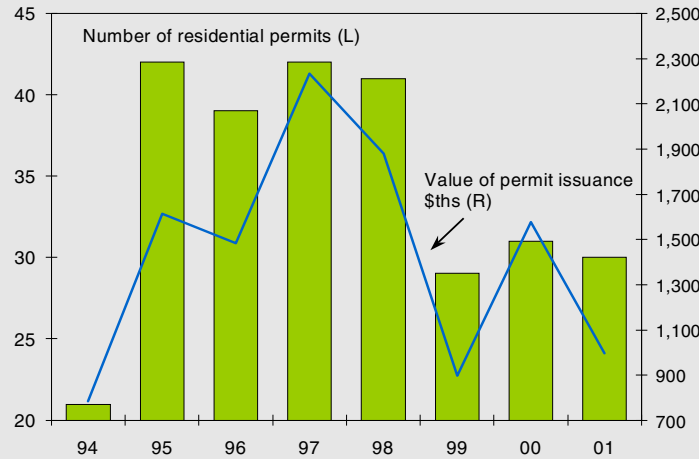
Limited Opportunities Feed Out-Migration from GNL



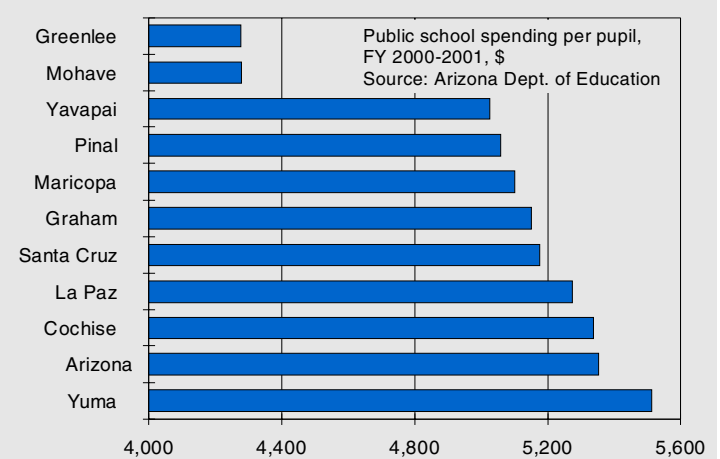
High Bankruptcy Rates in GNL



Weak Demand Leads to Slump in New Home Construction



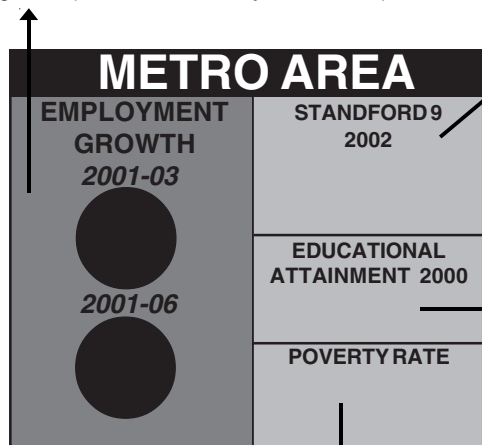
Labor Skills Limit Potential for Income Growth



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Educational Growth

These numbers represent the county's annualized employment growth rate in its short-term (over the next two years, top) and its long-term growth (over the next five years, bottom).



Poverty Rate

This data point reflects the share of total population in the county that lives below the Federal Poverty Line. This is 1999 data, released by the Census bureau based on the Decennial Census 2000 surveys. The Census Bureau uses a set of money income thresholds that vary by family size and composition to detect who is poor. If the total income for a family or unrelated individual falls below the relevant poverty threshold, then the family or unrelated individual is classified as being "below the poverty level."

Standford 9

The data represent percentile ranks for the county's 9th grade students, released in Spring 2002. Stanford 9 tests are a commonly used measure of educational attainment for K-12 students. The test is a standardized one that compares individual students' performance in each of the subject areas with a representative sample of national public school students.

Educational Attainment

This value represents the share of the county's residents aged 25 and over who have attained a bachelor's degree or higher. This is taken from data released by the Census Bureau based on the Decennial Census 2000 surveys.

Industry Opportunities

Future opportunities for economic development include a mix of those industries that already drive the state's economy, and others in which their roles may be enhanced. A three-step process led to the creation of priority economic opportunities. First, Economy.com's forecasts of industry employment over the coming ten years was used to provide a rank of growth rates across all two-digit industries as defined by SIC codes.

Second, Economy.com conducted econometric analysis of the comparative advantages that contribute to the determination of industry location, using this to calculate the estimated growth potential by industry in Arizona. This was then compared with actual industry performance over the past ten years, and the difference provided a ranking of industries in which full potential is not yet realized given current measures of comparative advantage.

The rankings emerging from this analysis were then combined with the ranking of industries according to the national outlook by industry, weighting these two factors equally. Finally, from the ranking of industries that emerged from these criteria, industries were selected that had qualities fundamental to the assumptions of the changing macro and international economic environment.

Population by cohort and population distribution

These two charts use population data for 1990 and 2000 released by the Census Bureau as part of its Decennial Census surveys. The first chart contrasts the actual number, in thousands, of residents in the county by age cohort, while the second chart details the share of residents in each age cohort.

Indicator	Units	Source	Note
Gross Product	Chain-weighted dollars	Economy.com	GCP is the sum of all income produced in a county, including corporate profits. Thus, it does not necessarily track employment growth.
Total Employment	Thousands	BLS 790 employment series; for NECMAs series estimated by Economy.com	Defined as sum of mining, construction, manufacturing, transportation/public utilities, wholesale/retail trade, finance/real estate, services, and government.
Unemployment Rate	Percent	Household employment series	
Personal Income Growth	% change previous year	Bureau of Economic Analysis	Measures income received by households from employment (including self), investments, and transfer payments.
Population	Thousands	Bureau of Census	
Single-Family Permits	Number of units	Bureau of Census	
Multifamily Permits	Number of units	Bureau of Census	
Existing Home Price	Thousands dollars	Nat'l Assoc Realtors	Index is affected by mix of homes sold.
Mortgage Originations	Millions dollars	Federal Financial Institutions Council	
Net Migration	Thousands	Bureau of Census	Calculated as number of domestic and international people moving into a state minus those leaving.
Personal Bankruptcies	Number of household filings	Admin. Office U.S. Courts	

USER'S GUIDE

EMPLOYMENT AND INDUSTRY STRUCTURE

INDUSTRIAL DIVERSITY

Industrial diversity is defined as the extent to which a county's industrial structure approximates the U.S. industrial structure.

Diversity is derived using the following formula:
 $Diversity = 1/\sqrt{\sum (EMP_{ij}/EMP_{USj}) * EMP_{ij}}$

Where EMP = share of employment in three-digit SIC industry j during period 2000-01; i = COUNTY; US = U.S. The Diversity measure is bounded between 0 and 1. 1 means the county has the same industrial structure as the U.S.; 0 means it has a totally different industrial structure than the U.S.

Formula derived from Hachman index, Bureau of Business and Economic Research, Univ. of Utah, December 1994.

EMPLOYMENT VOLATILITY

Employment volatility is defined as the standard deviation in a county's monthly year-over-year percentage nonagricultural employment growth relative to the standard deviation in U.S. year-over-year percentage nonagricultural employment growth over the 1992 to 2001 period. Volatility of 100 means that employment volatility in a county is equal to employment volatility in the nation. Counties tend to be inherently more volatile than states.

EMPLOYMENT VOLATILITY DUE TO U.S. FLUCTUATIONS

Volatility due to U.S. fluctuations (also known as "systematic volatility") is defined as:
 $SYSVOL = (Ri2)/1/2$

where SYSVOL = systematic volatility; R2 = is the proportion of total variance in county i's growth rate that is associated with contemporaneous fluctuations in national growth.

Volatility not due to U.S. fluctuations (also known as "nonsystematic volatility") is defined as:
 $NONSYS = 1 - (Ri2)/1/2$

where NONSYS = nonsystematic volatility in county i; R2 is the proportion of total variance in county i's growth rate that is associated with contemporaneous fluctuations in national growth.

Formulas modified from "Assessing Regional Economic Stability: A Portfolio Approach," Economic Review (Federal Reserve Bank of San Francisco), Winter 1990.

MIGRATION FLOWS

IRS data. When a taxpayer notifies the IRS of a change in address, the IRS records the household's current county of residence, the county to which the household is moving, the number of household members, and household income. Economy.com aggregates this data by metro area into gross migration. The data are then sorted to show the ten counties providing the largest number of new residents and the ten counties to where the largest number of current residents move. Subtracting the gross out-migration flows from the gross in-migration flows gives net out-migration.

The IRS migration data have several advantages. One advantage of the IRS data is that it is the only migration data set to show where out-migrants are moving to and where in-migrants are coming from. Another advantage is that the average income levels can be associated with both in-migrants and out-migrants. The disadvantages of the IRS migration data are that it only covers households that have filed income-tax returns and thus is not a complete record of all migration; and that it lags by two to two-and-one half years.

Census data. The Census measure of net migration attempts to capture all migration to and from counties. Economy.com aggregates this data to metro areas and to states. The Census measure of net migration differs from the IRS measure in several ways. First, Census measures only net migration; gross in and out flows are not available. Second, Census data cover all migrants, including international migrants, not just those who file income tax returns. Census data lack accompanying income data. Numbers differ from migration series data in indicator tables, which are estimated on Census 2000 data. New migration data from the Census will be available in 2002.

HOUSE PRICES

The house price index presents relative growth in the median price for existing single family homes, indexed to the first quarter of 1987. The median home price data comes from the National Association of Realtors, and is estimated at the county level by Economy.com. Each month the NAR Research Division receives data on existing single-family home sales from over 650 Boards/Associations of Realtors and multiple listing systems across the country. In 1994, data on over 1,500,000 existing single-family homes were received and processed.

LEADING INDUSTRIES

Leading industries are defined as the largest industries with location quotients greater than 1.1. A location quotient greater than 1 indicates an industry that serves more than the local market. Location quotients are calculated according to the formula: $LC_{im} = (E_{im}/E_{tm}) / (E_{iUS}/E_{tUS})$ where LC = location quotient in county m for industry i; E = employment in industry i for county m or the U.S.; and t = total employment for county m or the U.S.

Economy.com defines high-tech employment as the sum of employment in the following industries:

SIC	Industry
283	Pharmaceuticals
357	Computer & Office Equipment
366	Communications Equipment
367	Electronic Components & Accessories
381	Search & Navigation Equipment
382	Measuring & Controlling Devices
384	Medical Instruments & Supplies
385	Ophthalmic Goods
489	Communications Services, NEC
737	Computer & Data Processing Services
873	Research & Testing Services

Prepared for the Arizona Department of Commerce
Office of Economic Information and Research
December 2002