

ARIZONA'S ECONOMY

APRIL 2000

SPRING ISSUE

Doing

DOWNSIZING

Right

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Over the past year, the economy has continued to demonstrate remarkable strength. Businesses are growing and unemployment rates are lower than at any point in recent history. And yet the Chicago-based outplacement firm Challenger, Gray, and Christmas recently reported that layoffs rose to record levels in 1999. Why are layoffs accompanying such business prosperity? One obvious reason is the continued business consolidation through mergers and acquisitions. Arizona has experienced first hand the combining of Raytheon and Hughes, Norwest Bank and Wells Fargo, Honeywell and AlliedSignal, Phelps Dodge and Cyprus Amax. These and other mergers and acquisitions often result in staffing redundancies that are eliminated through layoffs. An additional factor driving increased layoffs is that businesses have adopted targeted layoffs as a competitive business strategy. Unlike the broad, sweeping layoffs of the late 1980s and early 1990s, which were sometimes taken to the extreme point of "corporate anorexia," many businesses now use selective layoffs with managerial precision. Even the booming high tech and

Internet business world has embraced layoffs as corporate strategy, with recent layoffs occurring at Amazon, Apple, Toshiba, and Compaq.

Using layoffs as a management tool fits economist Joseph Schumpeter's ideas about "creative destruction." Schumpeter argued that organizations should systematically abandon established products, services, and processes and allocate resources toward those activities that promote and reward creativity. Clearly, layoffs can be part of the creative destruction process. And yet, organizations are not just economic entities, but are also social systems. Employees develop shared understanding or culture, which can be part of an organization's competitive advantage. Although Southwest Airlines has clearly developed competitive advantage through fleet management and customer service, a large part of their sustained advantage has come from people management and a highly effective organizational culture. Layoffs can have destructive effects on an organization's culture; management literature and stories in the popular press are filled with horror stories of companies that have

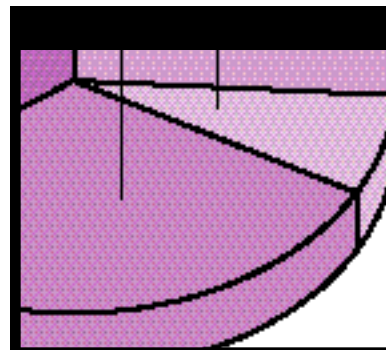
done a poor job of implementing their downsizing. Most managers can probably relate an example of ineffective downsizing from either their own company or a colleague's company. However, we also see a number of examples of companies that are doing it right. Indeed, considerable research has demonstrated that managing the layoff implementation process is critical for effective downsizing (for a summary, see the box entitled "Five Steps for Effective Downsizing").

WHAT IS REALLY GOING ON?

This makes us wonder what is really happening. Are companies doing downsizing right the exception or the rule? Are the horror stories a thing of the past or are they the norm? We conducted a survey of HR managers to address these questions.

The Study

We sent surveys to a sample of Society of Human Resources Managers (SHRM) members who held the title of HR director or HR manager and received 543 responses from a broad cross-section of industries.¹ Approximately 28% indicated some unionization at the employee level. Company sizes



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FIGURE 1
Reasons for Layoffs

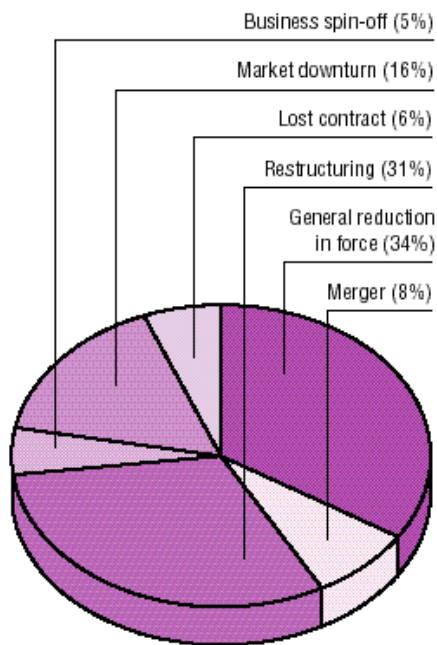


FIGURE 2
Primary Mode of Informing Employees They Had Been Laid Off

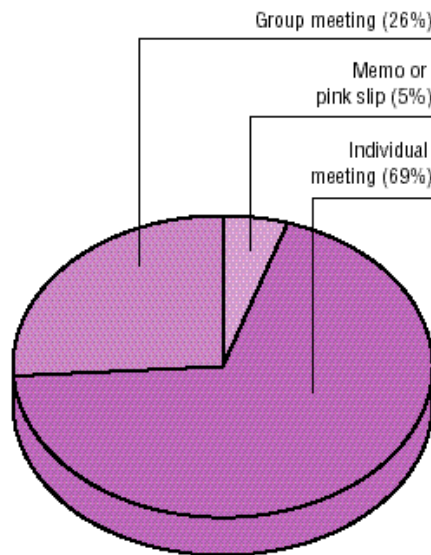
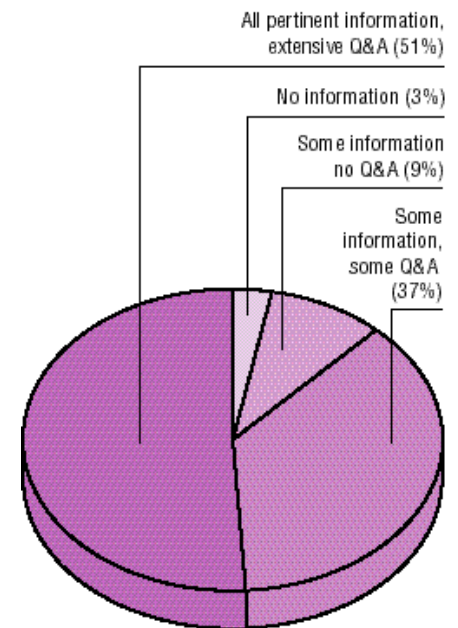


FIGURE 3
How Much Information was Released?



ranged from 50 to 150,000 and represented employers of approximately 3.5 million employees total.

The most common reasons for layoffs were organizational restructuring, market downturn, and general reduction in force (see **Figure 1**). Respondents described the way they had implemented their most recent lay-off along the following dimensions:

- Amount of notice given (days)
- Method of informing (individual meeting, group meeting, or memo)
- Amount of information provided (range from none to all pertinent)
- Manager demeanor (range from strictly business to highly involved)
- Escorting employees off premises (range from never to always).

THE FINDINGS

On average, respondents provided almost 30 days advance notice of the layoff, with less than 20% providing no notice. Consistent with the Plant Closing Law, more notice is given when the layoff involves more than 50 people (average 41 days) than when it involves less than 50 people (average 21 days). These results suggest that the majority of companies do provide advance notice to employees, and while legal requirements influence this

5 Steps for Effective Downsizing

- 1. Advance Notice.** Organizations should provide ample advance notice to employees, thereby giving victims and survivors the opportunity to prepare for the layoff.
- 2. Individual Communication.** When possible, the actual layoff should be communicated in face-to-face individual meetings.
- 3. Give Full Information.** People are better able to accept negative decisions if they understand the reasons behind the decisions.
- 4. Treat with Dignity and Respect.** A layoff is a business decision, but it can be communicated in a personal and sensitive manner. As with information, it costs nothing to treat individuals with dignity and respect.
- 5. Escorting Employees off the Premises is Usually Not Necessary.** Certainly, if a company is striving to treat individuals with dignity and respect, they should not be escorted them off the premises. Security risks are inversely related to prior trust shown toward employees.

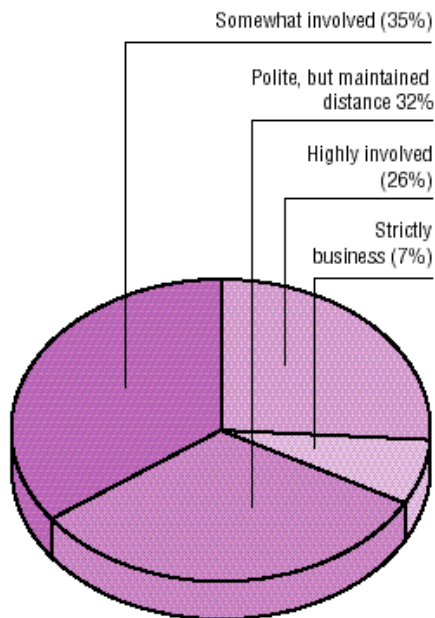
practice, many organizations are providing notice even when not legally required to do so.

Methods of informing individuals of the layoff are summarized in **Figure 2**. Almost 95% of respondents use individual or group meetings and most of those use individual meetings. This is consistent with the practices relayed by one HR manager in which her company used individual meetings unless the layoff was so large that it would have been unreasonable for the two-person HR staff to conduct these meetings, in which case they used meetings with groups of 30 employees. The horror stories involving “pink slips” and impersonal memos appear to be the exception and not the rule. In fact only one respondent indicated that they used pink slips to inform employees of the layoff.

Information tends to be shared with layoff victims in almost 90% of the cases (see **Figure 3**). This information sharing often includes time for question and answers. One company told us that the informal “rumor mill” so effectively disseminates information regarding the necessity for the layoff that when the decision is actually communicated to individuals, most questions deal with benefits and opportunities for rehire.

Manager demeanor during the communication of the layoff decision appears to be highly variable in our sample (see **Figure 4**) with more individuals getting at least minimally

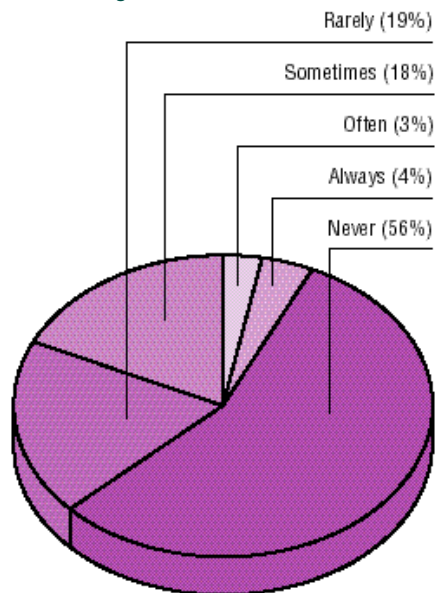
FIGURE 4
Demeanor During Implementation of the Layoff



involved rather than maintaining distance. In our interviews with HR professionals we also heard that demeanor can be highly variable within an organization. Those managers that tend to be more effective and tend to have better relationships with their employees also tend to do a better job of communicating the layoff decision. It seems that one of the barriers to personal touch in the layoff communication may actually come from legal concerns and is formalized in layoff implementation plans. We heard from a number of HR professionals that the layoff implementation guidelines give explicit instructions on not apologizing and not getting personally involved to reinforce the fact that the layoff was a business decision and was nothing personal. A few companies go so far as to provide actual scripts to managers to use when communicating the layoff.

Perhaps our biggest surprise in the results was with respect to escorting employees. Over 55% of our respondents indicated that they never escort employees off the premises and less than five percent always escort (see **Figure 5**). The most illuminating discussion of this came from a high tech Arizona-based manufacturing firm with extensive security in the manufacturing and management facilities. More than most firms, this company has to be concerned about security and sabotage. In their first layoff, they escorted people out

FIGURE 5
Were Employees Immediately Escorted from the Premises after Layoff Announcement?



of the building and this action, more than anything else, was heavily criticized by both victims and survivors. They have never again escorted in the numerous rounds of successive layoffs and instead give employees two days to clear up and say goodbye. When asked about concerns regarding security and sabotage they stated, “we trust these people when they are our employees and we will continue to trust them when we have to lay them off.”

CONCLUSIONS

Our survey of over 500 HR directors and managers suggests that many companies are doing downsizing right. Advance notice tends to be provided. Individual or, in some cases, group meetings are used to communicate the decision and this is often accompanied by question and answers and much information sharing. And although manager demeanor is quite variable, most companies do not regularly escort laid-off employees off the premises. These results suggest that the horror stories regarding downsizing practices may actually represent a minority of cases.

It is also interesting to note that there appears to be a learning process regarding downsizing practices in some organizations. The earlier cited case of the company that initially escorted and then ceased that practice is one example. The size and experience of the “layoff team” may be a factor in this learning.

In one company, the layoff team (comprised of employee relations specialists and managers) actively reviewed each layoff to identify what worked and what did not work. At the other end of the continuum, we also talked to companies that do a poor job of downsizing and believe they should “get it done, move on, and put it behind us.” This approach does not promote learning and the poor layoff practices appear to continue.

Although the overall picture suggests that many organizations are doing downsizing right, there are still a number of companies that could improve their layoff practices. For example, one quarter of the companies in our survey indicated that they escort employees off the premises sometimes, often, or always. We tried to determine if there is something about a layoff or organization that explains this action on the part of companies, but indicators such as industry type, organization size, and reason for the layoff were all unrelated to escorting practices. One possibility is that poor layoff practices result from unfounded fear or lack of trust toward the employees.

Ironically, organizations that try to prevent sabotage by escorting layoff victims off the premises may actually be creating more problems and potential for sabotage among their surviving employees. One survivor of a particularly harsh and unfair layoff in a California bank attempted to get even with his employer by planting a “logic bomb” in the company’s payroll system. Files were deleted and the computer system was shut-down. As a result of this sabotage, the bank lost considerable credibility among its customers and several managers in the computer division were fired. Organizations must remember that the benefits of doing downsizing right extend to both downsizing victims and survivors, and thus eventually to the company. Effective downsizing is one important component of effective human resource management. ■

¹ For more information on the survey and sampling procedure, as well as a complete summary of the results, see Gilliland, S.W. & Schepers, D.H. (in press), “Why we do the things we do: A discussion and analysis of determinants of just treatment in layoff implementation decisions,” *Human Resource Management Review*.

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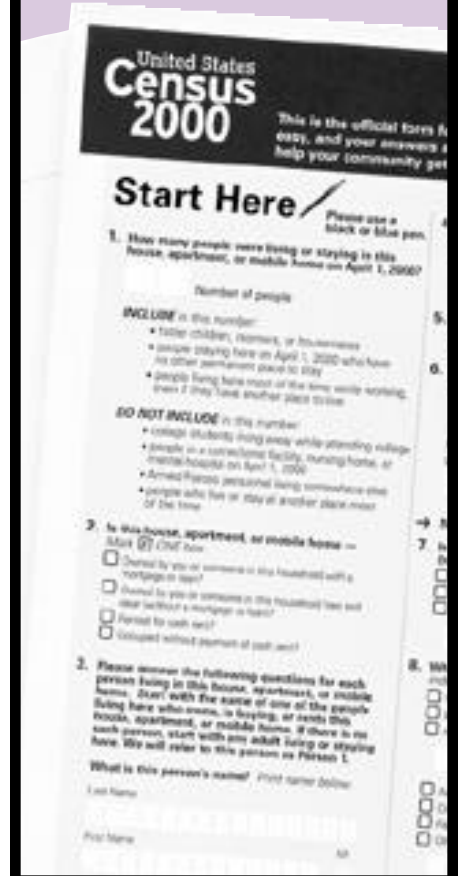
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WHAT'S IN A NAME?

B2B DIALOGUE NEEDS DECIPHERING

by Mary Campbell

Editor, *The FINOVA Quarterly*

Make the rounds of Internet business bulletin boards and chat rooms and you'll soon discover that when it comes to business-to-business electronic commerce, the vocabulary hasn't kept up with the vision.

Check a little further—visit Web sites that offer B2B resources, for example—and you'll find the confusion pervasive. The phrase *business-to-business [or B2B or B-to-B] electronic commerce*, in fact, has at least three distinct meanings:

- **Open buying and selling among businesses on line.** This is still the most common model, analogous to shopping at, say, Office Depot down the road, where some of the customers are college students buying wireless phones and some are businesses looking for software and bulk coffee bargains.
- **Intercompany (vendor-to-manufacturer, for example) online systems** that facilitate selection, purchase, and payment by preselected trading partners. Sometimes these arrangements function like intranets, with the Internet as the communication medium; certain business customers have password-enabled access to online ordering, inventory, and invoicing, for example.

- **Brokers or hubs for other buyers and sellers; infomediaries**—said to be the future of B2B E-commerce.

TOUGH TYPECASTING

Attempts to create tidy categories for on-line business have yielded varying results, to say the least. The University of Texas/Cisco Systems ongoing Internet Economy Indicators study identifies four segments of the Internet economy. All overlap, especially the first two—**(1) Internet infrastructure** (telecommunications and fiber backbones, dial-up networking) and **(2) Internet applications**—where telecommunication companies and the likes of Cisco, Dell, IBM, HP, Oracle, Microsoft and Sun provide the servers, modems, routers, PCs, and other products and services that equip the Internet for electronic commerce. The other two segments are **(3) E-commerce**—companies selling products and services either exclusively on

the Internet (Amazon.com) or on line as part of a larger “bricks and mortar” business (Southwest Airlines); and **(4) electronic intermediaries** or Internet middlemen, such as eBay, that facilitate interaction between buyers and sellers. The UT study does not differentiate between B2B (business-to-business) and B2C (business-to-consumer) E-commerce.

In one online bulletin board discussion, participants commented on the purported shift in E-commerce from “the Internet as a boundless marketplace” to “the Internet as a way to improve trading systems between business partners.” One executive, whose company is engaged in online buying and selling, admitted he had “never understood the distinction between business-to-business and business-to-consumer E-commerce.” But the editor of an electronic-commerce E-mail newsletter countered that B2C E-commerce “never really existed” except in the case of travel and auction sites and “places like Amazon.com.... B2B EC is simply more profitable, simpler, and more in demand than B2C,” he concluded, though predicting that B2C will grow as a percentage of all E-commerce. ■

Note: Visit the Internet Economy Indicators site for study methodology and findings. The “facts” page includes an estimate of global Internet commerce revenue since 1998—more than \$109.6 billion. The figure is continually updated, and the numerals on the right—ones, tens, hundreds, and thousands columns—move at dizzying speeds. www.internetindicators.com

PROJECTED GROWTH IN ELECTRONIC COMMERCE, WORLDWIDE, U.S. DOLLARS

- All researchers cited expect business-to-business electronic commerce to dwarf business-to-consumer online sales, taking a bigger and bigger share of the total online market.
- International Data Corporation's projection for online B2B sales in 2002 is much more conservative than the Forrester Research estimate for two years earlier (\$330.6 billion versus \$843 billion).
- B2B sales by infomediaries compared to all B2B sales on line estimated at 1.7% in 1998, 25% or more by 2002, depending on source of projection.

E-Commerce Type	1998	1999	2000	*	2002	2003	2004
Online B2C Sales	7.8 billion	18 billion	NA		NA	108 billion	NA
Online B2B Sales	43 billion	100 billion	843 billion (F)		330.6 billion (I)	1.3 trillion (F)	1.5 trillion (G)
B2B Sales through Infomediaries	750 million (B2)	NA	NA		211 billion (B2)	NA	NA

NA = Not Available, (I) = International Data, (F) = Forrester Research, (G) = Goldman Sachs & Co., (B2) = Business 2.0 magazine, *Comparable 2001 Data NA

THE INFOMEDIARIES

by Gerald J. Swanson

Associate Professor of Economics, Eller
College of Business and Public Administration
with Mary Campbell

Business-to-business E-commerce has rapidly evolved from simple to specialized in three stages:

1 Basic business-to-business E-commerce is easy to grasp.

The process varies little from open-market offline trading or from business-to-consumer E-commerce.

2 Internet-enabled intercompany buyer-seller arrangements, designed to the specifications of the participants, are more complex. Companies that establish such online relationships with trading partners differ in their motivation. Some want to make it convenient to do business with them and inconvenient to do business with competitors. Participants generally aim to add value and strengthen relationships. One international shipping company set up its B2B network to do away with the cumbersome mechanics of phone calls and faxes.

3 The fastest-growing B2B model involves "infomediaries" and has taken many by surprise, given the hoopla in recent years about *disintermediation*—the obsolescence of the middle man. The Internet was supposed to do away with the middle man. With producers and consumers able to connect directly, there was believed to be no need for other links in the supply chain.

That turned out to be only partially true. The Internet has unquestionably displaced a great many middle men—ask any travel agent or independent bookstore owner. But in their place has emerged a new group unique to the world of E-commerce. These *infomediaries* are *vertical market makers*, *electronic market hubs*, *vortexes*, *butterfly markets*, or *net market makers*—as in most things Web-related, the terminology is in transition. Nomenclature notwithstanding, the fact is that Web buyers need middle men to bring order to the chaotic assortment of new suppliers, and suppliers need to be guided to concentrations of buyers. In addition, infomediaries can act as application service providers online, assuming respon-

The information on pages 5-7 is reprinted from *The FINOVA Quarterly*, published by the Eller College of Business and Public Administration and the Alliance for Midsize Business at the University of Arizona.

For more information about the Alliance for Midsize Business, or to subscribe to the free *Quarterly*, contact editor Mary Campbell at campbell@bpa.arizona.edu or call 520-621-2281.

sibility for not only hardware and software but invoicing, customer service, inventory, and other business functions.

Strictly speaking, infomediaries are Web sites set up to facilitate B2B or B2C trans-

actions, although the term is generally used for sites that connect businesses to other businesses. In much the same way job fairs bring employers and applicants together, infomediaries serve as hosts in an electronic marketplace where buyers and sellers can gather. They add value by creating market liquidity—a critical mass of buyers and sellers—and by reducing transaction costs.

A B-to-B hub is not simply a Web site that sells to businesses. Staples.com, for example—which sells office products, supplies, and equipment online caters to business and is certainly engaged in business-to-business E-commerce, but it is not a B2B hub or an infomediary. It is a single site engaging in transactions with many consumers who are engaged in business. B2B *hubs* are networks of many buyers and many sellers, and their value grows exponentially as the number of participants increases.

In its September 1999 issue, *Business 2.0* magazine predicted that infomediaries would account for more than a quarter of all B-to-B Internet commerce revenues by the year 2002. ■

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INFOMEDIARIES CHANGE THEIR SPOTS

by Gerald J. Swanson

Associate Professor of Economics
Eller College of Business
and Public Administration

with Mary Campbell

The industry places infomediaries into two or three different categories. Varda Lief of Forrester Research identifies three infomediary models:

1 Aggregators are like electronic catalogs. They help buyers in fragmented markets select products by providing up-to-the-minute price and product information and a single contact point.

2 Online auctions (such as *adauction*) offer reliable channels for sellers to dispose of perishable or surplus goods or services at the best possible prices, and for buyers to get bargain pricing without leaping into the unknown.

3 Exchanges create liquidity in otherwise fragmented markets, reduce average

stock levels by matching bid/ask offers, and act as neutral third parties to enforce sales and settlement terms. (*Economist* June 1999).

Some Web watchers mention a fourth category, the **barter** model, through which buyers and sellers exchange nonmonetary assets. In addition, sites like BizBuyer work

by collecting the buyer's criteria, gathering and comparing quotes, and arranging the contact between buyer and seller. The process is similar to that of other B2B "reverse-auction sites" (buyer puts in a request, sellers bid for buyer's business) like Sorcity.com and BidtheWorld.com. ■

TWO TYPES OF HUBS

Virtual (Vertical) Hubs

Focus on a specific industry or market.

Examples:

- Altra Energy—energy
- Cattle Offering Worldwide—beef & dairy
- PlasticsNet.com—raw materials (e.g., polycarbonates) and equipment (e.g., blenders)
- PaperExchange.com—supplies for publishers
- VerticalNet.com—several B-to-B companies serving different industries
- Chemdex.com—chemical products for the biotechnology industry
- Neoforma—hospital product supplies
- SciQuest.com—laboratory products

Functional (Horizontal) Hubs

Specialize in a specific function or business process. Provide the same function or automate the same business process across different industries. Expertise usually lies in a business process. Examples:

- IMark.com—used capital equipment
- Employeease—employee benefits administration
- adauction—media buying
- Youtilities.com—corporate energy management and analysis
- BidCom.com—risk and project management services

THREE TYPES OF HUBS

	Aggregators, "Electronic Catalogs"	Online Auctions	Exchanges
Method	Demand/supply aggregation; provides a fixed-price listing of products	Spatial matching, much like eBay and other consumer auction sites	Temporary matching; hub collects bids from suppliers and submits them to the buyers
Buyer Benefits	Lower search and transaction costs	Catalog benefits, plus better matches, better prices	Auction benefits, plus peak-load demand management, hedge risk in volatile markets
Seller Benefits	Broader customer access, lower transaction costs	Catalog benefits, plus better pricing	Auction benefits, plus liquidate excess supply, manage volatility
Best Use	MRO products; preplanned purchases; fragmented supplier base	Used capital equipment; perishable capacity; hard-to-specify products	Near-commodities; high-fixed-cost assets; volatile markets
Pricing	Prenegotiated, usually static	Most attractive bid, prices move in one direction	Marketwide bid-ask; moves up and down
Challenges	Creating master catalog; gaining supplier critical mass	Liquidity, misrepresentation, fraud, fulfillment	Asset specificity; off-exchange trade

WHILE TUCSON AND PHOENIX ECONOMIES MARCH TO THE BEAT OF DIFFERENT DRUMMERS, THE INCOME GAP NARROWS

By Marshall J. Vest
Forecasting Project Director
March 1, 2000

Labor shortages and higher oil and commodity prices continue to worry monetary policy-makers and interest rates are headed up. The economy continues to grow well above its long-run potential, spurred by the consumer-spending boom, but higher rates are beginning to have an effect on interest-sensitive sectors. Arizona's economy mirrors national trends—strong, but slowing. Arizona's two largest metro areas are marching to the beats of different drummers, as Phoenix loses momentum and Tucson accelerates to become one of the fastest growing metro areas in the nation. Divergence is due to different fortunes in their industrial bases. Finally, Arizona's wage gap is still wide, but according to a recent study, it is not as wide as originally reported two years ago. Development of high-tech industries may be both a cure for, and a cause of, the income gap.

As the New Year begins, the nation's economy is still on fire. Unemployment is at a 30-year low, job growth is strong, consumer confidence remains near record levels, and the index of leading economic indicators is moving up smartly. The consumer-spending boom remains in full force. Sales during the holiday shopping season were spectacular, and new light vehicles sales recorded a record 16.76 million units in 1999. Although the trend in new-home sales has been downward since last spring, sales rose nearly two percent during 1999, eclipsing 1998's record level and marking the fifth consecutive annual increase. Real GDP, the best overall measure of the nation's output, rose at a red-hot 5.8% annual rate in the fourth quarter, well above the widely-accepted speed limit of 3-3.5%.

In early February, the Federal Reserve moved short-term interest rates up another quarter point in an effort to slow the economy, but it will likely take two or three (or more) quarter-point boosts to bring desired results. While the Fed was busy boosting rates on short-term treasuries, yields for longer-term securities fell as the Treasury made major changes in its debt-management plans. It plans to pay down debt and reduce the issuance of long-term bonds. As the long bond took on scarcity value, investors responded by bidding up prices, thereby forcing the yields well below those on shorter-term issues. In the parlance of economists, the treasury yield curve "inverted" beyond two-year maturities. This is

expected to be temporary and does not bode ill for the economy. Usually, an inverted term structure reflects investors' expectations for a slowing economy (or recession) and falling yields. Moreover, the recent Treasury market chaos is not expected to affect corporate or mortgage markets, where rates remain high in real terms. In mid-February, for example, 30-year mortgage rates (at par) were being quoted at 8.5%. In real terms, that is 6.5%, and that is high when put in historical context. Typically, when real mortgage rate rise above five percent, residential building permits fall.

Forecasts for the nation's economy prepared by the WEEA Group, which we use in our models, continue to show a slower pace in 2000 as higher interest rates finally reign in ebullient consumers.

RECENT TRENDS, ARIZONA

Indicators for Arizona mirror national trends. Unemployment stood at 4.1% in December, virtually identical to the national rate. Arizona remains one of the fastest growing states using job growth as the measure. Even though job growth slowed during the year, Arizona's 3.6% gain (comparable data through October '99) ranks third among all states. Arizona consumer confidence, as measured by the Behavior Research Center with sponsorship by Stockton Trust of Scottsdale, rose to a record during the first quarter of 2000.

Housing markets continue to enjoy high levels of activity. At year-end, resales stood at record levels in both Phoenix and Tucson. According to preliminary estimates from the Bureau of the Census, new homebuilding statewide rose to nearly 63,000 units during 1999, a 3.4% increase. Single-family units totaled almost 51,000, a 5.4% gain. Gains were recorded for the whole year even though permits fell from the peak reached in June. For example, single-family permits fell from a 58,000 annual rate in June to 47,500 in December. Reduced affordability due to higher mortgage rates and higher prices are the reason (**Exhibit 1**).

Retail sales accelerated throughout 1999 and were very strong during the holiday season. For the entire year, retail sales gained 9.6%, while sales for November and December combined recorded double-digit gains of 13% from the prior year (**Exhibit 2**). As in recent months, auto sales led with the strongest increases followed closely by furniture and building materials. Restaurant and bar sales also strengthened at year-end, growing by 11.2% in the fourth quarter.

For the economy to slow, the consumer-spending boom and the housing boom must be subdued. We should expect the Fed to continue to boost interest rates until slowing is clearly visible. Higher rates will first be felt in the building and financial services industries and in new car sales. Those sectors are the keys to watch in coming months.

Look for employment statewide to increase by roughly 70,000 this year (3.2%) following a gain of 86,000 in 1999. Retail sales gains are expected to slow from 9.0% to 4.0%, and

EXHIBIT 1 Homebuilding Peaked in Mid-99

Building Permits, AZ
(seasonally adjusted 6-per moving avg)

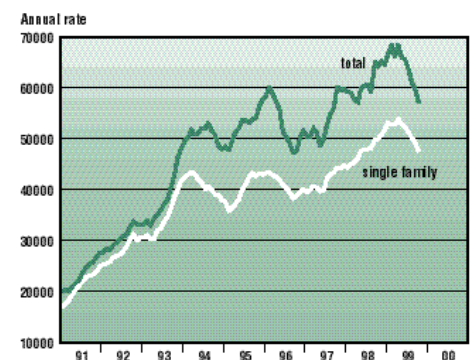


EXHIBIT 2

Consumers are Still on Buying Binge

Retail Sales Growth, Arizona (Current Dollars)



EXHIBIT 3

Metro Growth Rates Diverge

Wage & Salary Job Growth
(Phoenix-Mesa & Tucson MAs)

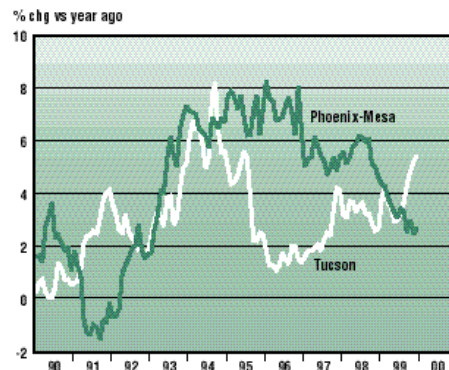
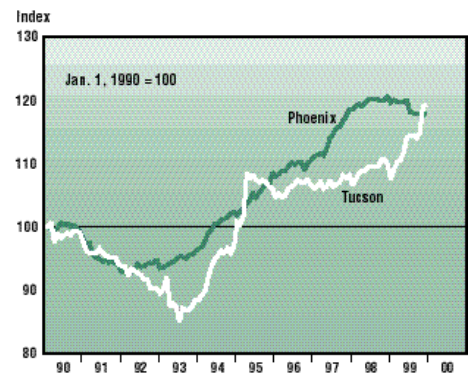


EXHIBIT 4

Paths Differ for Two Metros

Industrial Jobs, Phoenix and Tucson
(Mining plus Manufacturing)



residential permits slide to 50,000 from last year's 63,000 units.

TUCSON AND PHOENIX TAKE DIFFERENT PATHS

Arizona's two largest metro areas continue to march to the beat of different drummers. Tucson's economy is in the midst of a boom and continues to accelerate while the Phoenix economy appears to have caught a case of the dwindles and is losing momentum (**Exhibit 3**). Job growth has surged in Tucson and in December, job counts stood 5.3% higher than one year earlier. With comparable data for metros through October, Tucson ranks as the 3rd fastest growing metro area. Phoenix has slipped from one of the fastest growing to a 35th ranking, with job growth of only 2.7% (December to December).

A difference in growth of export-based jobs is the most important factor explaining the divergence of growth in the two areas. Both grew their industrial job base by nearly 20% during the decade of the 1990's, but the timing of that growth varied significantly (**Exhibit 4**).

Metro Phoenix added a number of billion-dollar semiconductor fabrication plants during the 1995-97 period. Then during the Asian crisis, as exports of semiconductor and electronic components fell, manufacturing job growth waned during 1998-99. Finally, consolidation in Arizona's copper mining industry reduced employment in that industry by half in the Phoenix metro area in mid-1999. Ripple effects from the stalled industrial base brought slower growth economy-wide.

Over the decade, Tucson saw a surge in its

industrial base in 1994-95 as Hughes Missile Systems relocated newly acquired General Dynamics operations to its Tucson plant. Then, industrial growth flattened during 1996-97, only to surge again recently, largely as a result of Raytheon's restructuring missile operations from new acquisitions (Hughes and Texas Instruments). Although expansions at

Bombardier, which manufactures Learjet and Challenger corporate business jets, and new arrival Universal Avionics were the headline-grabbers during 1999, nearly every manufacturer in Tucson added to payrolls. Last year, manufacturing employment in Tucson grew by almost 3,000, or 10%.

The two metro areas have very different manufacturing concentrations—semiconductors and electronic components in metro Phoenix and aerospace and optics in Tucson. Differences in growth—and timing of growth—have resulted in very different business cycles.

What should one expect as we go forward? In Tucson, the pipeline for announced new relocations and expansions is emptying, so the current wave is expected to diminish. However, ripple effects will propel the economy forward at a strong pace well into next year. In Phoenix, exports are growing once again and prospects for the world's semiconductor industry look much brighter. In fact, forecasts for that industry show a shortage of productive capacity in the near future. Intel's recent announcement that it will build a new \$2 billion fab plant in Chandler to open in 18 months, and news that Microchip will begin construction of a \$1 billion plant originally scheduled to be built in 1996, presages that the next surge will arrive in 2001-02.

INCOME GAP AND THE HIGH-TECH ECONOMY

A study of the nation's income gap by state was recently updated, and there is good news and bad news for Arizona. The bad news is

AS HIGH-SKILLED JOBS
ARE CREATED,
INCOMES INCREASE
AT THE HIGHER END,
MAKING THE GAP WIDER!
THE GAP PERSISTS
IF INCOMES OF THE
LOWER-SKILLED POPULATION
FAIL TO KEEP UP.

EXHIBIT 5

Pacific and Border States have Highest Gaps

Ratio of Top Fifth to Bottom Fifth Average Incomes

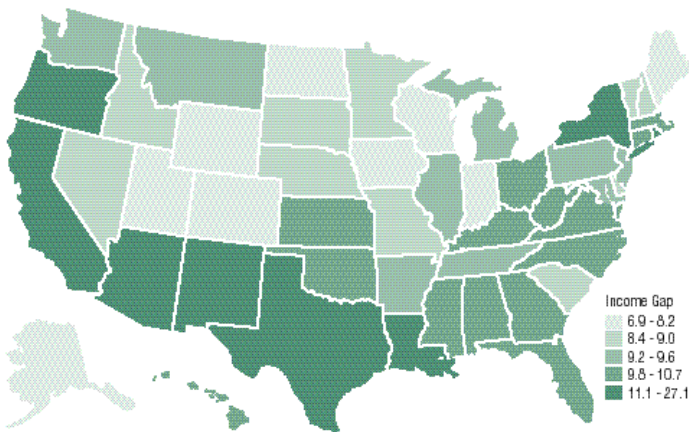
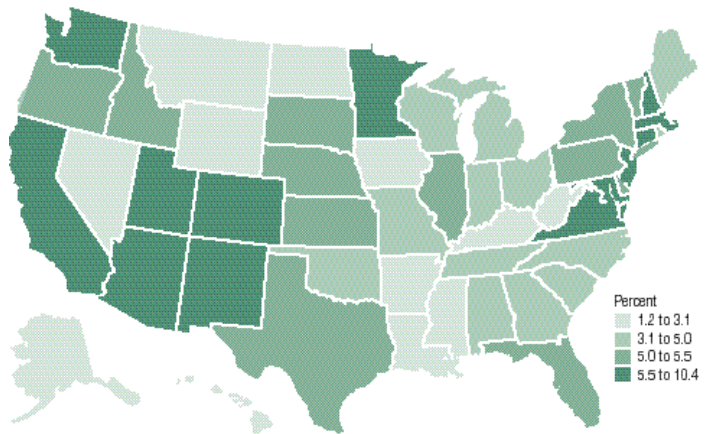


EXHIBIT 6

Where are the High-Technology Jobs

(High-Tech as a Percent of Total Employment, 1998)



that Arizona still has one of the widest gaps between the rich and poor of any state (ranked second to New York, see **Exhibit 5**). The good news is that the gap has narrowed since the first study was released two years ago. More importantly, real incomes have increased significantly in recent years.

The older study compared changes in real incomes from the mid-80s to the mid-90s. That data revealed significant declines in real incomes for the bottom fifth of Arizona families (down 37%) and declines in all but the highest fifth where the gain was a miniscule 2.6%—one of the smallest gains of any state in the nation. The new data, which compares the late-80s with the late-90s, still finds declining incomes for the bottom four quintiles, but the declines are much smaller. The bottom fifth, for example, shows a decline of only 15%. Moreover, the top fifth now shows an increase of 21.0%, well above national averages and fourth among western states. These data compare changes over the entire decade (the old study compared '85-'87 to '94-'96—data were pooled for three years to increase sample sizes).

Rather than using a ten-year span, the data from the two studies may be compared to see changes during the past two years. Between '94-'96 (the mid-'90s) and '96-'98 (the late-'90s), average incomes for Arizonans in the bottom fifth increased by \$3,528 or 48.5%. That compares to an increase of 40.3% for the nation's poorest, and is the second best among western states (Washington recorded a 49.5% gain). Average income for Arizonans in the top fifth increased \$37,798, or 36.6%, more than double nationwide averages, and

second only to Oregon among western states. From these comparisons it may be concluded that all Arizona residents are sharing in recent prosperity.

What is the relationship between the income gap and high technology? Is the large income gap a failure of the state's economic development policies? During the past decade, these policies have been aimed at developing the state's high-technology sectors that export their products and provide high-paying jobs. Arizona has been very successful at developing high-tech jobs, yet a wide income gap remains. That is not unique to Arizona, however. In fact, states that have developed their high-tech economy also have the largest gaps, as shown in **Exhibit 6**. It only makes sense that as high-skilled jobs are created, incomes increase at the higher end, making the gap wider! The gap persists if incomes of the lower-skilled population fail to keep up.

Closing the income gap (and ensuring that all Arizona residents share in the rewards of the New Economy) requires a two-pronged approach. First, we must continue to create opportunities for better-paying jobs by developing high-skill/knowledge-based jobs. Second, we must ensure that existing residents have the ability to hold those jobs. This means raising the level of preparedness of high school students for the world of work, motivating them to learn, keeping them in school, and demanding a better outcome from public schools. It means providing opportunities for life-long learning, job training, and workforce development programs. It also means ensuring that we have strong research universities that provide cutting

edge research and highly educated people.

In the information age, human capital is the most important factor. We can continue to import workers from other states to work in newly created knowledge-based jobs—and the income gap will persist. Or, we can give existing residents the knowledge and skills they need to participate in the New Economy, and thereby raise the standard of living for all Arizonans. ■

¹ *Pulling Apart: A State-by-State Analysis of Income Trends*, Center on Budget and Policy Priorities and the Economic Policy Institute, January, 2000, <http://www.cbpp.org/1-18-00sfp.htm>.

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FORECAST TABLES

Forecasts for Arizona

	1999	2000	2001	2002	2003	2004	2005
Personal Income (\$ mill)	115,992.1	124,064.3	131,511.8	138,591.1	145,849.0	153,784.6	162,995.4
percent change	7.1	7.0	6.0	5.4	5.2	5.4	6.0
Per Capita Personal Income	23,950.5	24,931.2	25,806.6	26,602.3	27,399.7	28,279.3	29,338.8
percent change	3.9	4.1	3.5	3.1	3.0	3.2	3.7
Aggregate Retail Sales (\$ mill)*	49,514.1	51,651.8	53,580.1	56,245.8	58,944.1	61,602.6	65,011.5
percent change	9.3	4.3	3.7	5.0	4.8	4.5	5.5
Population (000s, mid-year)	4,843.0	4,976.3	5,096.1	5,209.7	5,323.0	5,438.1	5,555.6
percent change	3.0	2.8	2.4	2.2	2.2	2.2	2.2
Net Migration (000s)	98.5	85.4	74.3	71.9	73.0	74.4	80.0
Wage & Salary Employment (000s)	2,164.2	2,233.4	2,285.8	2,336.6	2,391.4	2,449.1	2,527.2
percent change	4.1	3.2	2.3	2.2	2.3	2.4	3.2
Goods-Producing	377.1	378.3	379.0	380.1	386.7	396.4	407.9
percent change	1.5	0.3	0.2	0.3	1.7	2.5	2.9
Construction	151.1	150.0	145.1	141.4	141.6	144.4	148.3
percent change	7.0	-0.7	-3.3	-2.6	0.1	2.0	2.7
Manufacturing	214.8	218.2	223.7	228.4	234.8	241.7	249.2
percent change	-1.2	1.6	2.5	2.1	2.8	2.9	3.1
Service-Providing	1,787.1	1,855.1	1,906.8	1,956.4	2,004.8	2,052.7	2,119.3
percent change	4.7	3.8	2.8	2.6	2.5	2.4	3.2
Trade (Wholesale & Retail)	520.4	535.4	549.4	566.5	581.1	594.3	618.5
percent change	3.9	2.9	2.6	3.1	2.6	2.3	4.1
Services	662.5	696.2	722.4	744.4	765.3	787.1	815.2
percent change	6.1	5.1	3.8	3.0	2.8	2.8	3.6

Forecasts for Phoenix-Mesa Metro

	1999	2000	2001	2002	2003	2004	2005
Personal Income (\$ mill)	80,676.8	87,134.3	92,915.4	98,192.6	103,947.8	109,716.3	115,917.6
percent change	7.2	8.0	6.6	5.7	5.9	5.5	5.7
Per Capita Personal Income	26,474.0	27,758.5	28,841.7	29,763.5	30,802.8	31,799.1	32,852.3
percent change	3.8	4.9	3.9	3.2	3.5	3.2	3.3
Aggregate Retail Sales (\$ mill)*	34,085.9	36,038.9	37,187.0	39,249.3	41,673.1	43,662.4	46,186.3
percent change	8.4	5.7	3.2	5.5	6.2	4.8	5.8
Population (000s, mid-year)	3,047.4	3,139.0	3,221.6	3,299.1	3,374.6	3,450.3	3,528.4
percent change	3.2	3.0	2.6	2.4	2.3	2.2	2.3
Net Migration (000s)	65.8	61.1	51.1	45.9	44.2	44.3	46.8
Wage & Salary Employment (000s)	1,519.3	1,572.9	1,611.6	1,642.2	1,673.0	1,704.2	1,745.9
percent change	4.2	3.5	2.5	1.9	1.9	1.9	2.4
Goods-Producing	278.3	281.1	282.0	281.0	283.1	288.0	295.2
percent change	-0.3	1.0	0.3	-0.4	0.7	1.7	2.5
Construction	109.0	108.5	103.8	99.4	97.2	97.7	100.2
percent change	5.4	-0.5	-4.4	-4.2	-2.2	0.5	2.6
Manufacturing	164.2	168.6	174.3	177.6	181.9	186.2	191.0
percent change	-3.1	2.6	3.4	1.9	2.4	2.4	2.5
Service-Providing	1,241.0	1,291.9	1,329.6	1,361.2	1,389.9	1,416.2	1,450.7
percent change	5.3	4.1	2.9	2.4	2.1	1.9	2.4
Trade (Wholesale & Retail)	369.1	383.8	395.5	406.2	415.9	422.7	434.2
percent change	4.8	4.0	3.0	2.7	2.4	1.7	2.7
Services	484.3	503.5	519.2	530.3	538.6	547.8	559.8
percent change	6.1	4.0	3.1	2.1	1.6	1.7	2.2

Forecasts for Tucson Metro Area

	1999	2000	2001	2002	2003	2004	2005
Personal Income (\$ mill)	19,081.9	20,482.3	21,870.7	23,105.1	24,349.5	25,555.0	26,837.7
percent change	7.8	7.3	6.8	5.6	5.4	5.0	5.0
Per Capita Personal Income	22,561.4	23,614.3	24,674.8	25,580.4	26,508.3	27,387.6	28,306.5
percent change	5.0	4.7	4.5	3.7	3.6	3.3	3.4
Aggregate Retail Sales (\$ mill)*	7,778.5	8,264.2	8,710.1	9,153.8	9,570.0	9,949.8	10,395.0
percent change	7.1	6.2	5.4	5.1	4.5	4.0	4.5
Population (000s, mid-year)	845.8	867.4	886.4	903.2	918.6	933.1	948.1
percent change	2.7	2.6	2.2	1.9	1.7	1.6	1.6
Net Migration (000s)	17.1	16.7	14.0	11.8	10.2	9.3	9.8
Wage & Salary Employment (000s)	344.3	356.2	365.7	372.2	377.7	382.1	388.6
percent change	5.0	3.4	2.7	1.8	1.5	1.1	1.7
Goods-Producing	54.5	55.8	56.4	56.6	56.8	57.2	57.8
percent change	7.5	2.4	1.0	0.5	0.4	0.6	1.1
Construction	21.6	22.4	22.6	22.5	22.3	22.2	22.4
percent change	5.8	4.0	0.9	-0.7	-1.0	-0.5	0.9
Manufacturing	31.0	31.7	31.9	32.3	32.7	33.1	33.4
percent change	10.8	2.2	0.7	1.2	1.2	1.1	1.1
Service-Providing	289.8	300.3	309.4	315.6	320.9	324.9	330.8
percent change	4.5	3.6	3.0	2.0	1.7	1.2	1.8
Trade (Wholesale & Retail)	72.6	75.5	78.1	80.1	81.5	82.3	84.3
percent change	3.1	4.0	3.4	2.6	1.7	1.0	2.4
Services	111.2	116.2	120.7	123.7	126.1	128.0	130.6
percent change	5.8	4.5	3.9	2.5	2.0	1.5	2.0

* Aggregate Retail Sales includes retail, food, restaurant & bars and gasoline sales.

Source: Economic and Business Research Program, Eller College of Business and Public Administration, The University of Arizona.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent 12-months
YUMA METROPOLITAN REGION							
Civilian Labor Force, ADES	75,950	70,175	68,175	64,500	...	2.2	8.1
Employment	50,600	51,700	52,925	52,350	...	3.8	8.7
Unemployment	25,350	18,475	15,250	12,150	...	-4.1	6.6
Unemployment Rate (%)	33.4	26.3	22.4	18.8	...	-6.2	-1.9
Employees on Nonagricultural Payrolls, ADES							
Total	41,225	42,350	42,925	43,400	...	1.9	8.1
Mining	n/a	n/a	n/a	n/a	...	n/a	n/a
Construction	2,850	2,900	2,900	2,925	...	14.7	13.4
Manufacturing	2,325	2,325	2,350	2,400	...	6.7	9.5
Trans., Comm. & Publ. Util.	1,725	1,750	1,850	1,850	...	-2.6	0.8
Trade	11,025	11,450	11,650	12,250	...	0.4	2.1
Finance, Ins. & Real Estate	1,175	1,250	1,275	1,300	...	2.0	1.9
Services	7,725	7,850	8,000	8,275	...	-0.3	-1.8
Government	14,400	14,825	14,900	14,400	...	2.1	21.0
Sales (\$000s) ADOR							
Gross Retail	72,153	82,657	90,326	132,662	...	23.9	9.0
Retail	56,097	64,634	71,371	110,653	...	25.2	7.8
Restaurants & Bars	7,382	8,636	8,733	9,858	...	3.3	8.2
Gasoline, EBR	8,674	9,387	10,222	12,151	...	32.5	20.1
Gallons (000s) ADOT	7,423	7,702	8,186	9,223	...	-4.2	10.3
Contracting	14,634	15,255	16,104	16,104	...	4.2	1.6
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	13,472	22,102	9,127	9,363	9,677	-14.7	-13.3
Residential Building	5,328	8,673	5,011	5,358	4,659	-33.1	-13.5
Non-Residential Building	5,961	11,149	2,290	1,566	4,660	86.4	-16.9
Non-Building	2,183	2,280	1,826	2,439	358	-80.9	-7.5
Number of Dwelling Units Awarded, F.W. Dodge							
Total	66	144	64	63	61	-19.7	2.4
One Family Houses	66	64	60	63	61	-19.7	-6.5
MOHAVE-LA PAZ REGION							
Civilian Labor Force, ADES	74,350	73,825	74,175	74,100	...	5.9	7.7
Employment	71,200	70,925	71,350	71,100	...	6.1	7.8
Unemployment	3,150	2,900	2,825	3,000	...	0.0	5.2
Unemployment Rate (%)	4.2	3.9	3.8	4.0	...	-5.5	-2.4
Employees on Nonagricultural Payrolls, ADES							
Total	42,825	43,125	43,375	43,700	...	4.2	3.0
Mining	n/a	n/a	n/a	n/a	...	n/a	n/a
Construction	3,650	3,550	3,600	3,650	...	9.8	8.1
Manufacturing	3,575	3,625	3,625	3,775	...	4.1	3.2
Trans., Comm. & Publ. Util.	2,050	2,025	2,025	2,025	...	-2.4	-1.5
Trade	13,075	13,225	13,400	13,400	...	0.0	3.3
Finance, Ins. & Real Estate	1,475	1,525	1,525	1,525	...	3.4	0.6
Services	10,575	10,825	10,700	10,700	...	6.2	3.6
Government	8,250	8,200	8,350	8,475	...	8.7	1.5
Sales (\$000s) ADOR							
Gross Retail	90,934	95,972	98,645	121,254	...	18.0	10.8
Retail	67,475	72,166	73,835	94,623	...	13.4	9.3
Restaurants & Bars	11,572	12,235	12,030	12,408	...	16.4	10.3
Gasoline, EBR	11,887	11,571	12,780	14,223	...	64.3	21.2
Gallons (000s) ADOT	10,172	9,494	10,234	10,795	...	18.8	10.6
Contracting	22,161	21,949	24,833	31,951	...	25.9	20.6
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	57,097	56,090	19,888	28,841	24,379	8.2	-3.5
Residential Building	15,369	13,984	14,615	19,516	18,651	44.2	13.8
Non-Residential Building	3,216	7,685	5,273	8,871	909	-84.5	-54.8
Non-Building	38,512	34,421	0	454	4,819	29.3	26.9
Number of Dwelling Units Awarded, F.W. Dodge							
Total	160	143	147	194	391	187.5	19.8
One Family Houses	160	141	147	182	123	-6.8	6.3

See notes at bottom of Arizona - Quarterly table.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent 12-months
COCHISE-SANTA CRUZ REGION							
Civilian Labor Force, ADES	57,700	56,450	56,375	56,250	...	8.5	4.3
Employment	51,775	51,575	52,575	52,525	...	10.4	6.0
Unemployment	5,925	4,875	3,800	3,725	...	-12.4	-12.0
Unemployment Rate (%)	10.3	8.6	6.7	6.6	...	-19.2	-15.7
Employees on Nonagricultural Payrolls, ADES							
Total	43,775	44,050	44,950	45,425	...	9.8	4.0
Mining	n/a	n/a	n/a	n/a	...	n/a	n/a
Construction	2,600	2,625	2,675	2,675	...	28.9	15.7
Manufacturing	2,425	2,450	2,375	2,350	...	5.6	8.3
Trans., Comm. & Publ. Util.	2,350	2,350	2,450	2,475	...	3.1	1.8
Trade	11,425	11,725	12,375	12,750	...	11.1	1.2
Finance, Ins. & Real Estate	1,025	1,025	1,025	1,025	...	2.5	-0.6
Services	9,875	10,025	10,150	10,225	...	9.7	6.0
Government	14,075	13,850	13,900	13,925	...	8.2	3.4
Sales (\$000s) ADOR							
Gross Retail	77,350	80,528	82,814	87,794	...	-6.6	9.1
Retail	58,838	60,191	64,555	68,739	...	-9.3	4.3
Restaurants & Bars	8,301	8,987	8,789	10,051	...	9.3	7.7
Gasoline, EBR	10,211	11,350	9,470	9,004	...	0.1	50.9
Gallons (000s) ADOT	8,738	9,312	7,584	6,834	...	-27.6	37.5
Contracting	17,634	16,290	21,934	20,770	...	42.7	34.0
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	12,429	34,889	28,028	9,765	10,086	-69.1	-0.3
Residential Building	7,025	7,372	5,064	5,892	6,191	-52.4	-12.1
Non-Residential Building	1,045	22,023	3,859	1,643	3,190	3.8	-4.6
Non-Building	4,359	5,494	19,105	2,230	705	-95.7	26.9
Number of Dwelling Units Awarded, F.W. Dodge							
Total	81	76	61	68	58	-69.1	-9.8
One Family Houses	81	76	57	66	56	-39.1	-2.5
GILA-GRAHAM-GREENLEE REGION							
Civilian Labor Force, ADES	35,300	34,700	34,750	34,550	...	4.8	3.2
Employment	32,775	32,425	32,575	32,300	...	6.2	3.9
Unemployment	2,525	2,275	2,175	2,250	...	-11.8	-5.1
Unemployment Rate (%)	7.2	6.6	6.3	6.5	...	-15.8	-7.9
Employees on Nonagricultural Payrolls, ADES							
Total	26,475	26,450	26,575	26,550	...	5.0	2.0
Mining	n/a	n/a	n/a	n/a	...	n/a	n/a
Construction	2,000	2,025	2,050	2,025	...	2.5	8.7
Manufacturing	n/a	n/a	n/a	n/a	...	n/a	n/a
Trans., Comm. & Publ. Util.	775	750	750	775	...	-6.1	-4.7
Trade	5,925	6,050	6,175	6,075	...	7.0	3.0
Finance, Ins. & Real Estate	n/a	n/a	n/a	n/a	...	n/a	n/a
Services	4,550	4,500	4,500	4,600	...	3.4	4.6
Government	8,050	7,950	7,925	7,925	...	12.0	1.5
Sales (\$000s) ADOR							
Gross Retail	42,791	43,000	43,701	50,043	...	7.2	4.9
Retail	32,283	32,507	33,384	40,378	...	7.0	3.1
Restaurants & Bars	5,352	4,979	5,024	4,861	...	4.0	3.0
Gasoline, EBR	5,156	5,514	5,293	4,804	...	12.2	22.0
Gallons (000s) ADOT	4,412	4,524	4,239	3,646	...	-18.8	10.0
Contracting	3,203	11,243	12,810	12,510	...	56.9	-18.0
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	11,490	12,698	8,454	6,479	7,970	88.8	19.9
Residential Building	5,268	6,164	4,468	6,330	4,768	33.3	11.8
Non-Residential Building	1,815	2,326	0	149	141	...	-19.8
Non-Building	4,407	4,208	3,986	0	3,061	375.3	114.9
Number of Dwelling Units Awarded, F.W. Dodge							
Total	42	43	38	97	39	21.9	18.2
One Family Houses	38	43	34	45	39	21.9	4.5

See notes at bottom of Arizona - Quarterly table.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent 12-months
APACHE-NAVAJO REGION							
Civilian Labor Force, ADES	51,350	50,050	49,500	49,475	...	-1.8	0.7
Employment	45,500	44,650	44,175	43,625	...	0.5	2.1
Unemployment	5,850	5,400	5,325	5,850	...	-15.8	-7.8
Unemployment Rate (%)	11.4	10.8	10.8	11.8	...	-14.3	-8.5
Employees on Nonagricultural Payrolls, ADES							
Total	43,975	43,750	43,325	43,075	...	0.2	0.3
Mining	n/a	n/a	n/a	n/a	...	n/a	n/a
Construction	2,000	2,000	1,925	1,875	...	0.0	-1.0
Manufacturing	1,500	1,500	1,475	1,475	...	-3.3	1.1
Trans., Comm. & Publ. Util.	2,500	2,550	2,550	2,525	...	2.0	2.2
Trade	7,900	7,825	7,750	7,725	...	3.0	4.0
Finance, Ins. & Real Estate	1,175	1,050	1,075	1,075	...	-2.3	-2.7
Services	7,400	7,250	7,025	6,925	...	5.3	3.0
Government	20,550	20,650	20,600	20,550	...	-2.1	-1.9
Sales (\$000s) ADOR							
Gross Retail	70,536	100,013	63,701	91,196	...	47.4	19.5
Retail	54,477	85,226	48,825	76,032	...	45.6	17.7
Restaurants & Bars	6,237	5,599	4,996	4,758	...	10.1	3.7
Gasoline, EBR	9,822	9,188	9,880	10,406	...	96.4	47.0
Gallons (000s) ADOT	8,405	7,539	7,912	7,899	...	42.0	33.1
Contracting	13,896	12,340	14,194	13,902	...	76.3	23.9
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	57,713	16,264	24,212	62,378	13,058	133.8	73.8
Residential Building	13,639	5,720	13,966	6,964	12,040	259.2	70.4
Non-Residential Building	22,119	5,774	8,421	52,160	188	-90.6	102.2
Non-Building	21,955	4,770	1,825	3,254	830	257.8	37.7
Number of Dwelling Units Awarded, F.W. Dodge							
Total	132	61	136	55	100	222.6	60.9
One Family Houses	132	61	84	55	100	222.6	70.3
COCONINO-YAVAPAI REGION							
Civilian Labor Force, ADES	134,150	132,625	131,900	132,875	...	6.8	5.3
Employment	128,500	127,725	126,775	127,050	...	7.1	6.0
Unemployment	5,650	4,900	5,125	5,825	...	1.3	-7.2
Unemployment Rate (%)	4.2	3.7	3.9	4.4	...	-5.1	-11.9
Employees on Nonagricultural Payrolls, ADES							
Total	107,600	108,250	107,750	106,775	...	7.8	6.3
Mining	1,075	1,025	1,000	1,000	...	0.0	7.1
Construction	7,425	7,175	7,125	7,050	...	9.3	6.7
Manufacturing	6,325	6,300	6,275	6,275	...	-2.7	-0.1
Trans., Comm. & Publ. Util.	3,425	3,450	3,425	3,350	...	6.3	3.3
Trade	27,550	27,450	27,225	27,000	...	4.1	4.6
Finance, Ins. & Real Estate	3,350	3,275	3,300	3,350	...	4.7	5.7
Services	30,075	30,150	29,875	29,650	...	7.8	7.8
Government	28,375	29,425	29,525	29,100	...	14.8	8.3
Sales (\$000s) ADOR							
Gross Retail	203,462	200,037	218,412	228,361	...	30.4	14.9
Retail	145,363	143,185	146,273	177,824	...	28.8	11.9
Restaurants & Bars	37,374	35,673	51,128	29,877	...	15.5	11.9
Gasoline, EBR	20,725	21,179	21,011	20,660	...	85.4	51.5
Gallons (000s) ADOT	17,735	17,377	16,827	15,681	...	34.1	37.0
Contracting	60,532	57,664	53,238	67,561	...	44.1	19.3
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total	45,131	62,213	31,937	37,085	68,608	81.8	-5.5
Residential Building	33,787	21,949	17,970	24,782	30,826	32.9	-12.4
Non-Residential Building	3,356	11,245	8,320	3,055	13,337	111.5	-5.6
Non-Building	7,988	29,019	5,647	9,248	24,445	196.4	17.0
Number of Dwelling Units Awarded, F.W. Dodge							
Total	310	218	178	214	329	72.3	-4.6
One Family Houses	240	205	174	206	203	19.4	4.1

See notes at bottom of Arizona - Quarterly table.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent 12-months
PHOENIX-MESA METROPOLITAN REGION (MARICOPA AND PINAL)							
Civilian Labor Force (000s) ADES							
Employment	1,605.9	1,601.9	1,609.3	1,614.6	...	2.9	5.6
Unemployment	1,556.1	1,555.6	1,565.6	1,570.1	...	2.7	5.4
Unemployment Rate, Seas. Adj.(%)	49.8	46.3	43.7	44.5	...	7.7	13.7
	2.7	2.8	2.8	2.9	...	0.0	11.4
Employees on Nonagricultural Payrolls (000s) ADES							
Total	1,513.8	1,529.1	1,543.0	1,556.5	...	2.7	3.3
Mining	2.9	2.9	3.0	3.0	...	-46.4	-24.4
Construction	115.4	115.8	117.0	116.2	...	5.3	8.2
Manufacturing	170.2	170.3	169.8	170.2	...	-0.8	0.1
Durable	130.7	130.7	130.4	130.8	...	-0.4	0.2
Nondurable	39.5	39.6	39.4	39.4	...	-2.0	-0.5
Trans., Comm. & Publ. Util.	80.0	80.8	81.4	81.8	...	4.3	6.6
Trade	364.9	368.8	375.4	383.6	...	3.7	3.7
Wholesale	92.5	92.0	92.3	92.6	...	2.3	4.1
Retail	272.4	276.8	283.1	291.0	...	4.1	3.5
Finance, Ins. & Real Estate	124.3	125.6	126.3	127.3	...	3.8	6.0
Services	466.5	471.0	475.9	479.8	...	3.0	2.7
Government	189.6	193.9	194.2	194.6	...	1.6	2.0
Sales (\$000s) ADOR							
Aggregate Retail Sales	2,771,949	2,760,800	2,962,466	3,601,968	...	10.4	8.7
Retail	1,998,398	1,931,822	2,142,178	2,730,298	...	11.1	10.5
Food, EBR	333,307	346,066	352,059	354,655	...	-5.4	-4.3
Restaurants & Bars	309,479	338,676	324,733	356,920	...	15.2	9.2
Gasoline, EBR	130,765	144,236	143,496	160,095	...	31.9	16.8
Contracting	641,118	657,778	644,504	695,051	...	2.0	10.8
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total Awards	646,713	549,427	720,095	623,409	705,463	-11.3	-12.7
Residential Building	436,707	342,959	400,880	439,590	412,321	-21.8	-3.2
Non-Residential Building	142,296	151,545	137,228	130,187	212,051	32.3	-31.1
Non-Building	67,710	54,923	181,987	53,632	81,091	-24.4	-15.0
New Housing Units Authorized, Census C-40							
Total Units	3,930	2,900	3,243	3,572	...	-6.9	2.2
Single Family Units	3,050	2,392	2,306	2,501	...	-10.8	5.4
2-4 Unit Structures	58	31	37	42	...	61.5	10.1
5-plus Unit Structures	822	477	900	1,029	...	2.5	-9.1
Housing Sales and Prices, ARMLS							
Total Sales (\$000s)	654,891	759,417	601,433	728,080	...	5.3	16.6
Total Units	4,212	4,939	3,807	4,477	...	-3.4	9.6
Average Price (\$)	155,482	153,759	157,981	162,627	...	9.0	6.3
Phoenix Skyharbor International Airport, PSIA							
Total Passengers	2,527,351	2,870,923	2,933,337	2,844,390	...	8.7	5.7
Total Aircraft Movements	45,269	48,929	47,217	49,305	...	6.1	4.3

	PHOENIX-MESA METROPOLITAN REGION (MARICOPA AND PINAL) - QUARTERLY DATA					% change versus year ago for:	
	IV 98	I 99	II 99	III 99	IV 99	most recent quarter	most recent 4-quarters
Demographics & Vital Statistics (000s, seas adj) ADHS & EBR							
Population	2,988.3	3,012.2	3,035.5	3,058.5	3,081.6	3.1	3.2
Natural Increase	7.2	7.4	7.5	7.5	7.5	4.9	6.3
Births	12.8	13.1	13.2	13.4	13.4	5.0	6.2
Deaths	5.6	5.7	5.8	5.8	5.9	5.1	6.0
Net Migration	17.7	16.5	15.8	15.6	15.5	-12.3	-11.2
Personal Income by Source (\$mil, SAAR) EBR							
Total Personal Income	77,273	78,490	79,853	81,343	83,021	7.4	7.2
Earnings by Place of Work	58,658	59,835	60,943	62,109	63,375	8.0	8.2
Less: Contributions for Social Insurance	4,077	4,143	4,207	4,275	4,349	6.7	6.7
Plus: Adjustment for Residence	-165	-167	-164	-163	-163	1.0	0.4
Plus: Dividends, Interest & Rents	12,199	12,194	12,327	12,520	12,799	4.9	3.3
Plus: Transfer Payments	10,658	10,771	10,956	11,151	11,358	6.6	6.1
Per Capita Personal Income (\$, SAAR) EBR	25,858	26,057	26,307	26,595	26,941	4.2	3.8

See notes at bottom of Arizona - Quarterly table.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent 12-months
TUCSON METROPOLITAN REGION (PIMA) - QUARTERLY DATA							
Civilian Labor Force (000s) ADES							
Employment	402.5	405.8	410.0	410.1	...	6.5	6.7
Unemployment	389.1	392.4	397.1	396.6	...	5.5	6.4
Unemployment Rate, Seas. Adj.(%)	13.4	13.4	12.9	13.5	...	50.2	15.9
Unemployment Rate, Seas. Adj.(%)	3.0	3.2	3.2	3.4	...	36.0	10.6
Employees on Nonagricultural Payrolls (000s) ADES							
Total	341.0	347.6	353.0	354.4	...	5.3	4.1
Mining	1.9	1.9	1.9	1.9	...	-9.5	-7.7
Construction	22.6	22.5	22.5	22.6	...	8.7	9.7
Manufacturing	30.7	30.9	32.1	32.2	...	9.9	4.7
Durable	25.0	25.2	26.4	26.5	...	13.2	5.9
Nondurable	5.7	5.7	5.7	5.7	...	-3.4	-0.3
Trans., Comm. & Publ. Util.	14.1	13.9	14.0	14.1	...	3.7	1.6
Trade	70.3	71.3	73.2	74.5	...	1.8	2.0
Wholesale	11.0	11.0	11.0	11.1	...	-0.9	0.8
Retail	59.3	60.3	62.2	63.4	...	2.3	2.2
Finance, Ins. & Real Estate	13.5	13.7	13.8	14.1	...	2.9	3.3
Services	111.5	113.2	114.2	114.9	...	5.0	4.4
Government	76.4	80.2	81.3	80.1	...	7.7	5.0
Sales (\$000s) ADOR							
Aggregate Retail Sales	626,691	622,438	674,310	838,075	...	11.7	8.0
Retail	433,730	417,112	475,786	618,169	...	12.7	9.2
Food, EBR	83,894	87,106	88,614	89,268	...	-2.9	-1.8
Restaurants & Bars	73,429	78,805	71,031	82,849	...	11.1	5.9
Gasoline, EBR	35,638	39,415	38,879	47,789	...	36.5	23.5
Contracting	118,901	118,368	117,332	137,457	...	25.3	21.3
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total Awards	127,728	81,615	129,423	120,116	126,500	4.3	-3.7
Residential Building	58,297	49,100	41,439	70,577	69,102	-0.1	-19.0
Non-Residential Building	61,160	19,982	69,889	16,859	33,525	51.1	9.8
Non-Building	8,271	12,533	18,095	32,680	23,873	-20.3	64.8
New Housing Units Authorized, Census C-40 adjusted by EBR							
Total Units	732	639	423	903	...	30.7	3.0
Single Family Units	624	511	360	522	...	-0.7	-2.1
2-5-plus Unit Structures	108	128	63	381	...	130.6	30.2
Housing Sales and Prices, TAR							
Total Sales (\$000s)	123,510	125,791	114,234	119,866	...	0.6	20.3
Total Units	884	881	793	796	...	-5.7	12.2
Average Price (\$)	139,718	142,782	144,053	150,585	...	6.6	7.3
Tucson International Airport, TAA							
Total Passengers	254,945	300,908	302,342	295,796	271,852	-3.9	0.6
Total Aircraft Movements	20,533	23,221	22,780	23,629	24,310	-0.3	4.1

	IV 98	I 99	II 99	III 99	IV 99	% change versus year ago for:	
						most recent quarter	most recent 4-quarters
TUCSON METROPOLITAN REGION (PIMA) - QUARTERLY DATA							
Demographics & Vital Statistics (000s, seas adj) ADHS & EBR							
Population	832.3	837.7	842.9	848.3	853.8	2.6	2.7
Natural Increase	1.1	1.2	1.2	1.2	1.2	5.1	6.7
Births	2.9	2.9	2.9	2.9	2.9	2.4	2.4
Deaths	1.7	1.7	1.7	1.7	1.7	0.5	-0.3
Net Migration	4.8	4.2	4.0	4.2	4.3	-10.5	-19.4
Personal Income by Source (\$mil, SAAR) EBR							
Total Personal Income	18,218	18,563	18,907	19,253	19,605	7.6	7.8
Earnings by Place of Work	11,455	11,735	11,982	12,218	12,441	8.6	9.3
Less: Contributions for Social Insurance	809	827	844	859	874	8.1	8.6
Plus: Adjustment for Residence	211	220	224	228	234	10.9	12.2
Plus: Dividends, Interest & Rents	3,879	3,915	3,970	4,033	4,110	5.9	5.3
Plus: Transfer Payments	3,482	3,521	3,575	3,632	3,694	6.1	5.7
Per Capita Personal Income (\$, SAAR) EBR	21,888	22,160	22,430	22,697	22,962	4.9	5.0

See notes at bottom of Arizona - Quarterly table.

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for: most recent month	% change versus year ago for: most recent 12-months
ARIZONA MONTHLY DATA							
Civilian Labor Force (000s) ADES							
Employment	2,437.2	2,425.5	2,434.1	2,436.4	...	3.8	5.7
Unemployment	2,325.5	2,327.0	2,343.0	2,345.6	...	3.7	5.7
Unemployment Rate, Seas. Adj. (%)	111.7	98.5	91.1	90.8	...	6.2	7.2
	4.0	4.0	4.0	4.1	...	0.0	4.3
Employees on Nonagricultural Payrolls (000s) ADES							
Total	2,164.6	2,189.3	2,209.2	2,224.1	...	3.4	3.5
Mining	9.8	9.9	9.9	9.8	...	-22.2	-12.7
Construction	159.5	159.6	160.9	160.0	...	5.9	8.8
Manufacturing	218.8	219.1	219.6	220.1	...	0.6	0.7
Durable	168.1	168.3	169.1	169.4	...	1.4	1.0
Nondurable	50.7	50.8	50.5	50.7	...	-1.9	-0.3
Trans., Comm. & Publ. Util.	107.1	107.8	108.7	109.3	...	3.9	5.2
Transportation	69.1	69.6	70.1	70.6	...	3.4	5.9
Trade	513.5	519.9	528.9	538.8	...	3.5	3.5
Wholesale	114.5	114.4	115.1	115.8	...	2.4	3.7
Retail	399.0	405.5	413.8	423.0	...	3.8	3.5
Finance, Ins. & Real Estate	147.0	148.5	149.6	150.6	...	4.7	5.2
Services	651.7	656.7	661.8	666.9	...	3.1	3.4
Government	357.2	367.8	369.8	368.6	...	4.9	2.8
Federal	44.1	43.8	43.4	44.4	...	-1.3	0.2
State & Local	313.1	324.0	326.4	324.2	...	5.8	3.2
Schools	170.3	179.2	182.4	180.5	...	7.4	3.8
Hours Worked Per Week, Manufacturing, ADES	40.6	40.7	40.4	40.3	...	1.0	-0.1
Average Hourly Earnings (\$) ADES							
Copper Mining	20.34	20.26	20.04	19.54	...	14.7	5.1
Construction	14.48	14.47	14.45	14.63	...	1.7	-0.5
Manufacturing	12.64	12.63	12.71	12.77	...	2.3	4.0
Utilities	18.07	17.77	17.52	17.45	...	-2.9	0.9
Retail Trade	11.72	11.64	11.57	11.37	...	-1.5	0.5
Wholesale Trade	13.64	13.45	13.42	13.69	...	2.7	1.4
Sales (\$000s) ADOR							
Aggregate Retail Sales	4,059,843	4,093,401	4,344,202	5,261,990	...	13.0	10.2
Retail	2,846,661	2,806,843	3,056,207	3,916,716	...	12.5	10.2
Food, EBR	521,178	541,129	550,500	554,559	...	5.7	6.8
Restaurants & Bars	459,126	493,590	486,464	511,582	...	14.0	8.7
Gasoline, EBR	232,878	251,839	251,031	279,133	...	36.9	22.6
Gallons (000s) ADOT	199,280	206,629	201,034	211,866	...	-1.0	11.9
Utilities	539,935	416,214	430,062	395,288	...	5.2	2.6
Communications	195,413	194,321	216,483	193,735	...	9.2	14.4
Amusements	42,764	68,074	62,485	58,470	...	9.8	9.3
Rentals - Personal Property	279,170	275,909	298,275	289,198	...	7.5	1.8
Contracting	892,079	910,887	904,949	995,306	...	9.5	12.8
Mining - Metal, Oil & Gas	75,544	76,290	49,270	45,816	...	-36.9	-17.0
Hotel/Motel	119,384	156,757	163,849	115,377	...	12.3	6.5
Value of Construction Contract Awards (\$000s) F.W. Dodge							
Total Awards	971,773	835,298	971,164	897,436	965,741	-6.3	-9.5
Residential Building	575,420	455,921	503,413	579,009	558,558	-15.3	-4.6
Non-Residential Building	240,968	231,729	235,280	214,490	268,001	32.5	-24.2
Non-Building	155,385	147,648	232,471	103,937	139,182	-17.4	-0.3
New Housing Units Authorized, Census C-40							
Total Units	5,162	4,011	4,125	4,843	...	-0.5	4.0
Single Family Units	4,188	3,385	3,109	3,439	...	-6.7	5.9
2-4 Unit Structures	86	70	65	89	...	107.0	10.3
5-plus Unit Structures	888	556	951	1,315	...	15.6	-4.5
Bankruptcy Filings, U.S. Bankruptcy Court							
Total	1,792	1,776	1,779	...	...	-2.2	-6.7
Chapter 7	1,434	1,412	1,338	...	...	-11.7	-6.9
Chapter 11	14	18	104	...	...	550.0	-0.3
Chapter 13	344	346	337	...	...	17.8	-6.4

See notes at bottom of Arizona - Quarterly table.

	IV 98	I 99	II 99	III 99	IV 99	% change versus year ago for:	
						most recent quarter	most recent 4-quarters
ARIZONA QUARTERLY DATA							
Demographics & Vital Statistics (000s, seas adj) ADHS & EBR							
Population	4,754.3	4,789.8	4,825.3	4,860.3	4,894.3	2.9	3.0
Natural Increase	10.6	10.0	10.3	10.2	10.2	-4.4	0.8
Births	20.1	20.1	20.0	19.9	20.0	-0.5	2.6
Deaths	9.5	10.1	9.6	9.8	9.9	3.8	4.6
Net Migration	24.9	25.5	25.2	24.3	23.5	-5.6	1.9
Personal Income Derivation (\$mil, SAAR) EBR							
Total Personal Income	112,303	113,008	115,035	116,385	119,540	6.4	7.1
Earnings by Place of Work	80,772	81,267	82,902	83,981	86,270	6.8	8.1
Less: Contributions for Social Insurance	5,622	5,666	5,763	5,827	5,962	6.0	7.1
Plus: Adjustment for Residence	298	298	300	302	305	2.4	6.9
Plus: Dividends, Interest & Rents	18,724	18,559	18,834	18,921	19,612	4.7	4.0
Plus: Transfer Payments	18,132	18,550	18,761	19,008	19,316	6.5	5.9
Components of Earnings (\$mil, SAAR) BEA							
Wages and Salaries	66,629	65,593	68,891	70,523	...	8.9	9.3
Other Labor Income	6,135	5,963	6,259	6,360	...	6.1	5.7
Proprietor's Income	7,987	8,204	8,428	8,591	...	11.8	10.3
Farm	416	419	391	321	...	8.4	11.5
Nonfarm	7,571	7,785	8,037	8,270	...	12.0	10.3
Per Capita Personal Income (\$, SAAR) EBR							
	23,622	23,594	23,840	23,946	24,424	3.4	4.0
Average Wage Per Employee, Annual Rate (\$) EBR							
	31,114	30,425	31,679	...	...	6.0	5.6

	AUG 99	SEP 99	OCT 99	NOV 99	DEC 99	% change versus year ago for:	
						most recent month	most recent 12-months
TRAVEL AND TOURISM - MONTHLY DATA							
Visits to Parks & Other Recreational Areas, ADOT, NPS & ASPB							
Northern Arizona	2,508,480	1,976,923	1,724,053	1,259,076	890,306	17.4	2.5
Historical	182,235	171,514	161,514	104,133	69,620	-10.2	-1.8
Scenic	803,110	649,705	571,487	302,834	250,992	9.8	0.9
Water Based Recreation	1,523,135	1,155,704	991,052	852,109	569,694	26.0	4.0
Southern Arizona	149,928	148,152	206,403	212,423	200,249	16.9	-2.3
Historical	24,968	26,157	39,449	41,643	44,083	-3.4	-2.4
Scenic	84,779	90,573	131,829	146,458	146,034	28.3	-4.3
Water Based Recreation	40,181	31,422	35,125	24,322	10,132	17.9	6.8
International Border Crossings, USINS & USCS							
U.S. Citizens	740,751	755,654	726,449	775,423	820,408	2.4	5.3
Aliens	1,861,796	1,922,220	2,004,215	2,019,873	2,306,446	4.3	1.6
Vehicles	808,392	917,545	879,493	855,098	...	4.9	6.0

	SEP 99	OCT 99	NOV 99	DEC 99	JAN 2000	% change versus year ago for:	
						most recent month	most recent months
MEASURES OF INFLATION AND PRICES - MONTHLY DATA							
Consumer Price Index (1982-1984=100) BLS							
U.S. - All Urban	167.9	168.2	168.3	168.3	168.7	2.7	2.3
U.S. - Wage Earners	164.7	165.0	165.1	165.1	165.5	2.8	2.3

Sources and abbreviations:

ADES: Arizona Department of Economic Security
 ADHS: Arizona Department of Health Services
 ADOR: Arizona Department of Revenue
 ADOT: Arizona Department of Transportation
 ARMLS: Arizona Regional Multiple Listing Service
 ASBD: Arizona State Banking Department
 ASPB: Arizona State Parks Board
 ASU: Arizona State University, College of Business, Research Centers

BEA: Bureau of Economic Analysis, U.S. Department of Commerce
 BLS: Bureau of Labor Statistics, U.S. Department of Labor
 Census C-40, Bureau of the Census, U.S. Department of Commerce
 EBR: Economic & Business Research Program, The University of Arizona
 F.W. Dodge, Division of McGraw Hill Information Systems Co. (proprietary data provided by special permission)
 NPS: National Park Service, U.S. Department of the Interior

NSCCC: Nogales-Santa Cruz Chamber of Commerce
 PSIA: Phoenix Skyharbor International Airport
 SAAR: Seasonally adjusted at annual rates
 TAA: Tucson Airport Authority
 TAR: Tucson Association of Realtors
 USINS: U.S. Immigration & Naturalization Service, U.S. Department of Justice
 U.S. Bankruptcy Court, District of Arizona
 USCS: U.S. Customs Service, U.S. Department of the Treasury

MEASURES OF INFLATION AND PRICES -QUARTERLY DATA

	IV 98	I 99	II 99	III 99	IV 99	% change versus year ago for: most recent quarter most recent 4-quarters	
Consumer Price index (1982-84=100) ASU & BLS							
Metropolitan Phoenix*	181.5	n/a	n/a	n/a	n/a	2.3	3.0
Western Region (U.S.)	165.8	167.3	168.3	170.0	170.5	2.8	2.7
U.S. - All Urban Consumers	164.0	164.6	166.2	167.2	168.3	2.6	2.2
U.S. - Urban Wage Earners	160.7	161.2	162.8	163.9	165.1	2.7	2.2
Price Indexes (1992=100) BEA							
Gross Domestic Product	103.3	103.8	104.1	104.4	104.7	1.3	1.3
Personal Consumption Expenditures	103.1	103.4	104.0	104.5	104.8	1.7	1.5

*discontinued. See notes at bottom of Arizona - Quarterly table.

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