

# Arizona at 100: A Look at the State's Economy Since 1987 and What the Future May Hold in Store

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## 1. Introduction

In the chapter of *Arizona at Seventy-Five* that focused on economic history, Gerald D. Nash characterized both the nation and Arizona in 1987 as being in a period of economic change and uncertainty (Nash 1988). As we approach the Arizona Centennial, things seem even more confused, with the economy in shambles and the future even more uncertain.

In the 22 years since Nash wrote his essay, Arizona has experienced quite a ride on the economic roller coaster. A boom in the 1990s that ended with the "dot.com" collapse and the 2001 recession was followed by a housing/financial sector-driven boom and then a crash that pushed first Arizona and then the national economy into the severe recession that we are still in the midst of today.

A cynical view of the state's recent history would conclude that Arizona was guilty of following the economic fads of the day and suffered the consequences. It has been among the fastest-growing states in terms of population and aggregate economic growth but was much less successful in building a fundamentally sound economy. The state's per capita income was 92 percent of the national average in 1987 but had fallen to 83 percent by 2008, ranking Arizona 42nd among the 50 states. Its economy is less diversified than it was in 1987, and investment in its infrastructure has been underfunded.

## 1.1 Current Situation

The U.S. economy is currently mired in what will be the longest recession in the post-World War II era. The national unemployment rate has risen to 9.5 percent (June 2009) and is expected to reach double-digit levels before it starts to drop. With many of the traditional sectors of the economy--notably the auto and the construction/real estate industries--in disarray, the new administration is pushing for fundamental transformations in the U.S. economy.

Arizona has been harder hit than any state, with the exception of Nevada. Arizona's economy entered the recession three months earlier than the national economy, and will likely emerge later. The University of Arizona's Forecasting Project does not expect the bottom to come until the second quarter of 2010 with an unprecedented decline from peak to trough of more than 8 percent. It is expected to take until the end of 2012 for employment levels to regain the peak levels of 2007 (Vest 2009).

Looking into the future in 1987, Nash predicted that the state's economy would be more diversified with a focus on industries based on science. That neither of these predicted trends occurred offers much of the explanation for the current dismal state of the economy. With limited success in expanding science-based industries, Arizona instead hitched its wagon to construction, real estate/finance, and other growth-related industries, which have suffered severe declines in the current recession.

## 1.2 Outline of the Essay

This essay looks at the recent economic history of Arizona in terms of four themes: aggregate growth, its performance in terms of per capita measures, the industrial structure of the economy, and the boom/bust cycle that is characteristic of the Arizona economy. The final section looks at some of the factors that are likely to influence the path of the Arizona economy in the future. Readers will notice that there is a lot of U.S. economic history mixed in. What happens to the Arizona economy is closely tied to national economic trends and events, so the purpose is to put what went on in Arizona in context.

## 2. Population and Job Growth

Population growth has been a key factor defining the state's economy since its early days. For both the entire 1900-2000 period and the second half of the century, Arizona was the second fastest growing state in the nation behind only its neighbor Nevada.

Contemplating the status of the Arizona economy in 1987, Nash commented on a slackening of the pace of growth in the 1980s, and in his discussion of the state's future he seemed to suggest that this slowing trend would continue. Population growth did slow somewhat in the 1980s, although still having the third fastest growth among U.S. states over the decade, but the pace picked up again with the prolonged economic expansion in the 1990s and the real estate boom of this decade. The state's population nearly doubled from 3.4 million in 1987 to 6.6 million in 2008 with an average annual growth rate of more than 3 percent--triple the growth rate of the U.S. population.

Continuing the post-World War II pattern, most of the growth--more than 80 percent in the last two decades of the 20th century--has occurred in the state's two large urban areas. The greatest part of that was in the Metropolitan Phoenix area: its population was 4.3 million in 2008, representing two-thirds of the state population. Although they have much smaller populations, other areas of the state have also experienced tremendous growth--particularly the Prescott area and the communities along the Colorado River. As a whole, the rest of the state outside of the Phoenix and Tucson area has grown almost as fast during the 1980-2008 period--but only 19 percent of the state's residents live there.

The increase in population largely has been the result of inflows of migrants from other parts of the nation--primarily from other states in the West and the Midwest regions. International migration (particularly from Mexico) has contributed a larger share in the recent period than it did earlier in the state's history.

Although the popular concept of migration to the state often focuses on retirees from the colder parts of the country moving to sunny Arizona, the vast majority of those moving into the state

have been persons of working age and their families. For example, data from the 2000 Census show that migrants less than 60 years of age made up 86 percent of the total compared with only 14 percent for those 60 and over.

Economists have explored the connection between migration and job growth in some detail, with the general consensus in this “chicken or egg” debate that “people follow jobs.” Thus, it is not surprising that Arizona usually also has been one of the fastest growing states in terms of employment. In fact, over the 1987-2007 period, jobs grew even faster than population, more than doubling. Total employment in the state topped 3.5 million jobs in 2007. And in turn, the enduring rapid population growth contributed to both the magnitude and pattern of this job growth. Lots of construction workers were needed to build homes and apartments, and more retail, service, and public employees were needed to provide goods and services to the growing population.

### 3. Measuring Economic Performance--Issues Related to Income and Income Growth in Arizona

The traditional focus of many of those monitoring the Arizona economy (particularly “boosters”) has been on the growth of aggregate measures, especially population and employment growth. However, such variables may not give much information about what is happening with respect to the economic well-being of Arizona residents. Thousands of new jobs may be created, but if they all pay minimum wage, it is not likely to improve the state’s economic situation. Looking at dollar-denominated economic variables, such as income or wages, provides more insight as to what is happening to living standards in Arizona. But again just looking at aggregate measures like total income is not enough. The focus must be shifted to the level of individual workers or households. Per person or per worker measures, such as per capita personal income or average wage per worker, are better ways to assess what has been happening to the economic welfare of the residents of Arizona.

### 3.1 Per Capita Personal Income

A 2005 Arizona State University study examined this issue in some detail. The analysis compared Arizona with the United States as a whole and also with two groupings of states: (1) a group of ten "competitor" states as defined by the Greater Phoenix Chamber of Commerce<sup>1</sup> and (2) ten "new economy" states identified by the Milken Institute<sup>2</sup> (Hoffman 2005).

Hoffman found that growth in real aggregate personal income<sup>3</sup> in Arizona over the 1970-2003 period was the second-highest in the nation. But when measured in per capita terms, the performance of Arizona's economy ranked near the bottom. Growth of real per capita personal income--the conventional benchmark for standard-of-living comparisons--averaged 1.8 percent per year over the 1970-2003 period, ranking Arizona 46th out of the 50 states. In comparison, the annual average growth rate for both the nation and the ten competitor states was 2.1 percent and was 2.3 percent in the new economy states. Based on this evidence, Hoffman concluded that "over the long term, the real income of the average Arizonan has lagged behind the rest of the nation" (Hoffman 2005, p. 5).

During the real estate boom years of 2004 and 2005, Arizona per capita income growth did surpass that of the nation, but this spurt was short-lived, with the state's growth rate slowing in 2006 and turning negative in 2007 and 2008. Focusing on the period since 1987, the relative performance of the Arizona economy looks even worse than for the longer period used by Hoffman--the average annual growth rate in real per capita personal income for Arizona was only 1.2 percent versus 1.7 percent for the nation.

Economists often compare trends in living standards by looking at the ratio of per capita personal income to the U.S. average or to some other reference region. Unfortunately, this approach does not favor Arizona either. Looking at what might be termed the "modern era" of the state's economy since 1970, the ratio of Arizona per capita personal income to the U.S. level was at its highest levels in the early 1970s--peaking at 95--and fluctuated in the high 80s and low 90s until the late 1980s. In the 75th anniversary year of 1987, the ratio was 92, but it dropped below 90 in 1989, and has remained in the mid-80s thereafter. The ratio did improve very

slightly during the mid-2000s boom, but dropped sharply to 83 in 2008--its lowest level since 1970.

The 2005 Arizona State University study took a third approach, looking at the gap between the income measure for Arizona versus its comparison regions. This showed that in 1970, Arizona per capita personal income was about \$1,000 (2003 dollars) or 6 percent below the U.S. figure, but the matchups with the two groups of comparison states were worse--\$1,300 less (8 percent) than the average for the ten competitor states and \$2,700 less (15 percent) than the average for the new economy states. By 2003, Arizona real per capita personal income was \$4,500 (14 percent) below the U.S. average, \$4,200 (13 percent) below the average for ten competitor states, and more than \$8,000 (23 percent) less than the average for the ten new economy states. Based on this evidence, Hoffman concluded that "the per person personal income comparisons suggest that Arizona is not improving on basic standard-of-living comparisons against the nation or the competitor states and is declining when compared with the set of states identified by the Milken Institute as positioned for the 21st century economy" (Hoffman 2005, p. 6).

In response to negative evaluations of Arizona's economic performance based on per capita income, critics have painted such analyses as misleading because the state's population has a larger-than-average proportion that do not participate in the economy--often citing children, retirees, and Native Americans living on Arizona reservations. A 1996 Arizona State University study examined the factors leading to the Arizona's below-average incomes based upon a statistical analysis of 1994 data. The results indicated that no one factor was especially important in explaining Arizona's low and falling per capita income ratio. However, on a cost-of-living-adjusted basis, both the 1994 level and the 1984 to 1994 change were considerably affected by a group of factors related to Arizona's low workforce participation rate. Other important factors include the low incomes of Arizona's small businesses and the low wages paid to employees even after controlling for a variety of characteristics that affect wage levels. This low average wage probably results from the willingness of workers to accept a lower wage in Arizona than they would in many places because of perceived qualitative advantages in Arizona, such as climate. This has been termed the "sunshine factor" (Center for Business Research 1996).

Several factors had the most impact. Forty percent of the 1994 difference between the Arizona and the U.S. per capita personal income was due to Arizona's lower cost of living; 13 percent to relatively more children; 11 percent from a lower labor force participation rate among the working age population (after controlling for demographic differences); 9 percent to demographic differences in the working-age population; 8 percent from relatively lower levels of proprietors' income in Arizona; 7 percent to the relatively lower wage rates for similar jobs in the state; and 5 percent from a higher proportion of low-wage industries in Arizona (Center for Business Research 1996).

### 3.2 Average Wages and Job Quality

Below-average wage levels have also been a feature of the Arizona economy during the last two decades of the 20th century and the first decade of the 21st. The state's average wage was only slightly below the national average in the early 1970s but had declined to 94 percent of the U.S. figure by 1987. For next 15 years, the ratio fluctuated in the low 90s, but rose back to 94 in the boom times in 2004-2006. The issue of Arizona's low average wage gained new prominence with all of the discussion relating to "job quality." The quality of jobs in the United States became a national concern in the 1980s after a long period of losses of relatively high-paying manufacturing jobs and gains of low-paying service jobs. National job quality remains a concern today, and job quality in Arizona continues to be discussed as well, with the quality of the state's rapid employment growth being questioned. The concept of "job quality" has different definitions, but most often it is measured by looking at the relative distribution of jobs in high-paying industries and/or occupations versus low-paying industries/occupations, rather than just looking at differences in average wage levels.

A 2005 Arizona State University study looked at job quality in Arizona and the nation (Center for Business Research 2005). It found that job quality in the United States has been declining gradually for at least 35 years. Job quality in Arizona also has declined over time, generally at the same pace as the national trend. Relative to the nation, the state's industrial mix was slightly tilted toward low-wage jobs, accounting for a little more than one of the seven percentage-point

differential between the state and nation in the 2003 average wage. The occupational mix in Arizona has almost no effect on the relative average wage (Center for Business Research 2005, p. 5). Thus, the lower job quality in Arizona accounted for less than 20 percent of the difference between the Arizona and the U.S. average wage in 2003.

### 3.3 An Alternative Way of Looking at Low Wages and Incomes

While most economists and policy makers interpret below-average and declining income and wage levels in a region as an indication of declining economic welfare for its residents, not all observers share this view. Power and Barret looked at the economic trends in the Mountain West during the last quarter of the 20th century and came up with much different conclusions. Although real per capita income and real wage per job fell in the region relative to the national averages, in their view, the gaps are not a good indication of lower economic welfare. They argue that: (1) Residents of the Mountain West earn relatively low incomes because they generally live in small communities. Both pay levels and living costs are positively related to community size, so the income gap is much smaller after adjustment for cost differences. (2) The measured decline in pay per job overstated the negative effects on household incomes. Part of the measured decline came from a growing preference for part-time employment. Some people work full-time by holding two or more part-time jobs. Part-time and multiple job-holding should not be taken as a sign of a poorly-performing economy. (3) In-migration to the region continued even as relative income and pay levels declined, with workers moving to the area because of highly valued amenities of the region. Growth of the labor force restrained wage growth relative to the rest of the country (Power and Barret 2001).

Power and Barret's third point does apply to Arizona--there does seem to be a "sunshine factor" built into the state's wage levels. Their first point does not, however. Most Arizonans live in one of two large metropolitan areas. Furthermore, wage levels in the state's metropolitan areas are lower than the U.S. metro average, and the same holds for wage levels in rural areas versus the U.S. rural average.

Power and Barret also pointed out that even if incomes are lower in the Mountain West, they still have been growing, and this is true as well for Arizona. Between 1987 and 2008, Arizona per capita personal income (adjusted for inflation) increased 28 percent from \$21,121 to \$27,103, even though the Arizona-U.S. gap widened.

### 3.4 Income Equality

Another complicating factor in assessing the performance of the state's economy is the issue of income equality. Inequality has grown in most parts of the country since the late 1980s. The incomes of the nation's highest-income families have climbed substantially, while middle- and lower-income families have seen only modest increases. This trend has certainly been in evidence in Arizona. A 2008 study that compared U.S. Census measures of family income for the 1987-89 and the 2004-06 periods found that the real (inflation-adjusted) income of Arizona families in the bottom fifth of the income distribution increased only 1 percent versus a 16 percent increase for families in the top fifth. The comparative figures for the nation were an 8 percent increase for the low-income families versus 34 percent for high-income families (Burstein, et al. 2008). These figures are disappointing in several ways: (1) they show that income inequality has increased in Arizona since the state's 75th anniversary; (2) they indicate that income levels (adjusted for inflation) of low-income families in Arizona was essentially unchanged from the late 1980s to the mid-2000s; and (3) comparison of the Arizona and national growth rates for rich versus poor families imply that inequality increased to a greater degree in Arizona than for the nation as a whole over the 1987-2006 period--a 16 to 1 ratio for Arizona versus a 4 to 1 ratio for the nation.

## 4. The Structure of Arizona's Economy

By the 1970s the transformation that had started in Arizona during World War II from a small natural resources/agriculture-based economy to an economy whose structure looked much more like the national economy was largely complete. At the same time, the structure of the state's economy still reflected its past and the specific features that set Arizona apart from many other states.

Using 1980 as a point of reference, the relative importance of mining and natural resource sectors had slipped to less than 5 percent of total employment, and the share of both military and federal civilian employment had declined. The largest sectors in the economy in 1980 were the service and retail sectors. Growth of the service sector was a national phenomenon, but both sectors played an even larger role in Arizona--serving both the growing resident population and the increasingly important tourism industry. The effects of rapid growth on the economic structure were also evident in the importance of the construction and the finance, insurance, and real estate sectors.

Manufacturing had increased--employing 12 percent or more of Arizona workers--but was still small compared with 18 percent of total employment in the United States as a whole. Earlier in its history, little traditional manufacturing had developed in the state, so that Arizona's manufacturing activity was primarily concentrated in the electronics, aerospace, and defensive sectors that had grown up in the post-World War II era.

#### 4.1 Changing Structure after 1987

But as Nash observed in his look at Arizona's economy in 1987, national and international trends were bringing further change. Agriculture's and mining's share of total employment continued to shrink during the 1980-2000 period, with the mining industry actually losing jobs. The government sector grew but at a slower rate than average. The construction, transportation, public utility, and trade sectors all experienced close to average growth, so that their shares of total employment remained about the same between 1980 and 2000.

Following the national trend, the lion's share of growth in Arizona during the 1980s and 1990s was in services--more than 40 percent of the total increase in jobs. Within the service sector, the largest job increases were in the business services and health services sub-sectors.

The overall pace of economic growth slowed in the 2000-2007 period, even with a real estate and construction boom in the latter years of the period. Aside from growth spurts in the

construction, finance, and real estate sectors because of the boom, and an uptick in mining activity, the structure of the Arizona economy in 2007--the last year before the current recession --did not change significantly in the first years of the new century.

The state's financial sector has gone through a series of fundamental changes since the Arizona's 75th anniversary. As a result of the nationwide savings and loan crisis in the late 1980s, the state's large and influential savings and loan industry collapsed, taking away a major component of the local finance/real estate development community. Changes to U.S. financial sector regulations also led to an increase in bank merger activity across the nation starting in the 1980s that continues to the present day. This began a "game of musical chairs" in the Arizona banking industry, where first all of the major local banks were absorbed by out-of-state banks, which were in turn taken over by other banks, and so on. This process continued into the new century--the most notable being the absorption of Bank One (the successor to the most important local institution--Valley National Bank) by Chase Bank, which incidentally necessitated a change in the name of the Arizona Diamondback baseball team's Bank One Ballpark in downtown Phoenix to Chase Field.

Innovations in the financial sector, such as the securitization of loans and the development of a plethora of financial derivatives, led to rapid growth of financial markets and of the volume of credit/debt being created worldwide. These trends led to an increased importance of the financial sector to the U.S. economy--and in turn for the finance and real estate sectors in Arizona.

U.S. manufacturing employment hit a peak in 1979 and then began a steady decline due to increased foreign competition. Domestic firms either lost market share or moved production to lower-cost locations outside of the country. In Arizona, manufacturing's share of the economy also declined, but unlike the national experience, manufacturing in Arizona managed to continue to grow, although at a reduced pace, through most of the 1990s. After peaking in 1998, however, manufacturing employment began a downward trend even before the 2001 recession, with a small reversal during the mid-2000s before resuming its decline in 2007.

As the state was emerging from the 2001 recession, Economy.com, a leading national economic consulting firm, was commissioned by the Arizona Department of Commerce to examine the Arizona economy. One part of this 2002 study examined the degree of diversity in the Arizona economy and how it had changed over time (Economy.com 2002). The investigation found that in 2001 the Arizona economy remained narrowly focused with little diversity. According to Economy.com's index of industrial diversity, Arizona ranked 40th among all states with an index value of 0.45 where a value of 1.0 is equal to the U.S. economy. The analysis also indicated that the diversity of the state's economy had actually declined since 1987. Based on its research, Economy.com concluded that the imbalances in Arizona's economic structure were due to overdependence on the construction, retail trade, and government sectors.

#### 4.2 High Technology

As the economic development community and public officials became more sensitive to the issues of "job quality" and the state's growing income gap, their efforts shifted toward the creation of high-wage jobs rather than just job creation in general. Over time, this general objective has been refined and/or "re-defined" in terms of attracting high-technology firms, bio-tech firms, and "knowledge economy" firms. For the purposes of this discussion, these related concepts have been combined under the term "high technology." During the boom-times for high technology in the 1990s, Arizona had modest success with its efforts to expand high technology activities in the state. The high technology sector cuts across the traditional industrial categories and includes a mixture of both manufacturing and services. Arizona has a narrow base of high-technology activities. Only two high-tech categories--manufacturing of aerospace products and of semiconductors and other electronic components--had a greater relative presence in Arizona than the national average in 2001. High-tech employment increased more in Arizona than the national average between 1990 and 2001, but the state's employment growth in other sectors was even greater, causing Arizona's high-tech concentration to fall (Center for Business Research 2003).

With the "dot.com" crash<sup>4</sup>, many high-technology firms in the state either disappeared or scaled back their Arizona operations. The concentration of high-technology activities in Arizona

continued to decline between 2001 and 2005. By 2005, Arizona no longer had a high-technology presence much different than the national average (Center for Competitiveness and Prosperity Research 2008).

#### 4.3 Tourism

Tourism is perceived to have a strong presence in Arizona. It is often identified as the state's largest industry, but measuring its size has been problematic because tourism is not defined as a separate industry in the NAICS (North American Industry Classification System) classification scheme used for most economic/business analysis. Tourism consists of a portion of many industries that make sales to residents as well as to tourists. Based on a methodology developed by the U.S. Bureau of Economic Analysis to produce national tourism statistics, a recent Arizona Department of Commerce study estimated tourism employment in Arizona. Total tourism employment in Arizona was estimated to have been 127,500 in 2004—about 5 percent of all jobs (compared to the national average of just less than 4 percent). Tourism activity is relatively more important in some rural areas of the state, but at least at the county level, Coconino had the greatest share--9 percent--of total employment (Center for Business Research 2007). These figures imply that while tourism is definitely an important economic activity to the state, it is far from being Arizona's largest industry--although it may well be the most important industry in some small communities across the state.

#### 4.4 Globalization and the Arizona Economy

One of the key economic trends of the last two decades of the 20th century and the beginning of the 21st has been the increasing globalization of the U.S. economy, and the Arizona economy has also participated.

The international sector constituted only a small fraction of U.S. economic activity in the 1960s. Total exports accounted for only about 5 percent of U.S. gross domestic product (GDP) and total U.S. imports were of similar magnitude. In the 1970s, the volume of international trade surged, with the sharply higher value of oil imports one of the prime contributors. U.S. exports also increased, with both equivalent to more than 10 percent of GDP. By the 75th anniversary of

Arizona statehood in 1987, however, America's international trade situation had deteriorated. U.S. imports had continued to grow rapidly, but the pace of export growth had fallen behind, so that the nation's balance of payments deficit jumped to more than 3 percent of GDP. Over the past two decades, international trade has continued to grow in importance for the U.S. economy. By 2008 exports contributed to almost 13 percent of GDP, and the value of imports was even higher--equivalent to more than 17 percent of GDP.

International trade has also grown in importance to the Arizona economy since 1987. Information relating to foreign trade is not as available at the sub-national level, but exports by state of origin have been compiled since 1987. These data show that Arizona's exports have increased at a faster rate than the national average but also that foreign trade still is less important to the state's economy compared to the nation as a whole. In 1987, the value of Arizona's exports was equivalent to about 4 percent of the state GDP compared to about 8 percent for the U.S. economy. By 2008, Arizona exports had jumped to 8 percent of state GDP--still lower than the 13 percent share for the nation.

While there has been continuing debate about the effects of the North American Free Trade Agreement<sup>5</sup> (NAFTA) on the U.S. economy, the free trade pact has been one of the key factors in the expansion of Arizona's foreign trade. Even before NAFTA went into effect in 1994, trade across the Arizona-Mexico border was expanding. The total value of exports through the Nogales Customs District<sup>6</sup> jumped from \$1 billion in 1987 to \$3 billion by 1993, and imports through the District increased from \$3 billion to nearly \$6 billion over the same period. With NAFTA, the volume of trade continued to grow rapidly, with the value of exports through the District topping \$7 billion and imports \$14 billion in 2000. The pace of growth has slowed in recent years, but the value of total exports through the Nogales Customs District reached \$8 billion and imports were more than \$17 billion in 2007—the latest year for which statistics were available.

Not surprisingly, the leading destination of Arizona's exports is Mexico (30 percent of the total in 2008). Canada, our other NAFTA partner, is the second most important with 12 percent of total exports. China (6 percent), the U.K. (5 percent), and Singapore (5 percent) round out

Arizona's top five export destinations. Electrical equipment (which includes electronic components), non-electrical equipment, and aircraft/spacecraft equipment compose the lion's share of Arizona's exports. Similar information is less readily available for imports, but the District data show that agricultural products, destined for not only Arizona but also destinations all over the nation, dominate shipments into Arizona from Mexico.

Expansion of international trade is only one aspect of globalization. The U.S. and Arizona economies have also become more integrated with the world economy through the growth of multi-national corporations, direct foreign investment, and the globalization of supply chains and financial markets. Most economists favor such integration, arguing that everyone benefits when countries specialize in the types of goods and services that they can produce most efficiently and when capital is free to flow to its most productive uses. U.S. consumers have definitely benefitted from globalization, but there is much less consensus regarding its effects on other aspects of the domestic economy.

While the impacts of globalization on the Arizona economy are difficult to measure, a study by the Economic Policy Institute estimated that the state had lost 17,000 jobs due to NAFTA (Faux et al. 2006). On the other hand, a 2002 study by the American Graduate School of International Management estimated that more than 50,000 jobs in Arizona were tied to exports to Mexico (Girardin 2005). It should be noted that both of these figures are very small compared with a total employment figure for the state of more than 2.5 million jobs in 2002.

More recent information provides evidence regarding the relative importance of globalization to the Arizona economy. The 2008 New Economy Index report from the Information Technology and Innovation Foundation ranked Arizona seventh among the 50 states in terms of the "export focus" of its manufacturing and services sectors (Atkinson and Andres 2008).

## 5. Booms and Busts

Another key feature of the state's economy has been its recurring pattern of booms and busts that characterize much of its relatively short history. Arizona's economy has been one of the

most cyclical in the nation as measured by the difference in rates of growth between expansions and recessions. In the 22 years since the state turned 75, it has experienced 2½ boom/bust cycles—three recessions with two boom periods in between. The Arizona economy is linked to the national economy, and its boom/bust cycles are roughly coincident with national business cycles, but Arizona's have their own special characteristics.

First, the Arizona economy resembles the driver of a car that either has his/her foot pushing the accelerator to the floor or is stomping on the brake peddle with both feet. It usually is either ranked first or second in job or income growth during its booms, but it is down near the bottom of the rankings during its bust periods.

Second, the real estate and construction sectors usually play important roles in Arizona booms/busts. A rapidly growing state like Arizona will have a large construction sector to accommodate that growth. Construction and real estate development are volatile activities—dependent on swings in migration and business growth, the cost and availability of financing, and many other factors—which inevitably lead to accentuated business cycles.

Last, Arizona always seems to keep growing even when the economy has turned sour. Most other states usually experience net in-migration in good economic times and net out-migration in bad times. In the post-World War II era, Arizona's population just has kept growing every year. Population growth slowed in recessions but did not stop, and then picked up again during expansions as more people moved to the state to take advantage of the increased employment opportunities.

### 5.1 The 1987-1992 Recession

Even as the state was observing its 75th anniversary in 1987, Arizona was already transitioning from a boom period into its own version of the national 1990-91 recession three years early.

Between 1977 and 1987, Arizona led the nation in personal income and employment growth. Two key factors for the state's booming economy were the deregulation of the savings and loan

industry and a change in tax laws in 1981 that provided big tax breaks for real estate investors. The combination of these two moves by the federal government stimulated construction nationwide and particularly in fast-growing areas like Arizona. Construction activity in the state boomed--particularly in the Phoenix area. By the mid-1980s, a massive oversupply was developing in the commercial and multi-family markets.

Then in 1986, the tax breaks were repealed and tighter restrictions on tax shelters were imposed. Without the tax breaks, the real estate bubble burst, leading to a severe shake-up in the construction and real estate sectors. The same sequence of events occurred nationwide—although to a lesser degree in most areas—and one of the main causalities was the savings and loan industry. The savings and loan crisis precipitated a huge federal government bailout and the creation of the Resolution Trust Corporation, a federal government-owned asset management company charged with liquidating assets of savings and loan associations that had been declared insolvent.

In addition to severe problems in the finance, construction, and real estate sectors, slowing defense spending hurt the local aerospace industry, and international competition pressured the semiconductor industry. The combination of all these factors contributed to the loss of more than 20,000 jobs in manufacturing, construction, real estate, and finance between 1987 and 1989.

The adverse impacts of the savings and loan crisis and the first Gulf War pushed the U.S. economy into the 1990-1991 recession, which in turn further depressed the Arizona economy. While the state never experienced a decline in total employment as it did in the 1973-1975 recession, Arizona experienced below-average job growth for six straight years—1987 through 1992, and the state's real GDP approached zero growth in 1989 and 1990. The state unemployment rate peaked at 7.7 percent in early 1992. The primary impacts of the downturn fell on construction, real estate, and some parts of manufacturing.

## 5.2 The 1993-2000 Boom

During the 1990s boom, which set the record as the longest U.S. economic expansion on record, the national unemployment rate fell from 6.8 percent in March 1991 to 4.3 percent in March 2001. Over those ten years, the economy created almost 24 million jobs, an average of 200,000 jobs a month. A combination of factors led to the “roaring nineties—the world’s most prosperous decade,” as the era was termed by Nobel Prize-winning economist Joseph Stiglitz (Stiglitz 2003).

A dramatic reduction in the federal deficit allowed consumer spending and business investment to increase. Monetary policy actions in concert with the reduced federal deficit kept interest rates low, which further stimulated consumer and investment spending. In their economic history of the period, Blinder and Yellen listed several other favorable factors for the extraordinary performance, including falling oil prices and a rise in the value of the dollar, but identified the single most important as the higher rate of productivity growth that occurred in the 1990s compared with the previous two decades (Blinder and Yellen 2001).

This rise in productivity growth was linked not only with increased investment spending but also resulted from the development and adoption of new technologies that made workers and businesses more efficient. The sectors and firms associated with the development and adoption of new technology and innovations came to be grouped under the term “new economy.”

Confusingly the term also came to be used in a broader way to describe an economy based on the new technologies and operated with the new information-based management techniques. It was argued, wrongly it turns out, that the “new economy” would lead not only to unprecedented prosperity--due to efficiency gains--but also to the end of the business cycle. The new information technologies would allow business to better control operations and inventories and provide economic policy makers with more and better information and more precise control over their policy tools.

But what most people associate the “roaring nineties” with is the breathtaking rise of the stock market. The Dow Jones Industrial Average rose from 2,588 in January 1991 to a monthly peak of 11,302 in January 2000. The NASDAQ index, with many high-tech companies, rose from 414 in

January 1991 to a peak of 5,250 in March 2000. The increase in the major U.S. stock-price indexes in the 1990s was larger than during any ten-year period in the historical record.

In the last years of the decade, there was a “bonus” mini-boom in spending on computer equipment, software, and related business services in response to the so-called “Y2K” problem. It was thought that these expenditures were necessary to avoid the potentially serious problems that would occur on January 1, 2000, because the internal clocks in many computers, other electronic equipment, and software packages were not designed to recognize dates after December 31, 1999. In practice, a number of various Y2K-related issues did occur globally, but were not considered to be significant problems (Wikipedia 2009).

The “roaring nineties” took a little longer to really get going in Arizona, as the state’s economy had to work through the lingering effects of overbuilding in the 1980s and the collapse of the savings and loan industry. The state’s unemployment rate did not peak until early 1992 and overall job growth remained weak for the year. Soon however, the pace picked up and Arizona again experienced one of its classic boom periods over the 1993-1995 period, with job growth in the 6 percent range, the population growing at 4 percent or more, and a big surge in residential construction.

The national economy nearly stopped growing in 1995, but then it surged again in 1996, as the “new economy” took control and consumer spending soared. The Arizona economy slowed slightly in 1995 but remained very strong all the way through 2000.

Just as the forces driving the national economy changed in the second half of the 1990s, the nature of the economic boom in Arizona also transitioned from the “typical” growth-driven phenomenon to something different. Residential construction and home sales remained very strong and non-residential construction rebounded to high levels, but real estate and construction were not the all-important drivers of the economy as usual. Strong manufacturing activity, particularly in the high-technology sectors, and export growth also contributed to the good times. The special feature in the second phase of the boom was a flood of consumer spending. Consumers were spurred to spend by high levels of labor force participation, increasing real wages, large bonuses and profits from stock-option plans, low interest rates that

encouraged homeowners to refinance, and large gains in wealth from appreciating financial and real assets. Consumer debt also increased dramatically in the 1990s. By 1999, installment debt, home equity loans, and auto leasing reached record levels.

Although economic growth remained strong at both the national and state levels through 2000, construction activity peaked in 1998, and job growth weakened in 1999. But consumers kept spending--accounting for almost all of the growth at the end. The boom only lasted about one year after the end of the 1990s, with the first recession of the new century starting both nationally and in Arizona in early 2001.

### 5.3 The 2001 Recession

The national recession began in March and ended in November 2001. It was both shorter in duration and milder than the average post-World War II recession. Several factors caused the downturn. One factor was the tightening of interest rates by the Federal Reserve starting in early 1999. A second factor was the bursting of the stock market bubble, which retarded business investment and consumer spending. Third, the market crash for high-technology stocks led to a severe downturn in this sector and the outright disappearance of many of the "dot.com" and "new economy" firms. A fourth factor was a decline in net exports due to a global economic downturn and a rise in the value of the dollar. A fifth factor, which turned out to be smaller than many contemporaneous observers feared, was the terrorist attacks of late 2001; these appear to have had only a transient effect on the business cycle, primarily diverting spending from travel to other sectors (Nordhaus 2004).

For Arizona, the recession also started in early 2001 but was deeper and lasted longer compared with the overall U.S. economy. Its first effects were felt in the manufacturing, commercial construction, and business services sectors, but the downturn turned more serious when the terrorist attacks on September 11, 2001 had severe negative impacts on the state's tourism and travel industry.

Airline travel and the airline industry were the most severely affected, but September 11th impacted all segments of the tourism and travel industry. The Arizona Tourism Barometer, a

summary index measuring tourism activity in the state, was already showing weakness before September as a result of the 2001 recession, but the Barometer suffered its biggest one-month decline in October and declined further in November. After bottoming in November, the tourism index showed some improvement but remained at low levels for many months (JPMorgan Chase Economic Outlook Center 2009). Other statistics show a similar pattern. Airline passenger traffic, lodging demand, and overall travel-related spending in the state were down in both 2001 and 2002 (Arizona Office of Tourism 2008).

Income growth in Arizona dropped sharply from 7 percent in 2000 to the 2 percent range in 2001 and 2002. Employment growth also slowed dramatically in 2001 and was even slower in 2002. At the end of 2000, the statewide unemployment rate stood at 3.9 percent but rose to a high of 6.3 percent in mid-2002. It then started a sporadic decline but did not drop significantly until well into 2003.

Manufacturing was the hardest hit sector of the state's economy--particularly the computer and electronics industries. They suffered from the combination of declining export demand, a drop in domestic demand from the recession, and the earlier overinvestment because of Y2K. Unlike most Arizona recessions, the construction industry did not take much of a hit during the 2001 recession. In fact, residential construction was very strong right through the recession.

#### 5.4 The Real Estate Megaboom 2002-2007

The construction and real estate sectors always seem to play prominent roles in the Arizona economy. This time a strong housing market that turned into a housing bubble was the centerpiece of the 2002-2007 boom. The origins of the housing boom actually started during the stock market collapse at the beginning of the decade. Many Americans soured on the stock market and poured their money into real estate as a safer and more profitable investment vehicle. As a result, residential construction and home sales did not drop off sharply as they usually do during a recession. In Arizona, for example, after a small decline in 2000, residential construction actually increased in 2001 and 2002 as other parts of the economy suffered through the recession.

Several factors caused huge amounts of liquidity to flow into the financial markets and kept interest rates low for the first half of the decade. The Federal Reserve pursued a very stimulative monetary policy regime starting in 2001 to keep the U.S. economy from dropping into what might have been a deep recession and kept it up into 2005, trying to jumpstart the national economy. Capital inflows from China and other foreign nations recycling their excess dollars also added huge amounts of liquidity. Worldwide, banks and non-bank financial institutions shifted to more leveraged management strategies that added even more liquidity to the financial system.

Much of this liquidity poured into the U.S. residential housing market, and sales of existing homes and new construction soared. In Arizona, the number of single-family homes permitted rose from less than 49,000 in 2000 to nearly 81,000 in 2005. Home prices rose rapidly. Based on state-level data from the Federal Housing Finance Agency, single-family home prices rose at a 6 percent rate in 2001 and 2002 and then accelerated, with the rate of price appreciation peaking at 29 percent in 2005. Although the rate of increase fell back somewhat in 2006, the average home price in Arizona jumped 96 percent over the 2001-2006 period.

An investor component is usually present in the single-family home market, but typically most of this comes from local investors buying homes as income property. In this boom however, investors and speculators loomed large. Investors were buying with the primary purpose of price appreciation, not rental income. Many buyers were “flipping” houses—buying them with the goal of selling them in a short time for a profit. In Arizona, money poured in from all over the country—driving homebuilding to record levels and sending home prices soaring. This additional demand pressure from both local residents and outside investors pushed home prices to unrealistic and unsustainable levels—turning a very strong housing market into a housing bubble.

The real estate boom was a national phenomenon, but the strength in the real estate and construction industries did not translate into healthy growth in the U.S. economy for quite awhile. Worries about the “jobless recovery” lasted into 2004, and federal policy makers instituted tax cuts and rebates and kept interest rates very low in attempts to stimulate the overall economy.

In Arizona, job growth did pick up in 2003, and the state enjoyed big employment gains over the 2004-2006 period. But this time around, the pattern of growth was even more unbalanced than usual. Almost all of the increased economic activity occurred in the sectors serving the local economy, while the sectors that serve outside markets and bring money into the state—manufacturing, information (telecommunications, internet, and software), mining—remained weak or were even losing jobs. Given the boom in housing, it is not surprising that the construction, real estate, and other housing-related sectors accounted for more than a third of all employment growth between 2002 and 2006.

Since 1987, the long-term income trend has been much weaker than for the 1970-1986 period—per capita income growth adjusted for inflation increased at only 1.2 percent per year over the 1987-2008 period compared with a 2.6 percent per year rate for the earlier period. After 2002, this discouraging trend reversed at least temporarily, with the growth rate averaging over 3 percent over the 2004-2006 period.

With healthy income growth, rapid growth in consumer borrowing, plus low interest rates and tax cuts/rebates, strong consumer spending was another major force pushing the state's economy upward. With all the new houses, people were buying lots of home-related goods and services, and car/truck sales were very strong. Overall retail sales grew at double-digit rates during the 2004-2006 boom years.

The U.S. economy and the national real estate sector began to lose steam in 2006. In Arizona, residential construction and sales declined, but home prices still rose—at a slower rate—and plenty of economic momentum still remained. Employment, incomes, and retail sales were still growing at a healthy clip. But by 2007, the housing bubble was deflating, and the state's economy was heading down. Home building fell back to below the levels of the 2001 recession, and job and income growth slowed dramatically. What many analysts have termed the Great Recession—the worst recession in the U.S. since the Great Depression—began in Arizona around September 2007.

## 5.5 The 2007- 2010? Bust

Just as Arizona was one of the prime beneficiaries of the housing boom/bubble during the first 6 years of the decade, it was one of the big losers when it collapsed. When mortgage rates started to rise in 2004, it began to affect home buyers. The residential construction boom started to weaken in 2005, and abruptly ended in 2006, when the number single-family units permitted fell by 31 percent and then just kept falling. Even with the end of the construction boom, home prices continued to rise for awhile, but then they started to drop—down nearly 20 percent statewide between 2006 and 2008.

At first, analysts looked at the economic statistics and optimistically concluded that the downturn that started in 2007 was going to follow the typical Arizona recession pattern. A boom/bust cycle in the construction/real estate sectors had caused a slowdown in the state's economy, but no serious damage would occur to the overall economy and things would pick up again in a year or so. But that rosy scenario was not to be.

Because of deregulation and innovations in the financial sector, the rise in interest rates that choked off the boom had much more damaging impacts on the housing market and then in turn on the overall economy. With the U.S. economy awash with liquidity and a prolonged low-interest rate environment, subprime mortgage lending along with the use of adjustable rate mortgages (ARMs) and other innovative loans exploded during the first half of the decade. In addition, the practice of "securitization" of mortgage loans became almost universal. In the process of securitization, mortgage loans are bundled together and mortgage-backed securities are created and sold to investors. Given the magnitude and duration of the housing boom, billions and billions of these mortgage-backed securities were sold worldwide.

When interest rates rose, the homeowners' payments due on the ARMs began to adjust upward, and many homeowners were no longer able to carry their mortgages. Delinquencies and foreclosures increased, and the subprime loan industry collapsed in 2007. But the loan defaults affected not only the lenders themselves but the entire mortgage-backed securities market and the holders of the mortgage-backed securities. The uncertainty of the value of the mortgage-backed securities led to questions about the solvency of banks and other financial institutions holding vast amounts of these securities. This caused chaos in financial markets and led to a

worldwide credit crunch in August 2007. The situation in the financial sector just kept getting worse, culminating in 2008 with the federal takeover of Fannie Mae and Freddie Mac and the federal bailout of the financial industry.

Although the housing industry turned down sharply in 2006, the overall U.S. economy was still performing respectably through at least the first half of 2007 before starting to weaken. But the financial turmoil took its toll, pushing the United States into the start of a deep recession at the end of 2007. High oil prices and a severe stock market decline added to the misery.

Based on annual data, total employment in Arizona still grew and reached record levels in 2007. Only the construction, manufacturing, and information sectors had job losses. The statewide unemployment rate for August 2007—the last month before the recession started in Arizona—was 3.7 percent, only 0.1 percent above the lowest rate of the cycle recorded a couple of months earlier. But comparison of the job data for September 2007—the start of the recession in Arizona—versus one year later in 2008 shows a much different situation. Total non-farm wage and salary employment<sup>7</sup> had declined 80,000. Over half of the jobs lost were in construction (42,000), with other big losses in professional and business services and the retail sector. Only the health and social services and the government sectors did not show employment declines.

Employment data for June 2009 (the latest available) reveal that economic conditions in the state continued to deteriorate. The unemployment rate had risen to 8.7 percent but was still way below the 11.5 percent reached during the early 1980s. The state lost a further 200,000 jobs between September 2008 and June 2009 and almost 280,000 since September 2007. All areas of the Arizona economy were affected—only aerospace manufacturing, health care facilities, hotels, and food services showed no decline.<sup>8</sup>

The severity of the downturn can also be seen in what happened to consumer spending. Consumer spending was a major driver in the 2002-2007 boom and carried the economy in its last couple of years. Once home prices started falling and the economy began to weaken, the spending spree had to end, and it ended with a vengeance. At the top of the boom, retail sales in Arizona were very high and increasing at double-digit rates. But in 2007, retail sales flattened and then declined more than 5 percent in 2008. When measured in real per capita terms (adjusting for inflation and population growth), sales in 2008 were 13 percent below 2006 levels.

The severe economic downturn in Arizona that began in 2007 has also caused a sharp drop in tax revenues, which in turn has led to huge deficits in the state budget. According to the Center on Budget and Policy Priorities, Arizona's budget shortfalls in both fiscal year (FY) 2009 and 2010 are the largest in the nation as a percentage of the general fund. Arizona's 16 percent deficit in FY 2009 was the largest of any state. Its projected FY 2010 deficit of 30 percent is tied with Nevada as the highest of any state at nearly twice the U.S. average.

Government revenues are cyclical in Arizona, as they are in most, if not all, U.S. states. Income and sales taxes are particularly prone to economic swings. Both of these taxes play large roles in the state's tax structure, so state revenues tend to surge during Arizona's boom periods and plummet during its economic downturns. This pattern produces budget surpluses in good times and deficits in bad. Historically, budget deficits have been closed by a combination of spending cuts, tax increases or other types of budget enhancements, fund transfers, and other accounting "gimmicks."

A 1992 state referendum requiring a two-thirds vote of the legislature for a tax increase has made it virtually impossible to increase taxes, so the FY 2009 budget used approximately equal measures of spending cuts, fund transfers, and federal stimulus funds to close the \$1.7 billion deficit.

The fiscal situation is even more serious for FY 2010 with a budget gap of more than \$3 billion. Although not finally settled, it appears that the FY 2010 budget deal will close the deficit with spending cuts, stimulus dollars, and borrowing. It also would withhold some tax money from local governments and raid special-purpose funds throughout state government. Critics of the "cut spending/no tax increase" approach to eliminate the deficits faced by the state in the last two years argue that the spending cuts have gone way beyond "reducing the fat" and have cut needed public services. The proper size of government and level of taxation is an ongoing and often very heated argument in Arizona, as it is elsewhere. It will probably remain very contentious, as the huge gap between expenditures and revenues is likely to continue into the future.

What began as what many analysts thought would be another relatively mild recession turned into the worst downturn in the U.S. economy in the post-World War II era. At mid-2009, the current recession is the longest since 1933. The national unemployment rate stands at 9.5 percent--the highest in 26 years--and it is predicted to hit double-digit levels before the situation improves. On the positive side, the downturn seems to be moderating, financial markets seem to have stabilized a bit, and the stock market has risen substantially from its lows earlier in the year.

Arizona's unemployment rate is less than the national figure, but by other economic measures things seem bad indeed. In a state that has relied upon the construction and real estate sectors as its primary economic drivers, it is the "poster child" of the housing bubble/crash. Earlier in the year, ABC's Nightline program picked the community of Maricopa to feature on a show about the U.S. housing crisis. In early 2009, home construction activity had dropped more than 90 percent from its peak levels in 2005. Home prices in Phoenix have fallen more than 50 percent from their peak—the worst of the 20 large U.S. metro areas tracked by the Case-Schiller Home Price Indices (Standard and Poors 2009). Arizona's foreclosure rate continues to rank as one of the worst in the country (RealtyTrac 2009).

The University of Arizona's Forecasting Project does not expect the bottom to come until the second quarter of 2010. It is expected to take until the end of 2012 for employment levels to regain the peak levels of 2007 (Vest 2009). Let us hope that the local recession will be long over, and the state's economy will be humming along when Arizona celebrates its Centennial in 2012.

## 6. The Future

Economic experts forecast substantially slower growth for the U.S. economy in the next 30 years compared with the 1978-2008 period. Irrespective of any economic calamities, this forecast is based on a mix of factors, including the retirement of the Baby Boom generation, higher energy prices, slower productivity and labor force growth, and the continued growing importance of the global economy (Global Insight 2009).

In its latest long-term forecast (October 2008), the University of Arizona's Forecasting Project expects the state's long track record of rapid population growth to continue—with state population reaching 14.9 million in 2040 compared to 6.6 million in 2008. The workforce is predicted to more than double to 6.3 million in 2040 up from 2.6 million workers in 2008. Total personal income is also expected to grow, but the troubling gap in per capita income between Arizona and the U.S. per capita income is forecast to widen with Arizona's per capita figure falling to 80 percent of the U.S. average—down from an average ratio of about 86 for the 2000-2008 period. Looking at the structure of the state's economy in the future, the construction, manufacturing, and government sectors are predicted to make up smaller shares of total employment, and the health care and social assistance sectors and the professional and business services sectors are forecast to expand (Vest 2008).

These views of the future were based on the results of econometric forecasting models. Another popular approach for looking at the future is also data-based, but does not rely upon a formal econometric model. The analyst builds a scenario based on current and past data—making informed assumptions about future trends and events and then looks at the implications of the scenario. A recent study from Arizona State University's Morrison Institute for Public Policy looks at the future using this approach. It focused on just part of the state, but one that contains almost 90 percent of the population. The study looked at the future of a five-county "megapolitan" region termed the "Sun Corridor" (Gammage et al. 2008). It is based on research on a national scale that predicts that the bulk of the future growth in the United States will occur in 20 "megapolitan" regions—defined as large geographic regions containing two or more integrated and interdependent metropolitan areas and the surrounding area (Lange and Dhavale 2005). One of these 20 is the Sun Corridor in Arizona. Made up of Yavapai, Maricopa, Pinal, Pima, and Santa Cruz Counties, it incorporates both the Phoenix and Tucson metro areas plus the areas to the north and south that will become increasingly integrated into the urban complex in the future. In 2008, the Sun Corridor region was home to 85 percent of the state's population. The Morrison Institute study forecasts that almost all the growth in Arizona over the next 30 years or more will be centered in this area, so that in 2040, the population of the Sun Corridor region will top 10 million—corresponding to about 87 percent of all Arizona residents in that year. Rather than an economic forecast for the region, the analysis addresses what will be

needed for the Sun Corridor to compete successfully in the global economy. The study provides estimates of the cost of developing the private and public infrastructure needed for the megapolis to provide a prosperous economy and a high quality of life for its residents—in round numbers it would total about \$2 trillion. Then the study poses the obvious question—where will the \$2 trillion come from?

### 6.1 Impacts of the 2007-2010 Recession on Arizona's Future

Given the severity of the current recession and the damage it has inflicted on all parties—households, business, and public institutions—it seems certain to have some long-term economic impacts. The discussion can be limited to four.

Many have blamed minimalist regulation and insufficient oversight as primary factors leading to both the housing bubble/bust and the financial crisis—so it is likely that tighter regulations and more oversight are in the future for the U.S. financial sector. Focusing on possible repercussions on Arizona, this will lead to tighter lending policies that would impact real estate development and construction.

A combination of tighter consumer lending policies and less ability to tap into home equity or other financial wealth will also constrain consumer spending—potentially leading to slower economic growth but also possibly reducing economic volatility and increasing the savings rate. Some have also argued that the recent economic events will permanently change consumer behavior. While this seems to be happening in the short run, the jury is still out as to whether it may be a permanent trend.

Richard Florida, in his book *The Creative Class*, suggested that economic success no longer comes from making more things. Instead, he argued that successful places today are the ones with the highest density of talented and creative people, innovation, and entrepreneurial activity. Looking at “the Crash,” Florida sees it as the end of an obsolescent economic system that led to unsustainable low-density growth in places where the real estate economy was dominant. In his view, the future will see more concentration of jobs and output in a smaller number of large

city-regions (Florida 2009). This concept of the future contains conflicting trends for Arizona. On one hand, he argues that Arizona's real estate/construction-based economy is a dinosaur that will not bring prosperity in the future. But his argument also seems to tie in with those of the Megapolitan study: big urban areas are where future economic success will happen—if the right ingredients are present.

The financial sector not only squandered capital but also sucked up human talent that should have gone elsewhere. Economist Charles Whelan says that it is the human equivalent of those empty houses and condos in foreclosure that never should have been built. Rather than designing financial derivatives and making bad bets with borrowed money, all of the intelligent people who were lured into finance by big salaries could have been conducting research on alternative energy, teaching math, practicing medicine, or doing any number of other jobs that strengthen society. In the future, more talented and creative people will be choosing careers in engineering, the sciences, or more productive business careers, rather than working on Wall Street (or as lawyers in firms working for Wall Street) (Whelan 2009). Judging by the experience of the last 10 years, that change has to be good for Arizona.

## 6.2 Aging of the Baby Boom

The oldest of the Baby Boom generation were born in 1946 and will be turning 65 in 2011. The phenomenon of this huge population bulge reaching retirement age will result in a rapid increase in the 65 year and older population over the next two decades. Unless the patterns of retirement migration change dramatically in the future, this demographic event will have a big impact on the state's economy, since Arizona has been one of the prime destinations for retirement migration. Based on the latest State Demographer's projections, between now and 2030 after the oldest of the Baby Boom generation has turned 65, the number of Arizona residents 65 years or older will jump 163 percent, and the share of the Arizona population 65 or older will increase from 14 percent in 2008 to 22 percent in 2030. This large increase in the numbers of retirees will result in a big increase in transfer payments flowing into the state from Social Security, Medicare, and Medicaid, and other federal retirement-related programs. However, the positive impacts of more transfer income will be offset to the extent that federal

taxes are raised to pay for the larger outlays. The large increase of the older population will also have many other impacts on the Arizona economy—for example, a bigger share of spending will be allocated to the health care sector and less to K-12 education.

### 6.3 Global Warming and Sustainability

Economic discussions of global warming and policies to counteract it usually focus on the negative impacts. In Arizona, the hotter temperatures and drought conditions that are predicted would potentially have widespread impacts on the economy, if such changes degraded the quality of life to the extent that people quit moving here or the existing residents move away. Analyses of the economic effects of policies designed to reduce global warming also usually emphasize the negative impacts—high costs for compliance, job losses, higher costs for energy and other products, etc. Policies that would bring about a more sustainable lifestyle for Arizona also face similar criticism.

Proponents of sustainable development have always argued that economic progress and protecting the natural environment can and should coexist. In recent years some advocates have held out a big economic bonus for pursuing a sustainable economic system—that investment in the research, development, and implementation of environmentally-friendly technology like solar energy will provide high paying jobs and a higher standard of living. One of the main points Thomas Friedman tried to push in his best selling book, *Hot, Flat, and Crowded*, builds on this concept (Friedman 2008). The world needs to solve the global warming problem, and the U.S. economy needs to focus on technology/knowledge-based activities to keep from falling behind the competition in the global economy. So Friedman advocates that the United States should “kill two birds with one stone” and become the leader in developing and implementing the technology to stop global warming. While most economists would not go along with the idea that counteracting global warming and/or sustainable development will come without costs, they would also acknowledge that there can be positive economic benefits to pursuing such endeavors.

It is probably a good thing that such policies are not all bad for the economy, because it appears that the political climate in Washington has shifted toward protecting the environment even if it may have negative economic impacts. For Arizona, this probably means higher costs for energy and other products, less access to federal lands, and more regulation and oversight for businesses. At the same time, it probably implies more investment in solar and wind power and other “green” technologies.

#### 6.4 Economic Ideologies

In Arizona, the current bad economic times have sharpened the contrast between the two opposing ideological views competing to be the guiding principles of the state’s economy. These two very different views can be briefly summarized as:

(1) The state needs to move to a more sustainable growth path, transition away from a growth-driven economy to a knowledge-based economy in which science- and technology-based jobs will be the key drivers, and to invest in education, infrastructure, and other areas that will make the transition possible and improve the quality of life.

(2) The key to economic success is to provide more economic freedom and put more money in people’s pockets by lowering taxes, minimizing economic regulation, and reducing the size of government.

An Economy.com study examined the Arizona economy and its prospects for the future in 2002. Its assessment was: (1) Arizona’s driving industries of the past may not be sufficient to maintain its economic well-being going forward. Arizona’s economy has created jobs at a remarkable pace, but its current economic structure has failed to keep per capita income near the national average or improve poverty rates. (2) The economy of the future will be driven by innovation and an accelerated pace of product development. A well-trained workforce and adequate infrastructure—particularly telecommunications and transportation—will be necessary ingredients to compete. (3) Arizona has some advantages—competitive business costs and relatively low living costs; substantial forest, farmland, and scenic resources; and a high

exposure to international trade. (4) The state ranks near the bottom for a number of critical measures—workforce quality, infrastructure, access to venture capital, and quality of life (Economy.com 2002).

Many within the state would agree with Economy.com and argue that Arizona must move away from dependence on growth and an economic development strategy based on low costs/minimal regulation. According to this view, the U. S. and global economic systems have changed, and China or some other foreign country is always going to be cheaper than Arizona. Instead, the state's hope for economic prosperity and a high quality of life lies on the path of technology/knowledge/innovation-based industries, and to do this, more investment in the state's infrastructure, including education, is needed.

A recent Arizona State University study assessed Arizona's infrastructure needs and found that Arizona's public sector infrastructure has not kept pace with the state's growth over the last 15 years. In addition, Arizona continues to grow rapidly, creating a substantial demand from new residents and new businesses for public sector and private sector infrastructure. Based on several alternative methods of projecting the gap between needs and existing revenue streams, the analysis concluded that billions of dollars per year—over and above existing spending—would be required (L. William Seidman Research Institute 2008).

The opposing view continues to use growth as the measure of economic success and the key to a prosperous economic future for Arizona. A good statement of this approach was offered by Glenn Hamer, President of the Arizona Chamber of Commerce:

The best approach to foster long-term growth and diversification are policies that allow private enterprise to operate under conditions of economic freedom. Business and capital are more mobile than ever. To keep jobs and private capital in Arizona, state government should leave more money in private sector hands by lowering taxes and lessening costly and unnecessary regulations (Hamer 2008).

At this point in history, those favoring business as usual and low taxes seem to have the upper hand. A recent Arizona State University study estimated that the cumulative effects of tax changes passed by the legislature since 1992 lowered state revenues by \$2.6 billion in FY 2009--resulting in a drop in state tax revenues per \$1,000 of state personal income from \$50 in FY 1992 to \$35 in FY 2009 (Hoffman and Rex, 2009).

How Arizonans choose between these opposing views will fundamentally shape Arizona's economic future.

This essay concludes with two observations relating the future of Arizona.

1. Based on the long-term forecast from the University of Arizona, the state's population will reach over 14 million in 2040—more than double the current population. It is sobering to realize that if that comes to pass, Arizona would likely be the fifth largest state in the nation. As an economist, one has to believe that the market system will provide jobs and places to live—or when 2040 arrives there will not actually be that many people calling Arizona home. One also has to wonder, however, if Arizona's public sector will be up to the task of providing the infrastructure and public services for a population of 14+ million.

2. Business cycles are going to happen in the future, and it would save the Arizona economy a lot of wear and tear if everybody would remember the old adage that “trees don't grow to the sky” and that Arizona's booms are always followed by a bust. Maybe everyone should put a sign on their refrigerator so they look at it every day—The good times won't last forever so don't act as if they will.

## End Notes

1. The ten “competitor” states designated by the Greater Phoenix Chamber of Commerce were California, Colorado, Florida, Georgia, Nevada, New Mexico, Oregon, Texas, Utah, and Washington.
2. The ten “new economy” states identified by the Milken Institute were California, Colorado, Connecticut, Massachusetts, Maryland, Minnesota, New Jersey, Utah, Virginia, and Washington.
3. Personal income is a national income accounting concept measuring the income received by all residents from all sources. It is the sum of wage and salaries, supplements to wages and salaries, proprietors’ income, rental income of persons, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. Real personal income is personal income adjusted for inflation.
4. The “dot.com” bubble was a 1998-2000 speculative financial bubble during which stock markets saw large increases resulting from rapid growth in the internet sector and related fields. The bubble reached a peak in early 2000, and its subsequent collapse contributed to the failure of many of the firms that had participated in the boom.
5. NAFTA is a trilateral free trade agreement among Canada, Mexico, and the U.S. implemented in 1994. The primary focus of the pact has been the elimination of the vast majority of tariffs and other restrictions on products traded among the three nations.
6. Statistics for the Nogales Customs District include shipments through all international ports of entry in Arizona.
7. Most of the analysis related to employment in this essay was based upon total employment figures compiled by the U.S. Bureau of Economic Analysis. Employment data from this source was not yet available for 2008 or 2009 when this essay was prepared. The analysis of employment in this paragraph is based on a less inclusive set of job data—non-farm wage and salary employment compiled by the Arizona Department of Commerce and the U.S. Bureau of Labor Statistics.
8. These job data are not seasonally adjusted. Employment in many sectors, especially those related to tourism, is seasonal. Comparisons between September and June job numbers may be affected by the seasonality.

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