

# **The Changing U.S. Economy: What Does It Mean for Oklahoma?**

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**Chad Wilkerson**  
Policy Economist  
Federal Reserve Bank of Kansas City

----I appreciate the opportunity to speak with you tonight. The title of my talk is: "The Changing U.S. Economy: What Does It Mean for Oklahoma?" My focus tonight will be on the 5- to 10-year outlook for Oklahoma jobs and incomes, especially relative to other states.

----I'll talk first about what economists have to say about the likely future industrial structure of the U.S. economy, and then talk about what these expected changes could mean for Oklahoma.

----I'll then discuss how some recent unexpected events have changed the intermediate-term outlook for the state.

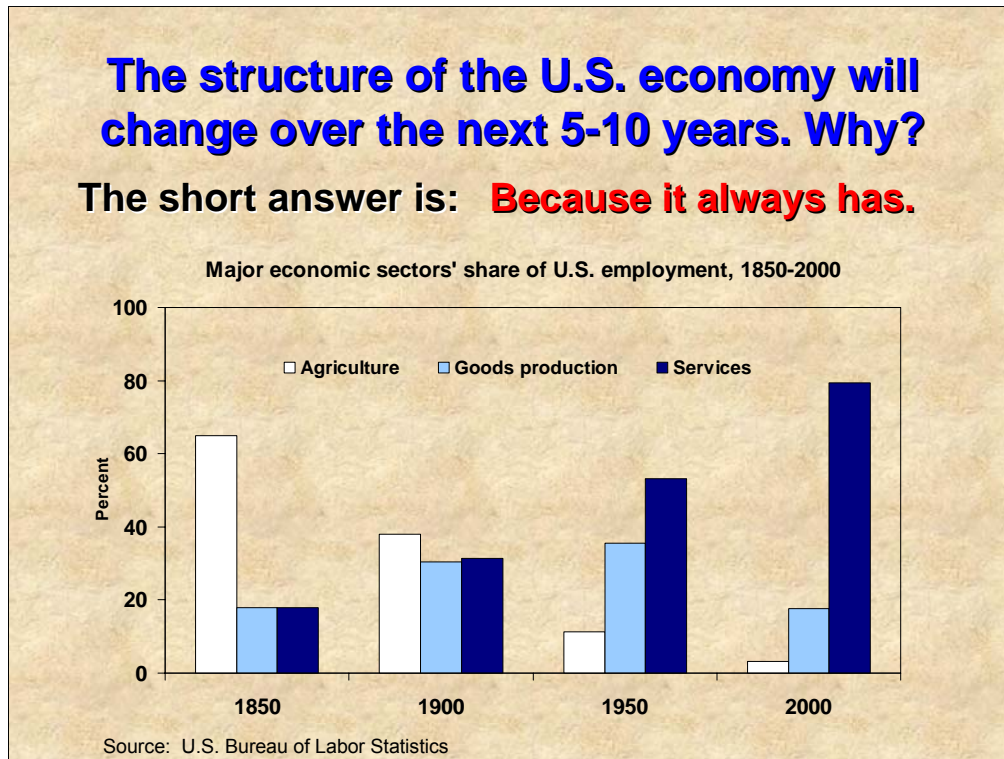
----And I'll conclude with some thoughts on how well-prepared Oklahoma is for meeting its future workforce needs.

## **I. The U.S. Industrial Structure of the Future**

----To begin, in order to see what a changing U.S. economy means to Oklahoma, we first need to take a look at just exactly why and how the U.S. economy is expected to change in the years ahead, specifically in terms of its industrial structure.

## The structure of the U.S. economy will change over the next 5-10 years. Why?

The short answer is: **Because it always has.**



----First, **why** will the industrial structure of the U.S. change over the next 5-10 years? The short answer is, simply: because it always has. I think often people, economists and myself included, focus so much on the short-term fluctuations in the economy that we sometimes fail to recognize just how much the overall structure of the economy changes over time.

----This first chart tonight shows the share of U.S. workers employed in the three major economic sectors of the past 150 years—agriculture, goods production, and services.

----Back in **1850**, you can see that nearly two-thirds of the workforce was employed in agriculture.

----In **1900**, agriculture still employed more workers than either goods or services, but the gap was much smaller.

----By **1950**, both goods production—which is mainly manufacturing—and services employed considerably more workers than agriculture.

----And finally, by **2000**, over four-fifths of the U.S. workforce was employed in services.

**The longer answer includes several inter-related factors:**

- **Technological improvements**
- **Changing consumer tastes**
- **Increasing globalization**
- **Changing workforce skills**

----The longer answer to why the industrial structure of the U.S. economy will change includes several inter-related factors:

----First, **technological improvements**. As technology has advanced over time, many traditional industries such as agriculture and manufacturing have been able to use fewer workers for old processes, and this frees workers for new opportunities in new industries.

----Second, **changing consumer tastes**. As living standards increase over time, consumer tastes are continually changing. For example, as people's real incomes rise, they tend to spend relatively more on such things as travel and tourism, advanced education, and elective medical procedures and less on necessities such as food and clothing, and this obviously affects which domestic industries grow fastest.

----Third, **increasing globalization**. As transportation and communication costs diminish over time, international trade in both goods and services tends to expand, as we've seen in recent years and expect to see in coming years. This allows countries to specialize in what they do best, which can again obviously affect the industrial structure of their economies.

----Finally, **changing workforce skills** can alter U.S. industrial structure. For example, the large number of U.S. workers that will begin retiring in coming years likely have different skill sets than new workers coming into the labor force, which means the country's comparative advantages, and thus industrial structure, could change.



## **How will the structure of the U.S. economy change over the next 5-10 years?**

- **Obviously no one knows exactly.**
- **One respected source is the U.S. Bureau of Labor Statistics, whose economists do detailed 10-year projections of industrial and occupational employment every other year.**
- **The latest projections go through 2012 and were finalized in early 2004.**

----So those are some basic reasons **why** the industrial structure of the U.S. economy will change in the years ahead. But exactly **how** will it change?

----Well obviously, no one knows exactly, or else they would be very rich and many economists would be out of work.

----However, one respected source is the U.S. Bureau of Labor Statistics, whose economists do detailed 10-year projections of industrial and occupational employment every other year and, historically, these projections have been quite good.

----The latest projections go through 2012, and should be particularly good, since they are the first to be based on results of the 2000 Census. They were finalized in early 2004, a fact that will become important later in this presentation.

## 15 U.S. industries projected to ADD jobs the fastest through 2012\*

### High-tech services

1. Software publishers
4. Computer systems design
8. Internet services and data processing

### Health and social services

3. Residential care facilities
6. Rehabilitation services
7. Ambulatory health care services
9. Child day care services
11. Offices of health practitioners

### Business services

2. Management consulting services
5. Employment services
10. Machinery & equipment rental

### Consumer services

12. Consumer goods rental centers
13. Cable TV programming
14. Amusement and recreation
15. Transit and ground transportation

\* Among industries with more than 100,000 employees

Source: U.S. Bureau of Labor Statistics

----So what exactly do the projections say? This slide will show the 15 U.S. industries projected to add jobs the fastest through 2012. I've grouped them into 4 broad categories.

----First, **high-tech services**. The software, computer design, and Internet industries in particular are expected to grow quickly in the years ahead, as businesses increasingly demand these services and consumers increasingly spend more on computer-related items.

----Next is **business services**. Here management consulting, employment services, and equipment rental are projected to grow quickly, in part because firms increasingly find it more efficient to outsource many types of work domestically instead of doing it in-house.

----Third is **health and social services**. This obviously is due largely to the coming aging of the population, but also in part to rising wealth and rapidly advancing medical technologies.

----Finally is **consumer services**. This group includes several industries that reflect changing consumer tastes.

## 15 U.S. industries projected to SHED jobs the fastest through 2012\*

### Nondurable manufacturing

1. Cut and sew apparel mfg.
2. Textile mills
3. Fabric mills
7. Paper mills
8. Resin and artificial fibers mfg.
10. Basic chemical mfg.

### Natural resources

5. Oil and gas extraction
9. Natural gas distribution
12. Agricultural products
14. Petroleum refining

### Durable manufacturing

4. Iron and steel mills
6. Computer mfg.
11. Aerospace product mfg.
13. Semiconductor mfg.

### Other

15. Travel arrangement services

\* Among industries with more than 100,000 employees

Source: U.S. Bureau of Labor Statistics

----What about the U.S. industries projected to reduce employment the most heading forward? Again, I've broken the top 15 into 4 broad groups.

----First, a number of **nondurable manufacturing** industries are expected to shed jobs. These include apparel and textiles in particular, which are expected to suffer from expanded trade with low labor cost countries.

----Next, several **durable manufacturing** industries are also expected to shed jobs, including steel mills and computer manufacturers, and this is largely due to productivity and technological gains in these sectors.

----Next, several **natural resource** industries were also expected to shed jobs at the time the projections were made in early 2004. This was due to both continued technological advances in these industries as well as to expectations for relatively low commodity prices through the projection period. Now, obviously not all commodity prices have remained low since early 2004, and we'll talk more about this later.

----Finally, the **travel arrangement** industry is projected to shrink, obviously due primarily to the rise of people making their own travel arrangements via the Internet.

## **II. Industrial Structure and Future Oklahoma Job and Income Growth**

----So those are some likely changes in store for the U.S. economy.

----I'd like to turn now to what these expected changes in U.S. industrial structure are likely to mean for jobs and incomes in Oklahoma, especially relative to other states.



## **How much impact does a changing U.S. industrial structure have on state job growth?**

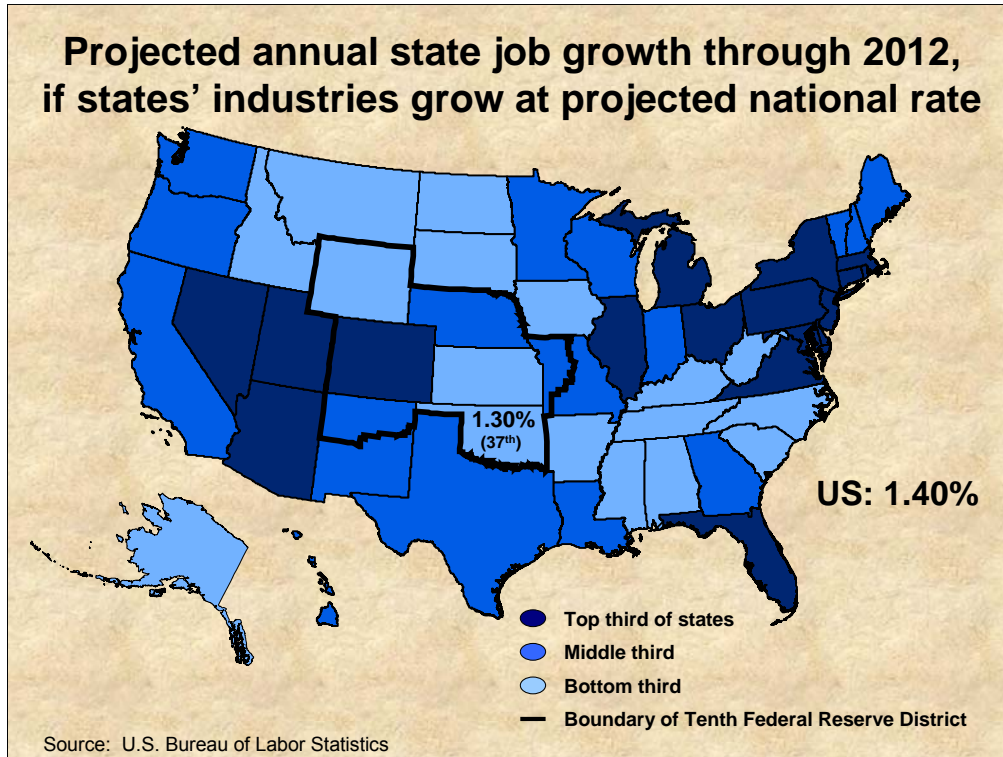
- **Research suggests about 15-20 percent of the variation in state job growth rates over 10-year periods can be explained by industrial structure.**
- **In addition, states with favorable industrial structures tend to grow even faster than one would expect, due to spillover growth to other industries.**

----First, we need to look at just how important industrial structure is in explaining differences in state job growth rates, because, of course, many other factors also play a role, such as a state's quality of life, cost of living and doing business, and workforce skills and worker availability.

----Several past research studies, including one I did last year, show that about 15-20 percent of the variation in job growth rates across states over 10-year periods can be explained by industrial structure.

----In addition, research shows that areas with favorable industrial structures tend to grow even faster than one would expect. For example, in Oklahoma, when the oil and gas sector expands, not only does employment in oil and gas grow, but employment in retail and service industries in oil and gas areas also grows rapidly.

----So the bottom line is that while industrial structure can't explain all or even most of the differences in how states grow over time, it does play a sizable role, and unlike many other factors in state job growth, industrial structure is fairly easy to analyze, and that's what we'll do now.



----So, based solely on its industrial structure, how well-positioned was Oklahoma for future job growth as of early 2004, when the latest projections were finalized?

----Well, if Oklahoma's industries all grew at exactly the national rate through 2012, annual job growth in the state would be 1.3% over that period. This compares with 1.4% in the nation and ranks Oklahoma 37<sup>th</sup> among states.

----The **map** here separates states out by thirds based on their projected growth rates. The states with the most favorable industrial structures, and thus the fastest projected job growth, are shown in dark blue. You can see they are largely concentrated in the northeast and southwest. These areas generally have large amounts of some combination of high-tech, business, health, and tourism services.

----The third of states with the least favorable industrial structures, which includes Oklahoma, though just barely, are largely concentrated in the southeast and Great Plains regions of the country, areas heavily concentrated in nondurable manufacturing and agriculture.

## The 10 industries contributing the most to differences between OK and US projections

<u>Industry</u>	<u>Positive or Negative Contribution?</u>	<u>Due to Large or Small Presence?</u>
1 Agricultural products (grain, livestock)	Negative	Large
2 Oil and gas extraction	Negative	Large
3 Computer systems design	Negative	Small
4 Employment services	Positive	Large
5 Nonagriculture self-employed workers	Negative	Large
6 Semiconductor and electronic component mfg.	Positive	Small
7 Federal general government	Negative	Large
8 Support activities for mining	Negative	Large
9 Fabric mills	Positive	Small
10 Educational services	Negative	Small

Source: U.S. Bureau of Labor Statistics

----So why, specifically, was Oklahoma's industrial structure found to be less favorable than the nation's for future job growth? The table on this slide lists the 10 industries contributing the most to differences between Oklahoma's projection and the nation's. Industries hurting Oklahoma's projection are shown in red, while industries helping Oklahoma's projection relative to the nation are shown in blue. You can see that 7 of the 10 are red, which is consistent with Oklahoma having lower projected job growth than the nation.

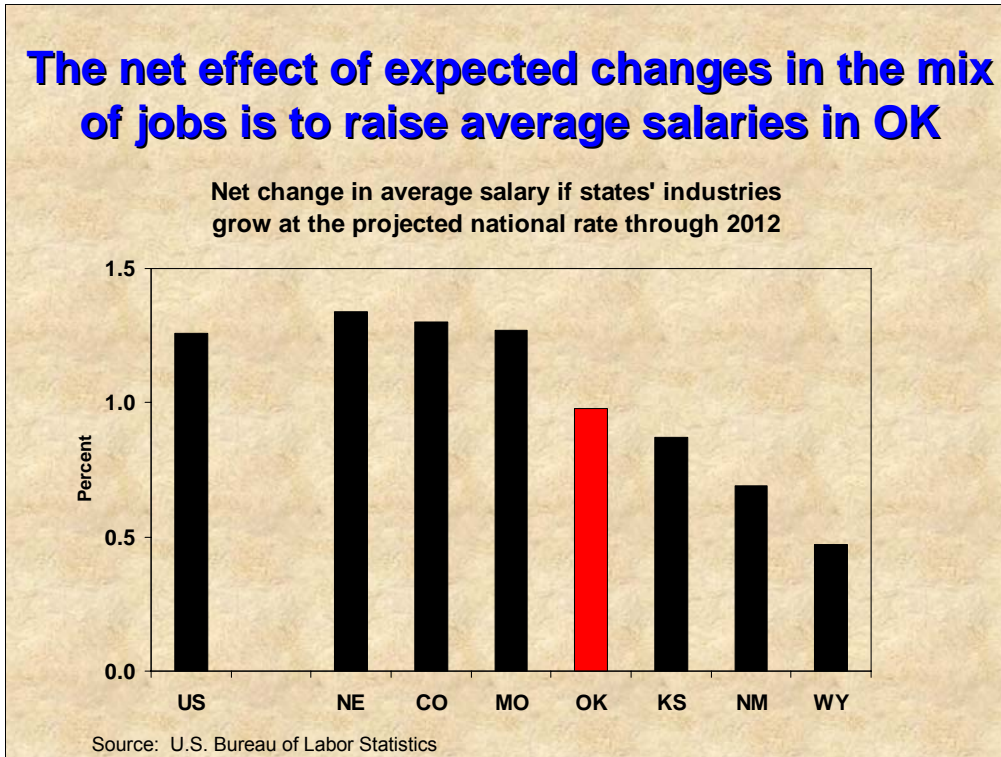
----You can see the **#1** negative contributor to Oklahoma's projection is agriculture, an industry which of course has a relatively large presence in Oklahoma but is expected to shed jobs in the years ahead.

----The **#2** negative contributor is oil and gas extraction, which is also of course highly concentrated in Oklahoma and which, as of early 2004 when the projections were made, was expected to shed jobs rapidly in coming years. Now, obviously some things have changed for this sector since early 2004, and again we'll get to that in a minute.

----The **#3** negative contributor is computer systems design. In this case, the industry is expected to grow rapidly, but Oklahoma has a very small concentration. Thus the industry provides a negative drag on the state's projection.

---The biggest **positive** contributor to Oklahoma's projection is employment services, which includes temp and permanent job placement services. Oklahoma has a high concentration in this industry, and it is expected to grow rapidly.





----The map and table on the previous two slides showed information about the expected **quantity** of future job growth in Oklahoma.

----Also of importance, of course, is the **quality** of future jobs in Oklahoma---specifically, will they be high-paying or low-paying?

----One way to determine this is to look at what would happen to the average salary in Oklahoma if its industries grew at exactly the national rate and if changes in occupations within industries occurred at exactly the national rate through 2012.

----This method does not take into account effects of inflation, productivity, and availability of workers—all of which are important, of course—but it does tell us, overall, whether currently high-paying jobs are expected to grow faster than currently low-paying jobs.

----The **chart** shows the expected net change in average salary for the U.S., Oklahoma, and the six other states in the Tenth Federal Reserve District due to changes in the industrial and occupational structure. You can see that the net effect is to raise Oklahoma's average salary by about 1 percent by 2012, meaning higher-paying jobs should grow faster than lower-paying jobs on average. This puts Oklahoma slightly below the nation but right in the middle of states in the Tenth District.



### **III. How Good Have the Projections Been So Far, and What Has Changed?**

----So as of early 2004, the outlook for Oklahoma jobs and incomes over the next 5-10 years was somewhat worse than the nation's, based on its industrial structure.

----However, we've now had about a year and a half to see how good the projections have been. In addition, we've had a year and a half for unexpected events to occur

----So I'd like to now look briefly at how good the projections have been for industries important to Oklahoma and at how much unexpected events have changed the 5- to 10-year outlook for the state.

## While most projections have been close, there have been some notable exceptions

<u>Industry</u>	<u>Projected Growth thru 2012</u>	<u>Actual growth 2004-05</u>	<u>Difference</u>
Software publishers	5.3%	3.4%	-1.9%
Management consulting services	4.5%	3.6%	-0.9%
Computer systems design	4.4%	3.9%	-0.5%
Employment services*	4.4%	7.3%	2.9%
Ambulatory health care services*	3.9%	3.7%	-0.2%
<b>Oil and gas extraction*</b>	<b>-3.2%</b>	<b>1.6%</b>	<b>4.8%</b>
<b>Natural gas distribution*</b>	<b>-2.5%</b>	<b>3.5%</b>	<b>6.0%</b>
Agricultural products*	-0.3%	0.4%	0.7%
<b>Support activities for mining*</b>	<b>0.3%</b>	<b>11.4%</b>	<b>11.1%</b>
Federal general government*	0.4%	-0.1%	-0.5%

\* Industries that are highly concentrated in Oklahoma

Source: U.S. Bureau of Labor Statistics

----Overall, the projections so far have been pretty good. In the table here I've shown 5 industries expected to grow rapidly, at the top, and 5 industries expected to decline or grow slowly, at the bottom. All of these industries are ones that play an important role in Oklahoma's job projection, either on the positive or negative side.

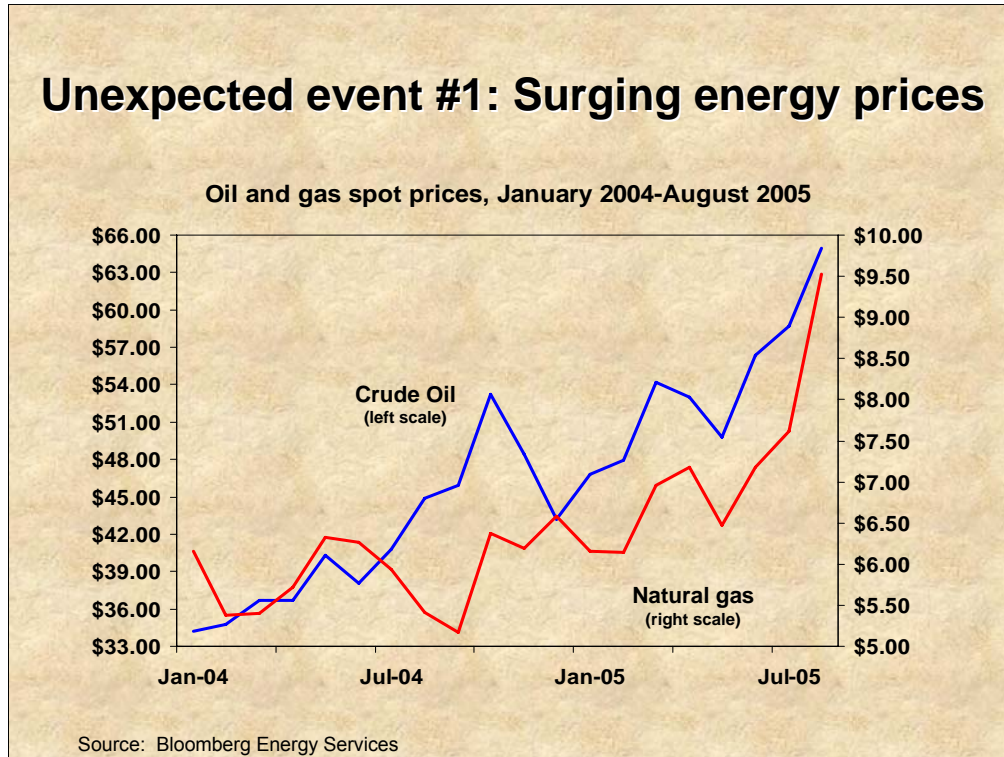
----The first column of numbers shows how fast U.S. employment in these industries was projected to grow through 2012 at an annual rate. The next column shows how fast employment actually grew in 2004 and 2005, and then the last column shows the difference between the two growth rates.

----From this last column, you can see that 5 industries shown here have been within 1 percent of their projection. 2 others, software and employment services, have been off by a couple of percent, but are still growing in the same direction as predicted, and are growing strongly.

----On the other hand, the projections for the other three industries, shown here in blue---oil and gas extraction, natural gas distribution, and support activities for mining---have, not surprisingly, been way off, with each of these industries growing much faster than expected.

----This turnaround in the oil and gas sector leads into the next thing I'd like to present---how much recent unexpected events have changed the intermediate-term outlook for Oklahoma relative to other states.

## Unexpected event #1: Surging energy prices



----The first unexpected event I'd like to look at is, indeed, surging oil and gas prices.

----When the projections were made in early 2004, the economists at the Bureau of Labor Statistics were assuming the price of oil would average about \$25-30 per barrel throughout the projection period, which was largely consistent with futures prices at the time.

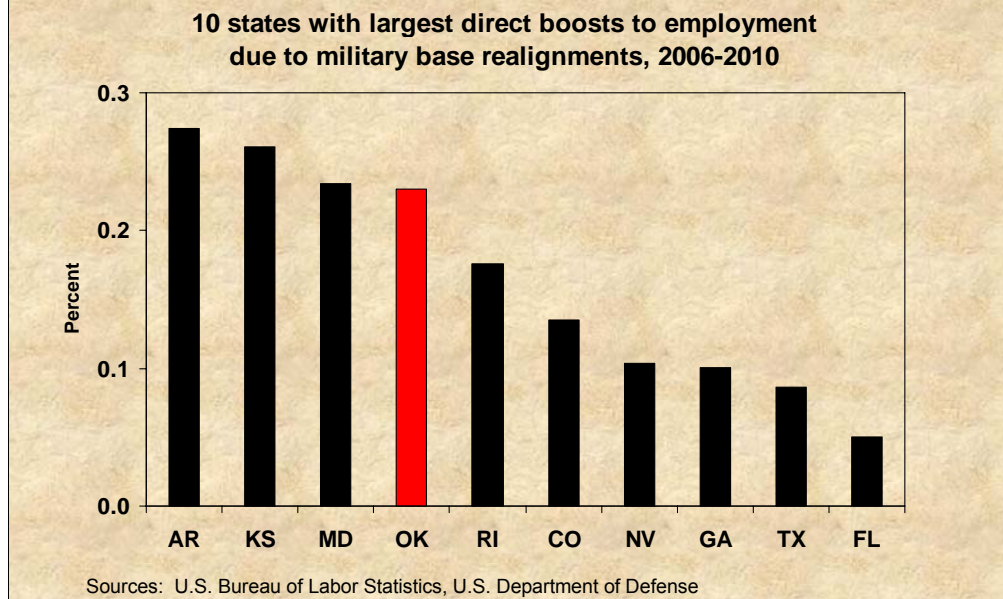
----The chart here shows that, in January 2004, the price of oil---shown by the blue line---was \$34, not much different from the long-term expectations. The price of natural gas at that time was about \$5. Ah, the good old days...

----Since then, of course, the price of both oil and gas has doubled, due in no small part to strong demand for energy in developing countries such as China. Plus, futures prices, including long futures prices, have remained quite high, suggesting to many energy analysts that the energy boom this time could be more sustained than in the past.

----Of course, given its still-high concentration in oil and gas, Oklahoma would stand to benefit, at least relative to other states, from a sustained energy boom.



## Unexpected event #2: Military realignments



---Unexpected event #2 is the military base realignments announced earlier this year, which were just approved by the President a couple of weeks ago. The realignments will occur between 2006 and 2010---right in the middle of the projection period we've been analyzing.

---The chart here shows the direct percentage impact on total employment in the 10 states gaining the most from the realignments. I should note these impacts account only for Department of Defense personnel and don't take into account the boost to other local businesses that will certainly occur, so these are definitely lower-bound estimates.

---You can see that Oklahoma was the 4<sup>th</sup>-biggest winner in the realignments, only slightly behind Arkansas, Kansas, and Maryland. As many of you probably know, most of the boost in Oklahoma will occur in Lawton, where Fort Sill is gaining thousands of DoD personnel. Still, the direct boost to total Oklahoma employment by 2010 will be nearly a quarter of a percent, and again this doesn't account for spillover growth to other industries.



## How much have unexpected events changed the 5- to 10-year outlook for Oklahoma?

<u>Assumptions about job growth</u>	<u>OK's projected job growth rank</u>
<b>As BLS projected in early 2004</b>	<b>37<sup>th</sup></b>
<b>After military base realignments</b>	<b>28<sup>th</sup></b>
<b>Combined w/ flat oil/gas employment</b>	<b>26<sup>th</sup></b>
<b>Combined w/ moderate oil/gas job growth</b>	<b>23<sup>rd</sup></b>
<b>Combined w/ rapid oil/gas job growth</b>	<b>20<sup>th</sup></b>

---So just how much have these 2 large unexpected events changed the 5- to 10-year outlook for Oklahoma relative to other states? The starting point for this would be the original projections that were finalized in early 2004, when Oklahoma ranked 37<sup>th</sup> among states.

---To this, the easiest thing to add would be the military realignments. Unlike other types of projections, these are more or less sure things now and thus can just be added or subtracted to states' projections. Doing this boosts Oklahoma's projected job growth rank quite a bit, to 28<sup>th</sup>.

---From here we add in the oil and gas effects. Obviously, the size of these effects are not as certain. And the size has probably become even more uncertain recently due to the hurricanes.

---So what I've done here is provide three estimates to give a range of possibilities for how Oklahoma's outlook could change due to the recent surge in energy prices. First, if oil and gas employment were to remain flat over the projection period—which would be a considerable improvement from the original projections—this would raise Oklahoma's projected job growth rate to 26<sup>th</sup>. Also shown are two other estimates, one for moderate and one for rapid oil and gas job growth. Rapid here assumes that employment in the sector continues to grow at the same strong rate as in 2004-2005, which seems to me like probably an upper bound, given how fast growth has been. The moderate estimate here is simply the midpoint between the two other estimates. Using either of these latter two estimates pushes Oklahoma into the top half of states for projected job growth based on industrial structure alone—quite a jump from its original ranking—indeed, probably as big a jump as any state.

---Before moving on, what about the hurricanes? I haven't included them here as separate "unexpected events" for several reasons. First, they just happened, and thus it is too soon to know how much, if any, long-term impact they will have. Second, it is even more uncertain how any impact would be distributed among states. That said, any longer-term impacts that might affect Oklahoma in different ways than other states are likely to come largely via the energy sector, for which we already have a range of estimates. Now, of course, Oklahoma may stand to benefit in some other ways from the hurricanes. For example, Oklahoma will have an NBA basketball team this year, and perhaps in future years, due to the displacement of the New Orleans Hornets. And some Gulf evacuees may decide they're tired of hurricanes and decide to move to Oklahoma. But again, it's just too early to know what, if any, lasting impacts there will be from the hurricanes.

## **IV. Meeting Oklahoma's Future Workforce Needs**

----So the answer to the question posed in the previous section----How much have unexpected recent events changed the outlook for Oklahoma?----would have to be “quite a bit.”

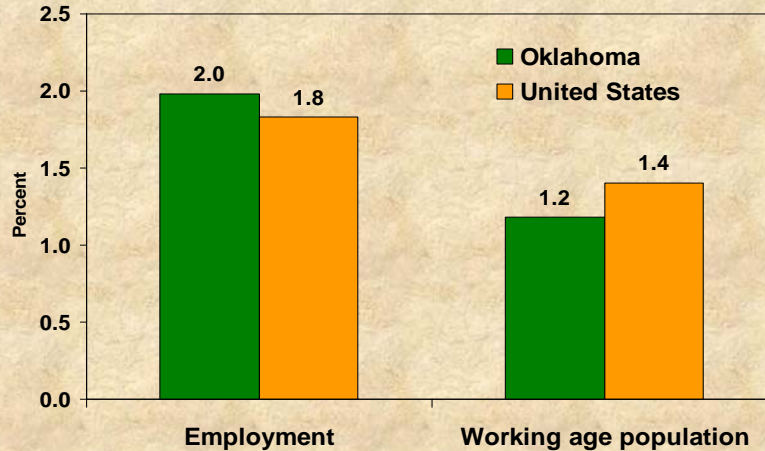
----At this time a year ago, Oklahoma's intermediate-term outlook was not that great relative to other states. Despite diversifying its economy considerably in recent decades, the state was still concentrated in a number of industries projected to decline and was NOT highly concentrated in many industries expected to grow rapidly.

----Now, however, with virtually certain boosts on the way from energy and the military, Oklahoma seems positioned to have at least as strong of job growth as the nation in the years ahead.

----But this brings us to another question---will Oklahoma be able to attract and retain the workers necessary to grow as its industrial structure suggests it could?

## How did Oklahoma meet its projected job growth in the 1992-2002 period?

Average annual growth in employment and working age population, 1992-2002



Source: U.S. Bureau of Labor Statistics, U.S. Census Bureau

----A starting point for this analysis would be to look at how Oklahoma met its employment needs during the 1990s. The chart here shows actual employment and working-age population growth for the US and Oklahoma from 1992-2002.

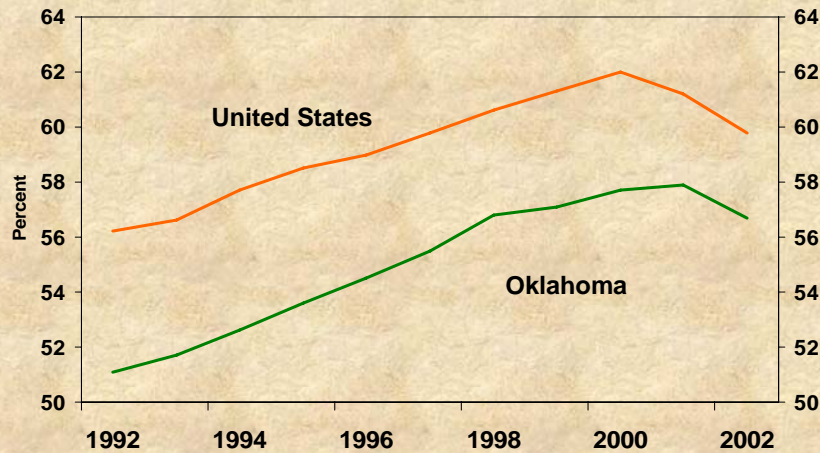
----You can see from the **bars at the left** that Oklahoma employment grew at a 2 percent annual rate in the 1990s, slightly faster than in the nation as a whole.

----In the **bars at the right**, however, you can see that Oklahoma's working age population grew slightly slower than the nation.

----How can this be? In other words, how can Oklahoma's employment have grown faster than the nation while its working age population grew slower?

## It attracted a larger share of its current population into the workforce

Employment-to-population ratio,  
1992-2002



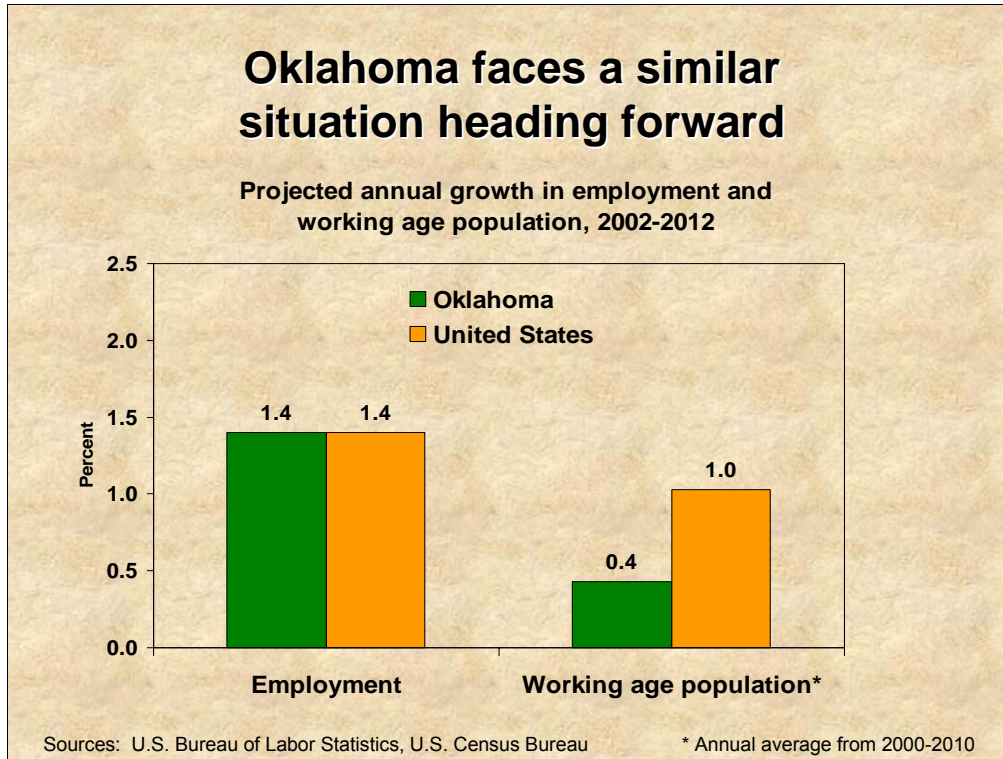
Source: U.S. Bureau of Labor Statistics

----Well, perhaps obviously, it is because Oklahoma saw a bigger increase in the share of its population that was working in the 1990s.

----This **chart** shows the employment to population ratio in Oklahoma and the U.S. from 1992-2002.

----You can see that the gap between the two lines in 1992 was more than 5 percent. By 2002, however, the gap had narrowed considerably, to about 3 percent, meaning a larger share of Oklahoma's previously non-working population moved into the workforce than was the case in the nation.





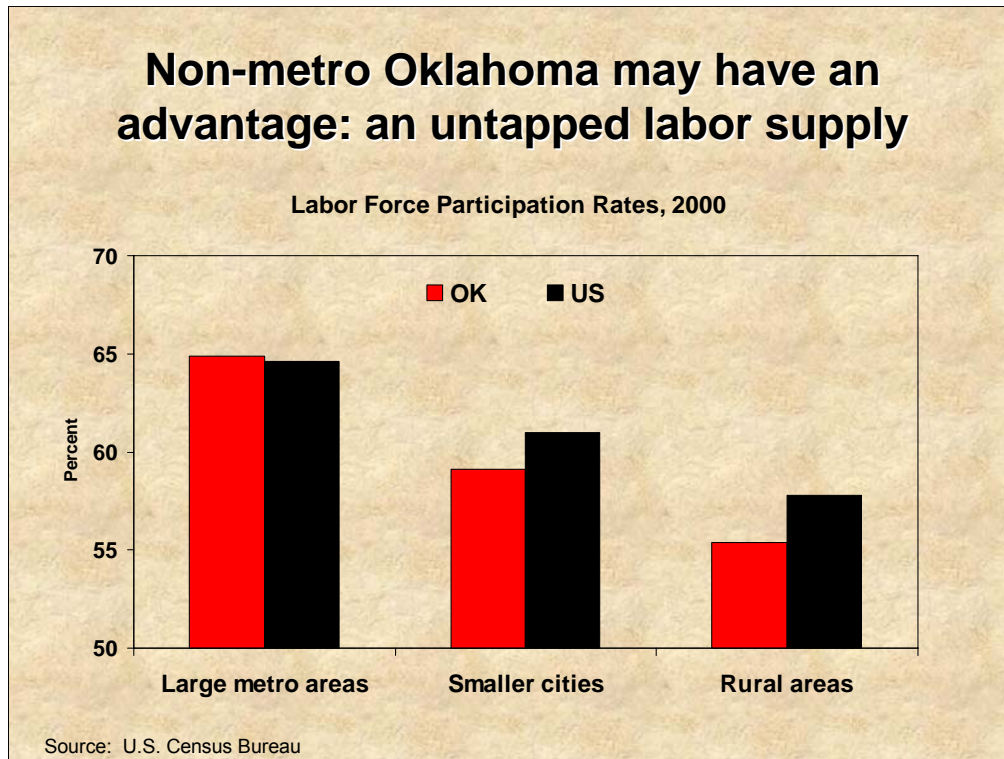
----So the question now becomes—can Oklahoma do it again?

----The chart here is constructed in the same way as the earlier one, only this time the bars show projected employment and population growth. Oklahoma’s projected job growth rate here has been adjusted for the energy and military boosts, and this roughly puts the state’s projected rate the same as the nation’s.

----The bars on the right show the latest Census population projections, made just a few months ago. Here you can see the projections for Oklahoma are much lower than for the nation. While the Census Bureau does not separate out sources of projected population growth, almost certainly a big part of the reason they expect slower population growth in Oklahoma is because they expect net out-migration to other states.

----I emphasize that this is only what the Census Bureau expects. It doesn’t necessarily have to come true. Oklahoma could increase its population more quickly if it is able to retain and attract more workers than expected. And I think this is possible given several key advantages Oklahoma has that it could emphasize. Most importantly, its low cost of living and doing business should make it relatively more attractive to both firms and workers than many states. In addition, the virtually certain boosts to the energy and military sectors should make the state relatively more attractive.

## Non-metro Oklahoma may have an advantage: an untapped labor supply



----In addition to working to retain and attract residents, Oklahoma—and especially non-metro Oklahoma—could also continue to do what it did in the 1990s—that is, draw more of its current population into the workforce.

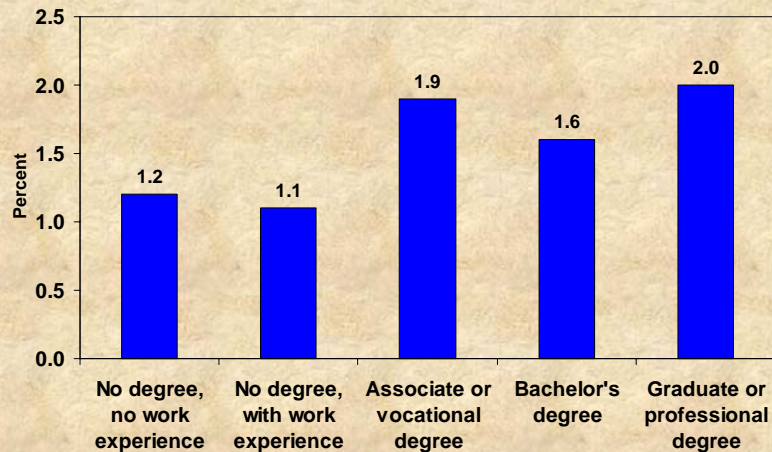
----We saw earlier that while Oklahoma’s employment-to-population ratio grew faster than the nation’s during the 1990s, it still remains lower than the nation.

----Here we see that Oklahoma labor force participation—which is largely the same thing as employment to population ratio—remains lower because participation is lower than the nation in the state’s smaller cities and rural areas. In Tulsa and Oklahoma City, participation is actually slightly higher than the average across all U.S. metro areas.

----So a potentially untapped labor supply exists in Oklahoma’s smaller cities and rural areas that does not exist in similar places around the country, and this could help the state in meeting its employment needs in the years ahead.

## But it must ensure potential workers obtain the training necessary to succeed

Projected annual employment growth through 2012,  
by training needed by workers to become fully qualified



Source: U.S. Bureau of Labor Statistics

----Of course, just increasing the number of workers isn't enough. Potential workers, as well as current workers, must also have the skills and training necessary to perform the tasks that will be required by employers.

----The **chart** here shows expected job growth in Oklahoma through 2012 by level of education and training required for jobs. You can see that the fastest job growth is projected for people with graduate or professional degrees, though this is a very small share of the workforce.

----The group with the second-fastest expected job growth, interestingly enough, is those with associate or vocational degrees. You can see that bachelor degree jobs are also expected to grow solidly, while growth in jobs requiring no degree is expected to be somewhat sluggish.

----The fact that many jobs in coming years will require associate or vocational degrees is likely good news for non-metro Oklahoma and suggests that local areas would be well-served to continue to focus on improving community college and vocational programs—especially those that specifically match training with the needs of employers.

## Conclusions

- **As of early 2004, Oklahoma's intermediate-term outlook for jobs and incomes was less favorable than the nation's**
- **But a turnaround in oil and gas, combined with military realignments, has boosted the state's outlook**
- **The challenge will be finding and training the workers to fill the jobs of the future**

----To conclude tonight, much of my presentation has focused on how well-positioned Oklahoma is for future economic growth based on its industrial structure.

----We've seen that, as of early 2004, Oklahoma's intermediate-term outlook was somewhat less favorable than the nation's.

----However, a turnaround in oil and gas prices, combined with military realignments, has boosted Oklahoma's outlook into the top half of states.

----Finally, we looked at how well-positioned Oklahoma is for filling the jobs of the future and found that, although population growth in Oklahoma is expected to lag the nation in the years ahead, this doesn't necessarily have to happen. Plus, we saw that a fairly sizable pool of potential workers exist within Oklahoma's smaller cities and rural areas, which could be an asset heading forward, so long as these and other potential workers receive the training and education necessary to meet the demands of the jobs of the future.

----Thank you, that's all I have tonight, and I'd be willing to answer any questions you might have at this time.