Impacts of Rising Energy Prices on the San Joaquin Valley

March 31, 2015

California Lutheran University
CENTER FOR ECONOMIC RESEARCH & FORECASTING

Executive Summary

Purpose

The Center for Economic Research and Forecasting, at California Lutheran University, was asked to perform research and prepare a report on the impacts of rising energy costs on the San Joaquin Valley's economy and on San Joaquin Valley industries. For purposes of this report, the San Joaquin Valley included all of the following seven counties: Kings County, Fresno County, Kern County, Merced County, Stanislaus County, and Madera County.

The work was performed by economists Matthew Fienup, Dan Hamilton, and Bill Watkins.

Methods

We used data from local, state, national, academic, and industry sources. In the event of a contradiction between sources, we always defaulted to the highest source, that is government over industry and higher-level governments over lower-level governments.

Those data were used to analyze the probable impacts of high energy costs on the San Joaquin Valley's economy, on the Valley's businesses, and on Valley consumers. When necessary, we made conservative assumptions, those that minimized the economic impacts of high energy costs. In every case, our assumptions are clearly stated.

Results

We find that the San Joaquin Valley differs demographically from most of the rest of California. It is significantly younger, more Hispanic, and poorer. This means that any economic costs of energy regulations have a relatively larger impact on the Valley. That is, the costs of energy regulation work exactly like a regressive tax.

The San Joaquin Valley also differs economically from most of the rest of California. About 15 percent of California jobs are associated with tradable goods sectors, while about 25 percent of San Joaquin Valley jobs are associated with tradable goods sectors. This means that the San Joaquin Valley, with 6.2 percent of California jobs has 11.5 percent of the state's tradable-sector jobs. Since increasing energy costs impact tradable producers more than non-tradable producers, the San Joaquin Valley's economy, and workers, will suffer disproportionately.

Using a naive assumption of proportional costs and Chang & Company's result of total California jobs lost because of California energy-related regulation (262,000), we calculate a minimum impact of 16,244 lost San Joaquin Valley jobs. If we use the aggressive assumption that all job losses resulting from energy regulation will be in tradable-goods sectors, we calculate a maximum Valley job loss of 30,130. Using a reasonable assumption that 80 percent of job losses will be in the tradable-goods sectors, we come up with a central estimate of 27,257 lost Valley jobs, or 2.7 percent of Valley jobs. This implies that the Valley will endure an impact about 1.7 times greater than the state.

Lastly, the San Joaquin Valley differs geographically fro the rest of California. In particular, the Valley's weather is different than that of coastal areas where most California residents live. It's hotter in the summer. It's colder in the winter. Consequently, per-capita residential energy consumption is significantly higher in the Valley than in Los Angeles County. Thus, Chang & Company's estimate of $2,500 per-California-household additional cost resulting from energy-related regulation is not shared equally by California residents. Valley residents will pay far more than their share. With a Valley minimum income $16,000 below California's, this is an oppressive burden.

The San Joaquin Valley

Geography

The San Joaquin Valley is the southern half of California's Great Central Valley. It is a huge valley, over 200 miles long, generally on a north-south axis, and 50 to 60 miles wide across most of its length. The Valley is bounded on the south by the Tehachapi Mountains, on the east by the Sierra Nevada, and on the west by the coastal ranges. In the north, it merges with the Sacramento Valley in California's Delta Area. It comprises the majority of Fresno, Kern, Kings, Madera, Merced, Stanislaus, and Tulare counties.

The Valley is an agricultural powerhouse, with rich soils, cool winters, and hot sunny summers. It's watered by a vast river system that drains the western portion of the Southern Sierra Nevada. In normal or wet years, these rivers supply plenty of water. Drought, though, is common in California. Consequently, the San Joaquin Valley's natural water supply has been augmented with a massive system of dams, canals and wells. During extended droughts, even this system is overwhelmed, resulting in persistent overdrafts of the Valley's underlying aquifers. An archaic system of water rights makes the overdrafts even more persistent.

The Valley is served by two major north-south highways. Interstate 5 is located in the relatively unpopulated western portion of the Valley, while the older State Highway 99 connects the cities of the more populous eastern portion of the Valley.

The San Joaquin Valley is well served by rail, with major north-to-south routes and connections to the outside. These include connections to the Bay area. Southern California markets and ports are accessed through Mojave. Wider United States markets are reached through Mojave, direct routes north, and connections to northern routes across the Sierra. In addition, the Valley is slated to house the initial portions of the controversial California High-Speed Rail Project.

With a 2013 population of 509,924, Fresno is the Valley's largest City. Bakersfield, the San Joaquin Valley's second largest city had a 2013 population of 363,630. Other cities with populations over 100,000 are Modesto (2013 population 204,933), Visalia (2013 population 127,763), and Clovis (2013 population 101,314).

Demographics

The San Joaquin Valley has a population of about 3.4 million people. It also has a relatively robust population growth rate. At 0.84 percent, the Valley's 2014 population growth rate exceeded that of the United States (0.74 percent in 2014), and it only slightly lagged California's 0.88 percent 2014 growth rate.

Fresno County, with a population of almost 1 million, is the Valley's largest County. It also has the Valley's most rapid population growth rate. Kings County is the Valley's smallest county, with a population of only 149,788. King's County has been experiencing fairly significant population declines. This is consistent with a general trend of migration from rural portions of the Valley to more urban communities.

Selected San Joaquin Counties, California, and U.S. - 2014

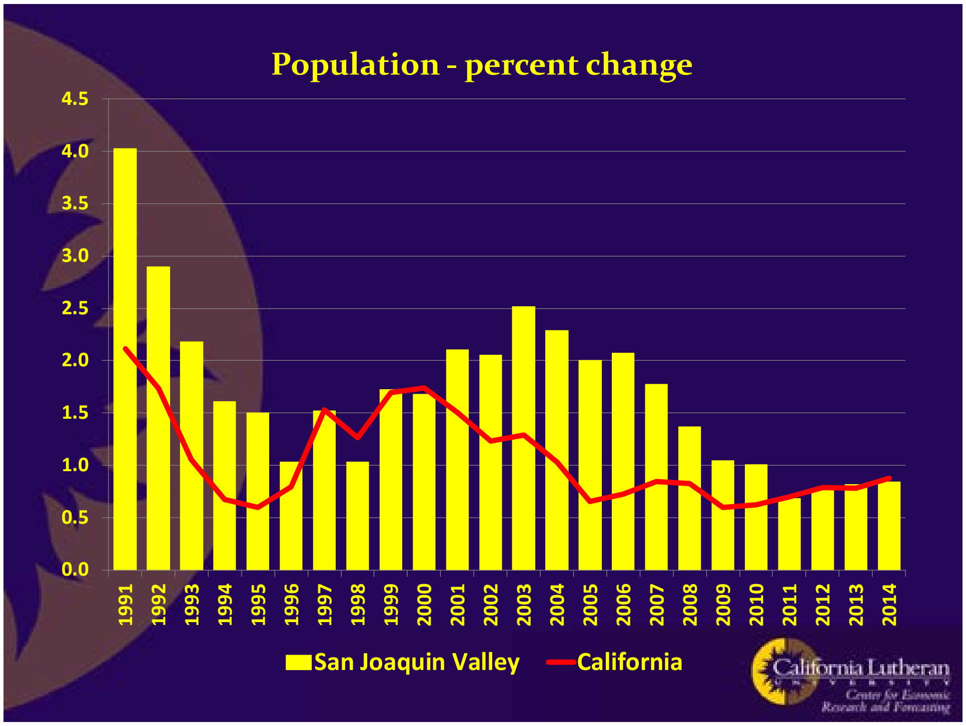
	U.S.	California	Region ǂ	Fresno	Kern	Kings	Madera	Merced	Stanislaus	Tulare
	levels in 000s	*levels in 000s*								
Population (July 1)	318,857	38,499	3,398,451	967,491	872,322	149,788	154,278	265,069	530,327	459,176
(percent change)	0.75	0.88	0.84	1.10	0.79	-0.48	0.93	1.04	0.72	0.83
Civilian Labor Force	155,899	18,811	1,510,200	440,600	394,400	57,300	63,100	115,200	241,200	198,400
Labor Force Participation*	48.9	48.9	44.4	45.5	45.2	38.3	40.9	43.5	45.5	43.2
All Industries Jobs	139,023	16,062	1,174,500	362,400	317,500	44,100	49,200	76,300	175,700	149,300
(percent change)	1.9	3.0	2.4	2.9	2.4	1.1	3.4	3.1	2.7	0.7
Agriculture Jobs	-	417	191,200	49,100	60,700	6,600	12,300	13,800	14,000	34,700
Manfucturing Jobs	12,188	1,270	90,100	23,400	14,800	4,600	4,500	10,000	20,800	12,000
Agriculture Jobs Share	-	2.6	16.3	13.5	19.1	15.0	25.0	18.1	8.0	23.2
Manfucturing Jobs Share	8.8	7.9	7.7	6.5	4.7	10.4	9.1	13.1	11.8	8.0

Sources: CA Department of Finance and CA Employment Development Department
*All items average for entire year or mid-year. * Crude labor force participation rate. ǂ Comprising the 7 San Joaquin counties in this table.*

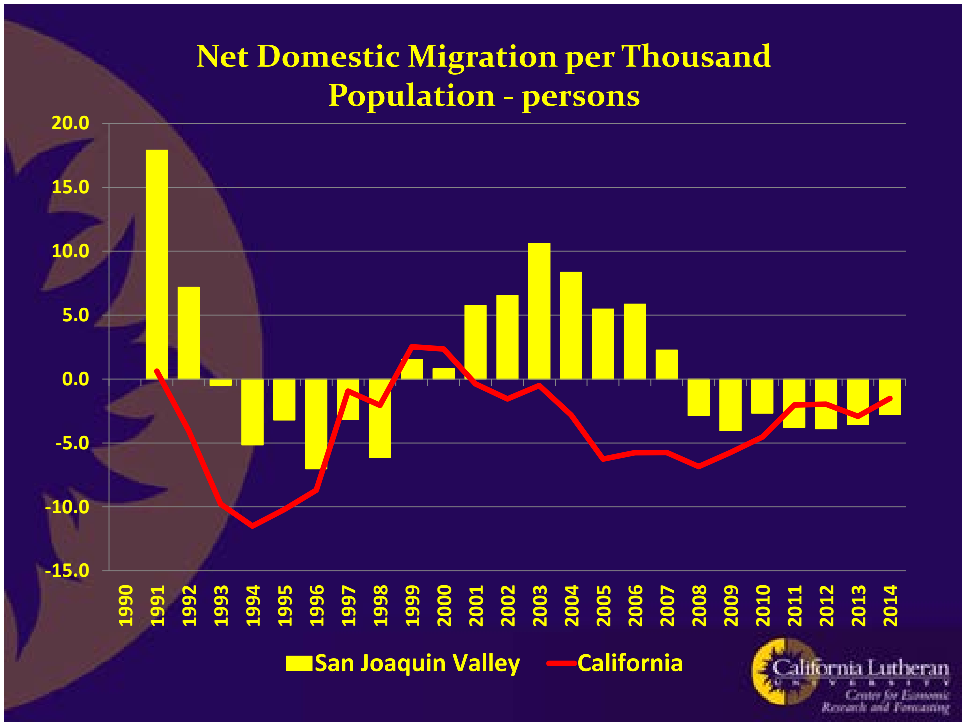
The San Joaquin Valley has seen declining population growth rates, a common trend in California. However, as the following chart shows, the Valley's population growth has usually exceeded that of California.

Part of the reason for the Valley's relatively strong population growth is a result of attitudes and policy. The San Joaquin Valley is supportive of population growth, and local policies reflect that attitude. By contrast, many coastal communities are hostile toward economic or population growth, and their policies very effectively support that hostility.

The composition of the San Joaquin Valley's population contributes to its robust population growth. The San Joaquin Valley's population is both younger and more Hispanic than other California regions.



Changing migration patterns are big part of the decline in San Joaquin Valley population growth rates. International migration to California has declined. In recent years, it has even turned negative for many California regions. Changes in domestic migration patterns have been even more pronounced, with most California counties seeing negative domestic migration (more people leaving than coming) over the past several years. As the chart below shows, the San Joaquin Valley has seen negative domestic migration for each of the past seven years and in 13 of the past 22 years. However, it should be noted that the Valley's domestic migration record is far better than that of the entire state:



Negative domestic migration is a problem. Changes in migration patterns are a reflection of relative opportunities available to workers in different regions. California once led the world in opportunity, and was thus a major destination for migrants from across America and the world. Since then, policies, some of which are addressed in this report, have reduced opportunity in California for most workers. Consequently, we've witnessed a remarkable turnaround in migration patterns. California, which once led the country in attracting migrants is now a leader in providing migrants to other U.S. regions.

The San Joaquin Valley population is vastly different than the populations of the United States and California. Almost uniquely for America, the San Joaquin Valley is an Hispanic-majority region, in a nation with only a 17 percent Hispanic population and a state with a 38 percent Hispanic population.

The Valley's population is younger than California's and the United States' by every measure: The Valley's median age is about 12 percent below California's and 16 percent below the United States'. It has about a third more children under five. It has about 13 percent fewer people over 65 than does California and 22 percent fewer than the United States.

The people of the San Joaquin Valley are poorer than most Californians and most Americans, again by every measure: Per-capita income for San Joaquin Valley residents is about 30 percent below that of the average Californian and almost 30 percent below the average American. About a quarter of San Joaquin Valley residents live in poverty, compared to about 15 percent for California and the United States. The Valley's median household income is $45,000 compared the California's $61,000 and the U.S. median of $53,000.

With education levels far below those of the United States and California, San Joaquin Valley residents have fewer opportunities for upward mobility. Indeed, they face serious challenges maintaining their socio-economic position. As we will see in the following section, Valley residents suffer about 50 percent higher unemployment than Californians overall.

Selected San Joaquin Counties, California, and U.S.

	U.S.	California	Fresno	Kern	Kings	Madera	Merced	Stanislaus	Tulare
2013 data									
Median Age	37.5	35.7	31.4	31.0	31.6	33.5	30.4	33.6	30.2
Persons under 5 years	6.3	6.5	8.4	8.4	8.2	7.8	8.2	7.4	9.0
Persons 65 years and over	14.1	12.5	10.9	9.6	8.8	12.5	10.2	11.7	10.1
Hispanic or Latino	17.1	38.4	51.6	50.9	52.7	55.7	56.8	43.5	62.3
2009 to 2013 data									
Bachelor's degree or higher	28.8	30.7	19.6	15.0	12.9	13.6	12.6	16.4	13.3
Home ownership rate	64.9	55.3	53.8	58.0	51.8	60.8	53.6	58.1	57.5
Per capita money income	28,155	29,527	20,208	20,295	18,429	17,847	18,177	21,663	17,894
Median household income	53,046	61,094	45,563	48,552	48,133	45,625	42,591	49,297	42,708
Persons below poverty level	15.4	15.9	26.0	22.9	21.0	22.8	25.4	20.3	26.2

Sources: US Bureau of Census

All these data paint a picture of a population under stress—a population suffering persistent poverty, underemployment, and unemployment, a population burdened with insufficient education to take full advantage of today's economy, a population with few opportunities. If this is a population that maintains hope, something that we can't measure, it's a reflection of human optimism and not a reflection of the population’s circumstances.

This population, most of it, suffers a standard of living and quality of life far below that of the coastal elite who dominate California policy and politics. California is run by and for an elite who don't understand, or don't care, that a job and opportunity for upward mobility are more basic to quality of life than, say, a pristine viewshed. For the Valley's population, policy should be optimized to provide economic growth and upward mobility. Unfortunately, California has optimized policy to restrain economic growth and the upward mobility that comes with economic growth.

Economy

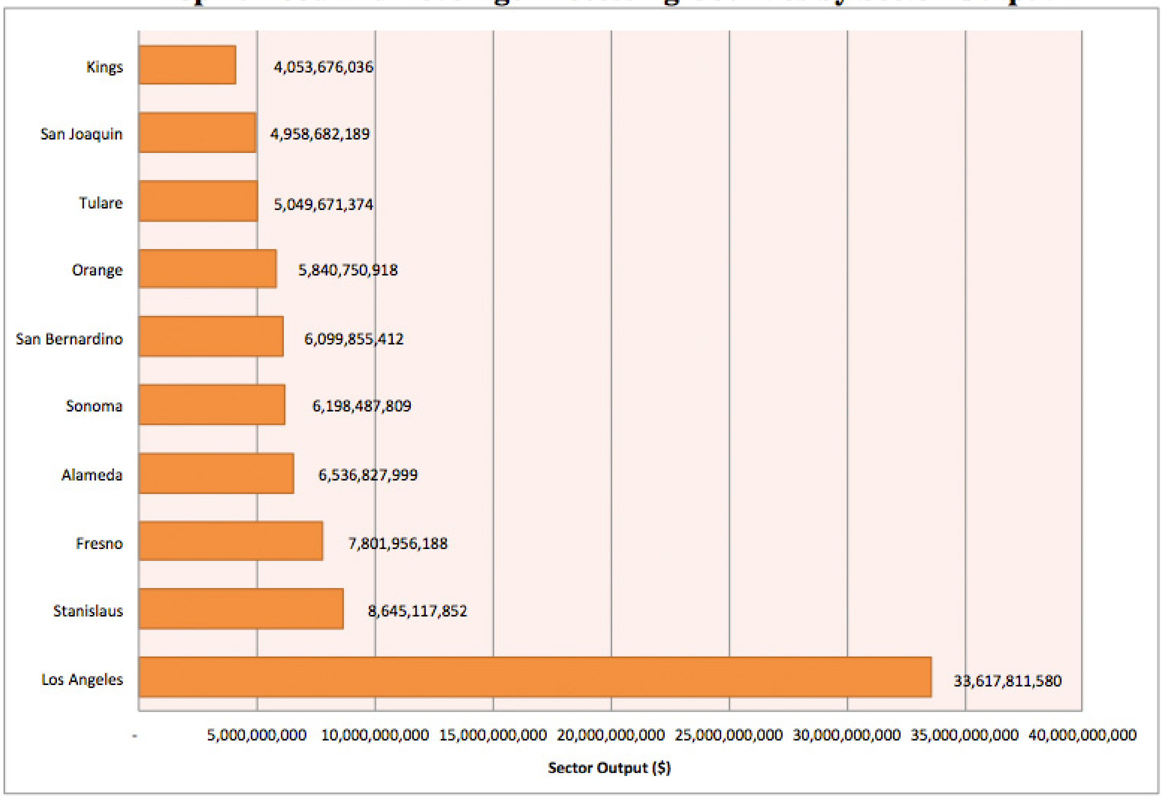
Four major sectors combine to generate over 50 percent of San Joaquin Valley jobs. Government, with over 19 percent of Valley jobs, is the Valley's dominant employer. It employs almost 60,000 more workers than does Agriculture, the Valley's second largest employer.

Agriculture, with 166,000 jobs, and the Education and Health Services sector, with 158,600 jobs, combine to be the source of about 28 percent of the Valley's jobs. Retail Trade, with 124,300 jobs provides almost 11 percent of Valley jobs.

Agriculture's impact is understated by the number of direct jobs. A very large proportion of non-durable manufacturing exists in the Valley only because of agriculture. For example, turning grapes into jelly is non-durable manufacturing, as is turning tomatoes into ketchup.

Largely because of the San Joaquin Valley’s agricultural sector, food and beverage processing is California’s third largest manufacturing industry, directly generating an estimated $25.2 billion in value added and 198,000 jobs statewide.[1] Stanislaus County is second only to Los Angeles County for total output in the food and beverage processing industry. Fresno County is third. Tulare, San Joaquin and Kings Counties are all in the top 10.

Top 10 Food and Beverage Processing Counties by Sector Output



Source: *The Economic Impact of Food and Beverage Processing in California and Its Cities and Counties,* by Sexton et al. (2015), prepared for the California League of Food Processors.

Over the past year, every San Joaquin Valley sector has seen job growth, except for agriculture, which saw a small decline. Agriculture's jobs decline is surely due to the drought, but the decline is significantly smaller that the most pessimistic predictions made in recent years. Part of the reason for the small decline last year could be that agricultural employers made significant declines in previous years, as water allocations were changed to reflect changing environmental priorities. This interpretation is supported by the loss of 21,400 agricultural jobs since the recession started in 2007's fourth quarter.

[1] Data from *The Economic Impact of Food and Beverage Processing in California and Its Cities and Counties*, by Richard J. Sexton, Josue Medellin-Azuara and Tina L. Saitone. Prepared for the California League of Food Porcessors. January, 2015.

San Joaquin Valley Job Market †

not seasonally adjusted data	Jan 2015	Changes During the Last Year: Jan 2015 - Jan 2014	Changes During the Last Year: Jan 2015 - Jan 2014	Changes Since the Great Recession: Jan 2015 - Oct 2007	Changes Since the Great Recession: Jan 2015 - Oct 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	166.0	-1.7	-1.0	-21.4	-11.4
Natural Resources, Mining, and Construction	58.8	0.5	0.9	-14.5	-19.8
Manufacturing	87.7	3.3	3.9	-6.2	-6.6
Wholesale Trade	36.6	0.8	2.2	1.3	3.7
Retail Trade	124.3	6.4	5.4	5.8	4.9
Transportation, Warehousing, & Utilities	39.5	1.5	3.9	3.2	8.8
Information & Technology	9.0	0.0	0.0	-2.9	-24.4
Financial Activities	33.9	0.2	0.6	-4.4	-11.5
Professional and Business Services	90.1	4.6	5.4	0.6	0.7
Educational and Health Services	158.6	5.4	3.5	29.6	22.9
Leisure and Hospitality	94.5	5.9	6.7	10.0	11.8
Personal, Repair, & Maintenance Services	30.8	0.9	3.0	0.7	2.3
Government	224.1	5.0	2.3	-7.2	-3.1
Federal Government	22.9	0.0	0.0	0.3	1.3
State Government	34.9	1.4	4.2	0.3	0.9
Local Government	166.3	3.6	2.2	-7.8	-4.5
Total All Industries	1,153.9	**32.8**	2.9	**-5.4**	-0.5

Source: CA Employment Development Department

† *Defined by: Fresno, Kern, Kings, Madera, Merced, Stanislaus, and Tulare Counties*

As of January, 2015, the Valley had about 5,400 fewer jobs than it had at its pre-recession high. This shouldn't be taken to mean that the Valley has not recovered from the recession. We're comparing January and October non-seasonally-adjusted data. Given the closeness of the numbers, and the likely direction of seasonal adjustment, the Valley has effectively recovered its lost jobs, though it remains far below trend.

The San Joaquin Valley's economy has changed over the recession and the subsequent recovery. Agriculture, Natural Resources, Mining, and Construction are down about 36,000 jobs from their pre-recession highs. These jobs are in energy-intensive industries, the exact industries which are directly targeted by the California energy policies discussed later in this paper.

These job losses have been more than offset by gains in Leisure, Hospitality, Education and Health Services. These changes probably represent a permanent change in the composition of the Valley's jobs, and those changes have socio-economic impacts.

The jobs that have been lost require very different skill sets than the jobs that have replaced them. For example, it is difficult, time consuming, and expensive to turn a farm worker (the sector with the largest job losses) into a healthcare worker (the sector with the most job gains). This implies persistent unemployment among the sectors losing jobs, while employers in job-gaining sectors, such as healthcare, will find persistent shortages of qualified workers.

The San Joaquin Valley economy is very different than that of the rest of California, and those difference can have profound impacts on socio-economic outcomes. For example, the Valley has a much larger reliance on agriculture than does California, while California has a very large reliance on professional and business services.

One obvious difference between agricultural jobs and professional and business services jobs is that professional and business services jobs pay much more, on average, than agricultural jobs. Also, agricultural jobs are more seasonal than are professional and business services jobs. Agricultural jobs require less education than do professional and business services jobs. There are more important difference, though.

Agriculture produces tradable commodities. These commodities are subject to worldwide competition and world prices. This means that growers have no market power. They must produce at world prices, or their business is unsustainable. If their land, water, or energy costs are higher than those of competing producers, then those costs have to be made up elsewhere, say wages or profits, if they are to remain in business.

In a world where capital is internationally mobile, agricultural producers won't cut profits much. It's too easy to move production to some other country or state. Capital mobility and competitive prices imply that wages cannot increase in response to, say, high housing costs in California. They also imply that agriculture and other tradable commodities producers can not hope to recover the cost of increasing energy prices, wherever California's energy policies raise local energy prices relative to other regions and countries.

California's Job Market

		Changes Since Last Month		Changes During the Last Year		Changes Since Peak Prior to Great Recession	
seasonally adjusted data	Jan 2015	Jan 2015 - Dec 2014	Jan 2015 - Dec 2014	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - Oct 2007	Jan 2015 - Oct 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	410.2	-4.5	-1.1	-5.6	-1.3	23.4	6.0
Natural Resources and Mining	30.7	-0.4	-1.3	-0.3	-1.0	3.5	12.9
Construction	698.2	11.7	1.7	37.8	5.7	-172.1	-19.8
Durable Goods Manufacturing	797.8	-1.5	-0.2	9.4	1.2	-124.6	-13.5
Non-Durable Goods Manufacturing	469.7	-2.7	-0.6	-6.7	-1.4	-63.1	-11.8
Wholesale Trade	725.2	-3.4	-0.5	21.1	3.0	5.9	0.8
Retail Trade	1,656.1	5.1	0.3	39.9	2.5	-29.9	-1.8
Transportation, Warehousing, & Utilities	535.8	1.1	0.2	24.6	4.8	25.6	5.0
Information & Technology	476.0	14.0	3.0	22.7	5.0	8.1	1.7
Financial Activities	797.8	4.8	0.6	17.3	2.2	-81.8	-9.3
Professional and Business Services	2,497.2	3.8	0.2	111.9	4.7	224.8	9.9
Educational and Health Services	2,457.7	13.8	0.6	82.2	3.5	520.2	26.8
Leisure and Hospitality	1,794.7	10.2	0.6	67.9	3.9	224.6	14.3
Personal, Repair, & Maintenance Services	548.2	-0.4	-0.1	19.7	3.7	32.3	6.3
Government	2,442.9	11.2	0.5	50.5	2.1	-57.7	-2.3
Federal Government	**241.6**	**-1.8**	**-0.7**	**-1.5**	**-0.6**	**-4.9**	**-2.0**
State Government	**506.9**	**0.8**	**0.2**	**16.0**	**3.3**	**21.8**	**4.5**
Local Government	**1,694.4**	**12.2**	**0.7**	**36.0**	**2.2**	**-74.6**	**-4.2**
Total All Industries	16,338.2	62.8	0.4	492.4	3.1	539.2	3.4

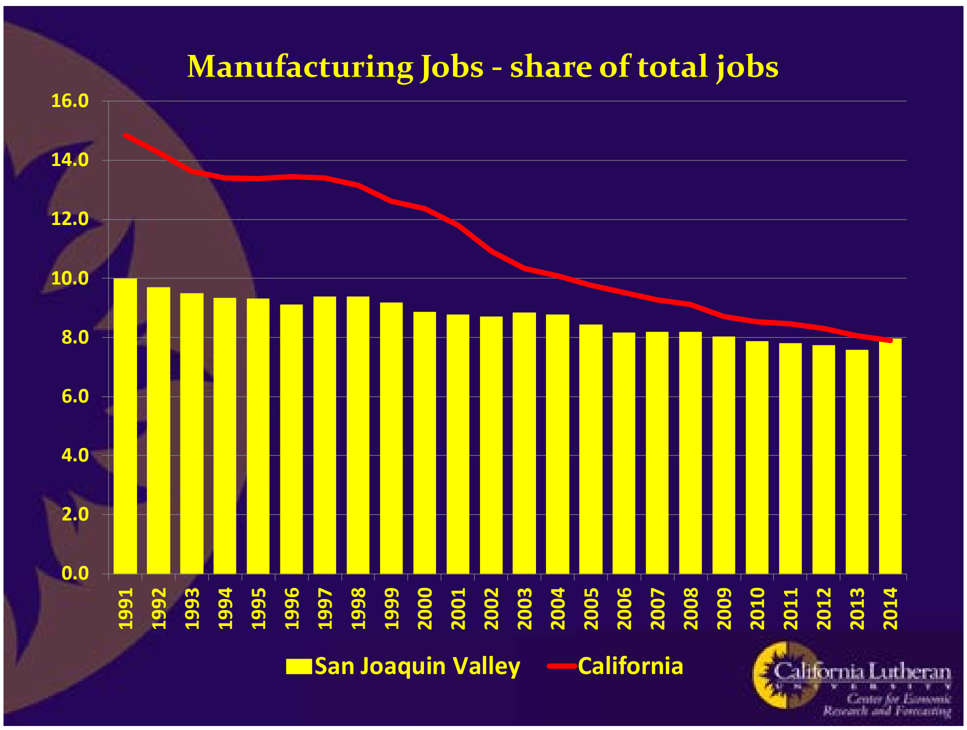
Source: US Bureau of Labor Statistics

Professional and business services are a completely different game. Most are providing non-tradable services. This is profound difference. The business providing professional and business services does not face worldwide competition. The prices of land, labor or energy in Brazil or China, for example, are irrelevant. That means, California's non-tradable businesses can respond to increasing California costs by raising their prices.

Where the grower cannot raise wages in response to higher housing costs, the professional and business services provider can. The grower can't raise almond prices in response to higher energy costs. The professional and business services provider can raise prices in response to higher energy costs.

The same sort of analysis as applied to agriculture applies for most manufacturers. They too tend to produce tradable goods in competitive markets, markets that do not allow much, if any, ability to absorb high local costs. The migration of manufacturing jobs to China provides a vivid example of effects of increased local costs on durable goods producers.

Manufacturing is an increasingly important source of the stark differences between the San Joaquin Valley and California. California continues to see steady losses in manufacturing jobs. This is the continuation of a decade's long trend. The San Joaquin Valley, by contrast, has seen much slower losses of manufacturing jobs. Indeed, the most recent data show a small uptick in Valley manufacturing jobs.



Think of California as two states. One, the San Joaquin Valley produces tradable goods. The other, Everywhere Else, produces non-tradable goods. Consider the impacts of an increase in energy costs on each.

Everywhere Else will see an increase in the costs of goods and services. We would expect to see less consumption of those goods and services. We'd expect to see some job losses and perhaps the failure of some marginal firms. Most of the firms, though, will be able pass the cost increases on to their customers. To them, the impact would be relatively minor.

The San Joaquin Valley would suffer more serious impacts. Its non-tradable producers would face the same pressure as Everywhere Else. So, we'd see some job losses and a few firms closing, but most non-tradable firms would be minimally impacted.

The Valley's tradable goods producers, however, would be more onerously impacted. Since their customers are outside of the area, and prices for producers outside the Valley would not increase, prices for the final goods won't change. Thus, total demand for the goods is not changed. They can expect to see no decline in sales, if they keep their prices the same.

That's the rub. If they increase their prices, they are above market and can't sell anything. Higher prices for inputs and an unchanged price for final goods means that profits must decline. Some producers may not be able to cut profits and stay in business. All of their employees would need to accept a cut in pay or lose their jobs. Some producers will move to another location. All of their employees would need to move to the new location or lose their jobs.

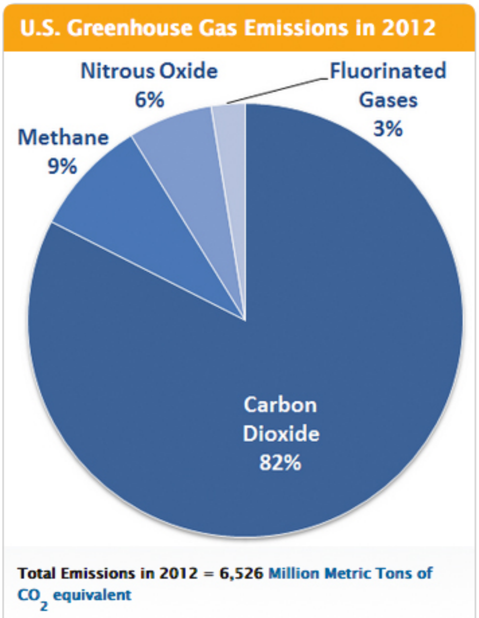
Competitive markets are a boon for consumers, precisely because they impose relentless cost pressures on producers. An economy with a high proportion of its jobs dedicated to the production of tradable goods in competitive markets can price itself out of those markets. There is a reason that no silicon chips are manufactured in the Silicon Valley anymore.

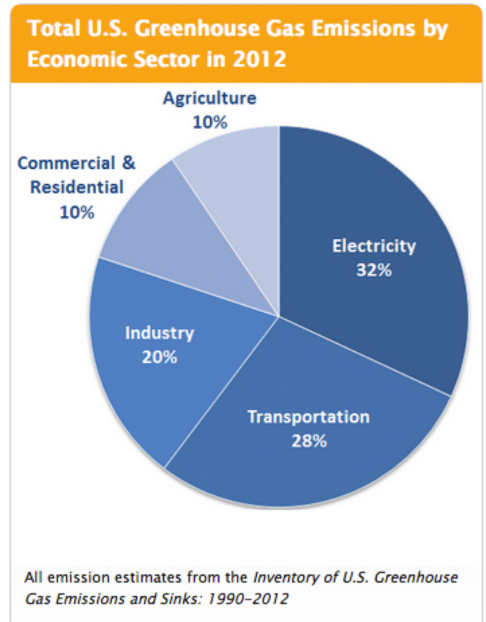
The San Joaquin Valley is subject to serious economic disruption if its costs increase relative to other regions producing, or capable of producing, the same product. It differs from the Silicon Valley in that it is not easy to see what jobs might replace those lost in such a disruption.

The Costs of Energy in California

For decades, California has enacted regulations which significantly increased California citizens' and businesses' energy costs. This pattern culminated in the California Global Warming Solutions Act (AB 32) of 2006. AB 32 represents an unprecedented policy experiment which seeks to reorganize California's energy sector and the broader State economy around specific climate-related goals.

California's most important climate-related goal is achieving significant reduction of the state's emissions of greenhouse gases (GHGs). Greenhouse gases alter the balance between energy entering and leaving our planet and can significantly affect global surface temperatures. Greenhouse gases include Carbon Dioxide, which makes up 82 percent of U.S. GHG emissions, as well as Methane and Nitrous Oxide. Together, these gases represent 97 percent of United States GHG emissions. Electrical production produces the largest share of emissions, representing 32 percent of U.S. GHG emissions in 2012. Currently 70 percent of electrical production in the US is created by burning carbon-based fossil fuels. Transportation is responsible for 28 percent of emissions. Industry is responsible for 20 percent, while Commercial & Residential activities and Agriculture each account for 10 percent. In 2012, total emissions across all sectors was 6,526 million metric tons, measured in CO_2 equivalent. AB 32 seeks to reduce California GHG emissions to 1990 levels by no later than 2020.





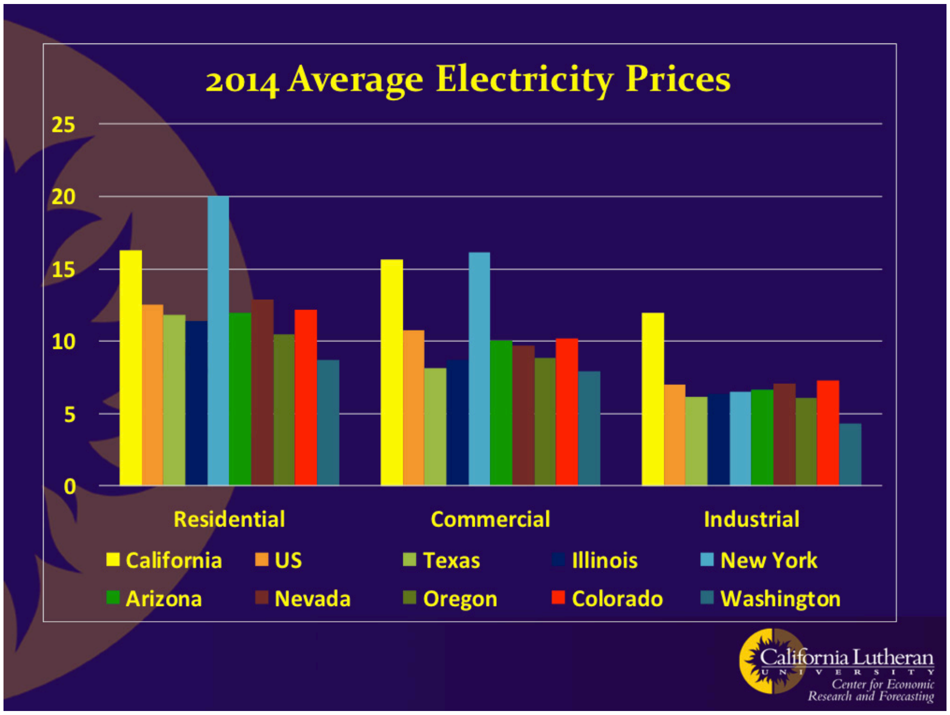
Source: United States *Environmental Protection Agency*

Increases in the price of energy are one of the central mechanisms by which California law-makers hope to achieve emissions reductions. These price increases are an intentional design feature, not an unintended consequence. By their nature, increases in energy prices have an impact that affects various groups disproportionately. The poor, who pay a larger share of their income to energy consumption, energy-intensive industries such as agriculture and manufacturing, sectors of the economy dominated by tradable goods, and warmer geographic regions are examples of groups who are disproportionately harmed. Elites living in coastal communities and working in not-tradable services sectors have little to lose. The San Joaquin Valley, which has lower incomes, warmer weather and an economy with a greater proportion of tradable goods can expect significant harm.

A survey of energy prices indicates that, even as we await the full implementation of AB 32, Californians already pay a premium for energy.

Electricity

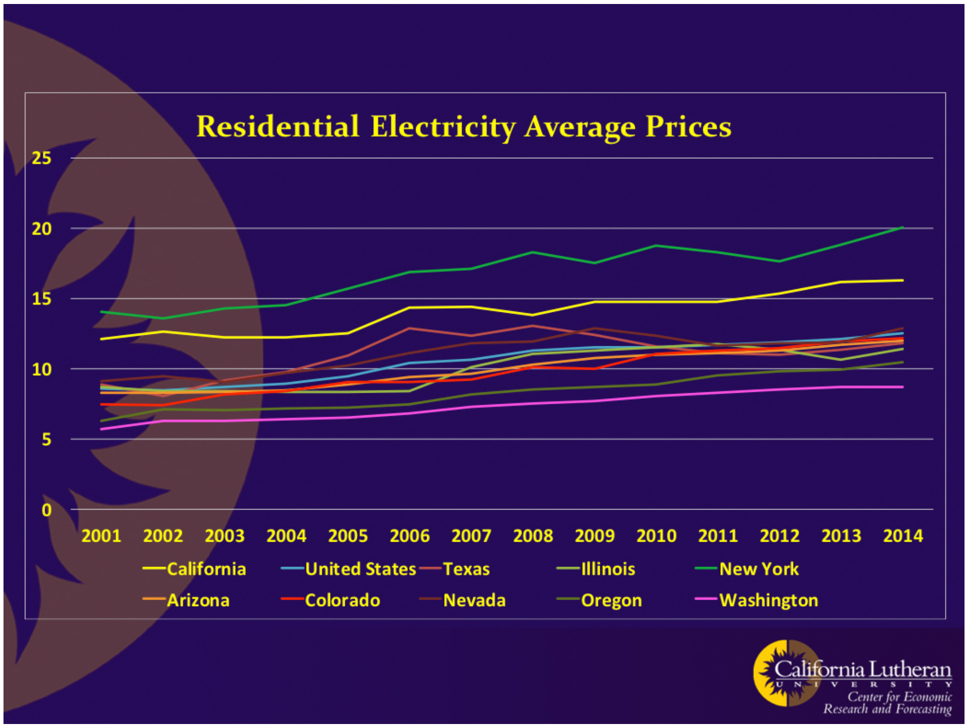
California's residential, commercial and industrial electricity costs are well above the national average and higher than in all others states with one exception. Average residential and commercial electricity prices are higher only in New York. Residential electricity customers pay a substantial energy premium above what residents pay in neighboring states. California’s residential electricity premium is currently 35 percent above Arizona, 26 percent above Nevada, 56 percent above Oregon, and 87 percent above Washington. The industrial energy premium is even greater—80 percent above Arizona, 69 percent above Nevada, 96 percent above Oregon, and an incredible 176 percent above Washington.

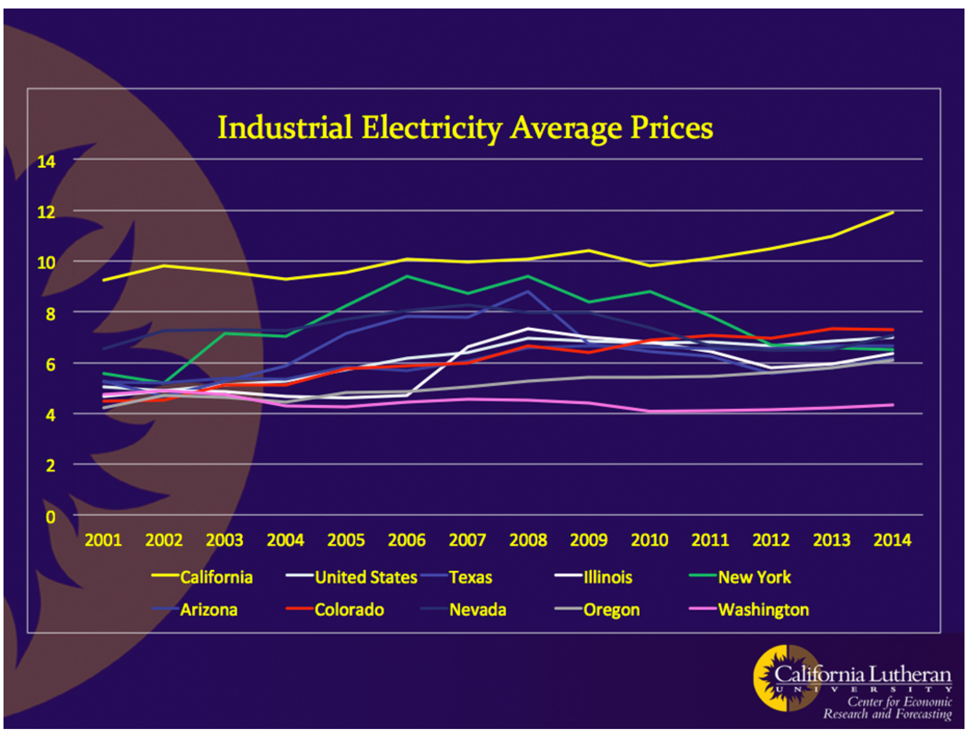


With the exception of the electricity crisis in 2001, system average rates for each of California's five largest utilities have increased at less than the rate of inflation since 1990. According to the California Energy Commission (CEC), the trend will not continue. CEC has forecasted electricity rates that will grow faster than the rate of inflation under a wide range of assumptions. Under one scenario, electrical rates will increase at more than double the rate of inflation. The CEC does not consider Renewable Portfolio Standards as a major potential driver of future electricity rates; therefore, CEC's most dire forecast is likely too optimistic.

Decreased demand is also part of the story. California's electricity demand peaked in 2000, when the state suffered a man-made electricity crisis. Californians suffered rolling brownouts and outright service interruptions. This was catastrophic for some businesses. Consider a plastics intrusion company. If electrical service is interrupted when molten plastic is moving through machines, it will congeal in those machines. Cleaning up the mess can be expensive, imposing both direct costs and missed production. Some companies reacted to the electrical crisis by installing expensive back-up systems. Others reacted by relocating outside of California, reducing the state's electrical demand.

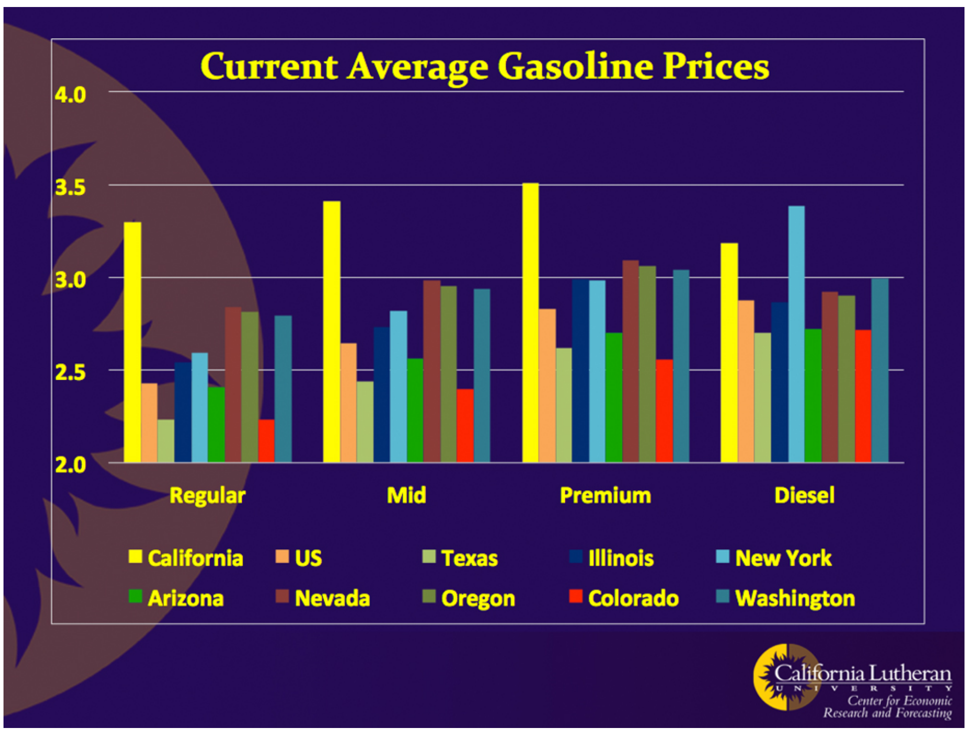
Even without the electricity crisis, we've seen steadily decreasing manufacturing jobs in California, a result of high costs in energy and other inputs. This too contributes to decreased demand.


Residential Electricity Average Prices
25
20
15
10
5
0
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
California
United States
Texas
Illinois
New York
Arizona
Colorado
Nevada
Oregon
Washington
California Lutheran University
Center for Economic Research and Forecasting


Industrial Electricity Average Prices
14
12
10
8
6
4
2
0
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
California
United States
Texas
Illinois
New York
Arizona
Colorado
Nevada
Oregon
Washington
California Lutheran University
Center for Economic Research and Forecasting

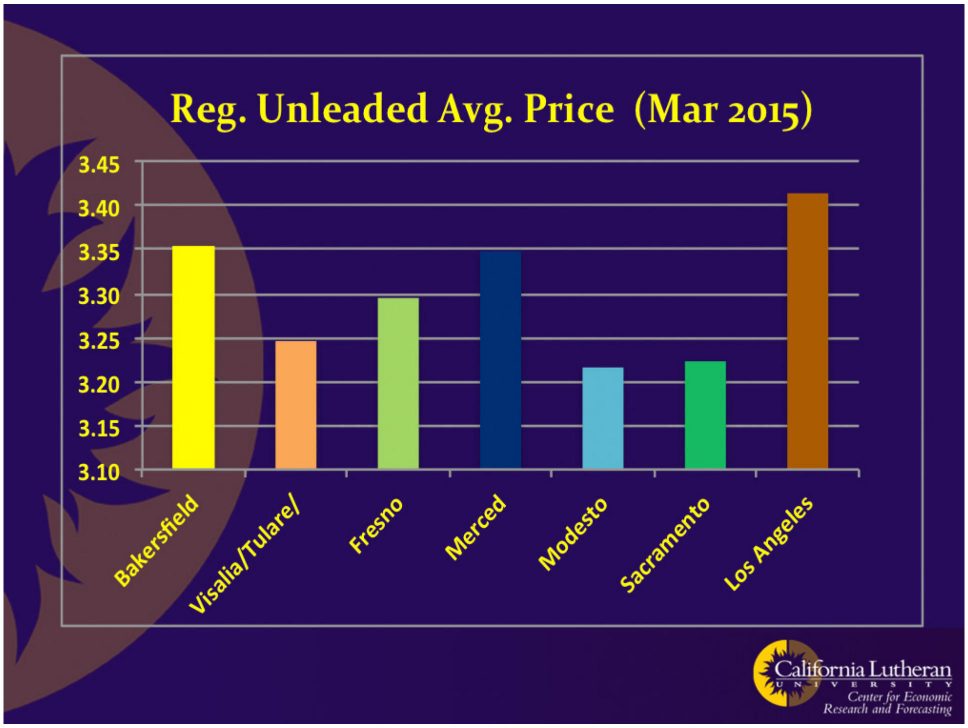
Gasoline

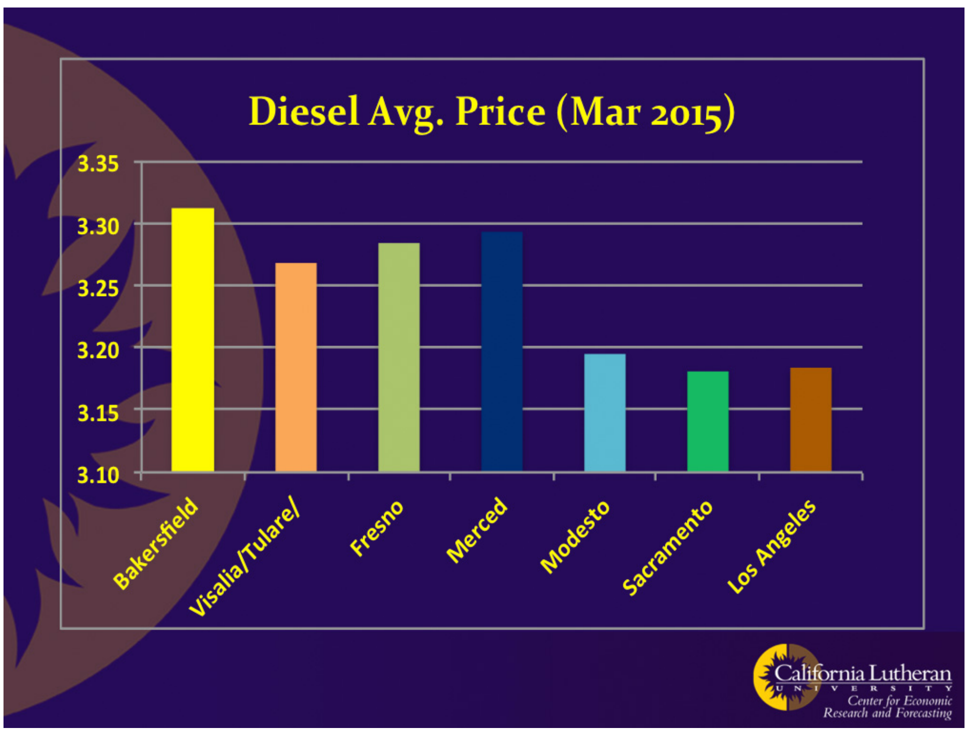
Environmental regulations require that gasoline sold in California burns cleaner than gasoline sold in other states. California refineries produce a unique California blend for this purpose. In addition, California consumers currently pay a \$0.36 per gallon state excise tax on top of the \$0.184 per gallon federal excise tax and local sales taxes (totaling as much as \$0.644 per gallon in some California cities). Not surprisingly, for all three grades of unleaded gasoline, California has the highest average price in the nation. With diesel fuel, only New York is more expensive. Regular unleaded gasoline sells in California at a significant premium over all other western states. The premium is currently 37 percent above Arizona, 16 percent above Nevada, 17 percent above Oregon, and 18 percent above Washington. The California premium for diesel fuel is not quite as large—currently 17 percent above Arizona, 9 percent above Nevada, 10 percent above Oregon, and 6 percent above Washington.



Within California, the price of gasoline varies by Metro region and is volatile throughout the year. Because of supply constraints imposed by California's unique blend of gasoline and the resulting inability to import fuel, California gas prices are subject to supply shocks such as those caused in March of this year by an explosion at ExxonMobil's Torrance refinery and maintenance at the Tesoro refinery in Martinez, California. During this period, gasoline prices increased by more than \$0.90 per gallon in a single month.

Currently in the San Joaquin Valley, diesel fuel sells for as much as a \$0.13 per gallon premium over prices in the Los Angeles metropolitan region. One year ago, the reverse was true. Los Angeles diesel sold for as much as a \$0.07 premium over San Joaquin Valley diesel. Local market conditions may explain most of these oscillations. The prices of all three grades of unleaded gasoline are persistently higher in the Los Angeles area than in the San Joaquin Valley.


Reg. Unleaded Avg. Price (Mar 2015)
3.45
3.40
3.35
3.30
3.25
3.20
3.15
3.10
Bakersfield
Visalia/Tulare/
Fresno
Merced
Modesto
Sacramento
Los Angeles
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting


Diesel Avg. Price (Mar 2015)
3.35
3.30
3.25
3.20
3.15
3.10
Bakersfield
Visalia/Tulare/
Fresno
Merced
Modesto
Sacramento
Los Angeles
California Lutheran
UNIVERSITY
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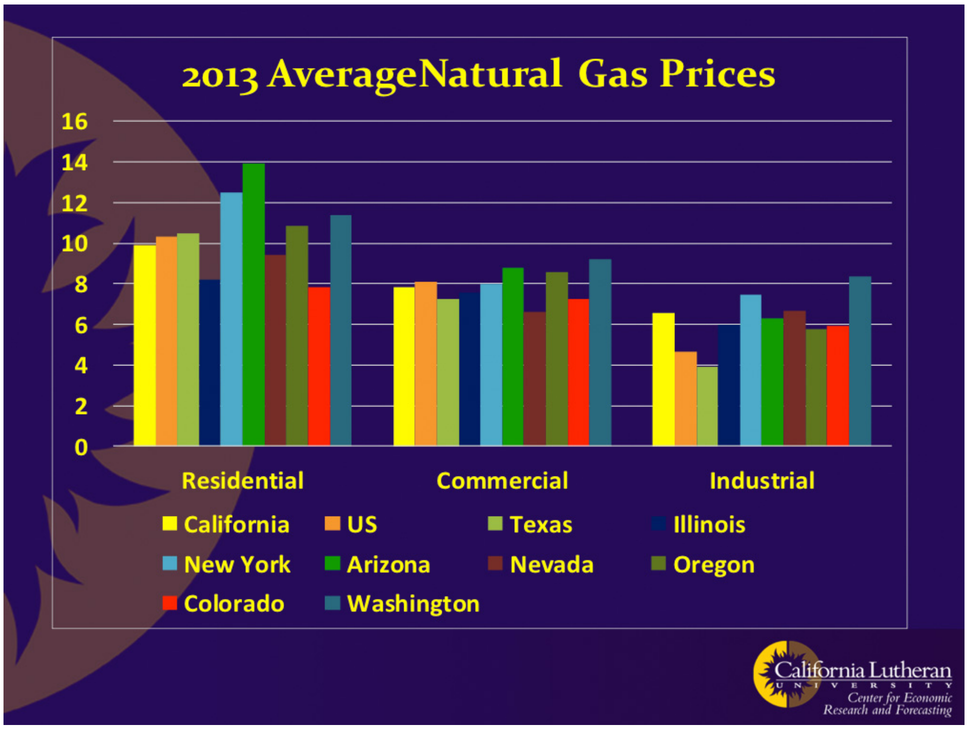
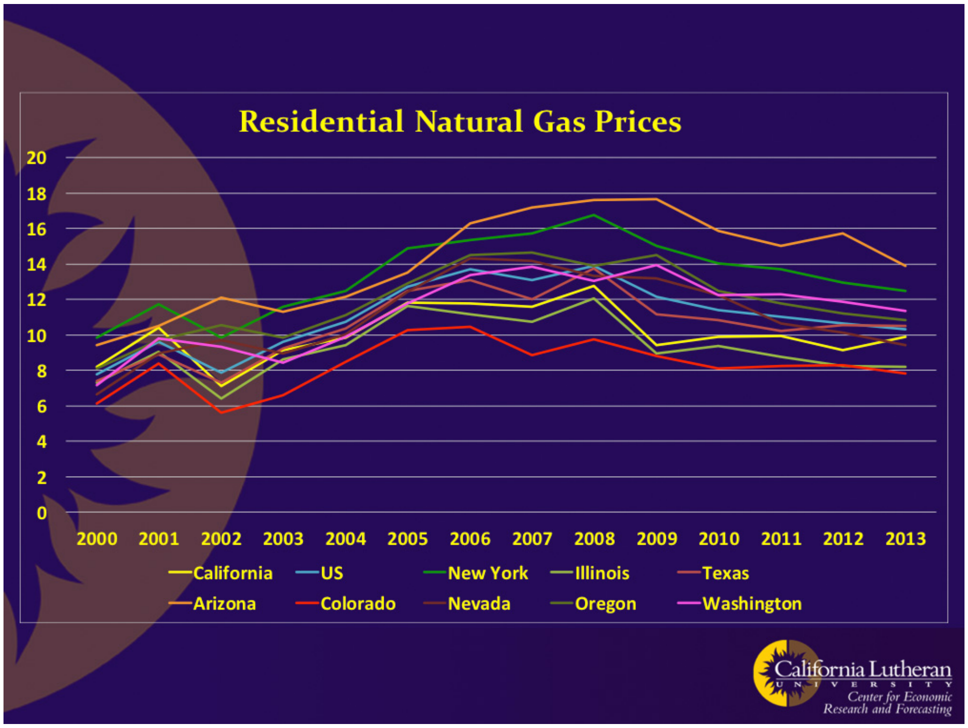
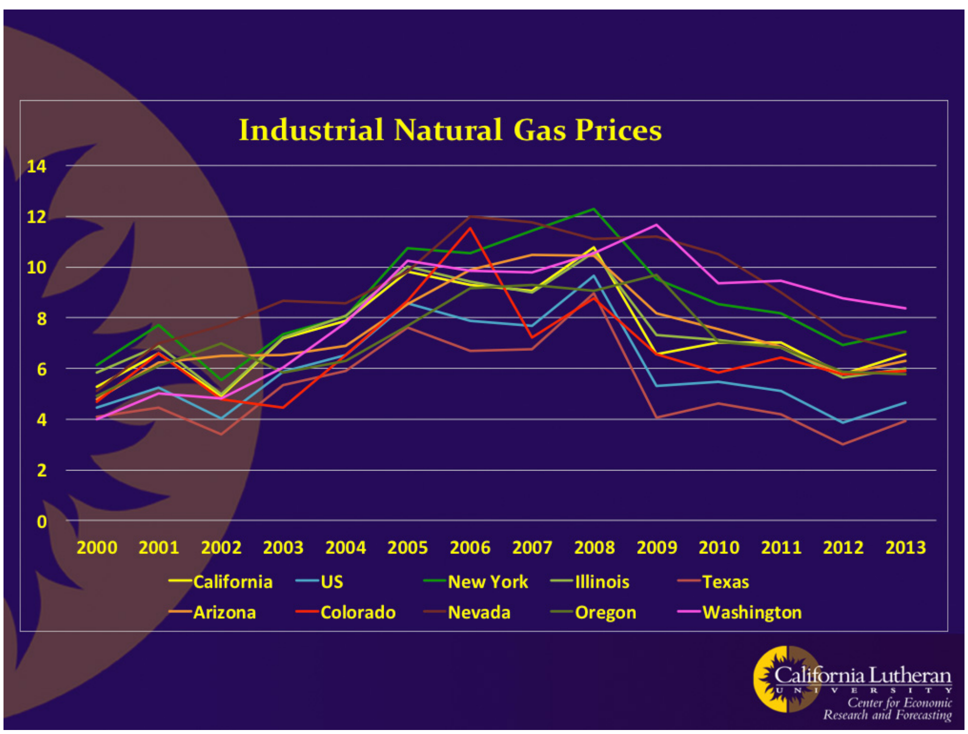
Research and Forecasting

Natural Gas

Natural gas is one traditional energy source that is priced competitively in California, relative to other states. A steady rise in natural gas prices from 2000 until 2009 put upward pressure on the cost of electricity generation in California over that period. The rapid decline in natural gas prices following the fracking revolution will put downward pressure on electricity prices going forward, offsetting some of the policy-induced price increases.




Residential Natural Gas Prices
20
18
16
14
12
10
8
6
4
2
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
California
US
New York
Illinois
Texas
Arizona
Colorado
Nevada
Oregon
Washington
California Lutheran University
Center for Economic Research and Forecasting


Industrial Natural Gas Prices
14
12
10
8
6
4
2
0
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013
California
US
New York
Illinois
Texas
Arizona
Colorado
Nevada
Oregon
Washington
California Lutheran University
Center for Economic Research and Forecasting

The Role of Energy Policy

As discussed previously, much of the energy price premium seen in California is attributable to environmental policies. The decades of the 1960s and 1970s were marked by a series of policies designed to address California's infamous smog problem. In 2002, law-makers set out to establish California as a world-leader in addressing the issue of global climate change. The 2002 passage of Renewable Portfolio Standards marked the beginning of an era of unprecedented law- and policy-making to reduce greenhouse gas (GHG) emissions from carbon-based energy systems. The era of GHG-related policies culminated in the California Global Warming Solutions Act of 2006. By the State's own admission, AB 32 marked a "watershed moment" in California's environmental and economic history. [2]

Table I. California GHG-related Energy Policies

Law/Policy	Description
SB 1078 (2002) Renewable Portfolio Standard	Requires investor-owned utilities and electric service providers to increase procurement of eligible "renewable energy" sources. Accelerated by SB 107 (2006) and SB 2 (2011). Current RPS is 33% by 2020.
AB 1493 (2002) Pavley I - Clean Car Standards	Imposes GHG emissions limits for cars, SUVs and light-trucks sold in California from 2009 onward. Seeks to reduce emissions by 45% by 2020. Pavley II amendment mandates fleet efficiency of 42.5 mpg in 2020.
AB 32 (2006) Calif. Global Warming Solutions Act	Requires the state to reduce GHG emissions to 1990 levels by the year 2020. Uses Renewable Portfolio Standard, Low Carbon Fuel Standard, and Carbon Cap-and-Trade as primary policy mechanisms.
SB 1368 (2006) Emission Performance Standards	Imposes carbon emissions standards on power plants.
AB 1969 (2006) Feed In Tariffs	Compels utilities to purchase renewable energy sources at prices greater than the cost of production (and well above the prevailing market-determined price for energy). Reinforced by SB 2 (2009).
AB 2012 (2006) Efficiency Targets	Sets annual energy efficiency targets for utilities.
Executive Order S-01-07 (2007) Low Carbon Fuel Standards	Requires fuel producers in California to reduce the carbon-intensity of products by 10% by 2020. Fuel producers may produce qualifying low-carbon fuel or purchase LCFS credits from producers of alternative fuels such as biofuel, natural gas and hydrogen.
SB 375 (2008) Sustainable Communities & Climate Protection Act	Requires local and regional planning bodies to reduce total vehicle miles (a proxy for GHG emissions) when approving building permits and implementing land use policies.
SB 17 (2009) Smart Grid Systems	Mandates the use of "smart grid" products, technologies and services by electrical companies.
SWRCB policy (2010) Once Through Cooling Policy	Regulates the use of coastal water for power plant cooling.

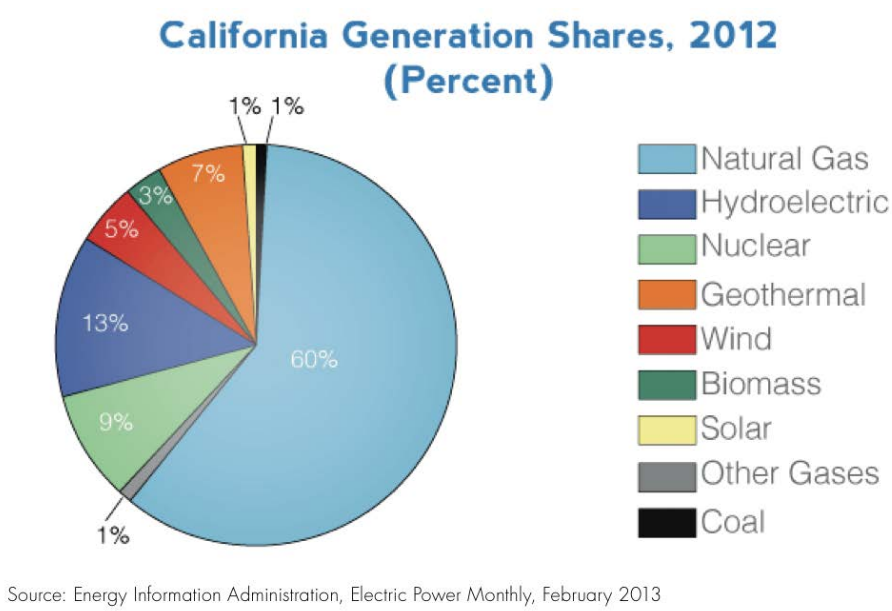
[2] *Assembly Bill 32 Overview,* California Environmental Protection Agency, California Air Resources Board. http://www.arb.ca.gov/cc/ab32/ab32.htm

Of all the various laws, rules and policy mechanisms that law makers and various regulatory bodies have crafted, three stand out as primary drivers of future energy cost increases in California. These are Renewable Portfolio Standards, Low Carbon Fuel Standards and Carbon Cap & Trade.

Renewable Portfolio Standard (RPS)

In its current form, the Renewable Portfolio Standard requires that 33 percent of electricity sold in the State be produced using eligible renewable energy sources. Renewable sources include wind, solar, biofuel, geothermal energy, and small hydroelectric plants. These sources account for less than 10 percent of energy production in the nation at large. The Renewable Portfolio Standard will increase energy prices by design. So called "Feed in Tariffs," established by Assembly Bill 1969, compel investor-owned utilities and electrical service providers to pay a price for renewable alternatives that guarantees a reasonable return on investment to renewable energy providers. In other words, utilities and service providers must buy renewables and must pay a price that is significantly higher than the price of petroleum-based energy. In this way, increased prices for energy are a feature of RPS. It can not be said that higher energy prices are an unintended consequence. At the current time, all renewable sources are more expensive than natural gas fired generation.

The proponents of RPS argue that forced investment in renewable energy alternatives will drive down the cost of these alternatives over time. It is unknown how long this process will take, how far out the break-even date lies, or if the cost of alternatives will ever fall below the cost of traditional energy sources. These RPS proponents are claiming to be better judges of a "good investment" than the legions of venture capitalists and industry specialists. Renewable generation will need to increase by more than 70 percent in five years just to meet the current 33 percent RPS requirement.



Source: *The Future of Electricity Prices in California: Understanding Market Drivers and Forecasting Prices to 2040,* by Jonathan Cook (2013), Energy Efficiency Center, U.C. Davis.

RPS is not the most cost-effective way to achieve GHG emission reductions in electrical generation. As shown in the chart above, California produces most of its electricity using natural gas. Among traditional fossil fuels, natural gas is already a low carbon intensity alternative. Carbon intensity (CI) refers to the amount of carbon that is used to produce a single unit of energy output (usually measured in BTUs). Traditional energy sources have varying levels of carbon intensity. For example, coal has a much higher CI-value than natural gas. Therefore, a unit of energy produced using coal will emit more GHGs than a unit of energy produced using natural gas. Because of California's relatively low-CI energy mix, achieving reductions in GHG emissions in electrical generation are more expensive in California than in other states with different energy mixes. By comparison, more than 67 percent of electricity generation in Ohio is achieved by burning coal. Coal accounts for nearly 40 percent of electrical generation across the United States. California could achieve significantly greater GHG emissions reductions at much lower cost by subsidizing low carbon intensity electric generation in other regions. Much of California's motivation for RPS and related energy policies is not to achieve maximum GHG emissions reductions at the lowest possible cost but rather simply to establish the State as a "world leader" in the issue of climate change. This leadership comes at considerable cost.

RPS also mandates less reliable energy sources. Solar energy is subject to the daily solar cycle, while wind energy is subject to ever-changing weather conditions. The fluctuations in electricity supply created by wind and solar generation pose technological challenges to suppliers and service providers alike, challenges which do not exist with the existing petroleum-based energy infrastructure. They also force providers to maintain traditional sources as backup to meet peak demand in the event that conditions preclude wind or solar generation. This is another significant cost of alternative energy.

Low Carbon Fuel Standard (LCFS)

The Low Carbon Fuel Standard requires the producers of petroleum-based fuels to reduce the average carbon intensity of these fuels by 10 percent within the next five years. In order to satisfy the LCFS, petroleum importers, refiners and wholesalers may either produce their own low carbon intensity alternatives, such as biofuel, or purchase credits from other companies that do. LCFS legislation established a system of measuring the carbon intensity value of each fuel. It also created a registry of alternative fuel producers who have credits to sell.

Like RPS, LCFS mandates the use of more costly forms of energy. Fuel producers who opt out must pay an additional explicit cost of production by purchasing low-CI credits. The success of LCFS regulations hinges on yet unseen technological innovations and the emergence of a robust LCFS credits market. The credits market does not yet exist at any scale. The lack of reliable alternatives and robust credit markets are sources of uncertainty that loom over the petroleum-based energy sector in California.

Cap-and-Trade (C&T)

California's carbon Cap & Trade system took effect on January 1, 2012. C&T regulation imposes a cap on total GHG emissions that covers more than 350 businesses, representing 85 percent of California's total emissions. The effected businesses must report GHG emissions to the California Air Resources Board (CARB) and submit a corresponding number of emissions allowances. Allowances are given away to businesses by CARB, purchased at auction, and traded on the open market. The carbon cap will be ratcheted down from year to year in order to achieve the desired emissions reductions.

Like the Renewable Portfolio Standard and Low Carbon Fuel Standard, increased energy prices are the mechanism by which Cap & Trade seeks to achieve its policy objectives. Carbon trading assigns an explicit value to the carbon content of electricity production. Therefore the value of carbon will be reflected in the price of electricity. A portion of the revenues from the auction of carbon allowances is designated by the California Public Utilities Commission to compensate consumers for higher electricity rates. The formulas used to allocate this revenue have not yet been finalized, so it is unclear to what extent the increased electricity rates will be offset.

Effects of Rising Energy Costs on the San Joaquin Valley

In order to extend the statewide analysis of California's energy policies and to make predictions about the specific effects on the San Joaquin Valley, we start by taking as given the predictions made by Chang & Company in the 2012 report *The Fiscal And Economic Impact of the California Global Warming Solutions Act of 2006*. Chang & Company predict that AB 32 and related policies will result in a statewide loss of 262,000 jobs. They also predict that average household energy expenses will increase by $2,500 per household.

As discussed earlier, the San Joaquin Valley economy is quite different than the economies of other regions in the state. Thus we do not expect that the job losses and increased energy prices caused by California's GHG-related energy policies will affect the San Joaquin Valley proportionately. In fact, the abundance of tradable goods producers, the relatively low average income, and the warm climate of the San Joaquin Valley dispose the region to greater harm than other parts of the state.

We note that, according to California Employment Development Department data, in 2015, approximately 25 percent of San Joaquin Valley jobs are associated with the tradable goods sector. By comparison, only 15 percent of the jobs in the broader state fall into this sector. While the San Joaquin Valley is home to just 6.2 percent of California's jobs, it is home to 11.5 percent of the State's tradable goods sector jobs. These two statistics, 6.2 percent of total jobs and 11.5 percent of tradable goods jobs, allow us to provide a range of estimates for how job losses associated with California energy policies will affect the San Joaquin Valley.

At the low end, the San Joaquin Valley can expect to endure 6.2 percent of the total job losses suffered in the state, a percentage equal to its share of all jobs in the State. This proportionate effect would mean the loss of 16,244 jobs or 1.6 percent of jobs in the San Joaquin Valley. This number requires us to assume that the San Joaquin Valley will fair no worse than the state on average. It requires that jobs in the tradable goods sector are impacted no worse than those in the non-tradable services sector and that low income jobs are impacted no worse than middle and higher income jobs. We would love to be able to accept these assumptions and endorse the prediction that job losses due to AB 32 will be evenly distributed throughout the State. Unfortunately, common sense and economic theory lead us to believe that this is highly unlikely.

As discussed above, we do not expect that job losses will be spread evenly among all sectors in the economy. In fact, jobs in the tradable goods sector will be especially hard hit. If we make an alternative assumption, that all of the job losses caused by AB 32 and related policies will be concentrated in the tradable goods sector, then we arrive at our high end estimate of 30,130 job losses, representing 3.0 percent of jobs in the San Joaquin Valley. In this case, the San Joaquin Valley's share of total job losses is equal to it's share of total jobs in tradable goods. We consider this number to be an upper limit on San Joaquin Valley job losses, based upon the assumption of 262,000 job losses statewide. The number of statewide job losses would need to climb in order for the San Joaquin Valley to exceed this upper limit.

A more reasonable assumption is that tradable goods and non-tradable services will be impacted disproportionately. We like the assumption that 80 percent of job losses resulting from AB 32 will be concentrated in tradable goods. This assumption leads us to our central estimate of 27,257 job losses in the San Joaquin Valley. This represents a loss of 2.7 percent of jobs in the San Joaquin Valley. By comparison, 262,000 statewide job losses represents a loss of 1.6 percent of jobs across the State. To put this in perspective, our central estimate of job losses in the San Joaquin Valley represents an impact that is 1.7 times greater than the job losses suffered statewide.

Table 3. Estimated Job Losses Resulting from Calif. Energy Policies			
	Low[a]	Middle[b]	High[c]
San Joaquin Valley	16,244	27,257	30,130

a) Assumes impacts are distributed evenly among tradable and non-tradable sectors; b) Assumes 80% of impacts occur in tradable goods while 20% occur in non-tradable services; c) Assumes that 100% of impacts are concentrated in the tradable goods sector.

We also do not expect the increase in energy prices to impact households evenly across the state. Once again, we expect San Joaquin Valley residents to be hit especially hard. Increases in average household energy expenses will be driven primarily by the increases in gasoline and electricity prices which, according to the U.S. Energy Information Administration, account for two-thirds of annual household energy expenditures. Electricity prices alone may increase by as much as 6.3 percent per year according to Jonathan Cook of the U.C. Davis Energy Efficiency Center.

As discussed earlier, unleaded gasoline prices are actually persistently lower in the San Joaquin Valley than in major urban areas throughout the state. In addition, residents in major urban areas have, on average, longer commutes to work. As such, increases in the price of gasoline will likely have slightly less of an impact on San Joaquin Valley residents than on the residents of other parts of the State.

Increases in electricity prices will have a significantly greater impact. According to the California Energy Commission, per capita residential electricity consumption in Kern County is 34 percent higher than in Los Angeles County. Per capita residential electricity consumption in Fresno County is 47 percent higher than in Los Angeles County. The highest per capita consumption in the San Joaquin Valley happens in Stanislaus County, at 67 percent higher than LA County's. The story here is the weather. The San Joaquin Valley is known for high daytime temperatures in the summer and cool winter lows. According to Pacific

Gas & Electric, compared to Los Angeles, the city of Fresno has 85 percent more Heating Degree Days (a proxy for the energy used in residential heating) and more than double the number of Cooling Degree Days (a proxy for electricity used in residential air conditioning).

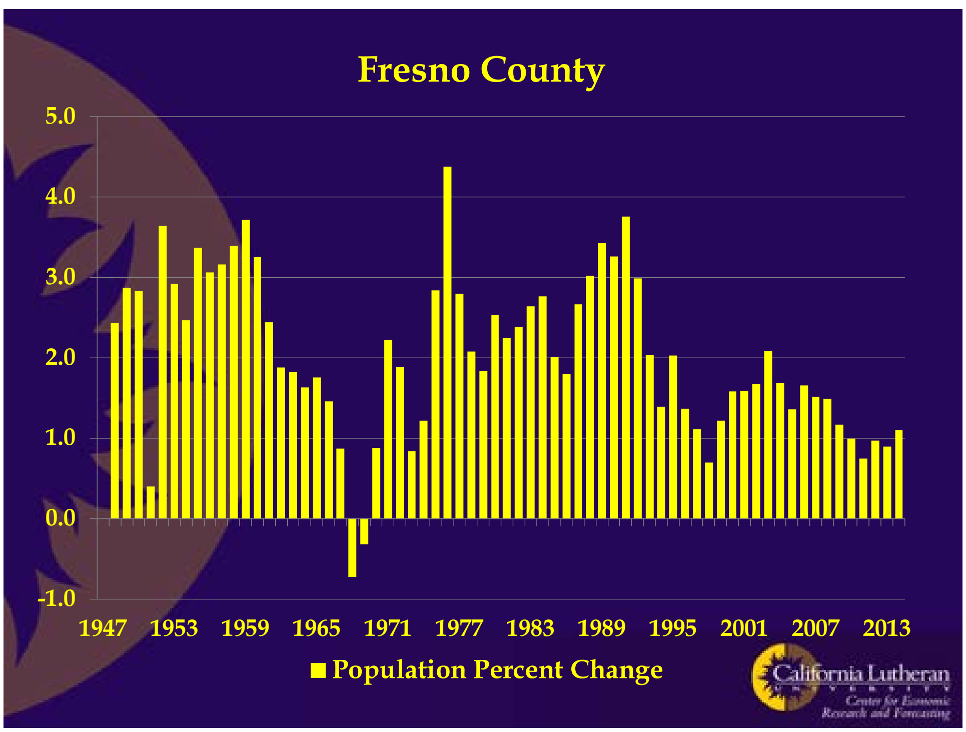
The extra per capita electricity use of the San Joaquin Valley more than offsets the differential affect of gasoline price increases and leads us to assume that the effect of AB 32 on household energy expenditures will be greater in the San Joaquin Valley than in other parts of the State. If the average household sees an increase in energy expenses of $2,500 per year, San Joaquin Valley residents will see an even bigger one. With a median income that is $16,000 less than California as a whole, an increase in household expenses of more than $2,500 will hit San Joaquin Valley families especially hard.

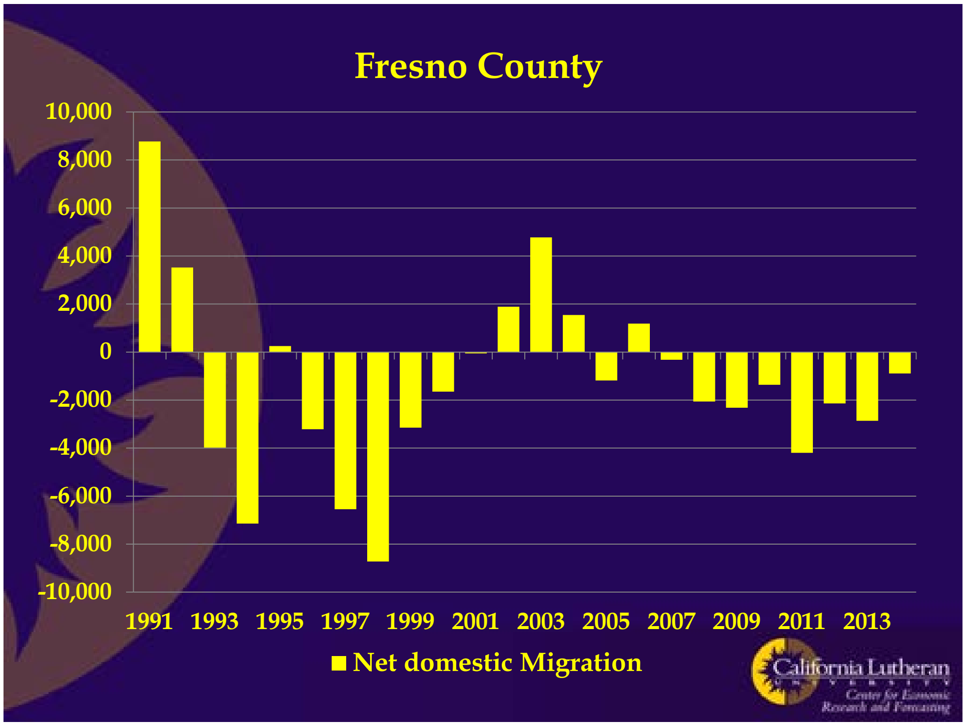
Appendix County Data

Fresno County

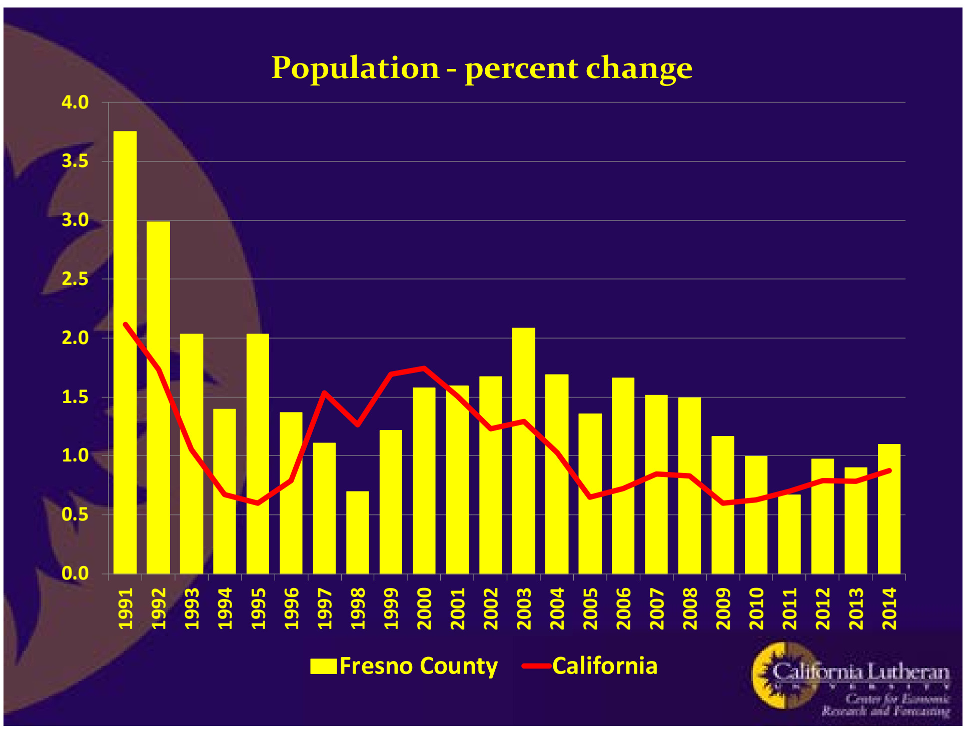
Fresno County's Job Market		Changes During the Last Year		Changes Since the Great Recession	
not seasonally adjusted data	Jan 2015	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	40.1	-1.4	-3.4	-9.8	-19.6
Natural Resources and Mining	0.3	0.0	0.0	0.1	50.0
Construction	13.3	0.4	3.1	-6.7	-33.5
Durable Goods Manufacturing	7.8	0.0	0.0	-2.7	-25.7
Non-Durable Goods Manufacturing	15.3	0.7	4.8	-2.3	-13.1
Wholesale Trade	14.6	0.9	6.6	1.1	8.1
Retail Trade	38.0	2.8	8.0	1.4	3.8
Transportation, Warehousing, & Utilities	11.9	0.5	4.4	0.9	8.2
Information & Technology	3.9	0.1	2.6	-0.3	-7.1
Financial Activities	12.8	0.1	0.8	-2.1	-14.1
Professional and Business Services	33.3	4.2	14.4	2.7	8.8
Educational and Health Services	57.8	1.7	3.0	10.4	21.9
Leisure and Hospitality	30.8	1.6	5.5	3.2	11.6
Personal, Repair, & Maintenance Services	11.1	0.1	0.9	0.2	1.8
Government	66.3	1.8	2.8	-3.5	-5.0
Federal Government	9.5	0.1	1.1	0.9	10.5
State Government	11.8	0.9	8.3	1.0	9.3
Local Government	45.0	0.8	1.8	-5.4	-10.7
Total All Industries	**357.3**	**13.5**	**3.9**	**-7.4**	**-2.0**

Source: CA Employment Development Department

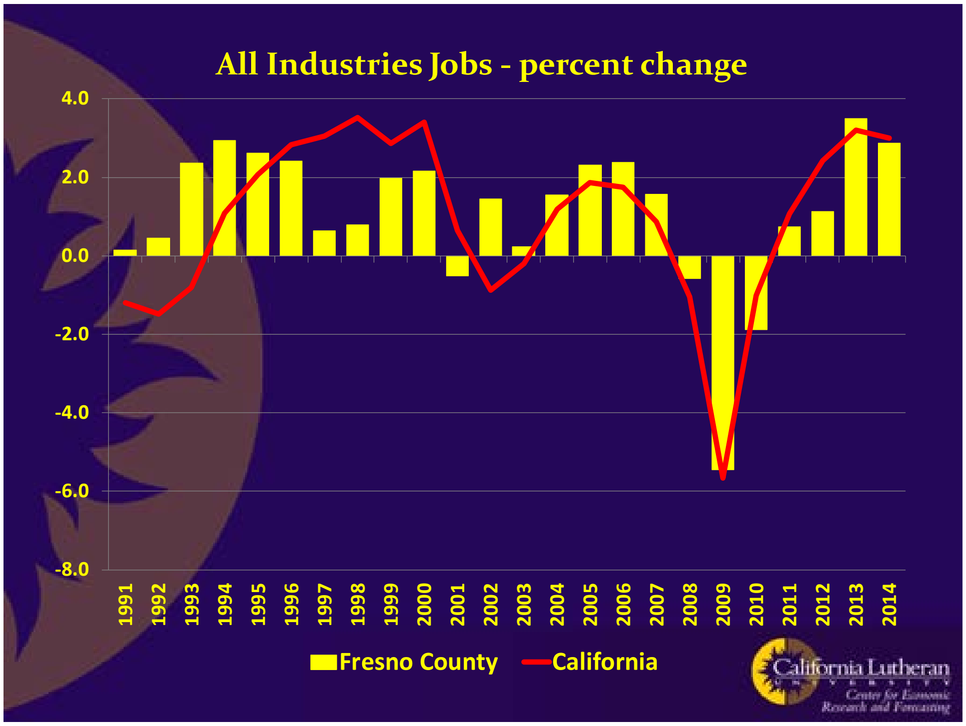




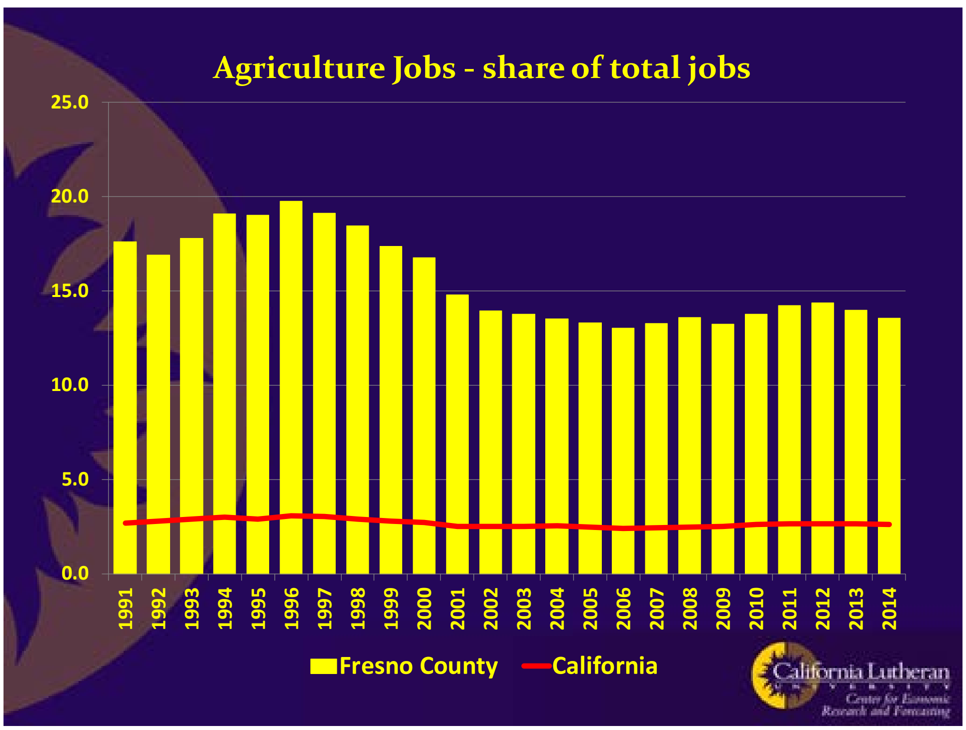
Fresno County
10,000
8,000
6,000
4,000
2,000
0
-2,000
-4,000
-6,000
-8,000
-10,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting



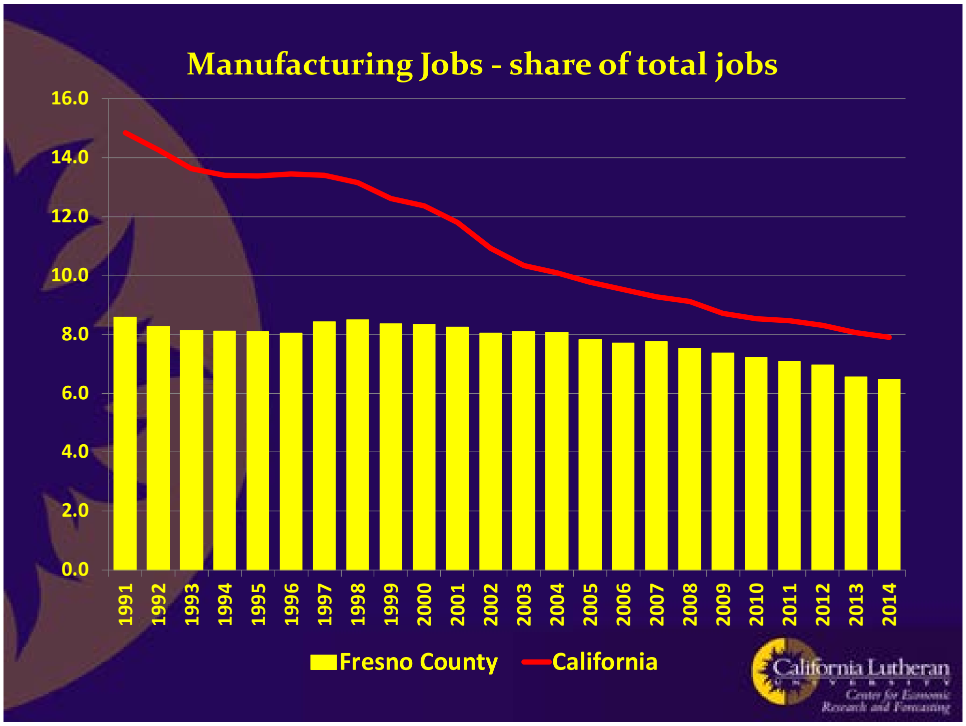
Population - percent change
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Fresno County
California
California Lutheran University
Center for Economic Research and Forecasting



All Industries Jobs - percent change
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Fresno County
California
California Lutheran University
Center for Economic Research and Forecasting



Agriculture Jobs - share of total jobs
25.0
20.0
15.0
10.0
5.0
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Fresno County
California
California Lutheran University
Center for Economic Research and Forecasting



Manufacturing Jobs - share of total jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
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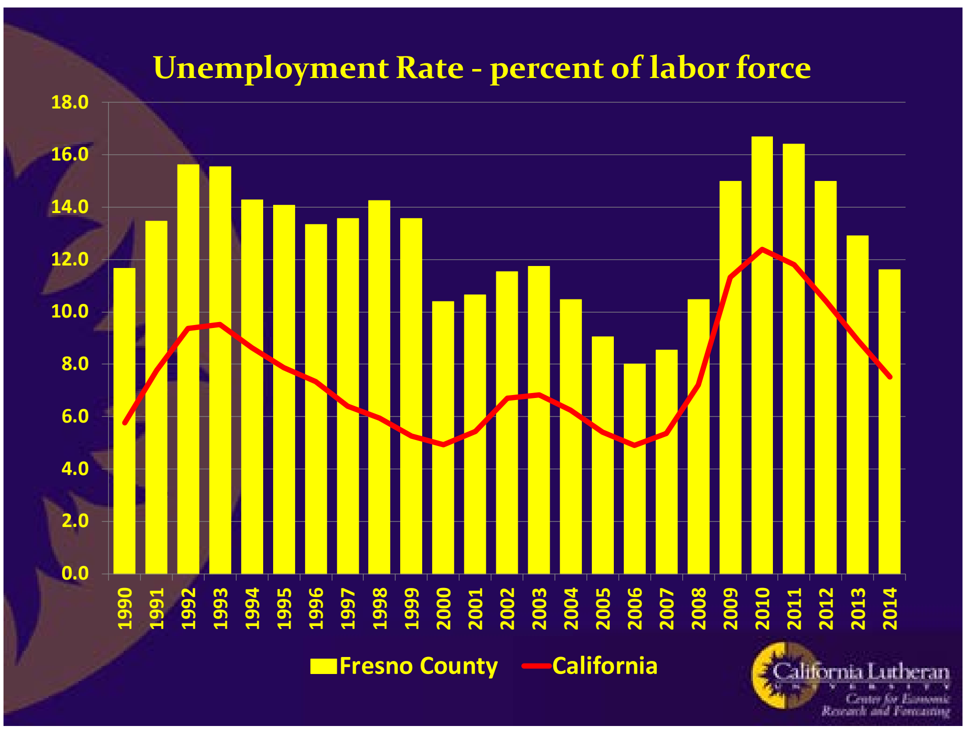
Fresno County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting

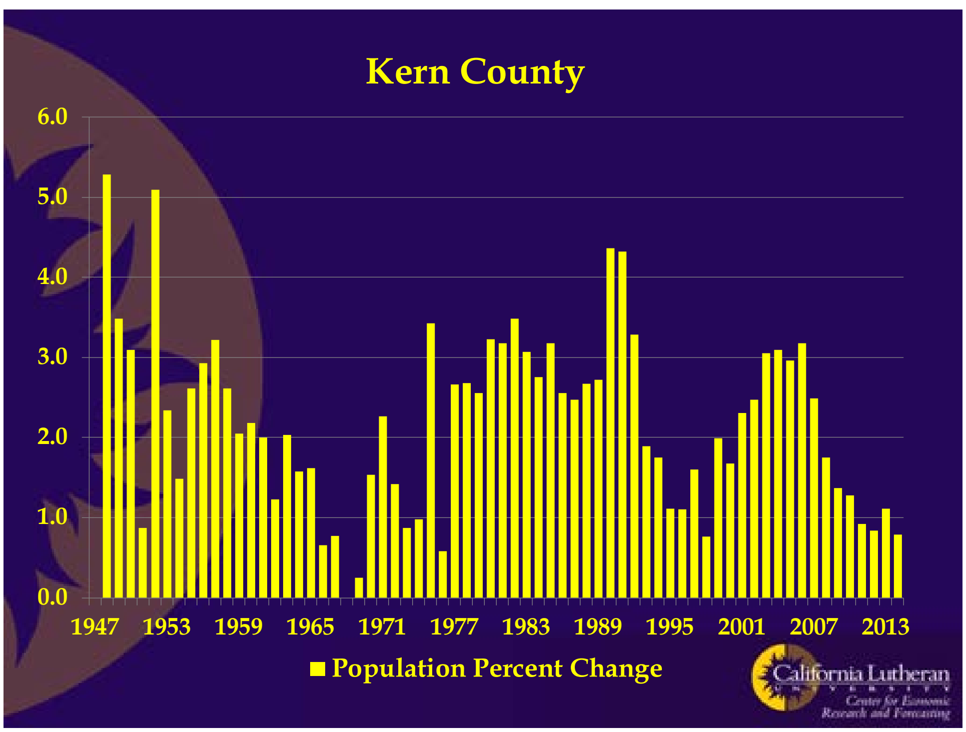


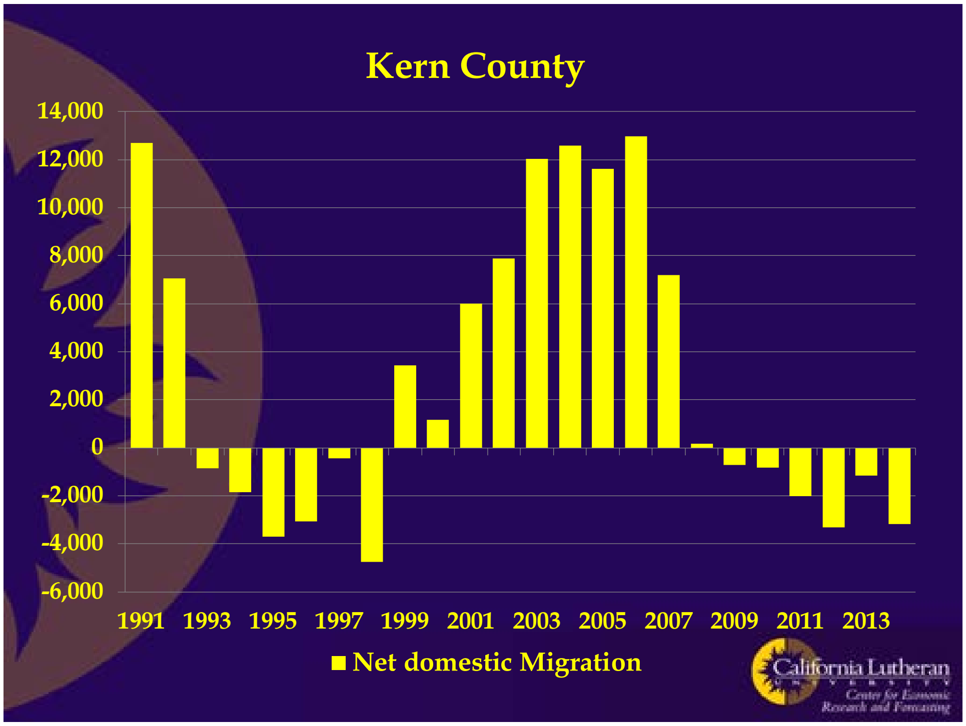
Unemployment Rate - percent of labor force
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Fresno County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting

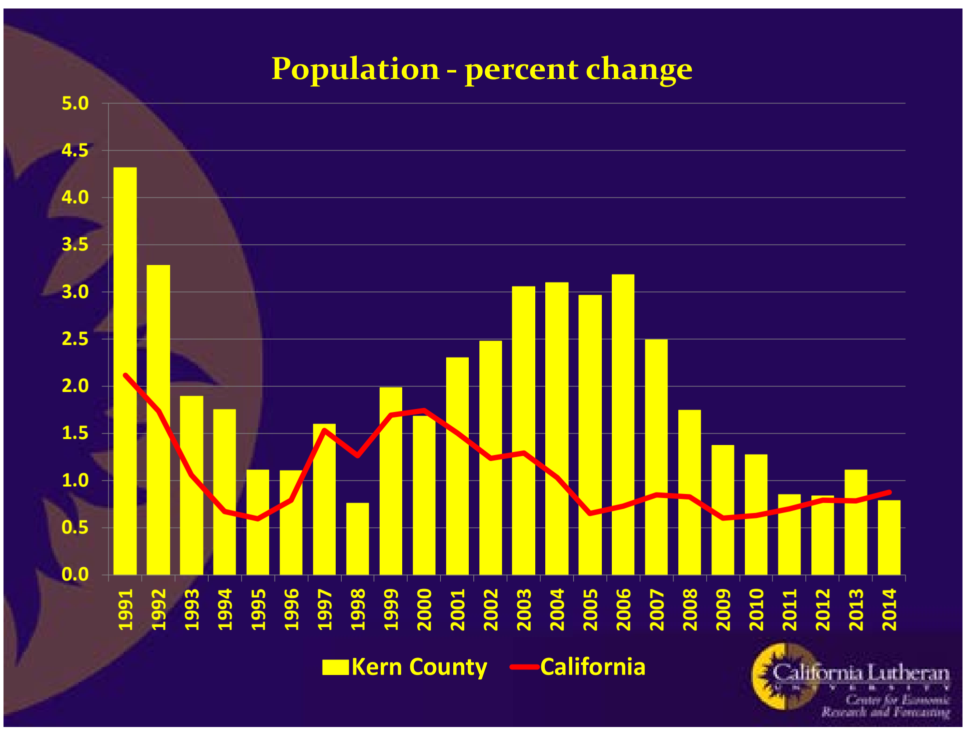
Kern County

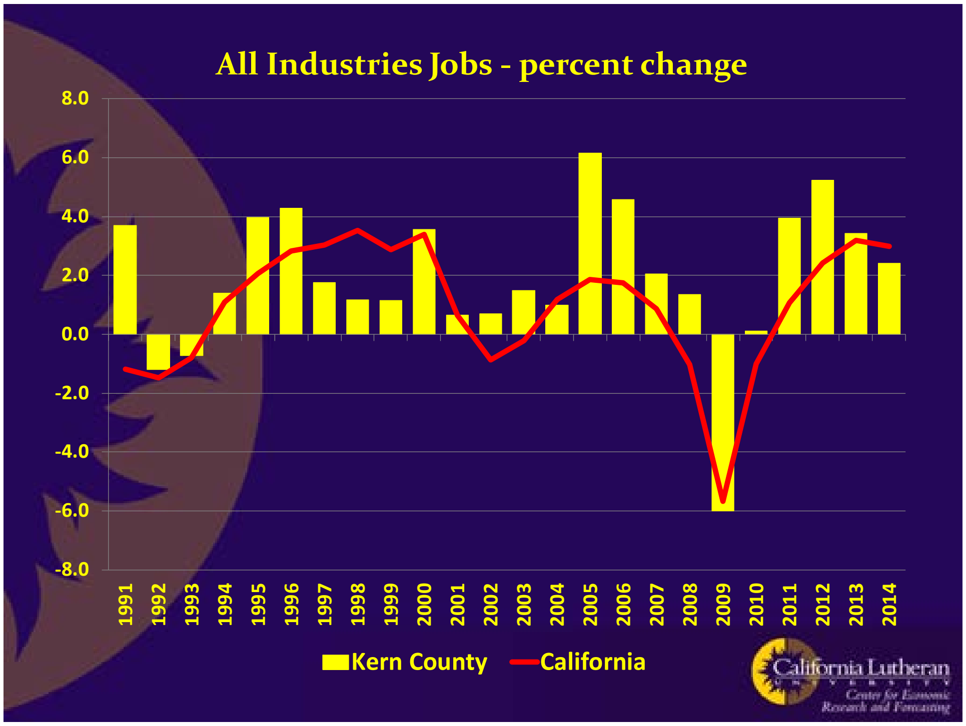
Kern County's Job Market		Changes During the Last Year		Changes Since the Great Recession	
not seasonally adjusted data	Jan 2015	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	52.2	-0.3	-0.6	-1.0	-1.9
Natural Resources and Mining	12.1	-0.8	-6.2	2.2	22.2
Construction	17.6	-0.1	-0.6	-0.6	-3.3
Durable Goods Manufacturing	5.8	0.2	3.6	0.1	1.8
Non-Durable Goods Manufacturing	9.1	0.5	5.8	1.2	15.2
Wholesale Trade	9.5	0.3	3.3	1.3	15.9
Retail Trade	31.6	2.4	8.2	3.0	10.5
Transportation, Warehousing, & Utilities	9.7	0.3	3.2	-0.2	-2.0
Information & Technology	2.3	-0.1	-4.2	-0.5	-17.9
Financial Activities	8.7	0.0	0.0	-0.3	-3.3
Professional and Business Services	24.9	-0.6	-2.4	-0.4	-1.6
Educational and Health Services	33.1	0.9	2.8	5.6	20.4
Leisure and Hospitality	24.5	1.9	8.4	2.8	12.9
Personal, Repair, & Maintenance Services	7.9	0.3	3.9	0.9	12.9
Government	60.9	1.8	3.0	-0.4	-0.7
Federal Government	9.5	-0.1	-1.0	0.1	1.1
State Government	9.2	0.3	3.4	-0.3	-3.2
Local Government	42.2	1.6	3.9	-0.2	-0.5
Total All Industries	**309.9**	**6.7**	**2.2**	**13.7**	**4.6**

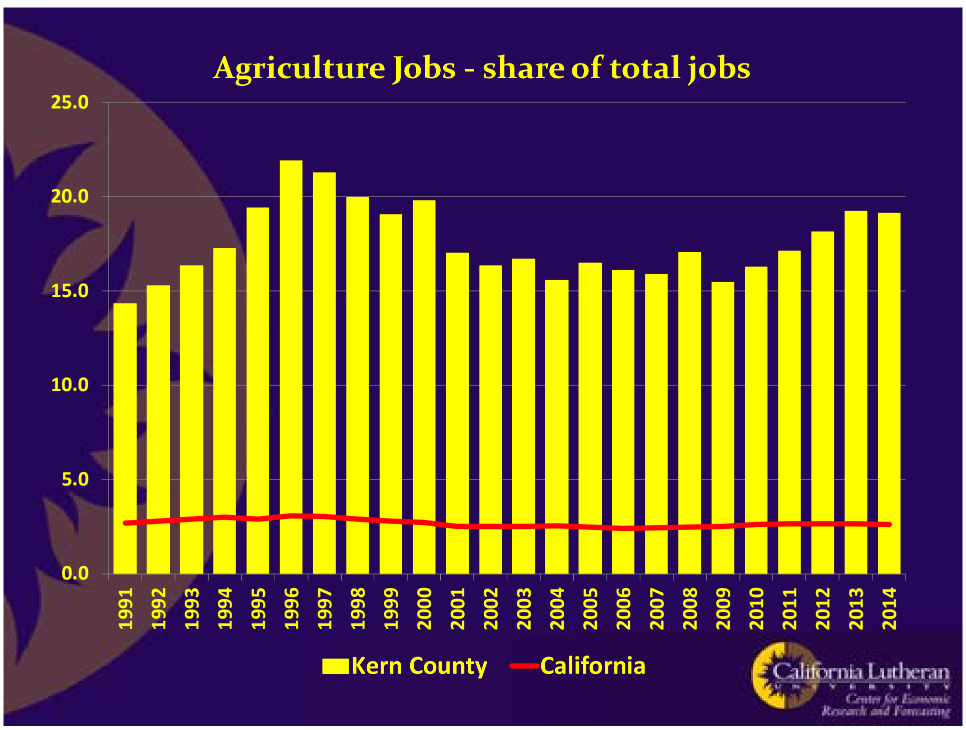
Source: CA Employment Development Department

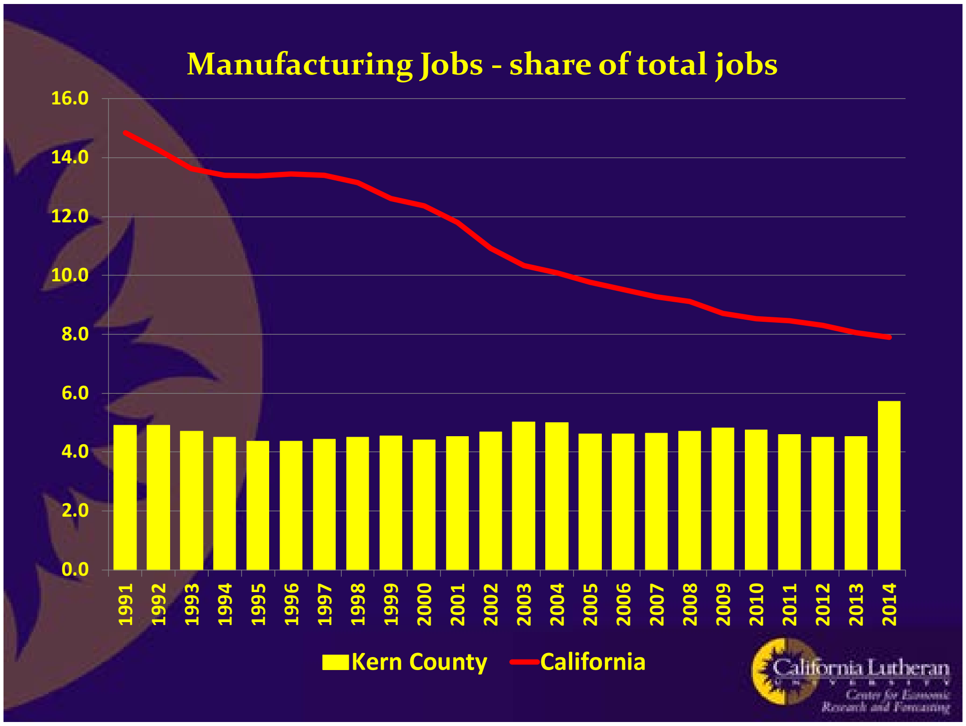



Kern County
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
-2,000
-4,000
-6,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran
UNIVERSITY
Center for Economic Research and Forecasting


Population - percent change
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Kern County
California
California Lutheran
UNIVERSITY
Center for Economic Research and Forecasting


All Industries Jobs - percent change
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Kern County
California
California Lutheran University
Center for Economic Research and Forecasting


Agriculture Jobs - share of total jobs
25.0
20.0
15.0
10.0
5.0
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Kern County
California
California Lutheran University
Center for Economic Research and Forecasting


Manufacturing Jobs - share of total jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
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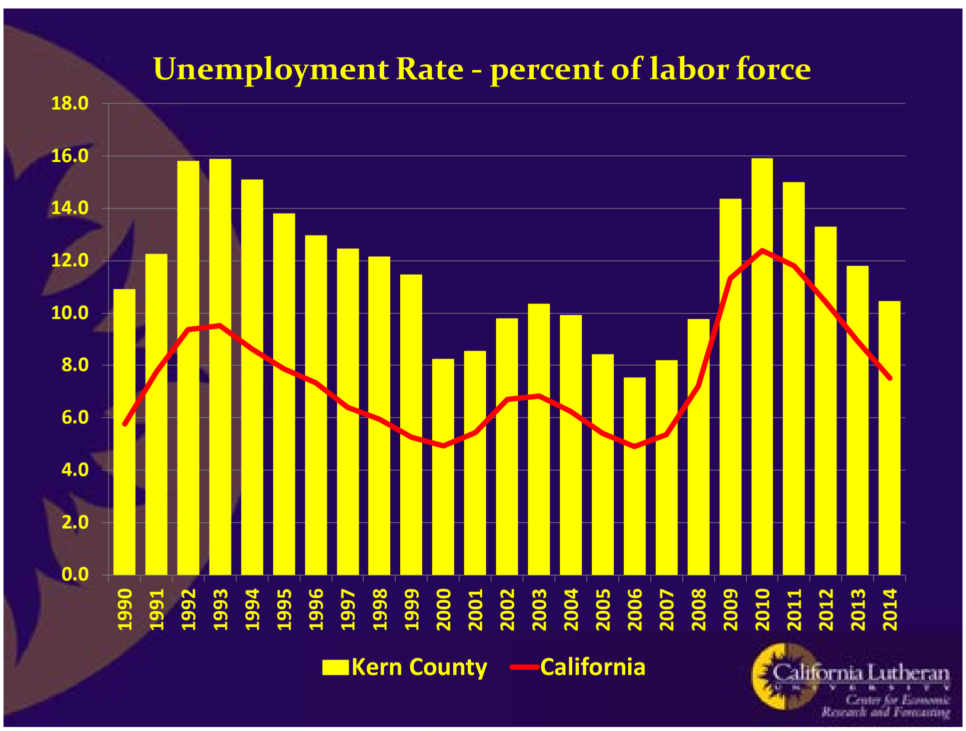
Kern County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting


Unemployment Rate - percent of labor force
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
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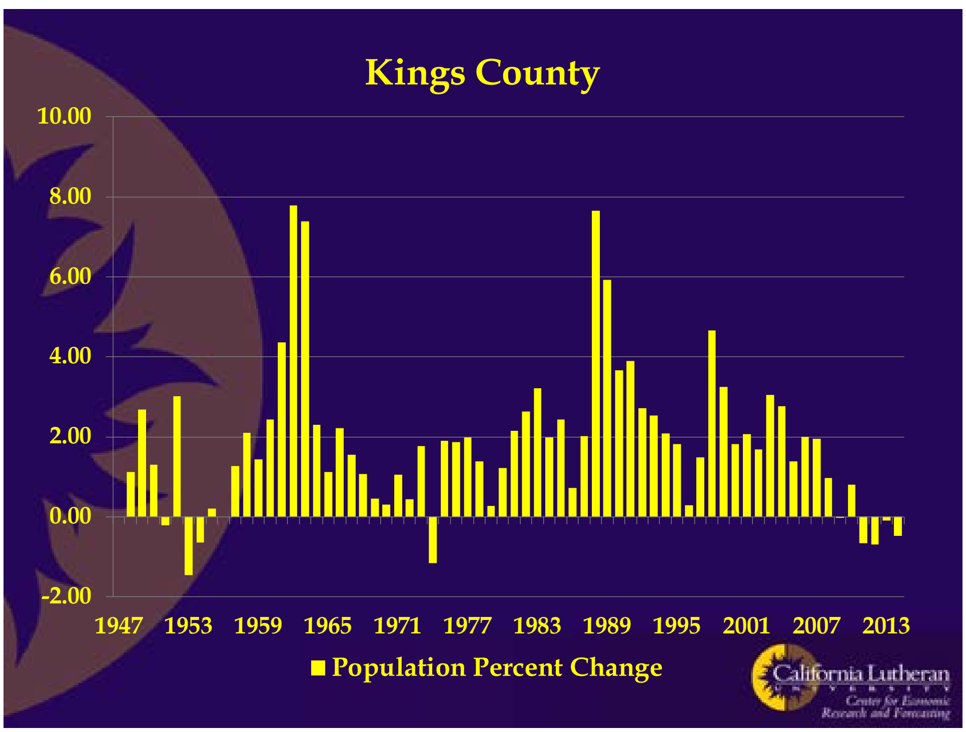
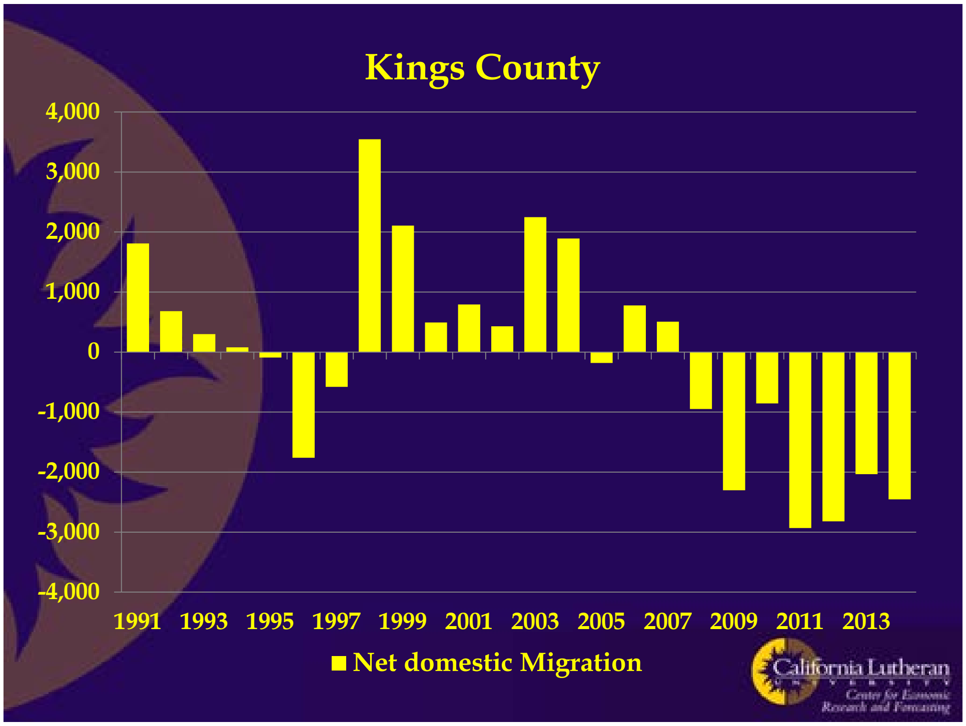
2014
Kern County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting

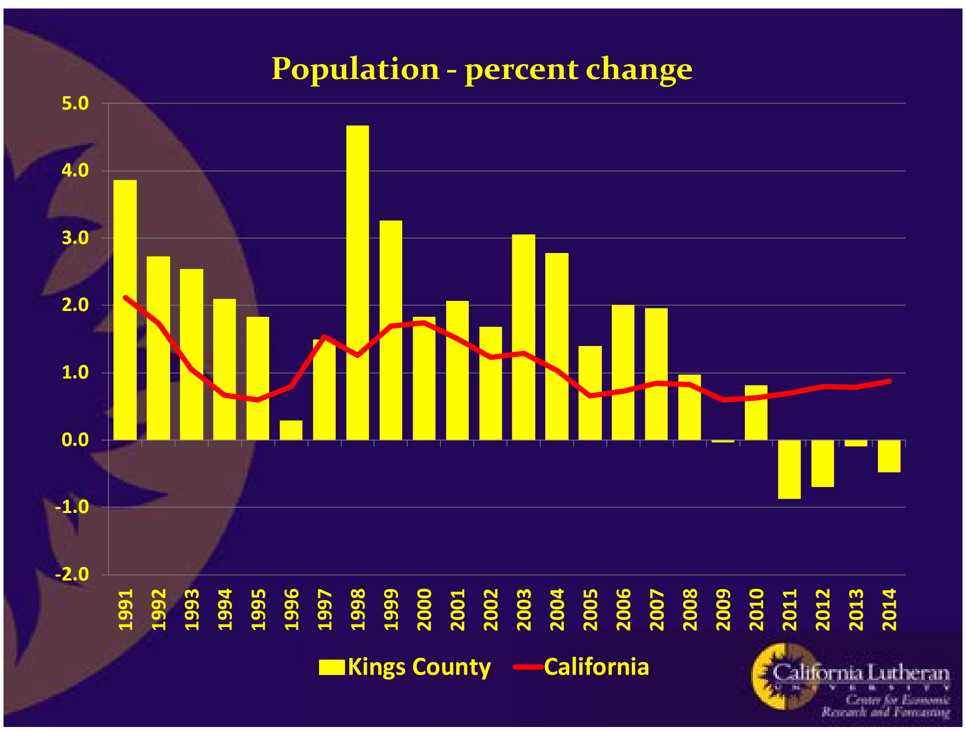
Kings County

King County's Job Market		Changes During the Last Year		Changes Since the Great Recession	
not seasonally adjusted data	Jan 2015	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Jobs*	*Change-jobs*	*Percent change*	*Change-jobs*	*Percent change*
Agriculture	6,000	-100	-1.6	-3,300	-35.5
Natural Resources, Mining, and Construction	700	0	0.0	-600	-46.2
Manufacturing	4,100	100	2.5	-400	-8.9
Wholesale Trade	600	0	0.0	0	0.0
Retail Trade	4,400	300	7.3	300	7.3
Transportation, Warehousing, & Utilities	900	100	12.5	0	0.0
Information & Technology	200	0	0.0	-100	-33.3
Financial Activities	900	0	0.0	-200	-18.2
Professional and Business Services	1,500	100	7.1	400	36.4
Educational and Health Services	6,000	100	1.7	1,100	22.4
Leisure and Hospitality	3,200	300	10.3	400	14.3
Personal, Repair, & Maintenance Services	600	0	0.0	0	0.0
Government	14,100	100	0.7	-1,300	-8.4
Federal Government	1,100	0	0.0	0	0.0
State Government	5,300	0	0.0	-800	-13.1
Local Government	7,700	100	1.3	-500	-6.1
Total All Industries	**43,200**	**1,000**	2.4	**-3,700**	-7.9

Source: CA Employment Development Department




Kings County
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting


Population - percent change
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
1991
1992
1993
1994
1995
1996
1997
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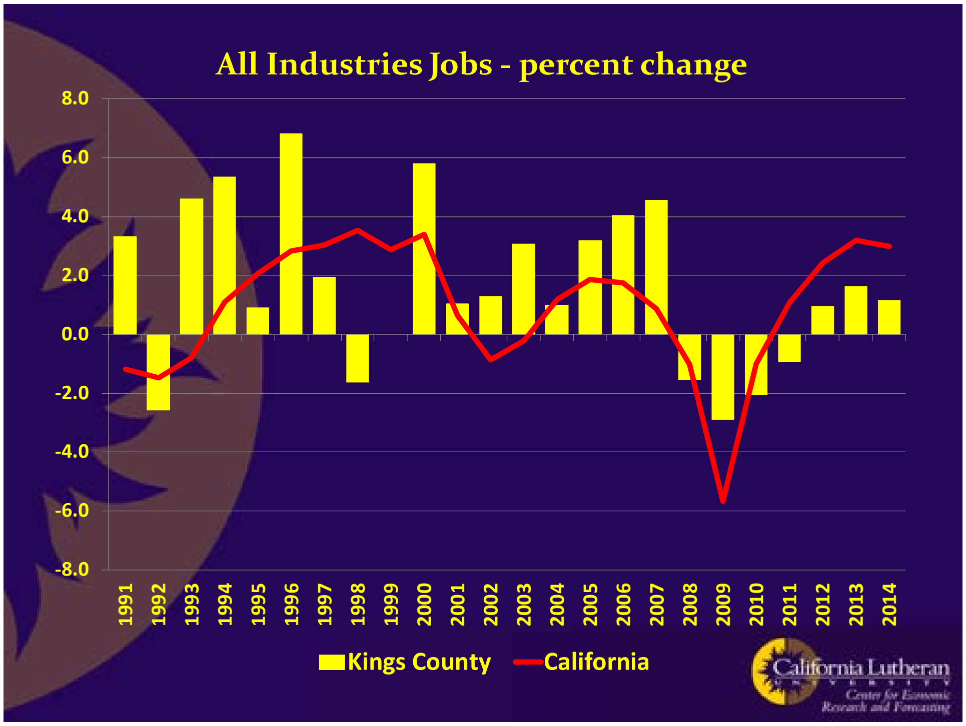
2012
2013
2014
Kings County
California
California Lutheran University
Center for Economic Research and Forecasting


All Industries Jobs - percent change
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
1991
1992
1993
1994
1995
1996
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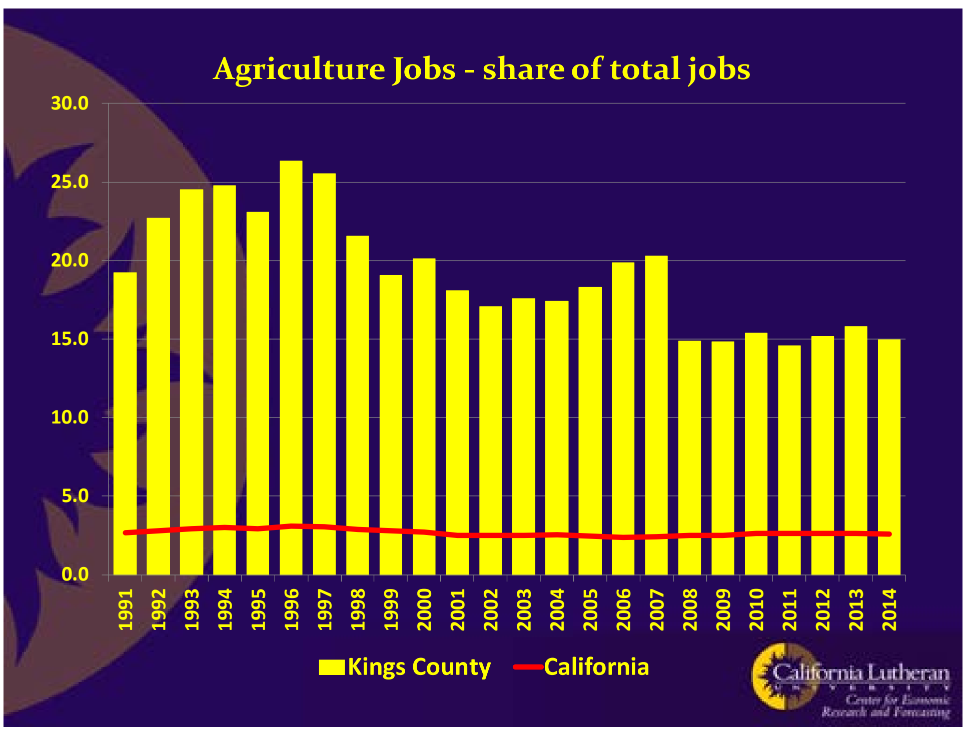
Kings County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting


Agriculture Jobs - share of total jobs
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
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2003
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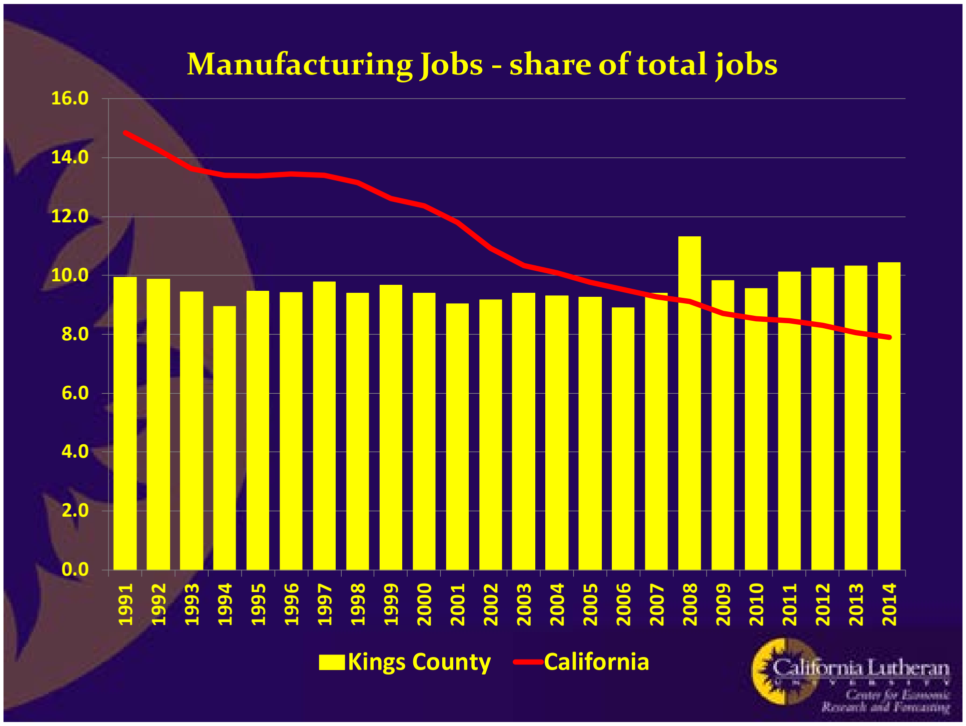
Kings County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting



Manufacturing Jobs - share of total jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
1995
1996
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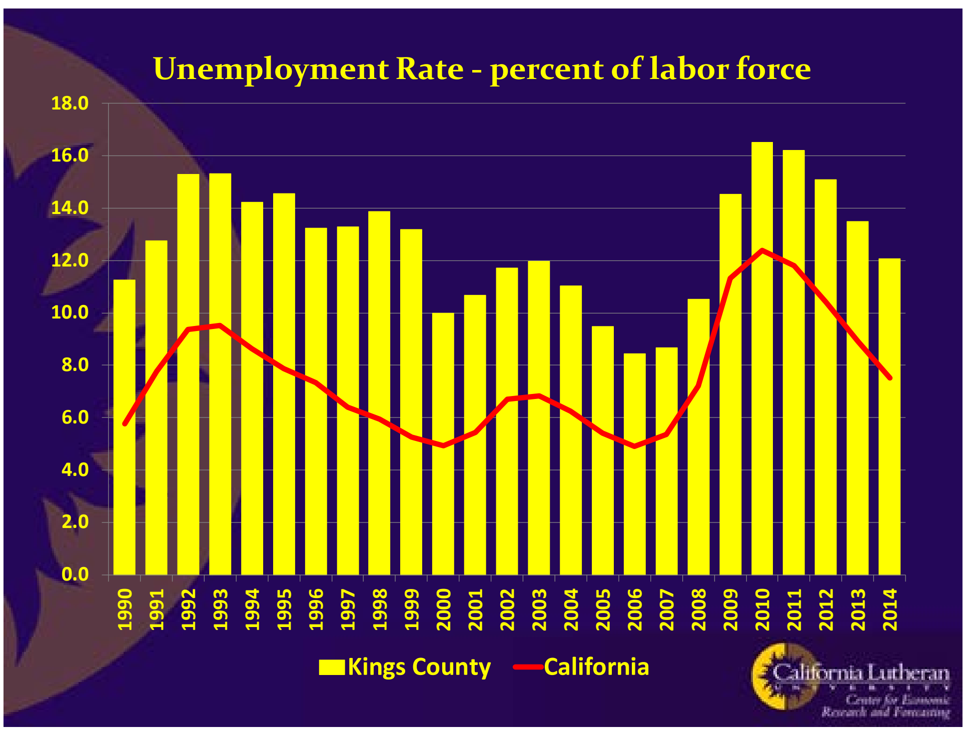
Kings County
California
California Lutheran University
Center for Economic Research and Forecasting



Unemployment Rate - percent of labor force
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990
1991
1992
1993
1994
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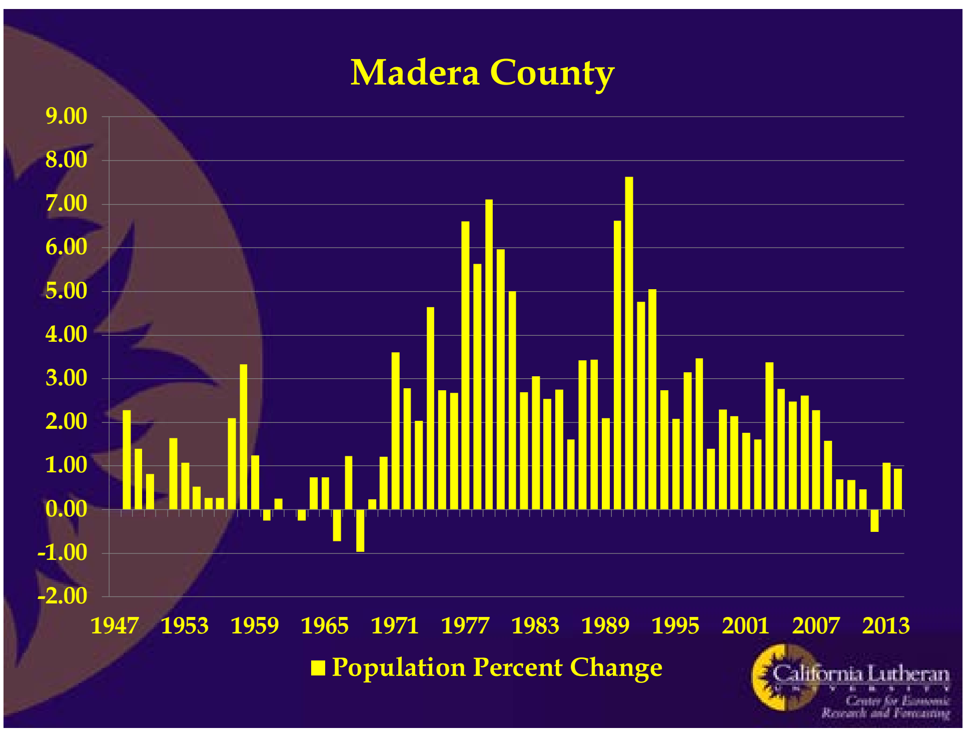
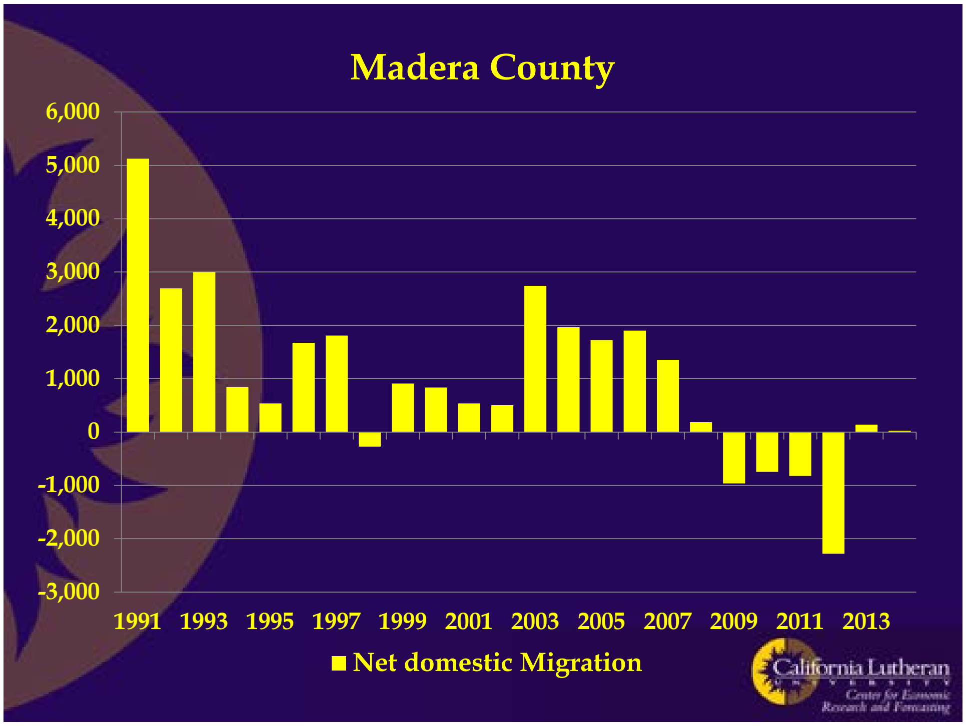
2013
2014
Kings County
California
California Lutheran University
Center for Economic Research and Forecasting

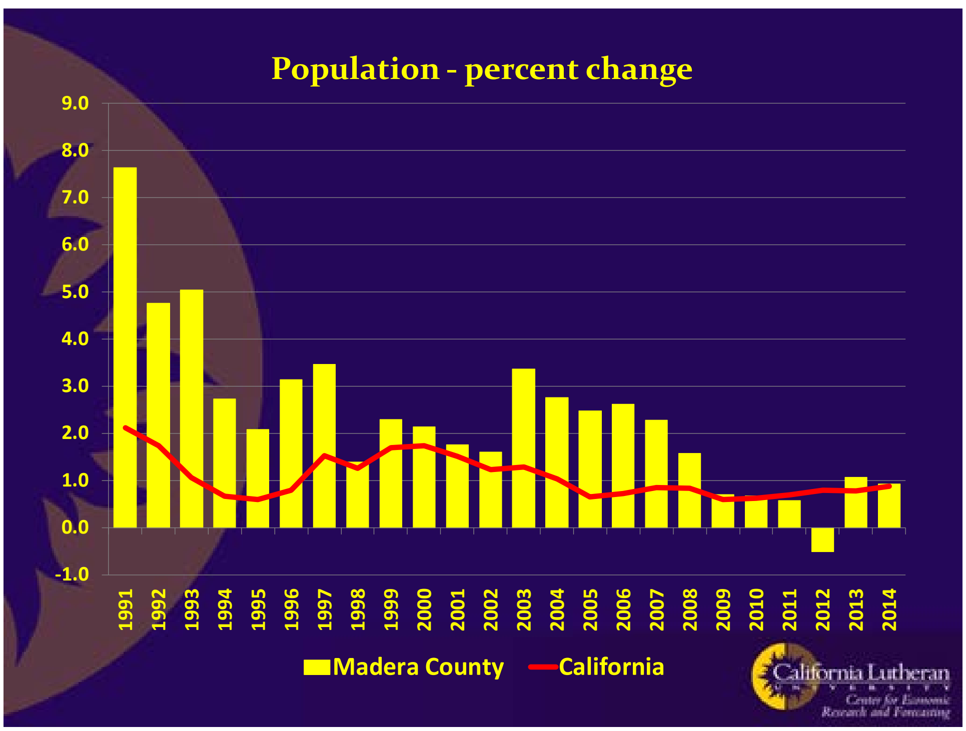
Madera County

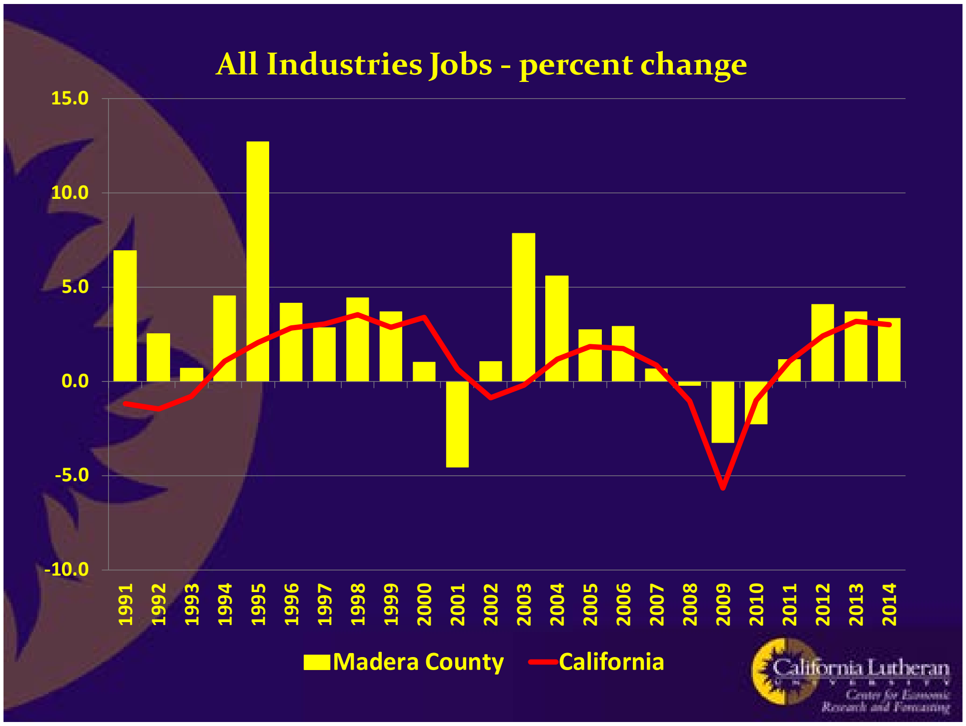
Madera County's Job Market		Changes During the Last Year		Changes Since the Great Recession	
not seasonally adjusted data	Jan 2015	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Jobs*	*Change-jobs*	*Percent change*	*Change-jobs*	*Percent change*
Agriculture	12,500	0	0.0	1,700	15.7
Natural Resources, Mining, and Construction	1,200	-100	-7.7	-1,200	-50.0
Manufacturing	4,500	300	7.1	1,300	40.6
Wholesale Trade	700	-100	-12.5	100	16.7
Retail Trade	3,700	200	5.7	-100	-2.6
Transportation, Warehousing, & Utilities	1,000	-100	-9.1	100	11.1
Information & Technology	400	0	0.0	-100	-20.0
Financial Activities	800	0	0.0	0	0.0
Professional and Business Services	2,900	0	0.0	-200	-6.5
Educational and Health Services	7,900	200	2.6	1,400	21.5
Leisure and Hospitality	3,300	500	17.9	500	17.9
Personal, Repair, & Maintenance Services	1,000	0	0.0	200	25.0
Government	8,900	-1,000	-10.1	-2,000	-18.3
Federal Government	300	0	0.0	-100	-25.0
State Government	2,300	0	0.0	-200	-8.0
Local Government	6,300	-1,000	-13.7	-1,700	-21.3
Total All Industries	**48,800**	**-100**	-0.2	**1,700**	3.6

Source: CA Employment Development Department




Madera County
6,000
5,000
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting


Population - percent change
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Madera County
California
California Lutheran University
Center for Economic Research and Forecasting


All Industries Jobs - percent change
15.0
10.0
5.0
0.0
-5.0
-10.0
1991
1992
1993
1994
1995
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1998
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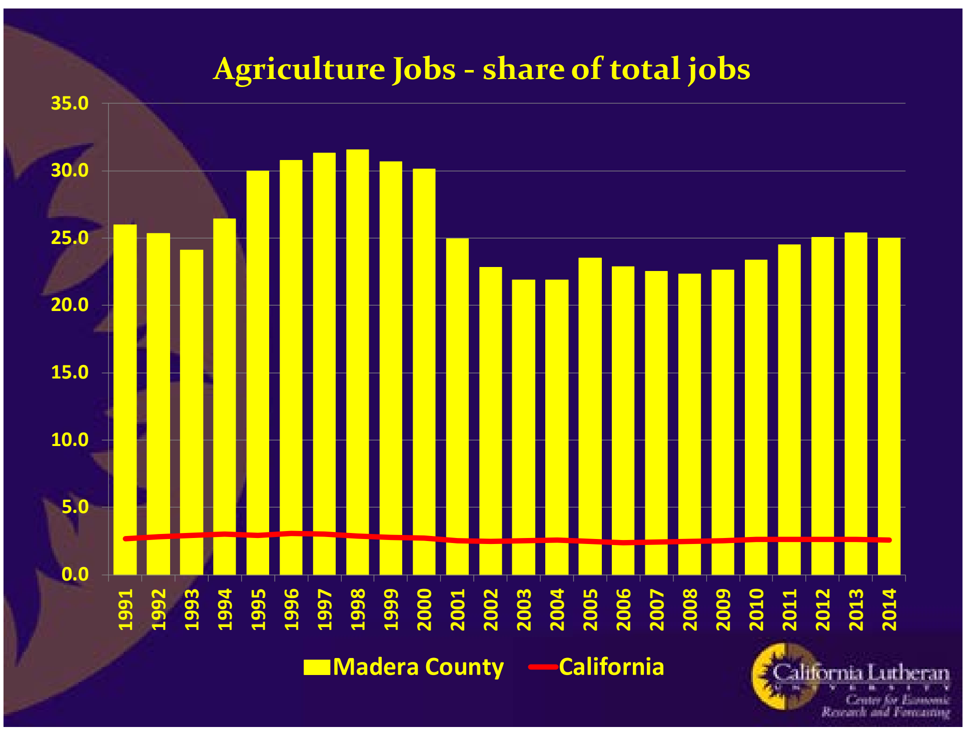
Madera County
California
California Lutheran University
Center for Economic Research and Forecasting


Agriculture Jobs - share of total jobs
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1991
1992
1993
1994
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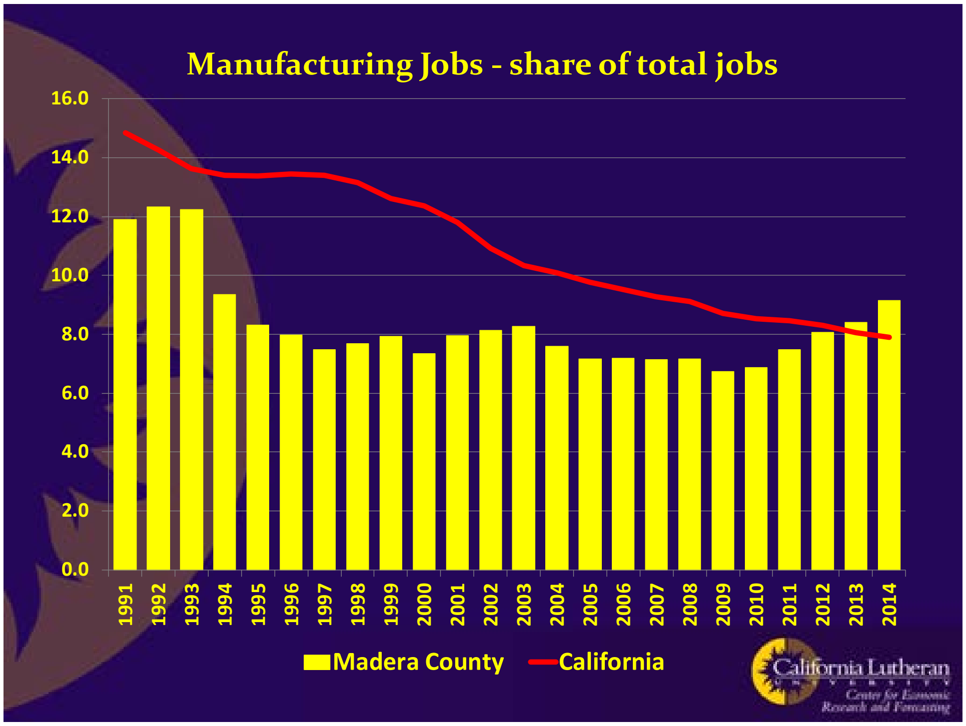
Madera County
California
California Lutheran University
Center for Economic Research and Forecasting


Manufacturing Jobs - share of total jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
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Madera County
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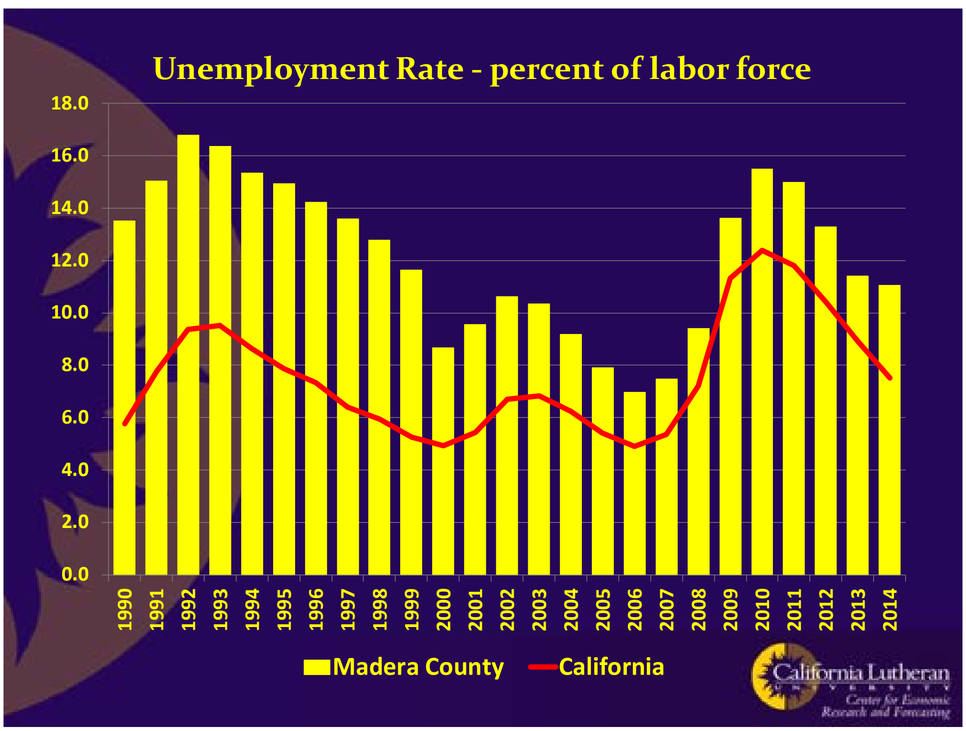
California Lutheran
UNIVERSITY
Center for Economic Research and Forecasting


Unemployment Rate - percent of labor force
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990
1991
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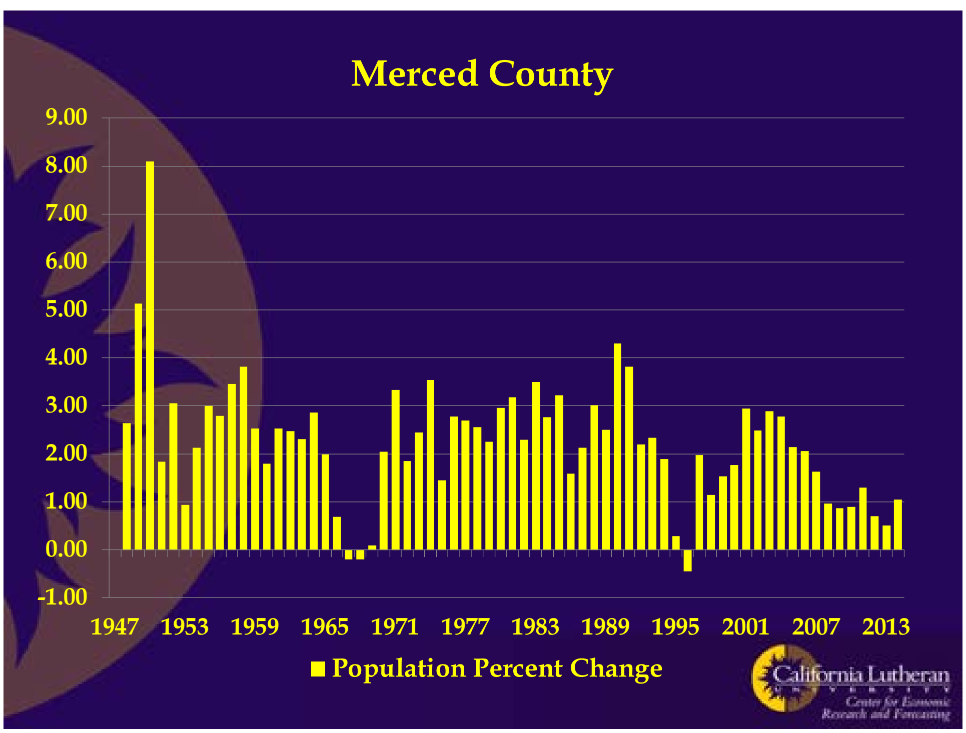
Madera County
California
California Lutheran
UNIVERSITY
Center for Economic Research and Forecasting

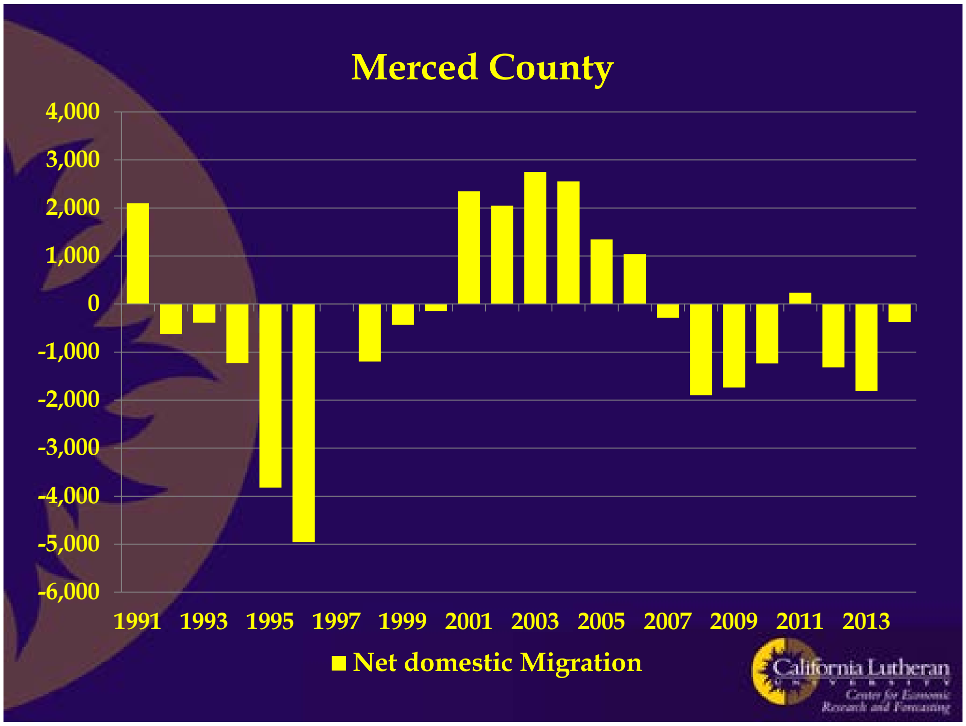
Merced County

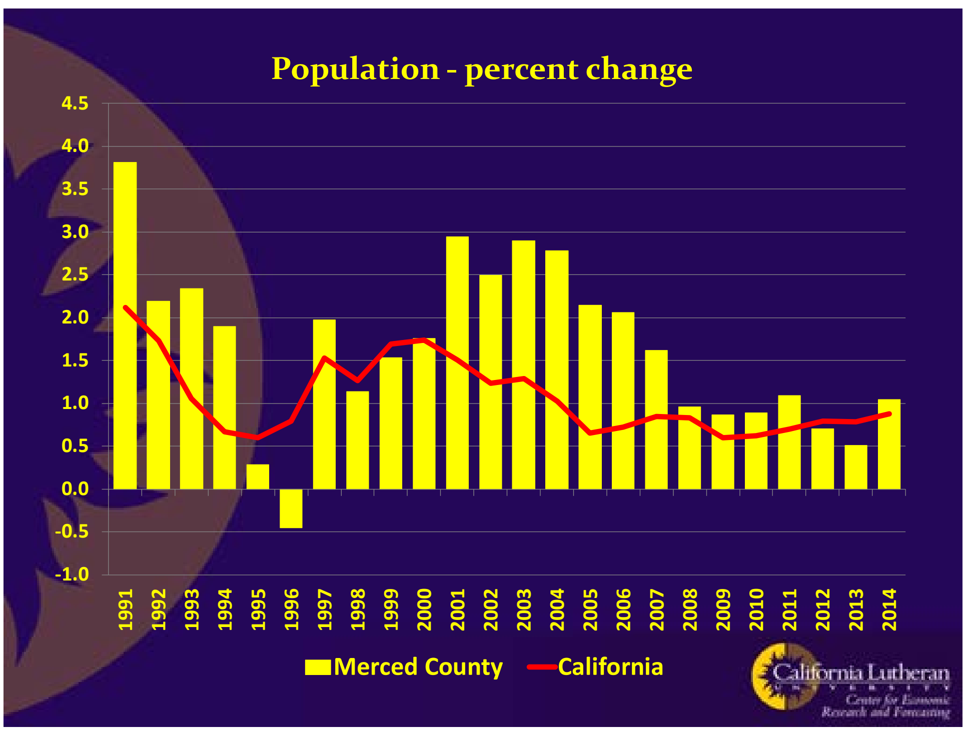
Merced County's Job Market

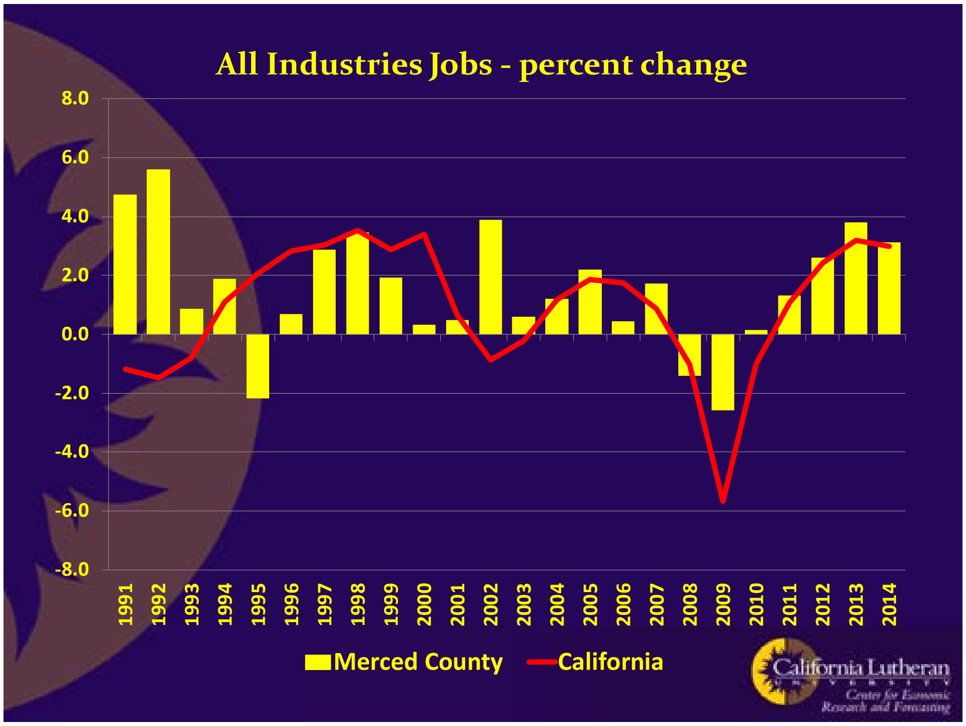
not seasonally adjusted data	Jan 2015	Changes During the Last Year: Jan 2015 - Jan 2014	Changes During the Last Year: Jan 2015 - Jan 2014	Changes Since the Great Recession: Jan 2015 - October 2007	Changes Since the Great Recession: Jan 2015 - October 2007
Sectors	Thousands	Change-thousands	Percent change	Change-thousands	Percent change
Agriculture	11.5	-0.1	-0.9	-2.3	-16.7
Natural Resources, Mining, and Construction	1.8	0.2	12.5	-1.1	-37.9
Durable Goods Manufacturing	1.3	0.1	8.3	-0.5	-27.8
Non-Durable Goods Manufacturing	9.3	2.1	29.2	1.2	14.8
Wholesale Trade	1.5	-0.3	-16.7	-0.8	-34.8
Retail Trade	7.9	0.1	1.3	0.2	2.6
Transportation, Warehousing, & Utilities	2.3	0.1	4.5	-0.1	-4.2
Information & Technology	0.4	0.0	0.0	-0.3	-42.9
Financial Activities	1.5	0.0	0.0	-0.4	-21.1
Professional and Business Services	3.8	0.1	2.7	-0.9	-19.1
Educational and Health Services	9.0	0.3	3.4	2.2	32.4
Leisure and Hospitality	5.4	0.3	5.9	0.4	8.0
Personal, Repair, & Maintenance Services	1.4	0.0	0.0	-0.2	-12.5
Government	17.4	0.7	4.2	2.1	13.7
Federal Government	0.8	0.0	0.0	0.0	0.0
State Government	2.7	0.1	3.8	1.2	80.0
Local Government	13.9	0.6	4.5	0.9	6.9
Total All Industries	**74.5**	**3.6**	**5.1**	**-0.5**	**-0.7**

Source: CA Employment Development Department




Merced County
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting


Population - percent change
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Merced County
California
California Lutheran University
Center for Economic Research and Forecasting


All Industries Jobs - percent change
8.0
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
1991
1992
1993
1994
1995
1996
1997
1998
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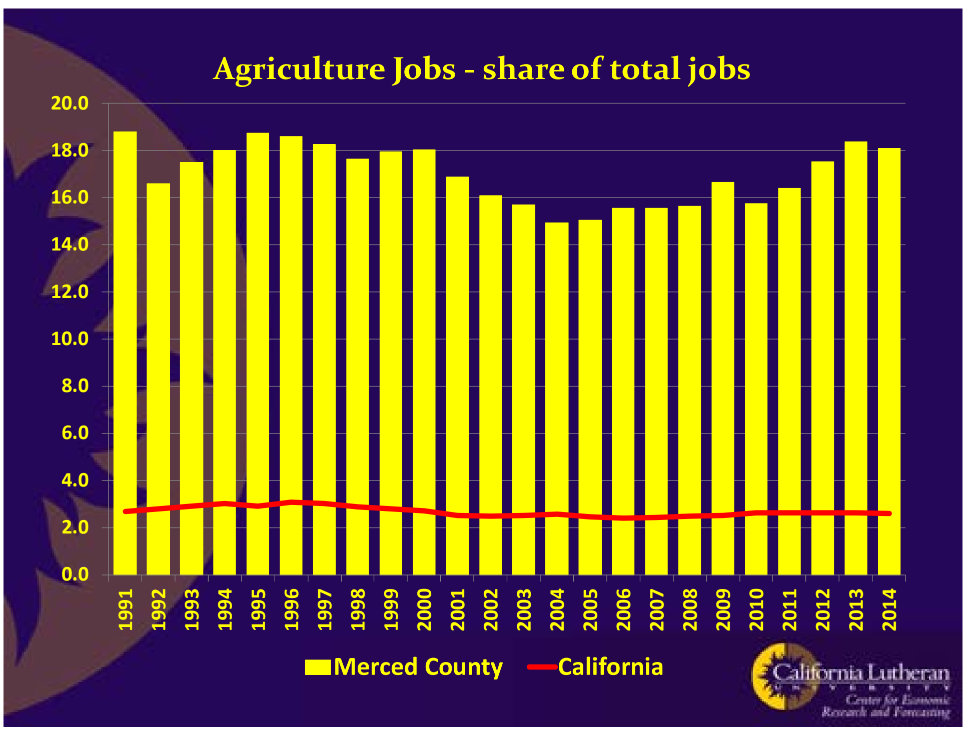
Merced County
California
California Lutheran University
Center for Economic Research and Forecasting


Agriculture Jobs - share of total jobs
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
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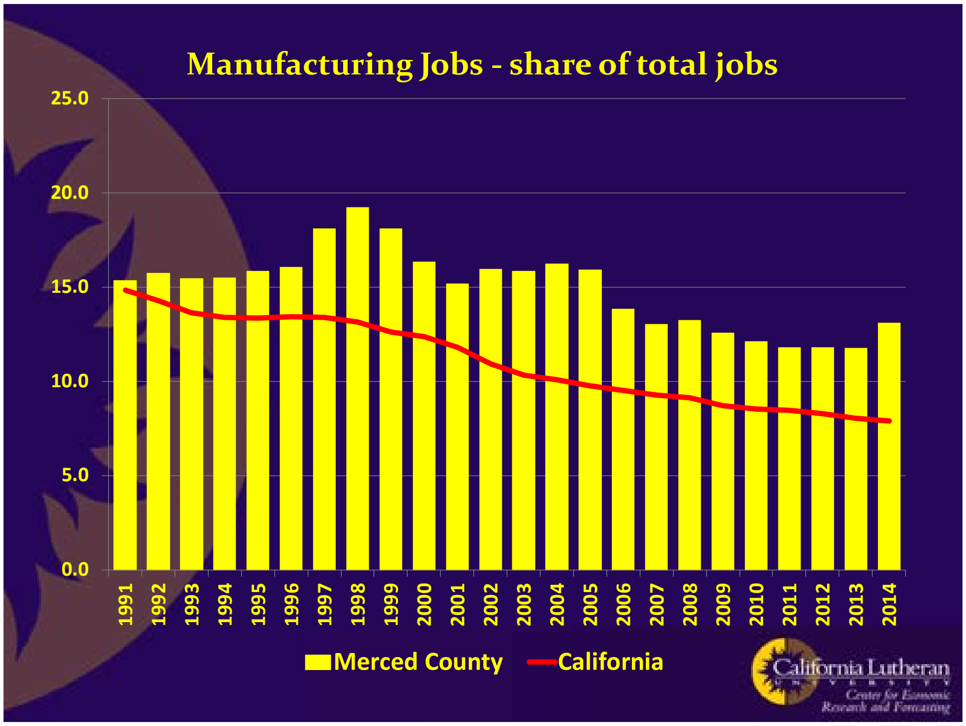
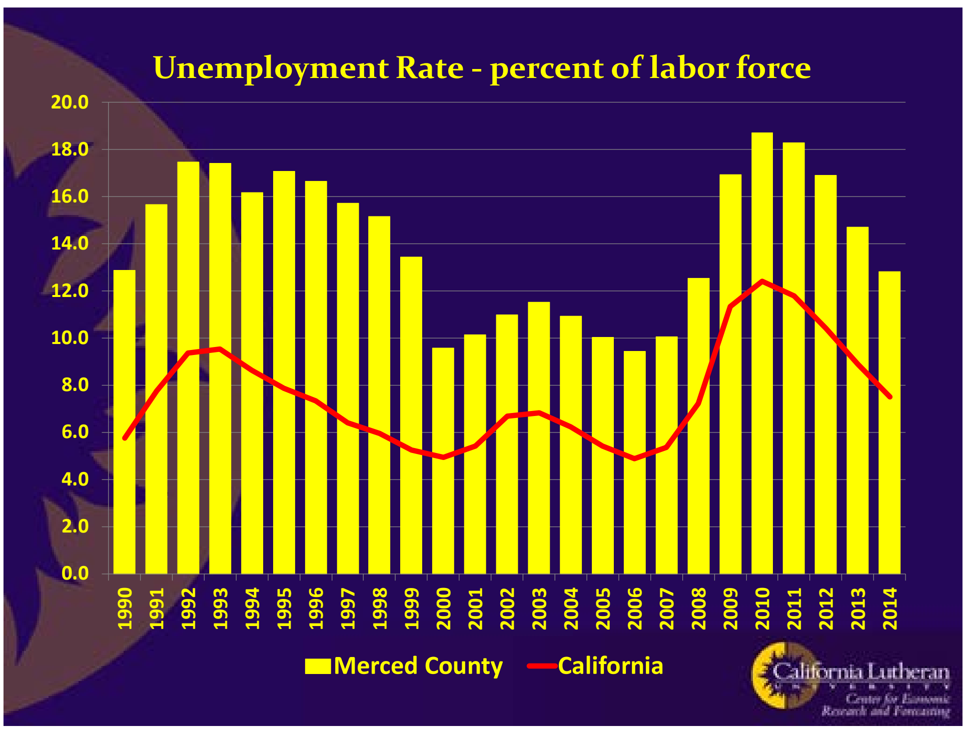
Merced County
California
California Lutheran University
Center for Economic Research and Forecasting


Manufacturing Jobs - share of total jobs
25.0
20.0
15.0
10.0
5.0
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Merced County
California
California Lutheran University
Center for Economic Research and Forecasting

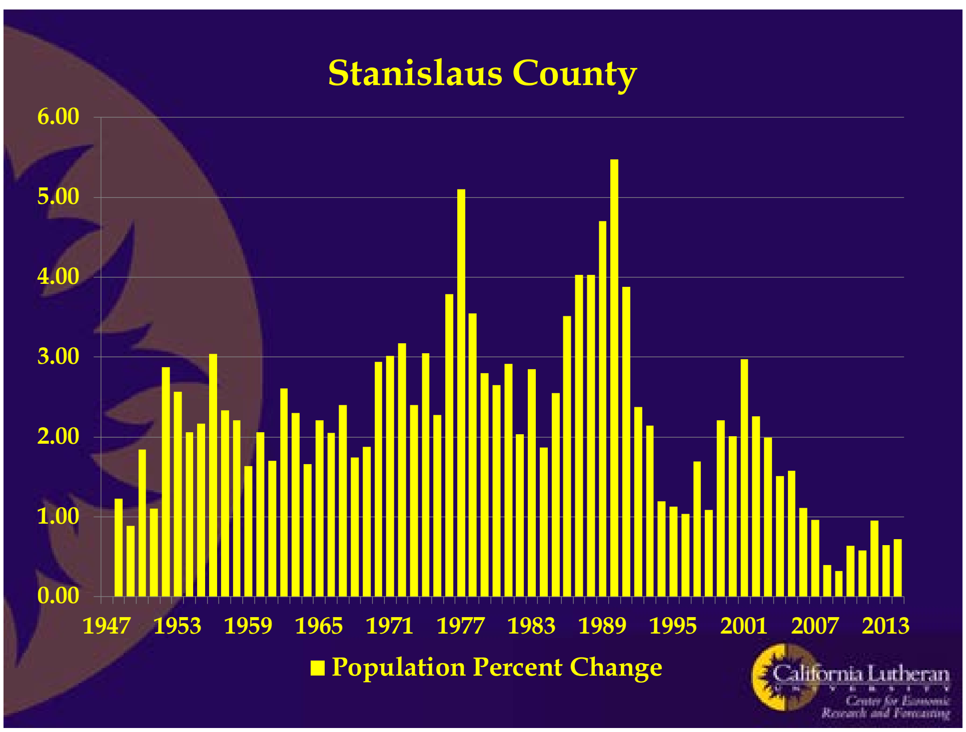

Unemployment Rate - percent of labor force
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Merced County
California
California Lutheran University
Center for Economic Research and Forecasting

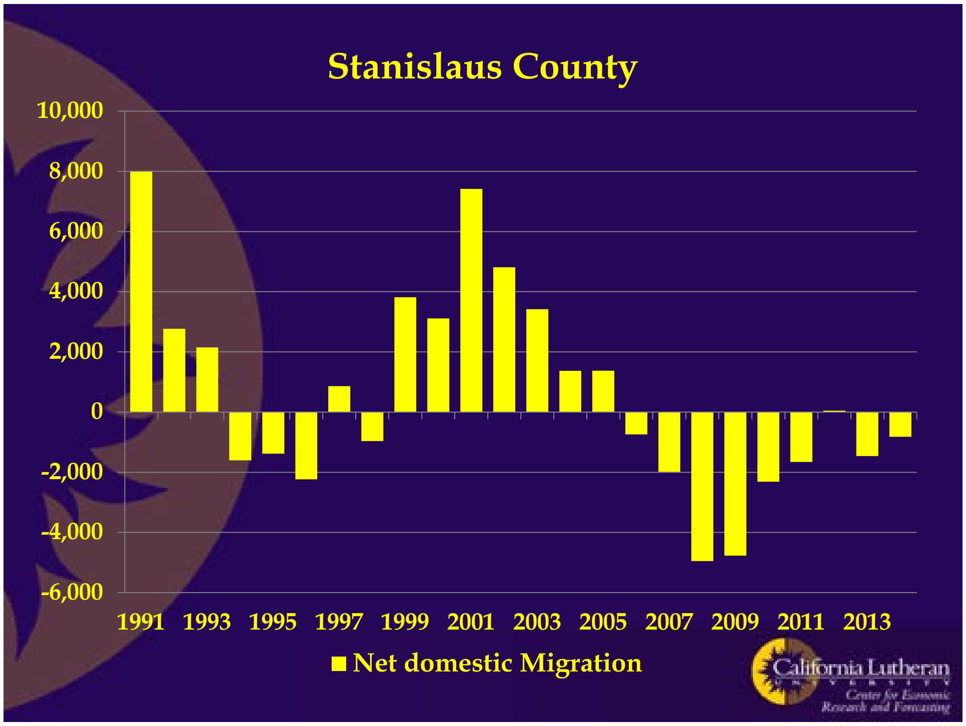
Stanislaus County

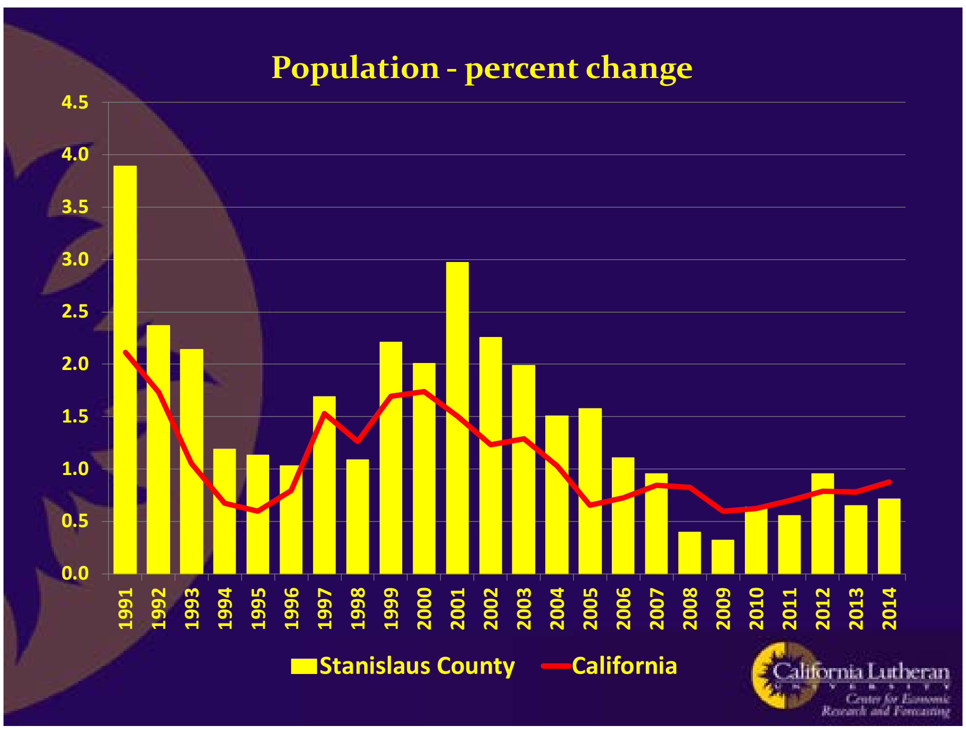
Stanislaus County's Job Market

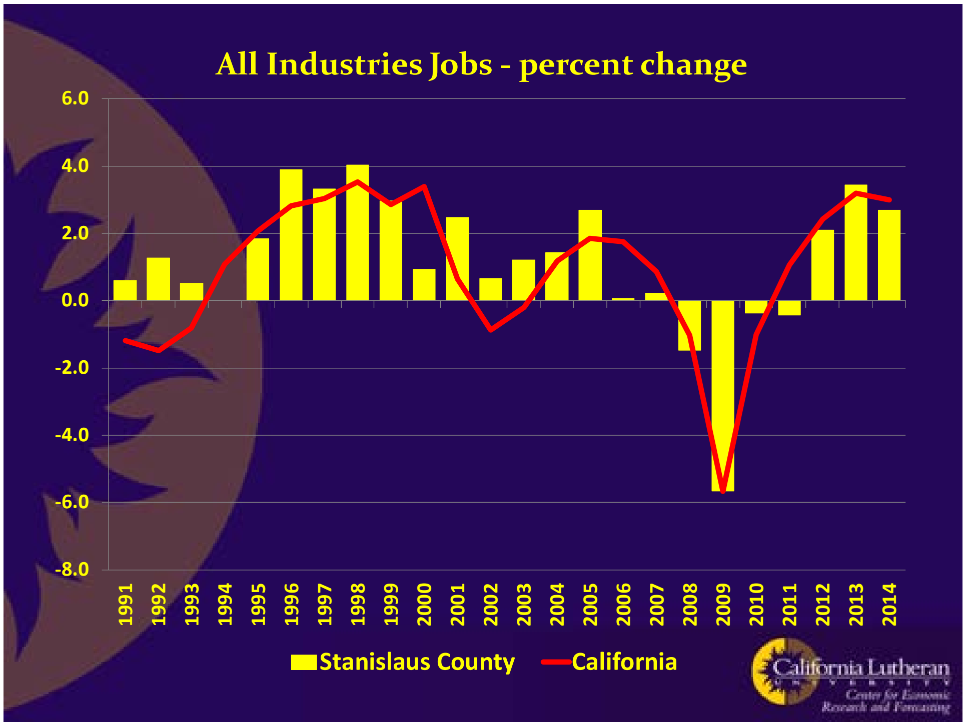
not seasonally adjusted data	Jan 2015	*Changes During the Last Year*		*Changes Since the Great Recession*	
		Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	11.9	0.1	0.8	-2.6	-17.9
Natural Resources, Mining, and Construction	7.1	0.3	4.4	-3.7	-34.3
Durable Goods Manufacturing	6.2	0.1	1.6	-1.6	-20.5
Non-Durable Goods Manufacturing	12.1	-1.4	-10.4	-2.8	-18.8
Wholesale Trade	6.0	0.2	3.4	-0.1	-1.6
Retail Trade	22.2	0.7	3.3	0.3	1.4
Transportation, Warehousing, & Utilities	7.0	0.0	0.0	1.3	22.8
Information & Technology	0.9	0.0	0.0	-1.3	-59.1
Financial Activities	5.4	0.1	1.9	-0.7	-11.5
Professional and Business Services	15.0	1.5	11.1	0.2	1.4
Educational and Health Services	31.1	1.7	5.8	7.0	29.0
Leisure and Hospitality	16.9	0.8	5.0	1.3	8.3
Personal, Repair, & Maintenance Services	5.3	0.2	3.9	-0.8	-13.1
Government	26.6	0.6	2.3	-0.3	-1.1
Federal Government	0.8	0.0	0.0	-0.3	-27.3
State Government	1.9	0.0	0.0	0.0	0.0
Local Government	23.9	0.6	2.6	0.0	0.0
Total All Industries	**173.7**	**4.9**	**2.9**	**-3.8**	**-2.1**

Source: CA Employment Development Department




Stanislaus County
10,000
8,000
6,000
4,000
2,000
0
-2,000
-4,000
-6,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting


Population - percent change
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Stanislaus County
California
California Lutheran University
Center for Economic Research and Forecasting


All Industries Jobs - percent change
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
1991
1992
1993
1994
1995
1996
1997
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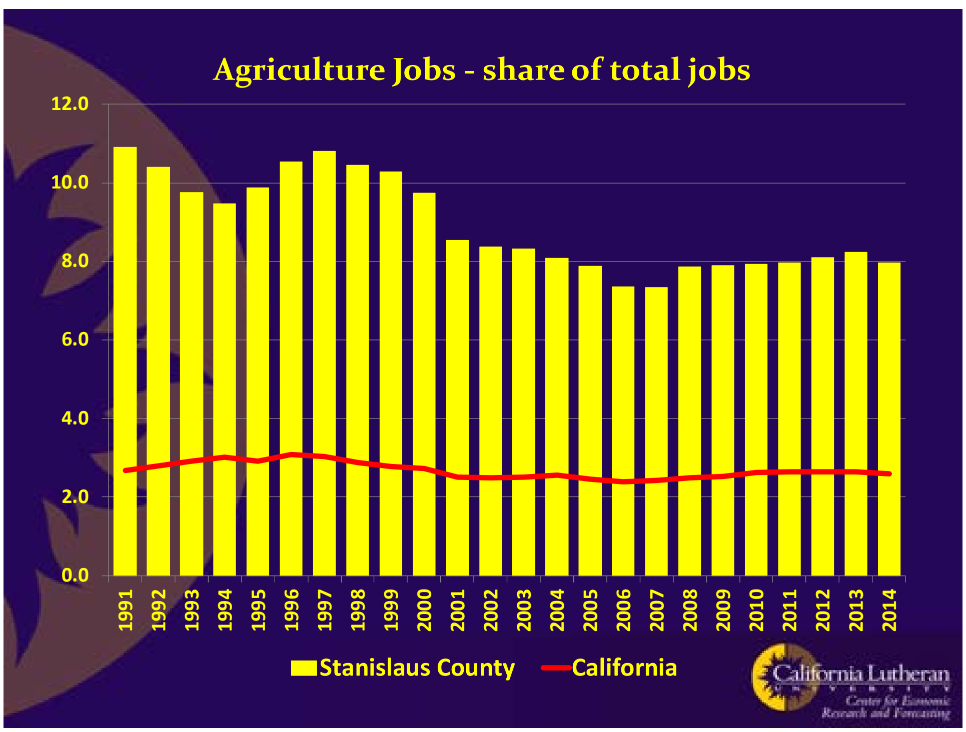
2014
Stanislaus County
California
California Lutheran University
Center for Economic Research and Forecasting


Agriculture Jobs - share of total jobs
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
1995
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1997
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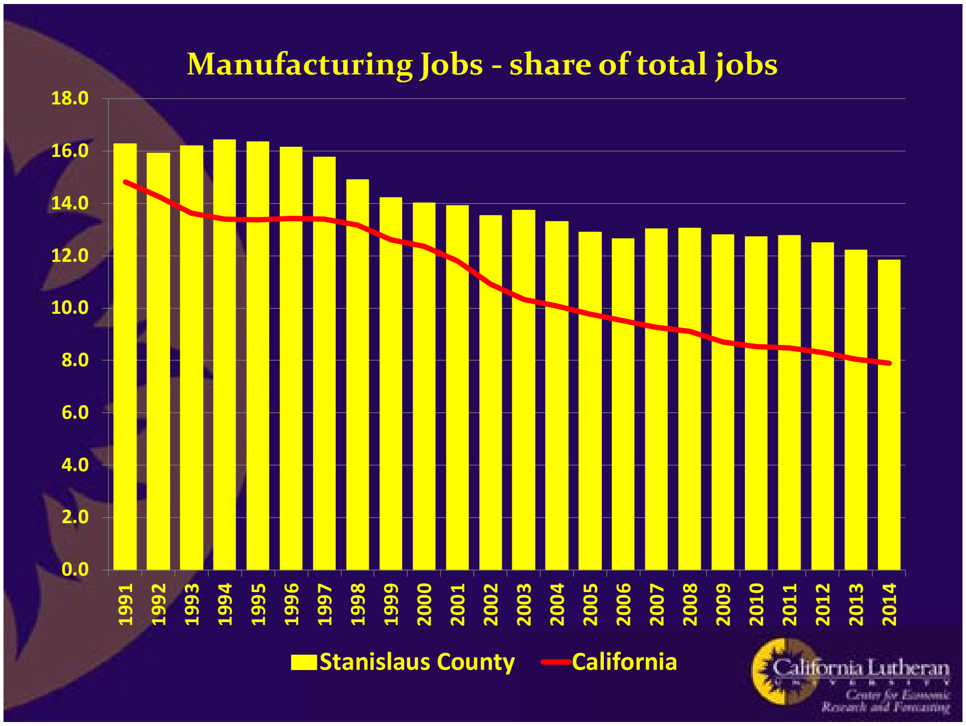
Stanislaus County
California
California Lutheran University
Center for Economic Research and Forecasting


Manufacturing Jobs - share of total jobs
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1991
1992
1993
1994
1995
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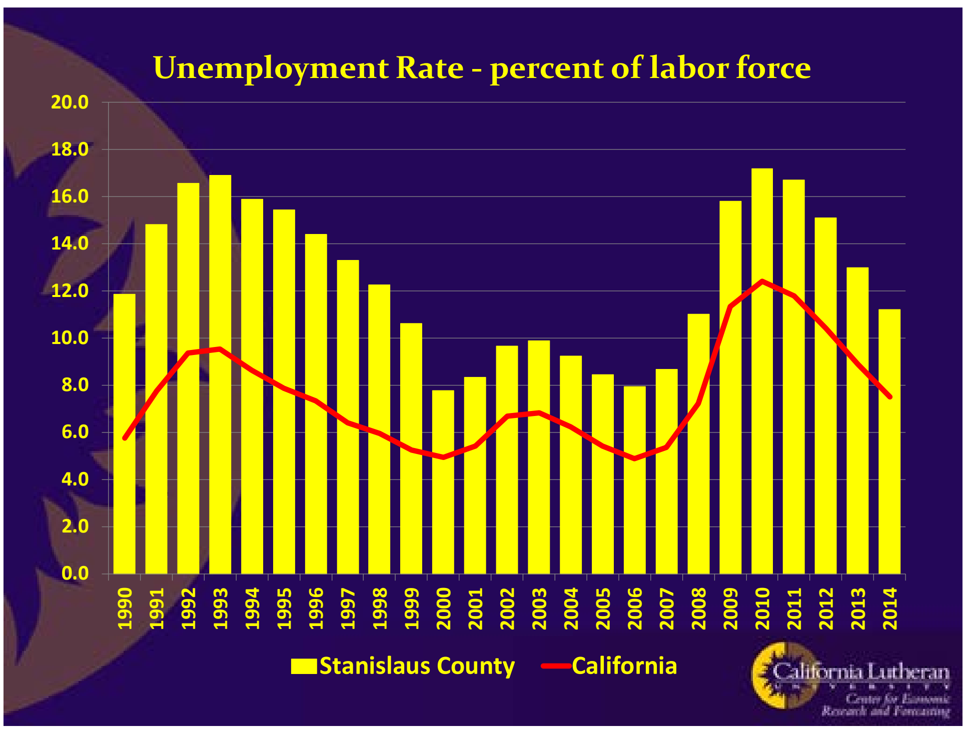
Stanislaus County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting


Unemployment Rate - percent of labor force
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1990
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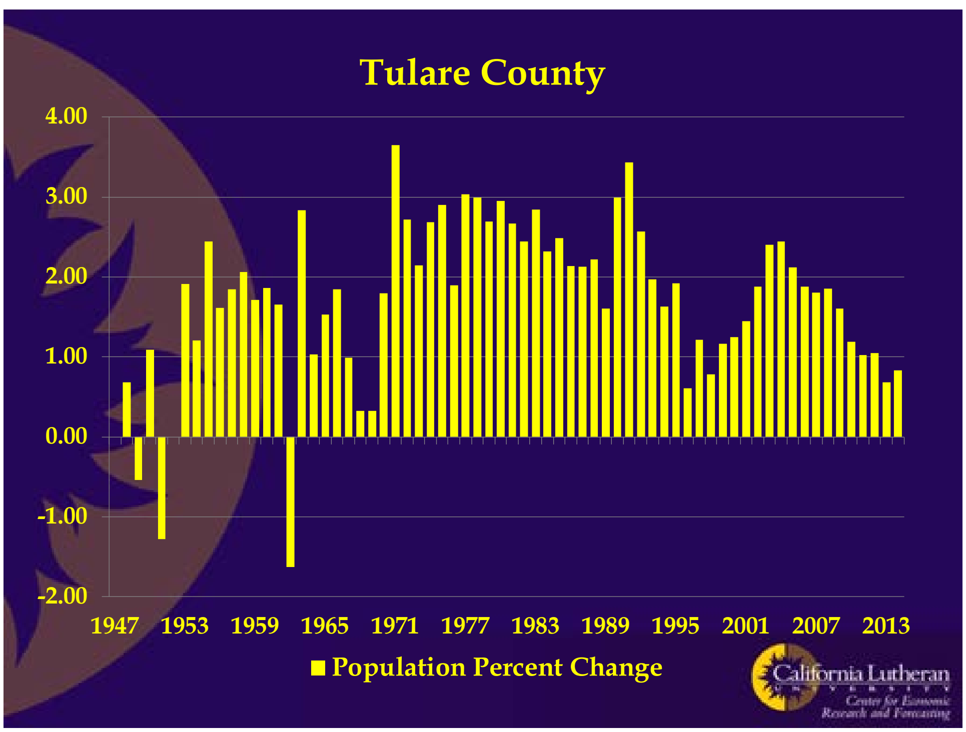
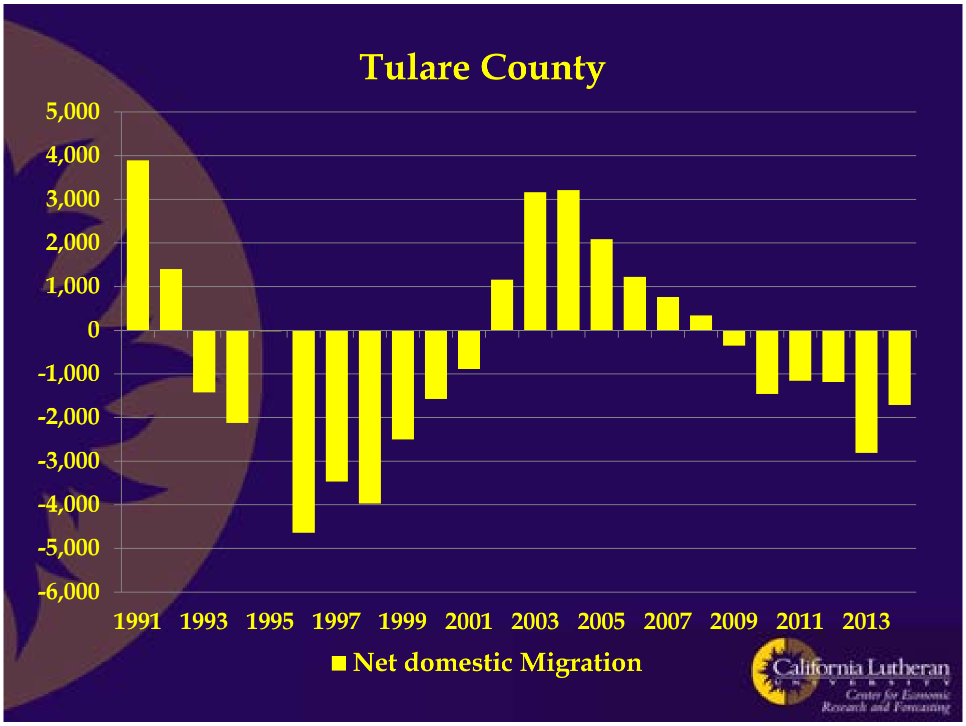
Stanislaus County
California
California Lutheran
UNIVERSITY
Center for Economic
Research and Forecasting

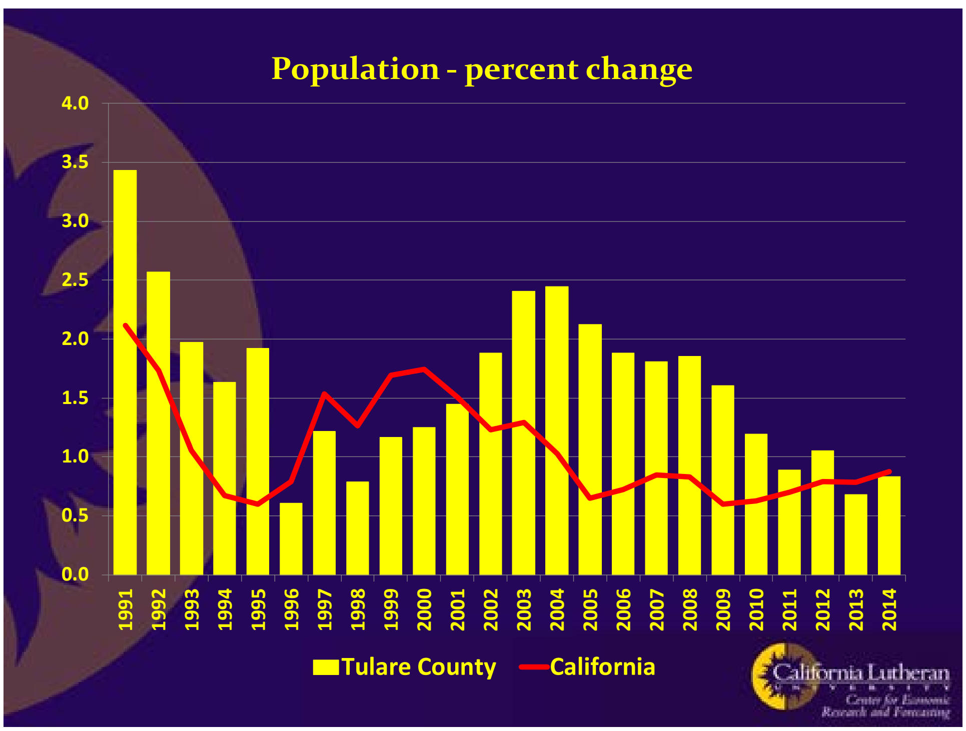
Tulare County

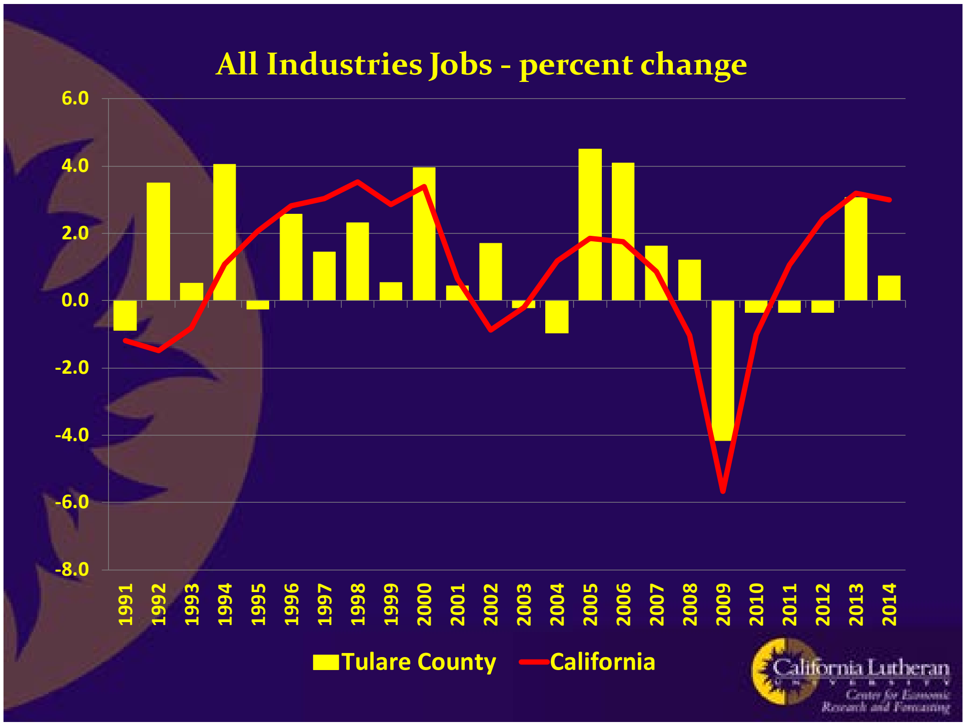
Tulare County's Job Market		Changes During the Last Year		Changes Since the Great Recession	
not seasonally adjusted data	Jan 2015	Jan 2015 - Jan 2014	Jan 2015 - Jan 2014	Jan 2015 - October 2007	Jan 2015 - October 2007
Sectors	*Thousands*	*Change-thousands*	*Percent change*	*Change-thousands*	*Percent change*
Agriculture	31.8	0.1	0.3	-4.1	-11.4
Natural Resources, Mining, and Construction	4.7	0.6	14.6	-2.9	-38.2
Durable Goods Manufacturing	2.7	0.1	3.8	-0.7	-20.6
Non-Durable Goods Manufacturing	9.5	0.5	5.6	1.0	11.8
Wholesale Trade	3.7	-0.2	-5.1	-0.3	-7.5
Retail Trade	16.5	-0.1	-0.6	0.7	4.4
Transportation, Warehousing, & Utilities	6.7	0.6	9.8	1.2	21.8
Information & Technology	0.9	0.0	0.0	-0.3	-25.0
Financial Activities	3.8	0.0	0.0	-0.7	-15.6
Professional and Business Services	8.7	-0.7	-7.4	-1.2	-12.1
Educational and Health Services	13.7	0.5	3.8	1.9	16.1
Leisure and Hospitality	10.4	0.5	5.1	1.4	15.6
Personal, Repair, & Maintenance Services	3.5	0.3	9.4	0.4	12.9
Government	29.9	1.0	3.5	-1.8	-5.7
Federal Government	0.9	0.0	0.0	-0.3	-25.0
State Government	1.7	0.1	6.2	-0.6	-26.1
Local Government	27.3	0.9	3.4	-0.9	-3.2
Total All Industries	**146.5**	**3.2**	**2.2**	**-5.4**	**-3.6**

Source: CA Employment Development Department




Tulare County
5,000
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013
Net domestic Migration
California Lutheran University
Center for Economic Research and Forecasting


Population - percent change
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
Tulare County
California
California Lutheran University
Center for Economic Research and Forecasting


All Industries Jobs - percent change
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
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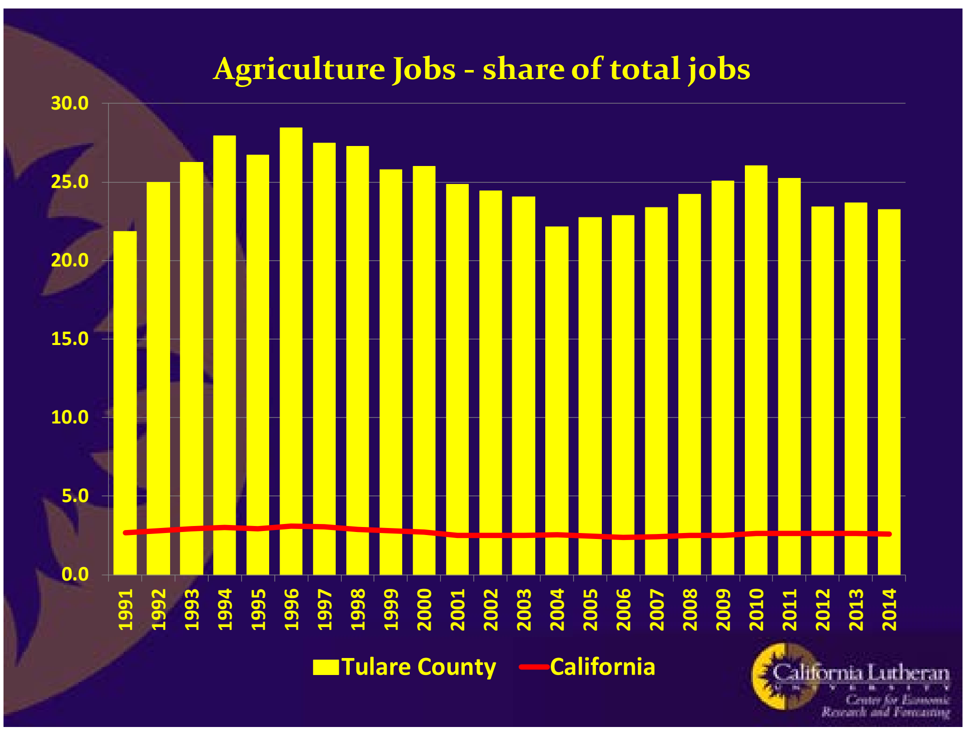
California Lutheran University
Center for Economic Research and Forecasting


Agriculture Jobs - share of total jobs
30.0
25.0
20.0
15.0
10.0
5.0
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1991
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California Lutheran University
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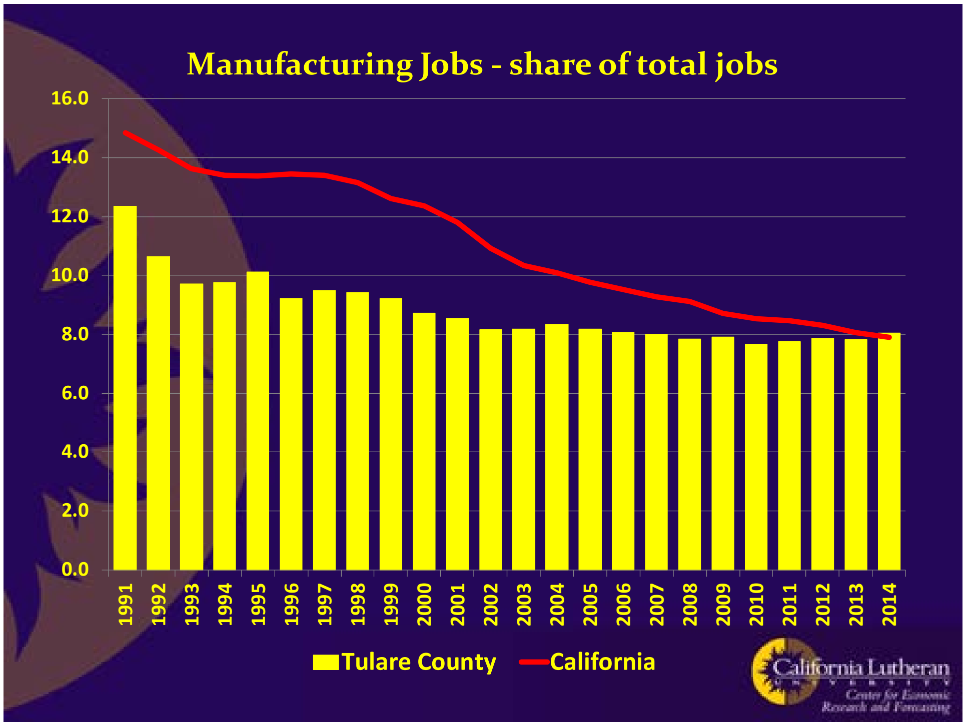
Manufacturing Jobs - share of total jobs
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
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1991
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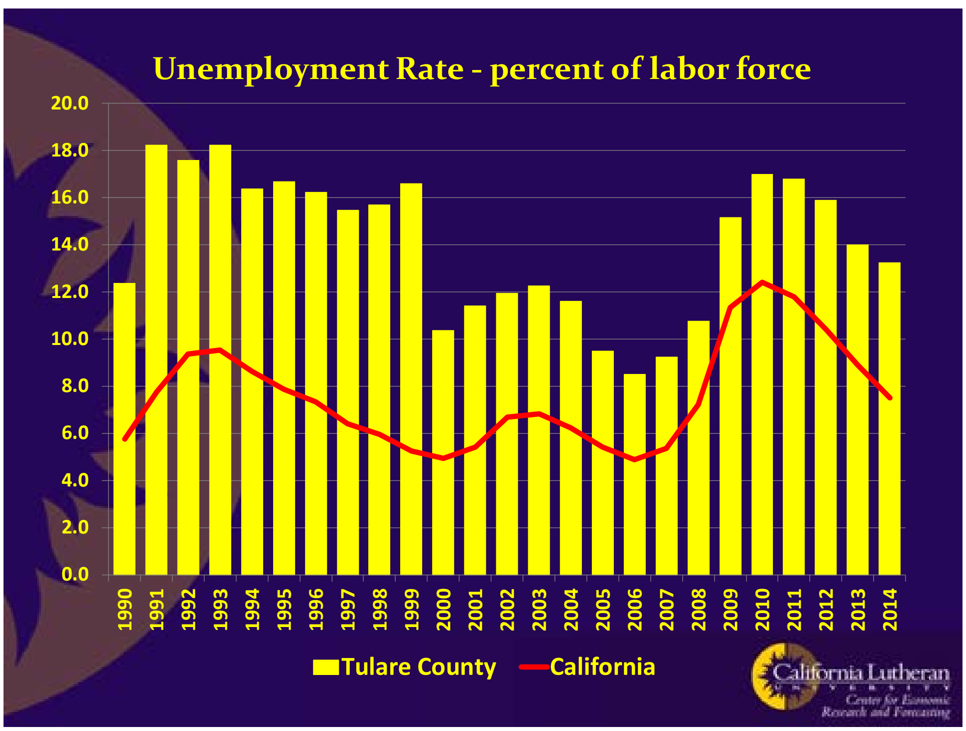
Unemployment Rate - percent of labor force
20.0
18.0
16.0
14.0
12.0
10.0
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6.0
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