

What's in Your Wallet?

Texans' Income Fares Well During Oil Busts and Booms

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Expansions and contractions in the energy industry drive both booms and busts in Texas. The uneven growth caused by the ups and downs in oil prices is especially present in oil-dependent regions such as Houston, Midland, and Odessa, which benefit greatly in boom periods and suffer when the price of oil falls. In today's adverse oil price environment, the oil-dependent regions are feeling the hardship in employment and income growth.

The economic performance of a region relies on its industrial makeup and degree of specialization or diversification. Employment and income levels are directly correlated to the industrial makeup and performance of a region. Since the 1980s, the Texas economy has become more diversified, reducing its dependence on the energy industry and making it more resilient when oil prices collapse. Still, the oil industry remains one of the state's leading drivers of economic growth. Texas is an example of the economic costs of concentration and of the benefits of economic diversification.

The Takeaway

MSAs that specialize in oil or technology on average have registered higher growth in income per capita over time. Income growth differs between oil regions, depending on whether the area has primarily high-paying white-collar jobs or blue-collar jobs.

In 2014, Texas personal income per capita (PIPC) was slightly below the U.S. PIPC (Table 1). In the long term, Texas kept up with the national growth rate. Recently, PIPC (net of transfers) has converged with and exceeded the U.S. PIPC as a result of increasing income within the state (Figure 1).

The Houston MSA registered a higher PIPC in 2014 than the nation's and the rest of the Texas Triangle MSAs composed of the area within Austin, DFW, Houston, and San Antonio (Table 1). The Austin MSA and DFW PIPC achieved a higher PIPC than the U.S.,

Definitions and Methodology

Personal income per capita (PIPC) can be used to measure the historical performance of a region. It can serve as a proxy for standard of living since it contains multiple sources of income received and represents the amount of money individuals have for consumption and saving purposes. Improvements in the economy correlate with increasing levels of income from wages and salaries. Alternatively, downturns in the economy hinder growth in personal income, making it possible to examine how personal income has performed over time both within the state and relative to the United States. Comparisons can be made between different regions that are concentrated or diversified in similar or different industries.

To measure the historical performance of Texas and its Metropolitan Statistical Areas (MSAs) compared with other regions and the U.S., PIPC levels were estimated for all the nation's MSAs. PIPC estimation by U.S. region provides a dynamic picture through time of how income levels in the economies that are more energy concentrated have performed compared with other nonenergy regions within and outside the state. This is particularly relevant in the current "bust" in the energy industry and helps measure its impact on the state's and region's standards of living.

Personal Income Per Capita and Components

Personal income is a measure of an individual's total earnings. When divided by population, it represents the average income of the people in a region. PIPC is also used to measure a region's standard of living. PIPC consists of wages and salaries, proprietor's income, property income, transfer payments (such as Medicare) and other income. *Wages and salaries* are the

monetary remuneration of employees. *Proprietor's income* consists of earnings from sole proprietorships, partnerships, and tax-exempt corporations. *Property income* is derived from dividends, rent, and interest. *Transfer payments* are payments for which no current services are performed, usually government social benefits. The other income category is a *residual of benefits* paid to wage and salary

workers and a *residence adjustment* for workers who live and work in different areas.

This research examined PIPC levels and growth across the major metros and their changes from 1969 to 2014. The source of the information is the Bureau of Economic Analysis (BEA), which includes various types of income, and earnings and employment by industry for the period.

respectively, while the San Antonio MSA ranking was below the nation and the other major Texas MSAs (Table 1).

Two MSAs with significant oil and gas activity, Midland and Odessa, exhibited strong levels of PIPC in 2014 (Table 1). In fact, during 2014 Midland had the second highest PIPC levels in the nation (behind the Bridgeport-Stamford-Norwalk, CT MSA). Houston, Midland, and Odessa are considered Texas' major oil MSAs where PIPC has experienced exceptional growth, reaching levels well above the nation. On the flip side, these regions have also experienced more volatility during downturns in the oil and gas industry.

Hereafter, any reference to PIPC is net of transfers (for example, Social Security and welfare payments) as they do not constitute earnings currently worked for.

Transfer payments—which include payments to the unemployed—rise most in periods of economic decline. Our interest is income paid out for employment and property ownership in the prevailing regional economic activities.

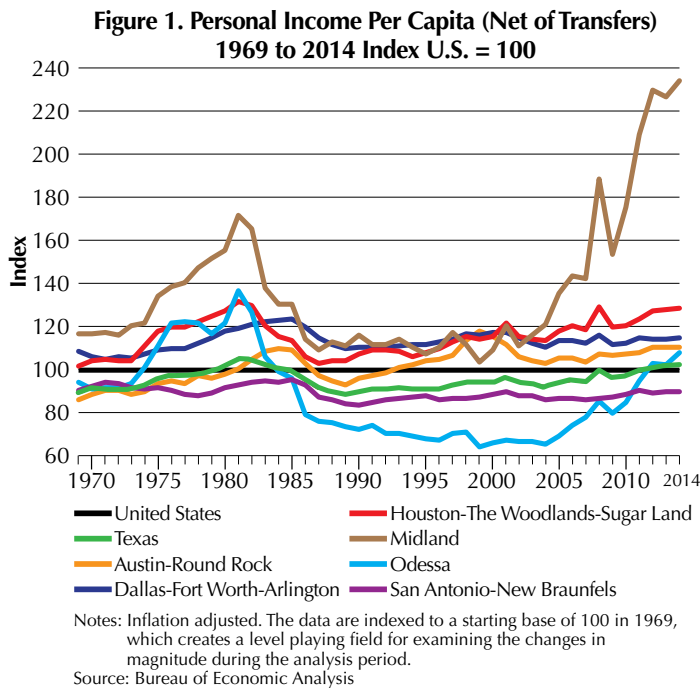
Ranking U.S. MSAs by the average annual inflation-adjusted growth rate in PIPC from 1969 to 2014, Texas major oil MSAs (Houston, Midland, and Odessa) rank 16th, 1st, and 21st out of 381 metros, respectively (Tables 2 and 3). The Austin MSA, a region more based in technology, education, and state government, is also near the top of the rankings at 15th. The DFW and San Antonio MSAs are a little farther down the list at 99th and 157th, respectively. The DFW MSA is an important transportation, business and financial services, and technology region that is highly related to the U.S. economy.

Table 1. Personal Income Per Capita Components Relative to the National Average

Region	Year	Per Capita				Sources of Change in Per Capita Income					
		Income	Wages and Salaries	Proprietor's Income	Transfers	Total	Wages and Salaries	Proprietor's Income	Transfers	Mix*	
		(U.S. = 100)				(percentage points)					
		(1)	(2)	(3)	(4)	Years	(5)	(6)	(7)	(8)	(9)
Texas	2014	99.2	107.5	85.2	83.3	2010–2014	4.1	12.6	2.0	-1.3	-9.2
	2010	95.0	101.4	83.8	83.5	2001–2010	0.8	-18.6	0.8	5.7	12.9
	2001	94.2	102.0	75.8	79.5	1990–2000	4.0	7.2	-1.9	0.4	-1.7
	2000	92.7	99.5	76.5	80.3	1980–1990	-9.3	-15.3	3.2	1.1	1.7
	1990	88.6	92.7	82.1	77.5	1969–1980	9.4	-20.2	5.1	3.2	21.3
	1980	98.0	104.4	90.3	72.1						
	1969	88.6	90.4	85.0	77.3						
Austin-Round Rock	2014	102.1	109.9	111.8	62.8	2010–2014	2.8	10.4	3.3	-0.9	-9.9
	2010	99.3	108.1	106.0	63.0	2001–2010	-5.1	-27.0	2.2	4.6	15.1
	2001	104.4	117.6	89.3	57.3	1990–2000	15.9	20.2	-1.9	-0.5	-1.9
	2000	108.1	121.6	92.4	58.0	1980–1990	-1.7	-7.3	4.2	0.2	1.1
	1990	92.1	96.0	97.0	62.4	1969–1980	8.8	-19.5	6.4	2.5	19.5
	1980	93.8	96.5	103.8	64.1						
	1969	85.0	84.3	94.1	74.6						
Dallas-Fort Worth-Arlington	2014	107.5	121.9	91.0	71.7	2010–2014	2.8	12.6	1.8	-1.0	-10.7
	2010	104.7	118.0	91.3	71.6	2001–2010	-5.8	-28.4	0.9	5.3	16.4
	2001	110.5	127.0	82.3	64.6	1990–2000	6.0	9.5	-1.6	0.3	-2.1
	2000	110.9	126.7	84.6	65.1	1980–1990	-6.6	-12.8	3.8	0.1	2.3
	1990	104.9	117.7	87.9	63.7	1969–1980	5.9	-28.4	4.7	2.9	26.6
	1980	111.5	123.6	94.4	65.9						
	1969	105.6	111.3	94.1	70.8						
Houston-The Woodlands-Sugar Land	2014	119.0	138.0	96.8	72.3	2010–2014	7.4	17.8	2.3	-1.2	-11.5
	2010	111.6	127.4	94.6	73.2	2001–2010	-3.0	-27.4	2.1	5.1	17.2
	2001	114.6	133.0	79.2	68.7	1990–2000	7.7	9.7	-0.8	0.8	-2.0
	2000	109.7	125.2	80.6	69.3	1980–1990	-16.6	-25.0	3.7	1.5	3.2
	1990	102.0	115.8	80.4	63.7	1969–1980	20.3	-10.7	3.9	2.2	25.0
	1980	118.7	138.3	84.5	54.6						
	1969	98.3	104.3	87.2	61.3						
Midland	2014	206.0	255.4	161.5	69.8	2010–2014	48.7	64.4	3.4	-2.7	-16.4
	2010	157.3	179.1	161.2	78.7	2001–2010	41.5	18.4	4.0	4.4	14.8
	2001	115.8	117.8	132.2	82.9	1990–2000	-4.0	-0.6	-3.2	2.2	-2.4
	2000	106.2	101.7	137.2	84.4	1980–1990	-32.5	-46.8	9.3	2.1	2.9
	1990	110.2	106.9	146.0	67.3	1969–1980	31.0	-7.7	8.9	2.4	27.3
	1980	142.7	159.7	137.1	52.6						
	1969	111.7	115.8	119.9	55.6						
Odessa	2014	102.2	123.9	52.7	74.8	2010–2014	16.9	28.2	0.6	-3.6	-8.3
	2010	85.3	92.4	55.7	88.3	2001–2010	14.7	1.5	-0.3	4.9	8.6
	2001	70.7	70.4	55.0	93.4	1990–2000	-3.2	-1.1	-3.0	2.3	-1.3
	2000	69.8	69.9	53.3	94.4	1980–1990	-40.2	-50.1	2.9	3.6	3.4
	1990	73.0	74.6	65.5	77.0	1969–1980	22.3	-9.6	4.9	2.3	24.8
	1980	113.2	134.9	69.9	50.0						
	1969	90.9	100.9	58.9	52.9						
San Antonio-New Braunfels	2014	89.8	91.2	84.9	90.2	2010–2014	0.7	8.7	1.5	-1.3	-8.2
	2010	89.1	89.7	86.2	90.1	2001–2010	0.1	-16.9	-0.5	6.2	11.3
	2001	89.1	90.8	85.3	85.4	1990–2000	4.8	8.0	-1.9	0.3	-1.6
	2000	88.4	89.1	87.0	86.1	1980–1990	-6.4	-10.8	2.7	1.2	0.6
	1990	83.6	80.8	92.0	84.3	1969–1980	0.6	-28.5	5.2	4.1	19.8
	1980	89.9	87.6	107.3	78.8						
	1969	89.3	87.0	108.1	76.7						

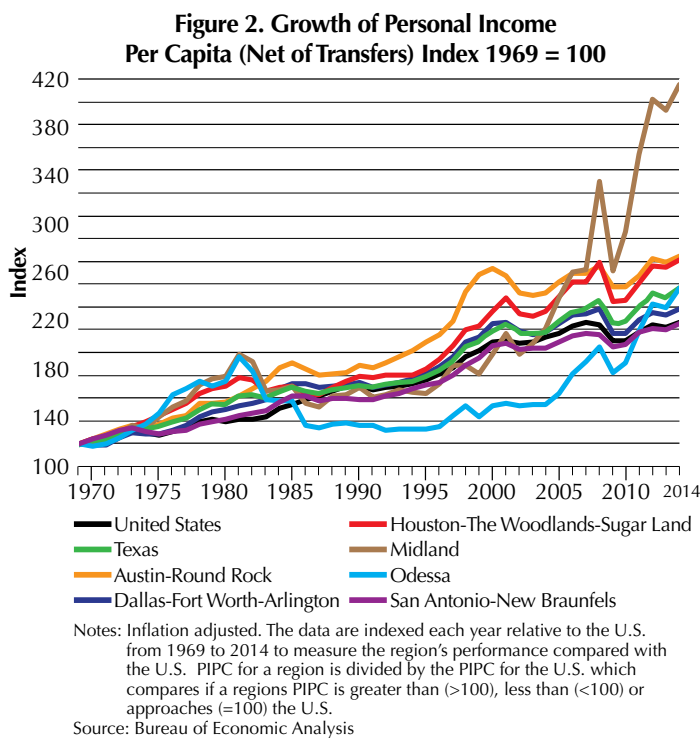
*Note: Inflation adjusted. Mix shows the contribution to change in relative PIPC assuming the proportion of each component for a region remained constant over the time period and grew at the same rate as the U.S.

Source: Bureau of Economic Analysis



of income paid for work completed. It does not include earnings from self-employment, business investments, other passive investments or transfer payments from the government as does personal income. The Houston, Midland, and Odessa MSAs slide to 20th, 7th, and 17th, respectively. The Austin MSA jumps to eighth while the DFW and San Antonio MSAs increase to 59th and 63rd, respectively. Both personal income growth and wage and salary growth suggest that it pays to be in oil and gas, at least in Texas.

To determine the degree of industrial specialization, location quotients (LQ) are used to compare a region of interest with a benchmark region. An LQ is simply the proportion of employment in an industry for a region divided by the proportion of employment in the same industry for the benchmark region. A value of greater than 1.0 suggests that the region of interest has a greater proportion of employment in that industry relative to the benchmark region, which in this case is the U.S. The data on employment from the Bureau of Economic Analysis (BEA) is used to estimate the LQs by state and MSA.



Ranking the top U.S. MSAs in PIPC annual inflation adjusted growth from 1969 to 2014, three of the five top-ranked MSAs have a mining, based concentration (Table 2). The Midland MSA was ranked first followed by the Lafayette (LA) MSA at third and then by the Houma-Thibodaux (LA) MSA at fourth. All three on average from 2001 to 2014 registered high LQs in the mining sector, respectively.

The other two MSAs that round out the top five are Fayetteville-Springdale-Rogers (AR-MO) followed by Bridgeport-Stamford-Norwalk (CT). The Fayetteville-Springdale-Rogers (AR-MO) MSA is specialized in management of companies and enterprises, and in transportation and warehousing services, all related to Walmart operations (Table 2). The Bridgeport-Stamford-Norwalk (CT) is concentrated in finance and insurance, and in the management of companies and enterprises (Table 2).

The average LQs from 2001 to 2014 are estimated for the remaining Texas MSAs. The Austin MSA specializes in state government, professional, scientific and tech-

San Antonio, in comparison, traditionally has been a tourism and military service area. Using the same comparison by state, Texas ranks 11th out of the 50 states.

Texas' four major MSAs (Austin, DFW, Houston, and San Antonio) match or exceed the U.S. annual inflation-adjusted average growth from 1969 to 2014 (Figure 2). Wages and salaries per capita is a more accurate picture

Table 2. Location Quotients for Significant Industries, Top 5 MSAs, Texas MSAs, and Bottom 10 MSAs

Region	Rank	Average	Location Quotients (Number of Jobs)
Texas			Mining (3.92)
Midland, Texas	1	3.62	Mining (35.68)
Fayetteville-Springdale-Rogers, Ark.-Mo.	2	3.05	Transportation and warehousing (2.12); Management of companies and enterprises (5.63)
Lafayette, La.	3	2.83	Mining (14.85)
Houma-Thibodaux, La.	4	2.82	Forestry, fishing, and related activities (4.71); Mining (9.62); Transportation and warehousing (2.87)
Bridgeport-Stamford-Norwalk, Conn.	5	2.70	Finance and insurance (2.16); Management of companies and enterprises (2.14)
Austin-Round Rock, Texas	15	2.25	State government (2.16); Mining (1.50); Professional, scientific, and technology (1.39); Information (1.35)
Houston-The Woodlands-Sugar Land, Texas	16	2.25	Mining (5.18); Utilities (1.53); Construction (1.39); Transportation and warehousing (1.31)
Odessa, Texas	21	2.17	Mining (15.02); Wholesale trade (1.84); Construction (1.61)
Dallas-Fort Worth-Arlington, Texas	99	1.80	Mining (2.16); Finance and insurance (1.37);
Dallas-Plano-Irving, Texas		1.87	Mining (1.82); Finance and insurance (1.50); Information (1.56); Wholesale trade (1.47)
Fort Worth-Arlington, Texas		1.67	Mining (3.01); Transportation and warehousing (1.92)
San Antonio-New Braunfels, Texas	157	1.64	Federal, civilian (1.70); Military (2.69); Mining (1.40); Finance and insurance (1.33)
Battle Creek, Mich.	372	0.79	Manufacturing (2.29); Federal, civilian (2.82)
Mansfield, Ohio	373	0.77	Manufacturing (2.22)
Jackson, Mich.	374	0.76	Manufacturing (1.63)
Sierra Vista-Douglas, Ariz.	375	0.75	Utilities (2.71); Government and government enterprises (2.28); Federal, civilian (5.67); Military (8.24)
Yuma, Ariz.	376	0.72	Forestry, fishing, and related activities (25.53); Government and government enterprises (1.69); Federal, civilian (2.65); Military (4.58); Local government (1.51)
Elizabethtown-Fort Knox, Ky.	377	0.72	Government and government enterprises (2.26); Federal, civilian (4.50); Military (10.78)
Palm Bay-Melbourne-Titusville, Fla.	378	0.70	Administrative and waste management services (1.68); Federal, civilian (1.40)
Flint, Mich.	379	0.67	Health care and social assistance (1.34)
Sebring, Fla.	380	0.60	Forestry, fishing, and related activities (11.62); Administrative and waste management services (1.75)
Lake Havasu City-Kingman, Ariz.	381	0.14	Utilities (1.56); Construction (1.60); Retail trade (1.49); Real estate and rental and leasing (1.59)

Note: Inflation adjusted. Rankings are for average annual inflation-adjusted growth rate in PIPC. Out of 381 MSAs. Dallas-Plano-Irving and Fort Worth-Arlington are microdivisions. LQs are the average for 2001 to 2014 when data is available. Significant LQs are those above 1.25. The average column is the 1969 to 2014 average growth rate of PIPC less transfers.

Source: Bureau of Economic Analysis

nology, and information. Interestingly, the Austin MSA registers an LQ greater than 1.0 in mining, indicating some specialization in the oil industry (Table 1). The Houston MSA not surprisingly specializes in mining. The DFW MSA is concentrated in finance and insurance, and also in mining. The other major oil region in Texas, the Odessa MSA, is concentrated in mining, followed by wholesale trade and construction. The relatively high LQs for Austin and Dallas in mining reflect the importance of the oil industry in the State of Texas even in regions not considered part of the state's energy industry. Texas has a high LQ in mining, reflecting the state's specialization in the sector. When ranking U.S. states by LQs in mining, Texas registers the seventh highest.

Texas PIPC vs. U.S. PIPC

Texas PIPC levels recently have shown a pattern of convergence toward U.S. levels, while Texas MSAs exhibit their own distinctive patterns of convergence or divergence. Figure 1 shows income levels relative to the U.S., where the U.S. is equal to 100 from 1969 to 2014. A region above a 100 means that PIPC levels are above the U.S. and a region below 100 has PIPC levels below the U.S. A series that approaches 100 suggests convergence while a series that moves away from 100 suggests a divergence.

Texas has hovered around the U.S. average since 1969. The Arab oil embargo, which started in 1973, prompted concerns over a shortage of oil in the U.S. and led to

increased domestic production, especially in Texas. From the mid-1970s to early 1980s Texas experienced an oil boom with increasing oil prices. Oil peaked in 1981 as a result of a sharp decrease in prices that in turn affected earnings and employment in the oil and gas industry. Relative to the nation, income levels in the Houston, Midland, and Odessa MSAs increased dramatically during these oil boom years and subsequently decreased as oil prices fell. Even with the decline after 1981, the Houston and Midland MSAs held on to PIPC levels above the nation throughout the entire period. The Odessa MSA took a much harder hit to income levels following the bust as more blue-collar energy jobs are present in this region, compared with the Houston and Odessa MSAs, which have a higher number of white-collar energy jobs.

The other major Texas MSAs (Austin, DFW, and San Antonio) also benefited from overall economic growth underpinned by the booming oil and gas activity. PIPC levels increased relative to the U.S., but lost territory following the 1980s oil bust. Interestingly, these three MSAs declined a couple of years following the initial shock in 1981 to the oil MSAs (Houston, Midland, and Odessa). While the Houston, Midland, and Odessa MSAs have more direct ties to the mining industry, the Austin, DFW, and San Antonio MSAs have indirect ties shown by the much later decline in income levels. In addition, the U.S. economy fell into recession during that period, causing PIPC to decline nationally.

Texas PIPC levels remained below the national average after the 1980s oil bust until shortly after the Great Recession of 2008–09. Prior to the financial crisis, Texas PIPC levels began to increase from being nearly flat from the late 1980s until the early 2000s. Then, they began to trend toward convergence with the national

average. Much of this lift was brought about by increasing income levels in the oil MSAs, which started to increase in the early 2000s.

Throughout the 1990s, the Austin MSA registered increases in PIPC concurrent with the tech boom. Income levels ballooned around 2000 and declined with the dot-com bust but remained above the national average. Income continued to increase above U.S. levels in the following years. From the mid-1990s, the Houston MSA's PIPC began to increase at a consistent pace. Just as the Texas oil MSAs were the first to be hit after the oil bust in the 1980s and the other MSAs followed with declines in PIPC, the Austin MSA was the first to be hit with the dot-com bust. Austin's decline started in 2000, followed by the other major Texas MSAs starting in 2002 as the country and the state fell into recession.

The number of operating rigs in Texas increased from 306 in April 2002 to a peak of 946 in September 2008. The Houston, Midland, and Odessa MSAs began to see a run-up in income levels beginning in the early 2000s congruent with increasing oil activity in the state. Following the Great Recession of 2008–09, PIPC decreased slightly for Texas and more strongly for the Houston, Midland, and Odessa MSAs as a result of disinvestment and sidelining of capital. Oil prices tumbled to below \$40 per barrel in early 2009. Oil prices rebounded and activity began to increase as the economy improved. PIPC began to increase again. Income levels relative to the nation in the late 2000s and the turn of the decade are on par or exceeded those in the late 1970s and early 1980s for the Houston and Midland MSAs after adjusting for inflation (Figure 1). The Odessa MSA, characterized as a more blue-collar oil region, has experienced an increase in PIPC but not as much as the Houston and Midland MSAs.

Table 3. Average Growth Rate Rankings, 1969 to 2014

	Per Capita				
	Personal Income	Personal Income Net of Transfers	Wage and Salary	Property Income	Transfers
Texas	14	11	6	29	24
Austin-Round Rock	23	15	8	344	344
Dallas-Fort Worth-Arlington	156	99	59	264	264
Houston-The Woodlands-Sugar Land	16	16	20	155	155
Midland	1	1	7	115	115
Odessa	26	21	17	51	51
San Antonio-New Braunfels	175	157	63	159	159

Note: Inflation adjusted. Out of 50 states. Out of 381 MSAs.

Source: Bureau of Economic Analysis

As of 2014, PIPC levels in the Midland MSA were 2.34 times the national average and second highest in the nation behind the Bridgeport-Stamford-Norwalk (CT) MSA which has consistently remained in the top five over the entire period. The Houston and Odessa MSAs' PIPCs were 1.29 and 1.08 times the national average, respectively. Quantity of oil production in Texas was not significantly impacted by the Great Recession of 2008–09. Oil production began to decrease slightly in late 2014. The number of operating rigs has been more variable, demonstrating that the industry has maintained output while increasing operating efficiency; that is, the number of rigs required for X amount of output has decreased, reflecting the increase in productivity. Despite the decrease in operating rigs, PIPC has remained elevated through 2014 in the state's energy MSAs.

How Has PIPC Grown in Each Region?

To examine how PIPC has grown in each region relative to itself, we establish a starting point in 1969 by indexing income levels to 100. Regions with lower levels of PIPC tend to converge with those that have a higher PIPC. Table 4 shows the ranks of PIPC in various periods. Each of the Texas MSAs exhibits improvement from its 1969 ranking by 2014, even in the aftermath of various negative ailments like the Great Recession of 2008–09.

Figure 2 indexes PIPC at 100 with a base year of 1969. Texas as a whole has matched or exceeded the U.S. in terms of growth throughout the entire period studied. Focusing on the oil MSAs, there is exceptional growth through 1981. Afterward, income levels drop hard until the mid-to-late 1980s. During that period Midland maintained growth levels consistent with the U.S., while Odessa experienced sluggish growth due to the depressed oil economy. The presence of a blue-collar energy labor force in Odessa compared with a white-collar one in Midland played a role in the growth performance between both regions.

The Houston MSA's growth in the long run has exceeded the nation's and has been a large positive influence on the state's PIPC levels. Personal income for the Houston MSA accounted for more than one quarter of the state's personal income in 2014 (Table 5). The Midland and Odessa MSAs, even with their strong per capita levels, only contribute around 2 percent between them to the state's personal income (Table 5).

The Austin MSA is known for its strong government sector as the state capital and as home to the University of Texas and its high-tech sector. It has also emerged as a leader in income growth, especially during the late 1990s, thanks to its high-tech specialization. At the turn of the millennium, income levels for Austin peaked and dropped sharply relative to other regions. All regions experienced a decline in personal income as a result of the tech bubble. Austin has consistently had a high growth rate and has remained above the nation's income levels since the early 1990s (Figure 1). Austin boasts the greatest improvement in PIPC level ranking, from 245th in 1969 to 64th in 2014.

The DFW and San Antonio MSAs consistently followed the U.S. growth rate (Figure 2). DFW maintained income levels above the U.S., while the San Antonio MSA has consistently been below the U.S. The DFW MSA is a diversified region that includes transportation services and manufacturing but is closely correlated to the performance of the U.S. economy. It is home to a major inland transportation hub for the nation, especially for states such as Louisiana, Arkansas, and Oklahoma. The DFW airport has consistently remained in the top ten list for world's busiest airports in terms of passenger traffic. Though not as specialized as the Houston and Midland MSAs, the DFW MSA has a significant tie to the oil and gas industry as well as the high-tech industry, which was a major source of growth in the 1990s. The San Antonio MSA is a major distribution point for South Texas and northern Mexico—a role that has grown with the rapid

Table 4. Personal Income Per Capita (Net of Transfers) Level Rankings

	Rankings						
	1969	1980	1990	2000	2001	2010	2014
Austin-Round Rock	231	119	113	29	38	53	43
Dallas-Fort Worth-Arlington	46	26	39	23	26	40	30
Houston-The Woodlands-Sugar Land	83	11	50	27	20	24	14
Midland	23	3	26	42	21	2	2
Odessa	154	18	328	349	342	195	51
San Antonio-New Braunfels	192	186	214	148	143	159	140

Note: Inflation adjusted. Out of 381 MSAs.
Source: Bureau of Economic Analysis

Table 5. Personal Income Share 2014 (Thousands of Dollars)

	Personal Income		Personal Income Less Transfers	
	(Dollars)	(Percent)	(Dollars)	(Percent)
United States	14,683,147,000		12,154,008,000	
Texas Total	1,231,084,591	8.4	1,052,969,574	8.7
Austin-Round Rock	91,385,667	7.4	81,707,183	7.8
Dallas-Fort Worth-Arlington	344,279,922	28.0	304,711,143	28.9
Houston-The Woodlands-Sugar Land	355,790,380	28.9	318,564,899	30.3
San Antonio-New Braunfels	96,341,038	7.8	79,680,233	7.6
Major MSAs Total	887,797,007	72.1	784,663,458	74.5
Midland	15,300,461	1.2	14,407,872	1.4
Odessa	7,244,097	0.6	6,331,204	0.6
Midland and Odessa MSAs Total	22,544,558	1.8	20,739,076	2.0
Brownsville-Harlingen	10,598,668	0.9	7,183,814	0.7
El Paso	26,606,169	2.2	20,611,592	2.0
Laredo	7,561,382	0.6	5,795,075	0.6
McAllen-Edinburg-Mission	19,740,566	1.6	13,886,550	1.3
Border MSAs Total	64,506,785	5.2	47,477,031	4.5
Rest of Texas	256,236,241	20.8	200,090,009	19.0

Source: Bureau of Economic Analysis

expansion of the maquiladora industry. The San Antonio MSA is a major tourist attraction with historic monuments and recreational parks, while also having a strong government presence with Lackland Air Force Base, Fort Sam Houston, and Randolph Air Force Base.

Growth or Variability?

Just as an individual strategizes the diversification of a retirement account to balance growth with acceptable levels of risk, diversification of industries in a regional economy has bearing on the variability of income levels. A high concentration in an industry leaves the regional economy susceptible to shocks in that industry. While the oil MSAs have experienced high levels of PIPC growth and high levels of PIPC relative to other metros, they also experience more variation. Oil booms and busts contribute to this variability in PIPC.

The Midland MSA registered the highest average inflation-adjusted growth rate from 1969 to 2014 for all U.S. MSAs. It also registered the largest standard deviation in terms of growth rates in the state and second in the nation (Table 6). This variability is a result of the boom-and-bust periods in the oil industry, and is also present in the other oil MSAs. The Odessa and Houston MSAs register a standard deviation that ranks them second and third in the state and fifth and 62nd in the nation, respectively. The Houston MSA weathers the

storm better than its oil counterparts through increased diversification in other industries such as health care services, and trade through its port.

Components of Income Growth

As previously mentioned, personal income is composed of multiple sources of income with wages and salaries being dominant. Other sources include proprietor's income, property income, transfer payments, and other income. When considering only wages and salaries per capita, the Midland MSA drops from first to seventh, showing other sources of income at work in the growth of PIPC (Table 3). Proprietor's income and property income are two other sources of income that play a strong part in overall personal income growth. In the case of Texas and its MSAs, wages and salaries exhibited higher growth rates in the periods when oil busts are absent,

Table 6. Variability of PIPC

	Standard Deviation	Rank
Texas	2.98	22
Austin-Round Rock	3.56	106
Dallas-Fort Worth-Arlington	3.13	187
Houston-The Woodlands-Sugar Land	4.04	62
Midland	9.10	2
Odessa	6.84	5
San Antonio-New Braunfels	2.48	337

Note: Inflation adjusted. Out of 50 states. Out of 381 MSAs.
Source: Bureau of Economic Analysis

and during oil bust years, wage and salary growth contributes less compared with other sources of income (Table 7). Following the oil bust in the 1980s, proprietor income contributed a larger portion to PIPC growth than it had before for both the Houston and Midland MSAs. In Texas, new businesses had presumably been started by the unemployed turned self-employed during and after the downturn.

Between 1969 and 1980, Texas performed strongly, exceeding the U.S. growth rate. All the major MSAs posted growth rates higher than the national average. Wages and salaries were the strongest contributors to PIPC growth. In contrast, between 1980 and 1990, the state underperformed the nation, registering a 1.30 percent average inflation-adjusted growth rate compared with 2.32 percent by the U.S. The Midland and Odessa MSAs saw negative growth rates in PIPC and its component, wages and salaries. In Midland, property income contributed positively, likely from a prior run up in housing prices and in turn higher rental values (Table 7).

From 1990 to 2000, once again Texas surpassed the U.S. growth rates, and the Austin MSA emerged as the Texas MSA leader in PIPC growth followed by the Houston MSA. Wages and salaries were the major contributor for the Austin MSA and were responsible for 87 percent of increases in PIPC (Table 7).

The 2000 to 2010 decade experienced two economic downturns, the tech bubble in 2001 and the financial crisis from 2008–09. Growth in PIPC occurred after the tech bubble and through the middle of the decade, but most of the gains in PIPC were erased with the financial crisis downturn. Texas performed mildly better than the nation in terms of overall personal income growth and wage and salary growth. The Midland and Odessa MSAs made up for losses following the financial crisis with gains resulting from increases in oil and gas activity. Growth throughout the other MSAs was minimal. The contribution of transfer payments to PIPC growth was larger during this decade than at any other period (Table 7).

The period from 2010 to 2014 saw a boom in the oil industry and the beginning of the U.S. economy's recovery that benefited regional PIPC growth. Texas PIPC rebounded strongly relative to the nation due to the oil boom. The oil MSAs led all the state's MSAs for PIPC growth. Growth was predominantly and almost equally driven by both wages and salary income and proprietor income in the Houston and Midland MSAs. In the Odessa MSA, wage and salary growth was the major contributing factor to overall PIPC growth (Table 7).

Earnings per Job

Earnings is the sum of three components of personal income: (1) wages and salaries, (2) supplements to wages and salaries, and (3) proprietor's income, providing an indicator of pay received for work performed. The BEA provides earnings and employment by industry for each region. The levels of pay for jobs in each industry can be compared. Tables 8a and 8b show that earnings per job in an industry are not always equal across the MSAs.

In 2014, a mining job in the U.S. paid \$108,704 and in Texas paid \$156,450. The Houston MSA is home to many of the oil and gas company headquarters, concentrating a large number of white-collar jobs. Not surprisingly, the Houston MSA with \$270,576 registers the highest earning level in mining followed by the Midland MSA with \$171,300 and the DFW MSA with \$158,750. The Odessa MSA with \$95,623 earnings in mining does not reach the levels of the other oil MSAs.

A relationship exists between a region's specialization in the oil industry and its contribution in achieving higher average earnings. White-collar jobs pay significantly more than blue-collar jobs and affect average earnings in the oil MSAs.

In 2014, jobs in construction, manufacturing, transportation, communications and public utilities, and wholesale trade registered earnings above the U.S. and contributed to overall higher earnings and growth (Table 8a).

Conclusion

Texas PIPC has maintained levels around the national average and growth rates that have exceeded the nation. Texas has achieved economic progress by raising the state's living standards while outperforming the U.S. The economic progress has been uneven over time as oil boom periods have pushed Texas PIPC upward and in the subsequent collapsed have dragged Texas PIPC levels downward (Figure 3). Overall, the presence of the oil industry has benefited Texas.

The increases in the state's living standards have been geographically uneven. Texas MSAs have registered different levels and growth of PIPC as a result of the particular characteristics of the regional economies. The economic progress in the state has mostly come from the Texas Triangle MSAs of Austin, DFW, Houston, and San Antonio as the majority of the state's personal income is generated in this region.

The oil MSAs have benefited from booms, but in times of bust, PIPC levels take considerable hits. The Midland

Table 7. Growth Rate of Real Personal Income Per Capita and Components Contributing to its Growth

	Component Percentage Point Contribution Per Capita					
	Personal Income	Nonfarm Wages and Salaries	Proprietor's Income	Property Income	Transfer Payments	Other Income
1969–2014						
United States	1.87	0.75	0.16	0.40	0.46	0.10
Texas	2.12	0.92	0.36	0.36	0.41	0.07
Austin-Round Rock	2.28	1.18	0.23	0.51	0.29	0.06
Dallas-Fort Worth-Arlington	1.91	0.83	0.38	0.33	0.31	0.05
Houston-The Woodlands-Sugar Land	2.30	1.04	0.55	0.37	0.31	0.03
Midland	3.26	1.24	1.34	0.46	0.21	0.01
Odessa	2.13	1.37	0.15	0.20	0.38	0.03
San Antonio-New Braunfels	1.88	0.70	0.27	0.32	0.48	0.11
2010–2014						
United States	1.67	0.79	0.38	0.65	-0.06	-0.09
Texas	2.76	1.30	0.96	0.63	-0.06	-0.07
Austin-Round Rock	2.38	1.06	0.48	0.97	-0.05	-0.08
Dallas-Fort Worth-Arlington	2.34	1.06	0.85	0.55	-0.03	-0.08
Houston-The Woodlands-Sugar Land	3.32	1.67	1.25	0.63	-0.07	-0.15
Midland	8.77	4.20	4.64	0.60	-0.26	-0.42
Odessa	6.37	5.60	1.20	0.24	-0.72	0.05
San Antonio-New Braunfels	1.87	0.64	0.60	0.55	-0.06	0.13
2001–2010						
United States	0.70	-0.07	-0.06	-0.00	0.71	0.12
Texas	0.79	0.02	-0.14	0.16	0.69	0.06
Austin-Round Rock	0.14	-0.83	0.01	0.32	0.52	0.13
Dallas-Fort Worth-Arlington	0.10	-0.64	-0.07	0.16	0.56	0.09
Houston-The Woodlands-Sugar Land	0.40	0.04	-0.44	0.27	0.52	0.02
Midland	4.18	1.69	1.81	0.42	0.37	-0.12
Odessa	2.83	1.67	0.31	0.02	0.72	0.12
San Antonio-New Braunfels	0.71	0.12	-0.43	0.01	0.80	0.21
1990–2000						
United States	2.40	1.34	0.35	0.29	0.34	0.08
Texas	2.85	1.65	0.71	0.13	0.33	0.03
Austin-Round Rock	4.04	3.50	0.36	0.18	0.15	-0.14
Dallas-Fort Worth-Arlington	2.97	2.01	0.62	0.17	0.22	-0.04
Houston-The Woodlands-Sugar Land	3.14	1.51	1.16	0.23	0.28	-0.04
Midland	2.02	0.40	0.82	0.21	0.43	0.15
Odessa	1.94	0.87	0.69	-0.10	0.71	-0.23
San Antonio-New Braunfels	2.97	1.39	0.96	0.18	0.36	0.07
1980–1990						
United States	2.32	0.99	0.16	0.78	0.29	0.11
Texas	1.30	0.16	0.16	0.55	0.30	0.14
Austin-Round Rock	2.14	1.18	-0.14	0.70	0.17	0.22
Dallas-Fort Worth-Arlington	1.71	0.69	0.23	0.54	0.15	0.10
Houston-The Woodlands-Sugar Land	0.79	-0.44	0.33	0.51	0.26	0.13
Midland	-0.28	-1.50	-0.54	1.01	0.28	0.46
Odessa	-2.07	-1.89	-1.01	0.48	0.56	-0.19
San Antonio-New Braunfels	1.58	0.46	0.17	0.55	0.35	0.04
1969–1980						
United States	2.07	0.78	-0.04	0.58	0.60	0.15
Texas	3.01	1.82	0.01	0.63	0.43	0.13
Austin-Round Rock	2.99	1.52	0.14	0.81	0.36	0.17
Dallas-Fort Worth-Arlington	2.58	1.44	0.16	0.51	0.34	0.13
Houston-The Woodlands-Sugar Land	3.83	2.86	0.16	0.42	0.27	0.12
Midland	4.37	2.81	0.72	0.80	0.24	-0.19
Odessa	4.13	2.51	0.39	0.53	0.28	0.42
San Antonio-New Braunfels	2.14	0.79	0.07	0.68	0.55	0.05

Note: Inflation adjusted

Source: Bureau of Economic Analysis

Table 8a. Average Earnings per Job by Place of Work Relative to the National Average. US = 100

Region	Year	Earnings by Place	Agriculture, Forestry, Fishing & Hunting	Mining	Construction	Manufacturing	Transportation, Communications, & Public Utilities	Wholesale Trade	Retail Trade	Finance, Insurance, & Real Estate	Services
Texas	2014	104.2	81.8	143.9	111.3	111.7	133.5	109.7	100.0	86.2	97.6
	2010	99.1	82.6	144.0	105.5	107.2	122.7	108.0	98.4	83.1	96.4
	2001	101.8	85.1	139.8	97.1	112.2	138.7	110.8	101.0	94.5	99.2
	2000	99.8	92.8	131.1	94.2	101.6	112.5	113.1	103.7	85.9	100.8
	1990	94.0	80.2	105.5	90.8	98.0	100.6	98.1	97.9	81.5	94.2
	1980	100.2	105.3	84.2	102.5	100.5	104.0	106.4	104.7	96.0	99.8
	1969	90.0	96.6	85.5	88.7	96.6	95.4	90.6	92.5	92.6	86.4
Austin-Round Rock	2014	99.1	82.8	74.8	104.5	131.8	84.3	115.5	104.6	83.2	NA
	2010	96.8	NA	68.1	103.3	131.9	81.6	125.5	101.5	73.1	100.7
	2001	105.4	NA	61.8	99.3	142.1	74.3	171.2	101.0	80.7	103.7
	2000	107.5	110.2	50.2	88.4	135.7	103.5	202.3	100.8	68.2	105.0
	1990	87.1	81.5	31.2	76.5	103.1	86.1	98.8	89.6	66.5	89.6
	1980	87.7	91.5	69.5	87.5	92.6	110.9	95.0	93.2	71.1	93.2
Dallas-Fort Worth-Arlington	2014	110.0	NA	146.0	115.7	114.8	NA	NA	107.4	105.4	NA
	2010	107.6	NA	147.7	111.5	113.4	112.6	112.2	108.9	102.1	110.0
	2001	114.8	NA	166.0	106.0	117.1	NA	114.4	118.2	112.7	119.6
	2000	114.1	109.1	192.5	105.0	111.6	115.6	122.2	117.2	97.5	117.1
	1990	104.9	86.6	127.0	94.5	104.6	108.1	108.4	110.4	96.2	105.2
	1980	106.2	106.7	96.4	105.2	98.3	104.4	111.4	111.0	109.5	104.6
Houston-The Woodlands-Sugar Land	2014	131.4	60.5	248.9	136.1	133.7	NA	NA	NA	94.7	NA
	2010	122.4	66.6	251.8	129.0	129.2	174.8	127.9	102.1	89.4	110.8
	2001	128.1	71.0	226.5	119.5	145.1	202.1	127.3	105.7	114.8	112.7
	2000	122.2	96.5	194.0	116.3	118.9	134.5	124.2	111.5	109.1	121.1
	1990	111.3	80.0	158.4	110.1	118.0	105.8	113.9	101.4	94.7	113.1
	1980	121.9	116.7	108.8	115.2	123.8	105.1	126.0	112.2	116.2	119.0
Midland	2014	164.4	99.0	157.6	NA	NA	NA	NA	NA	NA	NA
	2010	127.2	69.5	150.8	81.3	96.3	NA	127.9	98.1	64.5	84.4
	2001	99.9	63.6	120.6	62.4	85.5	NA	95.1	85.3	60.4	72.4
	2000	89.0	69.1	95.9	51.7	67.3	169.7	83.2	81.5	66.0	67.4
	1990	95.7	75.6	95.7	79.6	95.5	136.5	89.9	88.5	67.3	75.1
	1980	121.0	103.9	73.3	116.9	98.5	286.7	116.9	117.2	102.7	106.4
Odessa	2014	111.6	34.3	88.0	126.5	98.9	125.8	106.5	112.3	94.7	90.3
	2010	91.5	NA	84.2	101.1	80.6	96.2	94.9	98.1	64.9	NA
	2001	79.3	NA	74.5	68.9	93.7	78.9	75.2	98.4	53.4	NA
	2000	79.6	70.6	66.0	69.7	89.6	71.8	73.0	105.9	62.7	72.3
	1990	83.3	66.0	80.3	74.1	94.6	78.2	81.8	92.3	54.2	77.8
	1980	116.2	128.1	75.4	97.8	116.4	195.0	106.4	109.4	89.5	108.9
San Antonio-New Braunfels	2014	101.7	176.3	90.0	95.0	109.1	155.3	90.4	100.5	86.9	93.7
	2010	90.6	NA	NA	97.0	83.3	NA	NA	101.9	87.2	83.1
	2001	88.6	NA	76.5	97.5	78.0	110.7	86.3	100.4	83.8	84.7
	2000	90.7	NA	78.5	96.5	78.6	NA	88.7	98.9	86.1	85.1
	2000	89.9	86.9	80.4	98.2	75.0	117.3	80.3	104.6	84.5	88.4
	1990	86.2	67.3	47.8	88.3	73.6	103.2	81.3	95.9	81.5	82.5
San Antonio-New Braunfels	1980	90.5	101.9	79.7	82.9	75.6	97.7	87.5	99.3	89.4	87.0
	1969	86.0	95.9	62.1	74.4	72.6	86.0	76.4	84.6	91.6	74.9

Note: Inflation adjusted

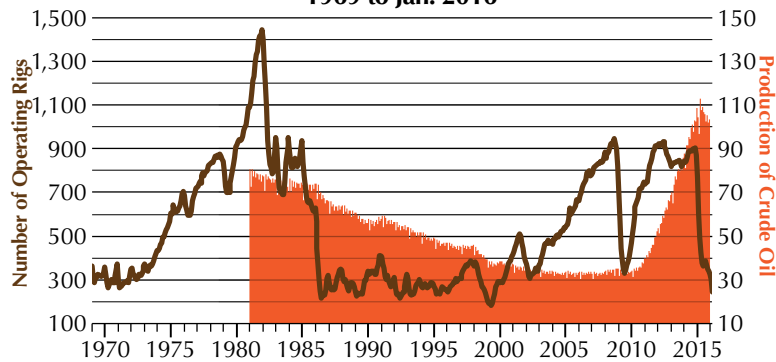
Source: Bureau of Economic Analysis

Table 8b. Average Earnings per Job by Place of Work Relative to the National Average. US = 100

Region	Year	Information	Professional, Scientific, and Technical Services	Administrative and Waste Management Services	Educational Services	Health Care and Social Assistance	Arts, Entertainment, and Recreation	Other Services, Except Public Administration	Public Administration	
Texas	2014	76.8	100.8	103.9	88.1	98.3	86.9	104.5	88.6	
	2010	82.0	100.0	99.9	88.7	96.5	87.7	102.2	87.0	
	2001	93.0	102.9	99.9	91.3	101.2	85.4	95.1	87.3	
	2000	Data not available								87.2
	1990	Data not available								89.0
	1980	Data not available								92.7
	1969	Data not available								92.7
Austin-Round Rock	2014	75.7	97.2	NA	75.5	107.9	68.8	111.2	92.1	
	2010	79.8	96.1	104.5	75.9	106.1	58.6	110.1	87.1	
	2001	99.6	97.4	104.4	73.6	101.7	64.4	108.6	91.1	
	2000	Data not available								90.4
	1990	Data not available								89.9
	1980	Data not available								92.8
	1969	Data not available								92.9
Dallas-Fort Worth-Arlington	2014	98.8	103.9	112.9	NA	NA	107.4	109.6	91.6	
	2010	103.6	102.9	114.0	88.3	116.5	111.4	110.4	90.6	
	2001	111.8	113.4	118.5	90.9	127.2	113.4	106.5	94.9	
	2000	Data not available								93.5
	1990	Data not available								94.4
	1980	Data not available								97.2
	1969	Data not available								95.2
Houston-The Woodlands-Sugar Land	2014	NA	NA	126.3	107.4	101.0	NA	114.6	91.0	
	2010	76.6	126.7	116.3	108.1	99.6	106.2	108.7	91.0	
	2001	89.1	124.6	115.9	114.6	108.6	91.7	101.3	92.2	
	2000	Data not available								92.0
	1990	Data not available								91.4
	1980	Data not available								97.8
	1969	Data not available								95.4
Midland	2014	NA	92.0	102.2	72.3	96.8	NA	NA	90.0	
	2010	55.4	79.2	83.6	72.9	91.2	77.8	105.7	81.3	
	2001	54.1	66.6	64.9	70.8	86.9	59.7	88.0	82.5	
	2000	Data not available								81.8
	1990	Data not available								89.7
	1980	Data not available								93.9
	1969	Data not available								80.5
Odessa	2014	54.4	81.4	104.3	43.0	98.2	44.3	127.5	84.4	
	2010	62.8	72.6	82.1	NA	91.8	37.7	116.5	77.5	
	2001	54.2	NA	66.4	53.8	83.9	49.0	85.5	78.8	
	2000	Data not available								79.5
	1990	Data not available								79.6
	1980	Data not available								84.7
	1969	Data not available								77.7
San Antonio-New Braunfels	2014	72.2	75.1	81.3	83.8	90.8	91.9	97.5	99.5	
	2010	76.7	78.1	84.5	84.8	91.4	91.9	96.8	97.7	
	2001	81.9	78.0	71.7	83.1	100.2	94.0	93.0	92.6	
	2000	Data not available								95.0
	1990	Data not available								102.0
	1980	Data not available								108.7
	1969	Data not available								104.1

Note: Inflation adjusted
Source: Bureau of Economic Analysis

Figure 3. Production of Crude Oil (Thousands of Barrels) and Number of Operating Rigs 1969 to Jan. 2016



Sources: Baker Hughes and Energy Information Administration

MSA has reached PIPC levels that place it at the top of the nation. The Houston MSA has fared exceptionally well as a world energy hub. A more diversified base has allowed the Houston MSA to take advantage of the booming oil sector while mitigating the downfalls with the specialization in other sectors such as health care. In contrast, because the Midland and Odessa MSAs are highly concentrated in the oil industry, both register greater declines in income levels during oil busts. A distinction should be made between white- and blue-collar energy-dependent regions. Houston and Midland are considered white-collar regions and have registered greater economic progress even with the ups and downs in the oil industry compared to Odessa, a blue-collar region.

The Austin MSA has performed exceptionally well given its ties to the technology sector even though it registered a fall in income levels after the tech bust. The DFW MSA has a more diversified economy that includes a technology sector, transportation, and financial services, which have allowed it to maintain consistent personal income levels above the U.S. over time. The San Antonio MSA income levels are consistently below the nation although its growth rate has kept pace with the country because of the strong presence of the federal government, military

bases, and tourism services.

As Texas confronts a bust period in the oil industry that will drive down the states personal income levels in 2016, its economic progress should persist given the state's industrial makeup and degree of specialization in the energy and technology sectors and diversification in service industries such as transportation and warehousing. Considering the state's favorable business climate translates into cost advantages, Texas should continue making progress in raising its living standard in the foreseeable future. ➔

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