Economic Analysis

Consumption Recovery Uneven Across States

Amanda Augustine / Boyd Nash-Stacey

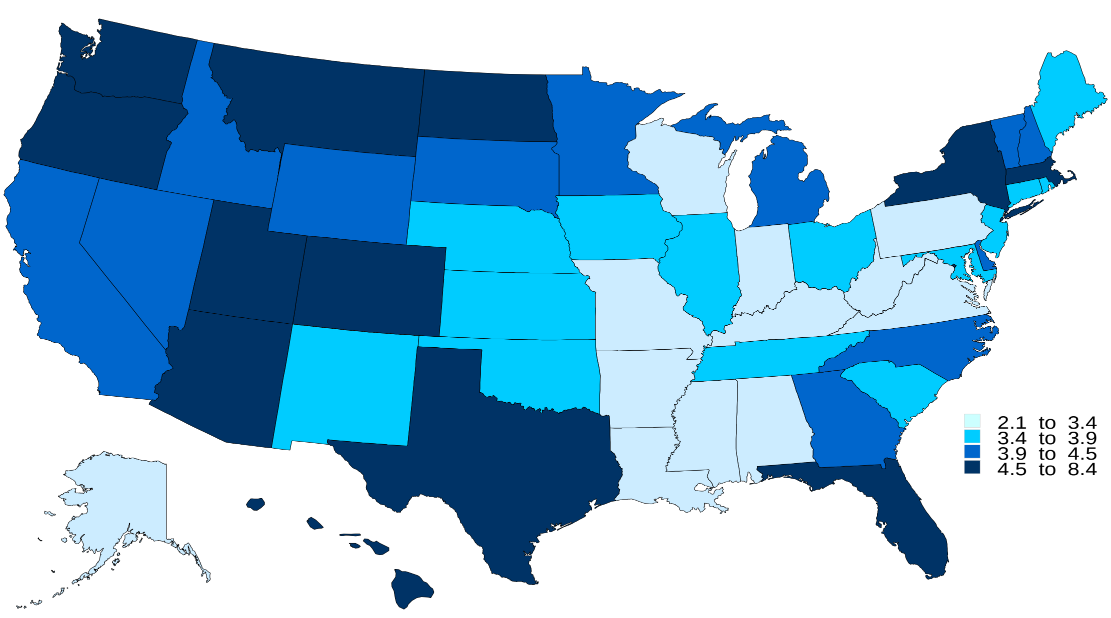
- **Total PCE growth ranges from 2.1% in West Virginia to 7.4% in North Dakota**
- **Oil and gas producing states have highest PCE growth per capita**
- **Pre and post-recession PCE growth related to state housing and manufacturing activity**

The Bureau of Economic Analysis (BEA) handed out an early Christmas present with its inaugural official release of regional and state-level personal consumption expenditure (PCE) statistics. The data is available on an annual basis, spanning from 1997 through 2014. Despite being lagged, the data assists in analysis of the impact of the crisis on state-level household consumption patterns, which were influenced by states' housing, manufacturing and oil drilling activity.

PCE Growth Fueled by Oil Production

Positive growth in the oil and gas sector underpinned strong growth in consumption activity in 2014, particularly in North Dakota and Texas, both of which experienced higher YoY changes in PCE than other states. The impressive spending levels in these states are correlated with their high population growth, spurred by the fracking boom and subsequent employment gains. Looking at industry contributions to PCE, North Dakota has the highest YoY change in PCE of any state in nine out of fifteen categories, with the biggest increases occurring in the transportation and recreation services industries, which surged to accommodate the growing population.

Chart 1
Total PCE by State (YoY % Change)



Source: BBVA Research & BEA

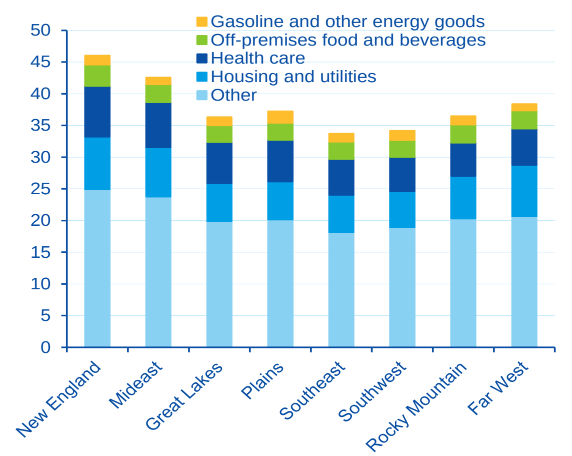
However, even after adjusting for population growth, the results are very similar. On a per capita level, the states which have the largest YoY increase in PCE are dominated by the top crude oil and natural gas producing states in the country, including North Dakota, Colorado, Wyoming and Texas. The impact of the oil production boom is also evident when considering the entire range of the data available, as North Dakota and Texas are among the states with the largest growth in PCE from 1997 to 2014. North Dakota's 1.8% increase between 1997 and 2014 is for the large part driven by energy and transportation spending, while Texas's 1.5% PCE growth in that period derives mostly from energy and healthcare spending.

Recession/Recovery Dynamics on PCE Growth

Growth in consumption before (2002-06) and after recession (2010-14) was higher than average in the so-called "Sand States": Arizona, California, Florida and Nevada. These states can be characterized by their abundance of beaches and/or deserts, thus their moniker, and by their status as popular retirement destinations. They also experienced the highest rates of home price appreciation in the early 2000s and consequently the largest housing downturn during the recession. The effects of the downturn rippled to other parts of these states' local economies, contributing to pronounced job losses in the construction industry which spread to the financial services and retail trade sectors among others. Consumption patterns in the current recovery period reflect the soft labor market in those states, as growth in post-recession PCE versus pre-recession PCE was lowest in Nevada and Arizona, two of the Sand States. Considering the effect of retiree migration in these states, PCE growth has outpaced GDP growth before and after the recession, indicating that retirees' spending has been a major contributor to overall growth.

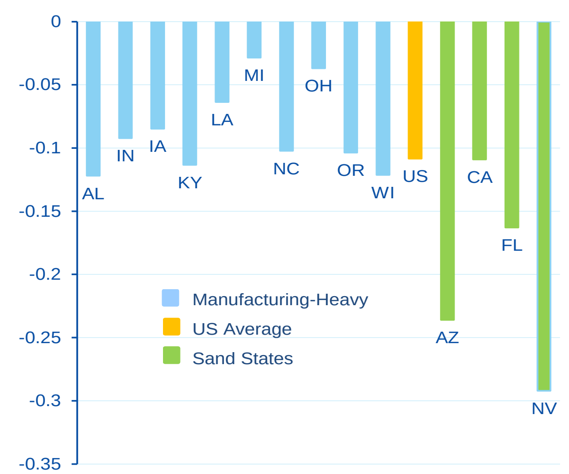
Consumption has been relatively strong in manufacturing-intensive states in the post-recession period. This can be partly explained by the manufacturing industry's sensitivity to changes in the interest rate, which have been at the lower-bound since 2008. Firms are more likely to invest in long-term projects such as buying factories and equipment when the interest rate is low. Seven out of the top 10 manufacturing-heavy states, including Michigan, Indiana and North Carolina, performed better than the national average when considering the difference between post-recession and pre-recession PCE growth.

Chart 2
Per Capita PCE by Region
$ Thousands



Source: BBVA Research & BEA

Chart 3
Difference between Post-Recession (2010-14) and Pre-Recession (2002-06) PCE Growth, %



Source: BBVA Research & BEA

Outlook

Although North Dakota and Texas top the list in terms of PCE growth and energy gasoline spending, this dominance is not expected to last given the states' current weakness in light of declining oil prices. Likewise, other oil-producing states should see weaker per capita PCE growth in the short-term. The most recent state GDP release confirms this outlook as declines in mining output subtracted more than two percentage points from real GDP growth in North Dakota, West Virginia, Oklahoma, Texas and Wyoming between 1Q15 and 2Q15. According to the results from a panel fixed-effects estimation, after the recession, mining employment was highly significant when determining PCE for the top 10 oil-producing states. In fact, a 1% increase in mining employment leads to an 11.9% rise in real per capita consumption.

In addition, despite the benefits that manufacturing-heavy states experienced from low interest rates post-recession, the high possibility of an imminent rate hike could contribute to softness in their PCE growth going forward. In October, the manufacturing sector had finally begun to show some gains with a broad-based uptick in manufacturing output, pointing to the slackening of the inventory headwinds resulting from the strong dollar and weak global demand. Manufacturing employment proved to be the most significant variable when determining PCE in the top 10 manufacturing-heavy states in the post-recession period. This differs greatly from the pre-recession period when growth in home prices was the major contributor to real per capita consumption.

Consumption in states with high rates of home price appreciation could see gains given the current strength in the housing market, which is on pace for its best year since the recession. Solid employment growth, low mortgage rates and pent-up demand underpin this strong housing activity and should continue to boost consumer confidence. However, one potential restraint to future sales is the tightening supply of new and existing homes which is driving up prices. Home prices proved to be one of the most significant variables in determining pre-recession PCE in the Sand States. A 1% increase in home prices was associated with a 9.4% rise in real per capita consumption. However, when looking at the post-recession period, home prices proved to be the least significant variable in the Sand States. Based on employment's contribution to PCE after the crisis, labor market strength will be the key determinant of consumption growth in these states going forward.

Chart 4
Outcome of Panel Regression, Fixed Effects Model*

Least to most significant		Oil Prices	Mining Employment	Manufacturing Employment	Home Prices
Oil-producing States (AK, CA, CO, KS, LA, ND, NM, OK, TX, WY)	pre-recession	-4.9%	13.1%	-24.2%	9%
	post-recession	-4.3%	11.9%	12.6%	4.5%
Manufacturing States (AL, KY, IA, IN, LA, MI, NC, OH, OR, WI)	pre-recession	5.9%	1.7%	3.4%	12.7%
	post-recession	-1.5%	1.8%	28.7%	0.3%
Sand States (AZ, CA, FL, NV)	pre-recession	5.3%	5.7%	-12.5%	9.4%
	post-recession	-1.8%	11.8%	18.5%	-0.3%

Source: BBVA Research *Colors represent relative significance for each regression. Numbers represent regression coefficients x 100.

Bottom Line

The BEA's first official release of PCE data by state has much potential in determining how states are responding in the post-recession period, but future data will reflect more recent economic and policy changes. The oil production boom was a prominent driver of PCE growth in 2014, with North Dakota and Texas gaining in both total and per capita PCE growth relative to other states. However the recent oil price decline has resulted in a decline in output and employment losses in these states, which is expected to have a negative effect on future PCE growth. Considering pre and post-recession PCE growth, states with strong housing activity prior to the recession have experienced the greatest decline in PCE, while states with strong manufacturing activity have showed relative gains. Future monetary policy decisions are destined to have an impact on regional PCE growth going forward.