PRIVATE ENTERPRISE
RESEARCH CENTER
TEXAS A&M UNIVERSITY

ECONOMIC INDICATORS
OF THE COLLEGE STATION-BRYAN MSA

SEPTEMBER 2018

HIGHLIGHTS

- The Business-Cycle Index rose at an annualized average of 3.9% in July, about the same growth rate as in June.
- The unemployment rate dropped to 2.9% in July, a slight decrease from the June unemployment rate.
- Real (inflation-adjusted) wages grew at an annual rate of 14.3% during the first quarter of 2018.
- Real taxable sales in the College Station-Bryan MSA stood at $333.6 million in July and are up 7.1% from the same time last year.

## AN ECONOMIC INDEX FOR THE COLLEGE STATION-BRYAN MSA

This is the inaugural issue of *Economic Indicators* of the College Station-Bryan MSA. Each monthly issue of *Economic Indicators* will include new estimates of the College Station-Bryan (CSB) Business-Cycle Index along with complementary economic indicators reflecting the state of the local economy.

This issue presents the CSB Business-Cycle Index, provides some comparisons to other metro areas, and discusses the four data series used to estimate the index.

THE COLLEGE STATION-BRYAN BUSINESS-CYCLE INDEX

The CSB Business-Cycle Index provides a measure of changes in the local economy over time. Figure 1 indicates that the economy grew substantially since 1995, with interruptions in the upward movement caused by the recession in the early 2000s and the Great Recession in 2009. Between January 1995 and July 2018, the College Station-Bryan index grew 117% and since January 2012 — the beginning of the local recovery from the Great Recession — the index has grown at an annual rate of 6.1%.

FIGURE 1. COLLEGE STATION-BRYAN BUSINESS-CYCLE INDEX
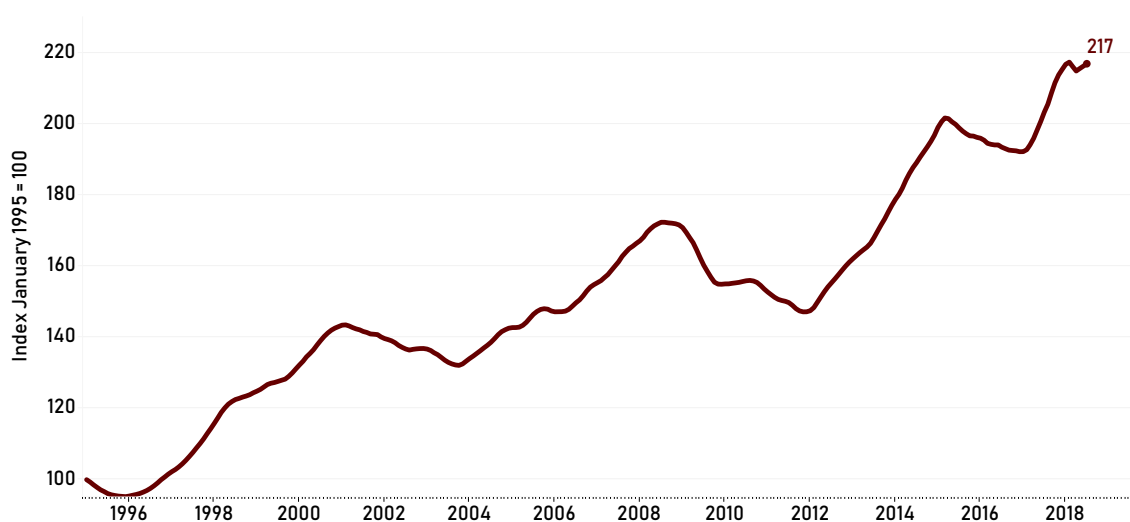
Last reported data point: July 2018 (monthly). Source: Private Enterprise Research Center.

BUILDING AN ECONOMIC INDEX

Economic variables such as Gross Domestic Product (GDP) provide quarterly updates on the state of the U.S. economy with a lag of several months after the end of each quarter. Unfortunately, for smaller entities such as our local MSA, GDP is only available annually, and also with quite a lag. For instance, local GDP for 2017 was only made available this month, September 2018, a full 9 months after the close of 2017. This is where the CSB Business-Cycle Index fills the information gap and it provides an update each month of the local economy's health in a single metric.

The CSB Business-Cycle Index is patterned after the Federal Reserve Bank of Dallas' (FRBD) economic indexes for the major Texas Metropolitan Statistical areas (MSAs).[1] These indexes are estimated using a model that includes four variables measuring economic activity in the respective MSAs. The four variables are an MSA's monthly unemployment rate and non-farm employment counts, quarterly real (inflation-adjusted) wages and real retail sales. We use three of the variables the FRBD uses in its models, but substitute monthly total taxable sales for the quarterly retail sales series. Our business-cycle index begins in 1995 given that is the date of the earliest available data on monthly total taxable sales.

TEXAS AND TEXAS MSA ECONOMIC INDEXES

In Figure 2, the CSB Business-Cycle Index is presented alongside rebased FRBD indexes for the state of Texas and three major Texas metropolitan areas. "Long-run" growth rates are derived from the real gross domestic products for each entity, which are available annually from 2001. Between 2001 and 2017, real GDP in Austin-Round Rock grew at an annual rate of 4.78%, in College Station-Bryan it grew at 3.27%, in Dallas-Fort Worth at 2.81%, in Houston-Woodlands-Sugar Land at 2.98%, and in the state of Texas at 2.96%. Figure 2 applies these growth rates to the various indexes from 1995 to the present, with all indexes set to 100 in January 1995.[2] This leads to the terminal values shown in the figure. As a point of reference, indexing the nation's GDP in the same way would produce an index value of 176% as of the second quarter of 2018.

## ▌ FIGURE 2. TEXAS BUSINESS-CYCLE INDEXES
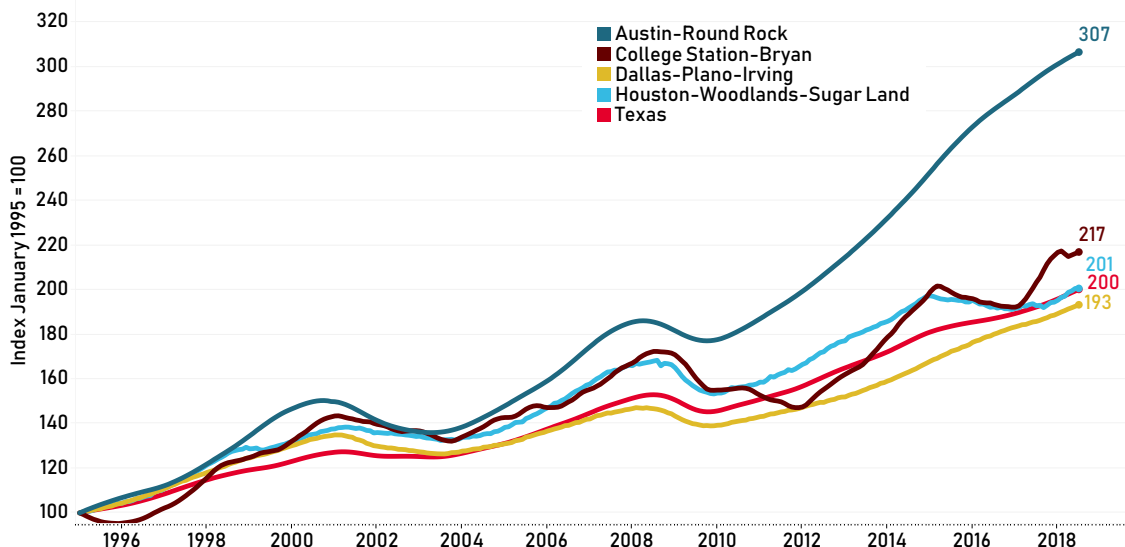
Last reported data point: July 2018 (monthly). Sources: Federal Reserve Bank of Dallas, Metro Business-Cycle Indexes, rebased to January 1995; Private Enterprise Research Center, College Station-Bryan.

THE COLLEGE STATION-BRYAN BUSINESS-CYCLE

Figure 3 depicts the annualized month-to-month growth rate in the CSB Business-Cycle Index for the period from January 2007 to the present. This figure allows us to zoom in on the rate of growth during the expansions and contractions for the period from January 2007 to the present. The long-run annual growth rate is 3.3%. The Great Recession and its lingering effects are seen in the negative and low growth rates between August 2008 and December 2011. Since January 2017, the growth rate has been positive in all months besides March and April of this year. In July, the index rose at an annualized rate of 3.9%, or about the same as the June rate.

FIGURE 3. COLLEGE STATION-BRYAN BUSINESS-CYCLE
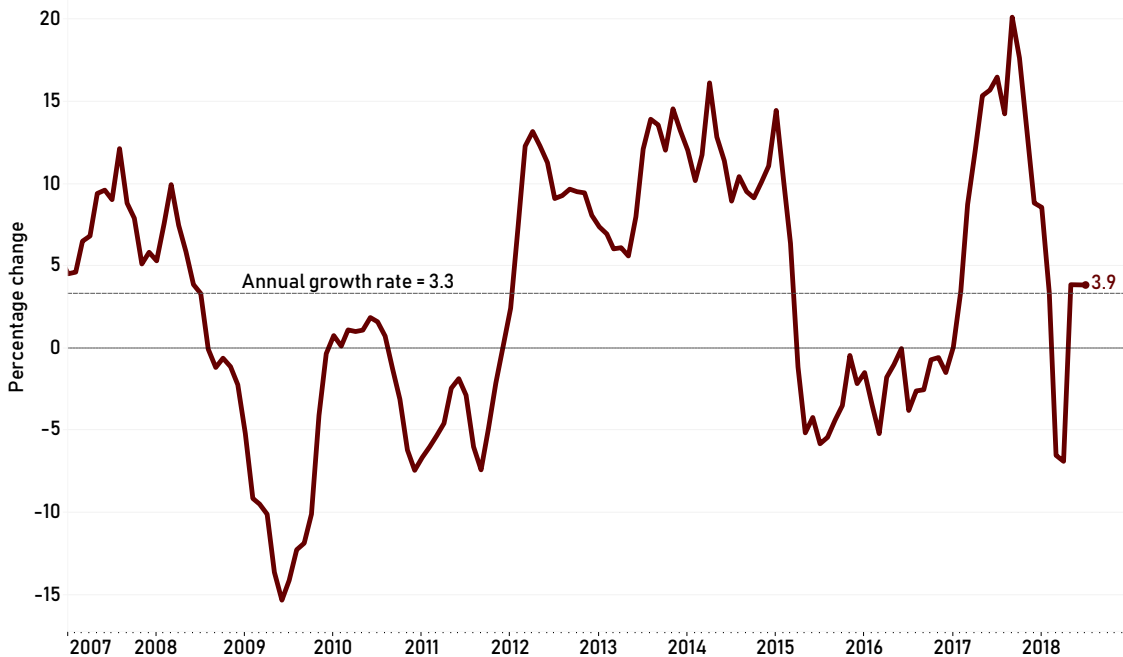
Annualized month-to-month growth rates. Last reported data point: July 2018 (monthly). Source: Private Enterprise Research Center.

DATA SERIES UNDERLYING THE COLLEGE STATION-BRYAN BUSINESS-CYCLE INDEX

In this inaugural issue of *Economic Indicators*, we present the economic variables on which our statistical model is built. While some of the Business-Cycle's attributes can be seen in the following graphs, the model that produces the index extracts the common factor that ties all of the individual series together. Future issues will highlight other complementary facets of the local economy, such as the housing market, hotel revenues, new construction and personal income.

UNEMPLOYMENT RATE

The unemployment rate for the CSB MSA is available monthly from the Bureau of Labor Statistics (BLS). Monthly data for this series is released with a one-month lag. For example, the data released on August 29, 2018 refers to the unemployment rate in July 2018. As shown in Figure 4, the unemployment rate in College Station-Bryan remained low compared to its 10-year average of 4.7%, decreasing to 2.9% in July from 3.0% in the previous month. The rate for the U.S. decreased from 4.0% to 3.9%, while the Texas unemployment rate remained at its 4.0% level.
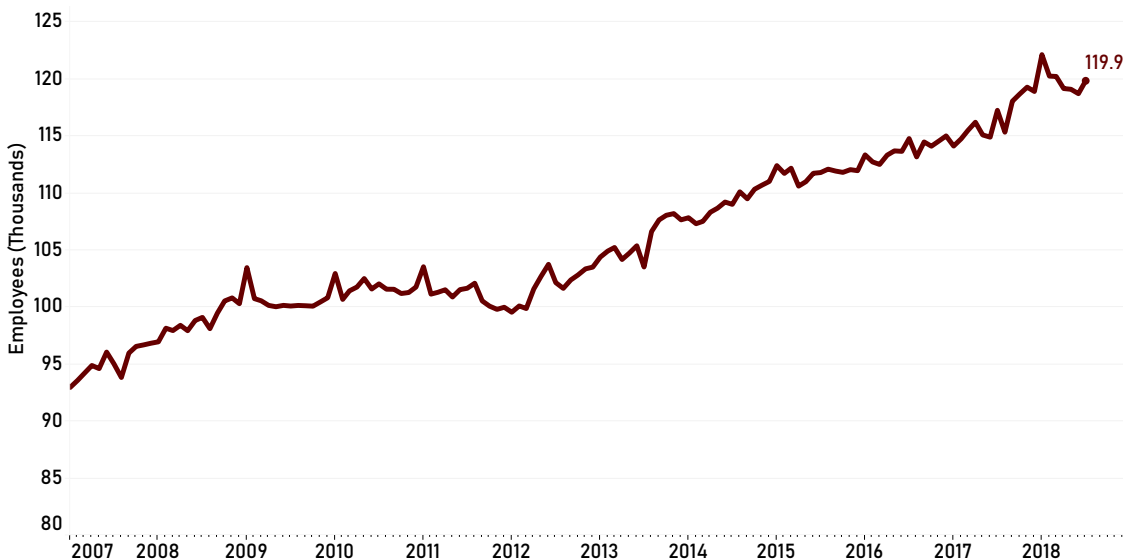
FIGURE 4. UNEMPLOYMENT RATE
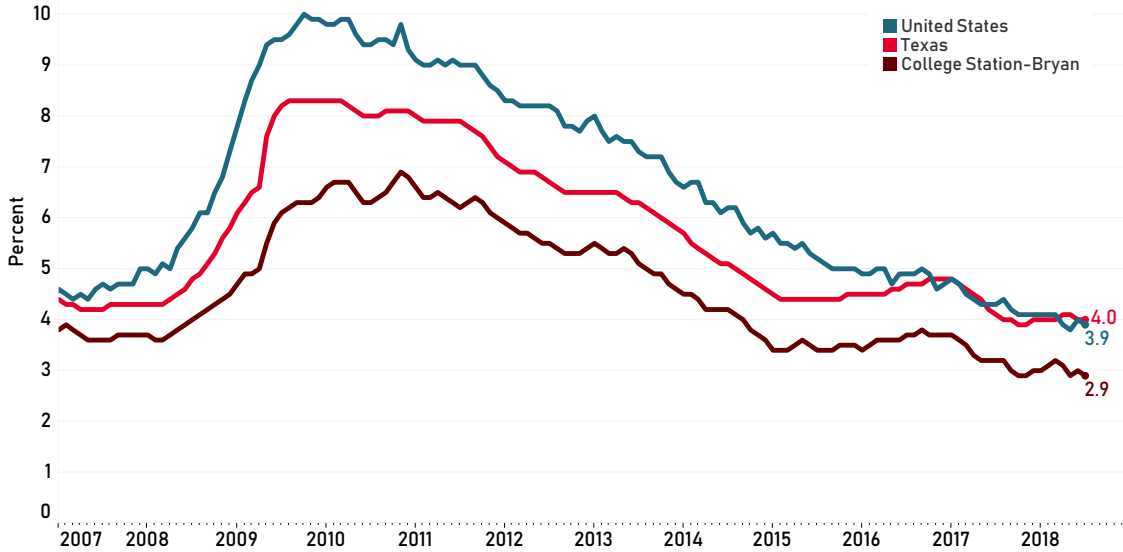
Seasonally adjusted. Last reported data point: July 2018 (monthly). Source: Bureau of Labor Statistics.

NON-FARM EMPLOYMENT

The non-farm employment count for the CSB MSA is also available monthly from the Bureau of Labor Statistics (BLS). Non-farm employment counts are also released with a one-month lag. We source the seasonally adjusted non-farm employment count for CSB from the FRBD.[3] Figure 5 depicts non-farm employment in the CSB MSA. Employment increased in the month of July by about 1000 employees, ticking up from 118.7 to 119.9 thousand workers. More than 20,000 employees have been added to the non-farm payrolls since the start of 2012. Non-farm employment in the CSB MSA has grown at an annualized rate of 1.9% over the past 10 years. Over the same period, non-farm employment for the nation and for Texas has grown at a 0.8% and 1.7% rate, respectively.

## FIGURE 5. NON-FARM EMPLOYMENT IN COLLEGE STATION-BRYAN

Seasonally adjusted by the Federal Reserve Bank of Dallas. Last reported data point: July 2018 (monthly). Source: Bureau of Labor Statistics; Federal Reserve Bank of Dallas, Total Non-farm Payroll Employment for College Station-Bryan, TX (MSA).

REAL WAGES

Our source for quarterly seasonally adjusted total wages in the CSB MSA is the Federal Reserve Bank of St. Louis. The raw data is from the BLS. This series, shown in Figure 6, reflects the total of all wage compensation paid to all individuals in the MSA. The wages are converted to real, inflation-adjusted wages using the consumer price index for all urban consumers. These data are released with a fairly long lag: the most recent data was released on September 5, 2018 and reflected total wages for the 1st quarter of 2018. Real wages in the CSB MSA have grown at an annualized rate of 2.9% over the past 10 years. Over the same period, real wages for the nation and for Texas have grown at a 1.5% and 2.6% rate, respectively.

FIGURE 6. REAL WAGES IN COLLEGE STATION-BRYAN
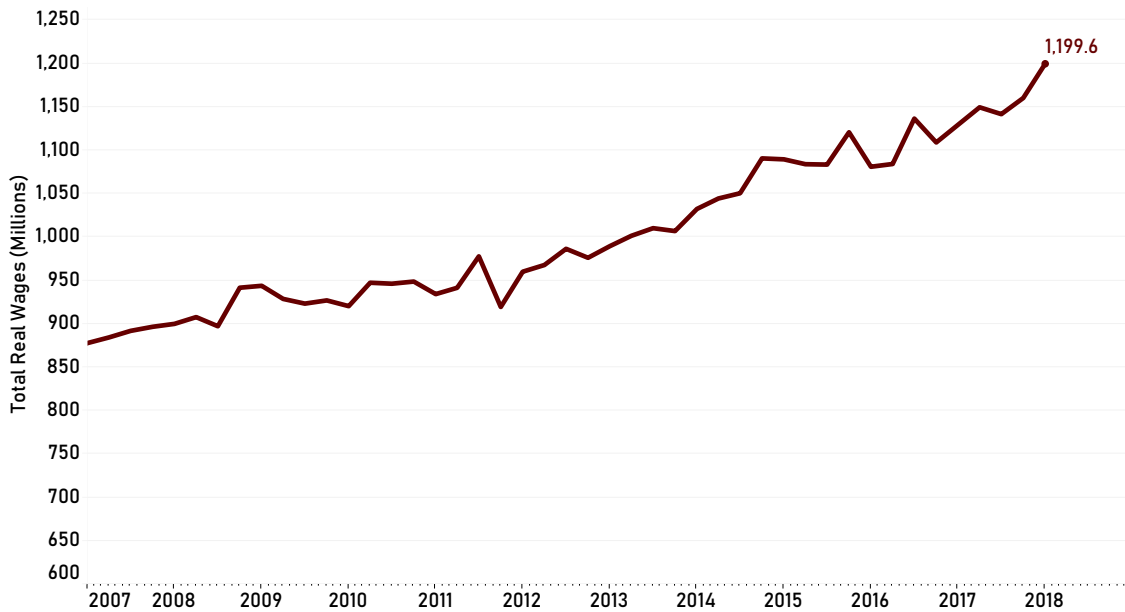
Seasonally adjusted. Last reported data point: Quarter 1, 2018 (quarterly). Sources: Federal Reserve Bank of St. Louis; U.S. Bureau of Labor Statistics. Adjusted for inflation using CPI-U. (Quarter 2, 2018=100).

REAL TAXABLE SALES

Brazos, Burleson, and Robertson Counties make up the College Station-Bryan MSA. We use monthly sale taxes allocated to Brazos and Burleson Counties, and because Robertson County does not collect a separate sales tax, we use the sales taxes collected for Bremond, Calvert, Franklin and Hearne. The sales taxes collected each month are combined with the respective sales tax rates to arrive at a series of gross sales subject to the sales tax. We seasonally adjust the monthly real sales data and present the data series in Figure 7. The real, seasonally adjusted, gross sales subject to tax grew as an annual rate of 3.0% over the last 10 years. In July, taxable sales were $333.6 million and are 7.1% higher than in July of 2017.

FIGURE 7. REAL TAXABLE SALES IN COLLEGE STATION-BRYAN
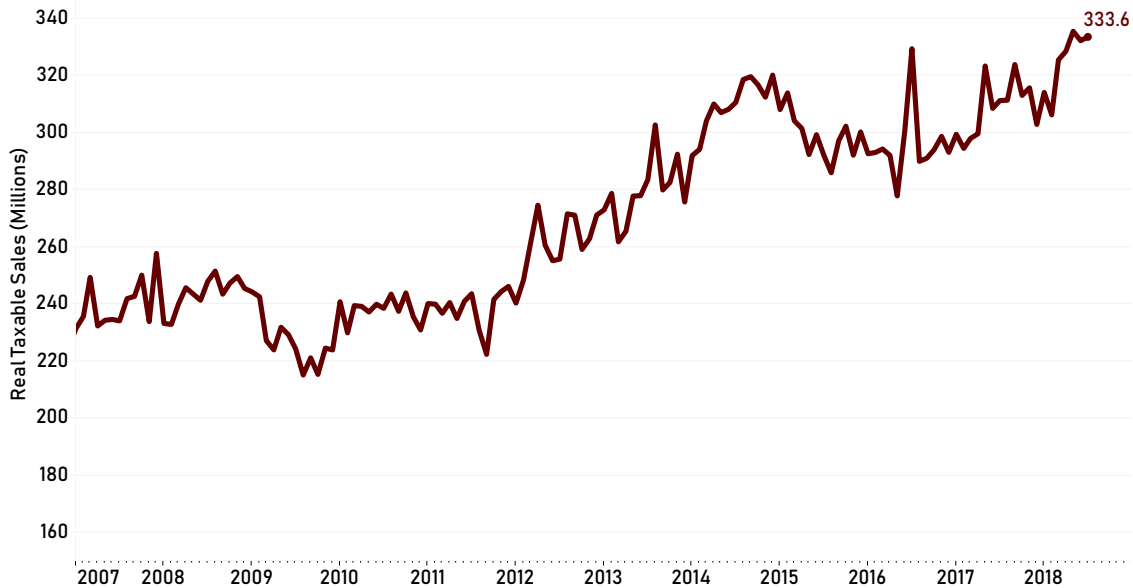
Last reported data point: July 2018 (monthly). Source: Texas Comptroller of Public Accounts; Private Enterprise Research Center for aggregation to the CSB MSA and seasonal adjustment. Adjusted for inflation using CPI-U. (June 2018=100).

Note that the Business-Cycle Index will be re-estimated each month using the most recent data for each of the economic variables. Therefore, the index and the monthly Business-Cycle series may differ from previous estimates, especially the most recently available estimates at the latest few months of our data scenes.

NOTES AND LINKS

For more details about the CSB Business-Cycle Index see: *An Economic Index for the College Station-Bryan, MSA*. This document describes the economic model in detail, the economic variables, and the methodology we use to estimate the index. It will be released with the October issue of *Economic Indicators.*

ENDNOTES

[1] The FRBD's indexes are available at: https://www.dallasfed.org/research/econdata/mbci.aspx The FRBD's methodology is an application of a well-established model of state and MSA level economic indexes. The original methodology is presented in: James H. Stock and Mark W. Watson, "New Indexes of Coincident and Leading Economic Indicators," in *NBER Macroeconomics Annual 1989,* Volume 4, edited by Olivier J. Blanchard and Stanley Fischer, MIT Press, pp. 351-394. An application of the methodology to a state economy is discussed in: Alan Clayton-Matthews and James H. Stock, "An Application of the Stock/Watson Index Methodology to the Massachusetts Economy," *Journal of Economic and Social Measurement,* Volume 25 (1998/1999) pp. 183-233. Our methodology improves on the classic Stock and Watson (1989) paper employing methods by Banbura and Modugno (2014), "Maximum Likelihood Estimation of Factor Models on Datasets with Arbitrary Pattern of Missing Data," *Journal of Applied Econometrics*, 29: 133-160. Their method allows estimation of indices with missing data and mixed frequencies.

[2] The FRBD business cycle indices were demeaned and then set to grow at their respective real GDP growth rates from January 1995. The GDP growth rate for the Dallas-Fort Worth MSA is used for the FRBD's index for Dallas-Plano-Irving given that a separate GDP estimate is not available just for the Dallas metro area.

[3] The FRBD series uses a superior two-step seasonal adjustment process which overcomes a data issue that arises at the turn of each year with BLS data. See the discussion from the Federal Reserve Bank of Dallas of the two-step process used to adjust the nonfarm employment series at: https://www.dallasfed.org/research/basics/twostep.aspx

DATA SOURCES

Unemployment Rate
Bureau of Labor Statistics, Unemployment by Metropolitan Area, Seasonally Adjusted, Local Area Unemployment Statistics, retrieved from Bureau of Labor Statistics, https://www.bls.gov/lau/metrossa.htm, September 6, 2018

Non-Farm Employment
Federal Reserve Bank of Dallas, Texas Workforce Commission, and Bureau of Labor Statistics, Total Nonfarm Payroll Employment for College Station-Bryan, TX (MSA), two-step Seasonally Adjusted, retrieved from Federal Reserve Bank of Dallas, https://www.dallasfed.org/research/econdata/brysa.aspx, September 6, 2018.

Wages
Federal Reserve Bank of St. Louis and U.S. Bureau of Labor Statistics, Total Quarterly Wages in College Station-Bryan, TX (MSA) [ENUC177830010SA], Seasonally Adjusted, retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/graph/?g=l5Wo, September 6, 2018.

Taxable Sales (Sales and Use Tax Allocation)
Texas Comptroller of Public Accounts, Allocation Payment Detail, Current Period Collections. Data available through Texas Comptroller of Public Accounts: https://mycpa.cpa.state.tx.us/allocation/AllocDetail for years 2016 to 2018. Historical data prior to 2016 from Texas Comptroller of Public Accounts.

Inflation
U.S. Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items [CPIAUCSL], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/CPIAUCSL, September 11, 2018. Wages and Taxable Sales are converted to real dollars (inflation-adjusted) using the CPI-U.

BRAZOS VALLEY
ECONOMIC DEVELOPMENT
CORPORATION

A|M | **PRIVATE ENTERPRISE RESEARCH CENTER**
TEXAS A&M UNIVERSITY

The Brazos Valley Economic Development Corporation serves Brazos County, the City of Bryan, the City of College Station, Texas A&M University, the surrounding region and private sector investors through the Invest Brazos Valley program. BVEDC helps companies launch, grow, and locate in the Brazos Valley.

979.260.1755 | brazosvalleyedc.org

Founded in 1977 through the generosity of former students, corporations and foundations, the Private Enterprise Research Center pursues a dual mission of supporting academic research at Texas A&M University and developing market-oriented solutions to public policy problems.

979.845.7559 | perc.tamu.edu