

# BUSINESS FORECAST

PRESENTED BY: CENTER FOR BUSINESS & ECONOMIC RESEARCH



UNIVERSITY OF  
ARKANSAS

Sam M. Walton  
College of Business

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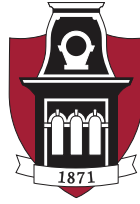
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**Sam M. Walton  
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*Center for Business & Economic Research*

**Business Forecast 2019  
February 1, 2019  
11:30 a.m. - 1:30 p.m.  
Schedule of Events**

**Welcome**

**Joseph Steinmetz**  
Chancellor  
University of Arkansas

**Special Remarks**

**Matt Waller**  
Dean, Sam M. Walton College of Business  
University of Arkansas

**2018 Contest Awards**

**Mervin Jebaraj**  
Director, Center for Business and Economic Research  
Sam M. Walton College of Business  
University of Arkansas

**Introduction of Moderator**

**Matt Waller**

**Introduction of Panelists**

**Amy Tu**  
Executive Vice President and General Counsel  
Tyson Foods, Inc.

**Global Forecaster**

**Carolyn Evans**  
Head Economist and Senior Data Scientist  
Intel Corporation

**Domestic Forecaster**

**Ross DeVol**  
Walton Fellow  
Walton Family Foundation

**Regional Forecaster**

**Mervin Jebaraj**

**Panel Discussion**

**Amy Tu, Carolyn Evans, Ross DeVol, Mervin Jebaraj**

**Recognitions and Announcements**

**Matt Waller**

Business Forecast 2019 is in association with the National Association for Business Economics (NABE).

**Please use Twitter hashtag #BF2019 for this event.**





**Amy Tu** is an executive vice president and general counsel responsible for Tyson Foods' legal, government affairs, ethics and compliance, and internal audit functions enterprise-wide. She leads Tyson Ventures, a venture capital fund investing in companies developing breakthrough technologies, business models and products to sustainably feed the growing world population. Amy joined Tyson from The Boeing Company where she held progressive leadership positions in law and corporate development and strategy departments. She served as chief counsel for Boeing global law affairs, commercial airplanes and aviation services divisions, supporting multiple business and functional leaders worldwide. Amy was also instrumental in helping to shape the global law affairs practice as Boeing's first regional counsel based in London, U.K., with responsibilities for commercial, military and defense matters in Europe, Russia, and Israel. Prior to joining Boeing in 2001, Amy led global transactions and international legal matters as an international corporate counsel at the Gap and Walmart. Amy earned a Juris Doctorate degree from the University of Arkansas School of Law and a Bachelor of Arts degree in economics from Wellesley College.



**Carolyn Evans** is head economist and senior data scientist at Intel Corporation. Prior to joining Intel, Evans held the positions of associate professor of economics at Santa Clara University, senior economist at the Board of Governors of the Federal Reserve, senior staff economist for international trade on the President's Council of Economic Advisers, and economist at the Federal Reserve Bank of New York. She has published academic articles and books in the areas of international trade, political economy, global macroeconomics and corporate finance. Evans is a member of the Conference of Business Economists, the Harvard University Discussion Group of Industrial Economists, the National Association for Business Economics (NABE), and the American Economic Association and serves on the Board of Directors of NABE and the Advisory Board for the M.S. in Business Analytics at Santa Clara University. Carolyn holds a Ph.D. and M.A. in Economics and a B.A. in east Asian languages and civilizations from Harvard University. She also holds a M.Sc. from the London School of Economics.



**Ross DeVol** is a fellow, Walton Family Foundation, a program enlisting subject-matter experts to conduct research and develop best practices supporting the foundation's philanthropic efforts. He is assessing opportunities for regional innovation and entrepreneurial ecosystems that foster job creation, wage gains and economic growth for the American heartland. He works with universities, colleges, the business community, public policy leaders and philanthropy to analyze resources supporting the startup community and identify workforce and talent gaps. DeVol is former chief research officer for the Milken Institute, an economic think tank headquartered in California where he spent nearly 20 years. He oversaw research on international, national and comparative regional growth performance, access to capital and its role in economic growth and job creation, and health-related topics. He has been ranked among the "Superstars of Think Tank Scholars" by *International Economy* magazine. DeVol is transitioning to lead the new Core Economic Institute (a think and do tank) whose mission will be to improve economic performance in the center of the United States. The Institute will pursue its mission through independent, data-driven research, action-oriented convenings and impactful policy recommendations.



**Mervin Jebaraj** is the director of the Center for Business and Economic Research. During his time at the center, he has been instrumental in creating and executing economic studies for clients such as the Arkansas Economic Development Commission, the Northwest Arkansas Council, the Walton Family Foundation, Arvest Bank, the University of Arkansas and many others. His work has been noted by the state's business media. The *Northwest Arkansas Business Journal* recognized him as one of its "Fast 15" and *Arkansas Business* put him on its list of "20 in their 20s." He is an exceptional source of business and economics-related expertise that journalists and business people alike rely on to understand how national and regional issues impact Northwest Arkansas and Arkansas as a whole. He makes presentations that share the center's expertise directly to over 5,000 individuals annually and tens of thousands more hear and see his economic analysis and commentary through TV, radio and print media. Jebaraj is a member of the National Association for Business Economics and serves on the Board of Directors of the Association for University Business and Economic Research.



# International Economic Perspectives February 2019

Carolyn Evans  
Intel Corporation

## Risk Factors

**Today's presentations contain forward-looking statements. All statements made that are not historical facts are subject to a number of risks and uncertainties, and actual results may differ materially. Please refer to our most recent earnings release, Form 10-Q and 10-K filing available on our website for more information on the risk factors that could cause actual results to differ.**

# Disclaimer

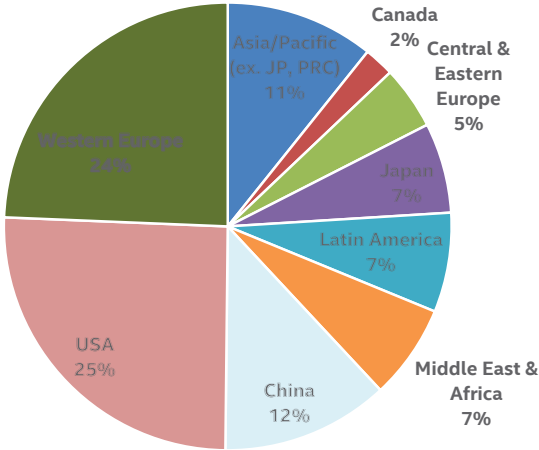
The views in this presentation are solely the responsibility of the author and should not be interpreted as reflecting the views of Intel Corporation or of any other person associated with Intel Corporation.

## Outline

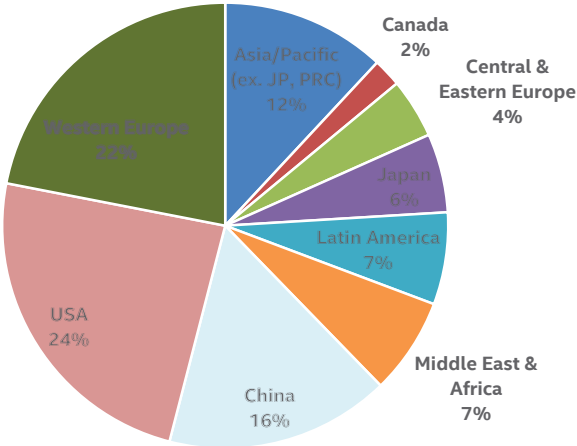
- **Snapshot of The Global Economy**
- **2018 in Review**
- **The Year Ahead**

# Snapshot of the Global Economy

2010 Real GDP

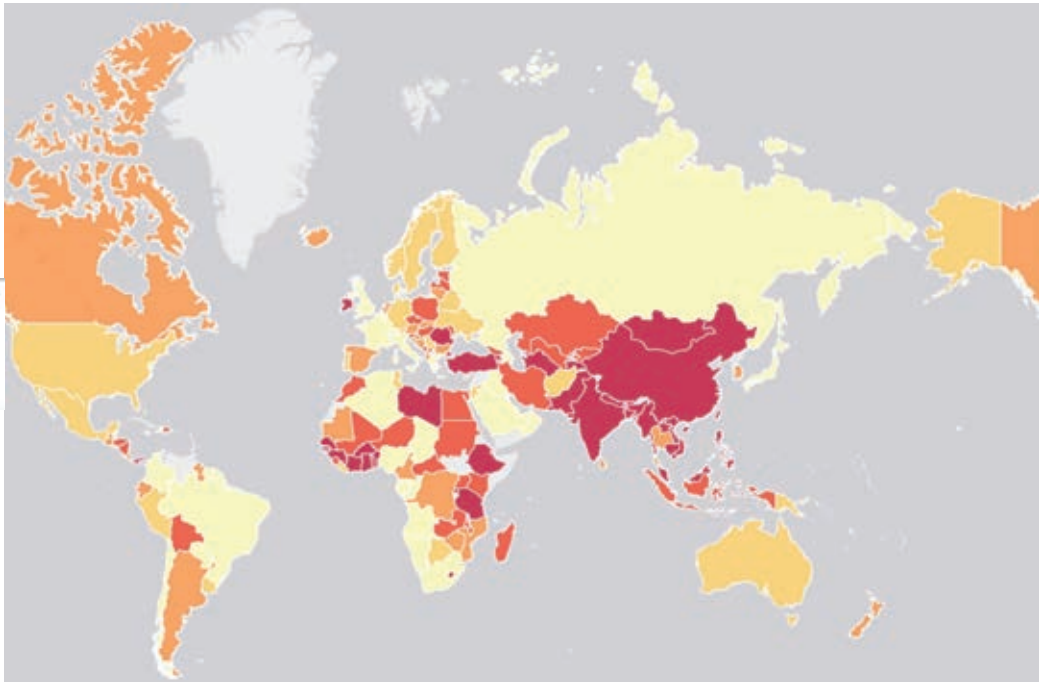


2017 Real GDP



Source: IHS Markit.

# Snapshot of the Global Economy



Source: World Bank.

# 2018 in Review

- Growth
- Exchange rates
- Trade policy

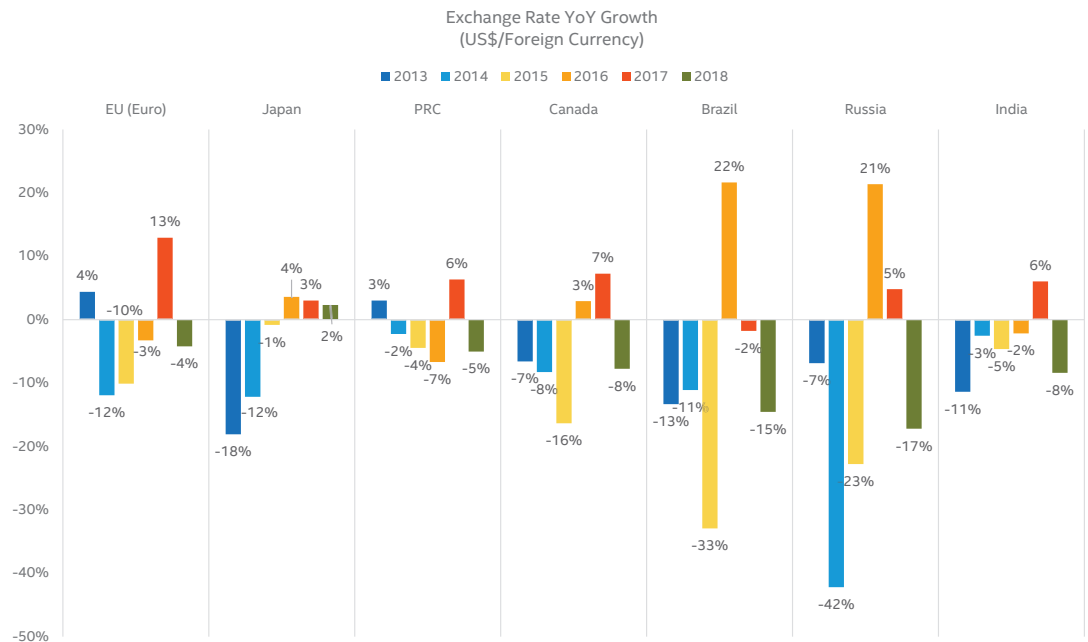
Real GDP Growth Rates	2016	2017	2018
IHS Markit (Jan 2019)	2.7%	3.3%	3.2%
Oxford Economics (Jan 2019)			3.0%
World Bank (Jan 2019)	2.4%	3.1%	3.0%

Note: GDP in Real USD; Oxford Economics and World Bank, 2010 base year; IHS Markit, 2015 base year. Forecasts represented by italics.



# 2018 in Review

- Growth
- Exchange rates
- Trade policy



Source: Yahoo Finance. YoY calculations show growth over last trading days of the year.

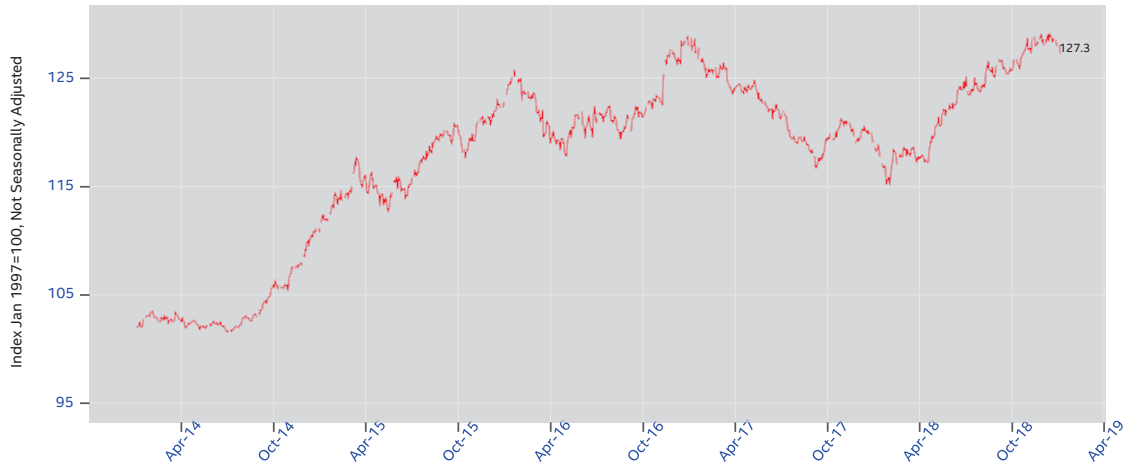




# USD Nominal Broad Effective Exchange Rate

## US Effective Exchange Rate

Daily Nominal Effective Exchange Rate: US (Jan 1997=100)



Source: US Federal Reserve retrieved through FRED. Data through 2019-01-04.

- Growth
- Exchange rates
- Trade policy



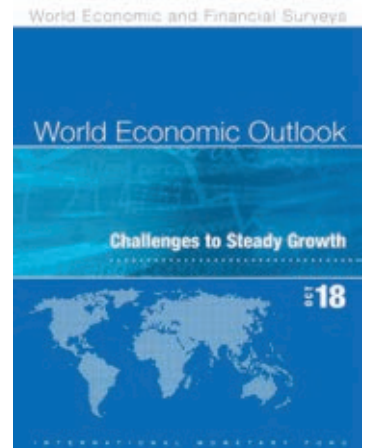
## The Year Ahead



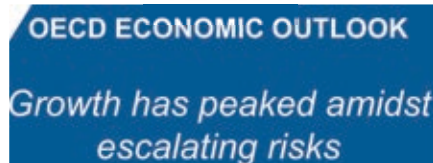
World Bank

"Global economic growth is projected to soften from a downwardly revised 3 percent in 2018 to 2.9 percent in 2019 amid rising downside risks to the outlook, the World Bank's Global Economic Prospects says."

IMF



OECD



Oxford Economics

Global Economic Prospects: A solid 2019 as market falls overstate loss of momentum

Federal Reserve

Fed's Randal Quarles Is Upbeat on U.S. Economy  
The central banker makes no comment on monetary policy

The global economy: Rising recession risks

IHS Markit

16 Jan 2019

The danger of a global economic downturn has risen, but the probability of a recession in 2019 is still low. After a brief spurt in 2017 and 2018, growth in the G7 economies is reverting to trend, and emerging markets are unlikely to come to the rescue.



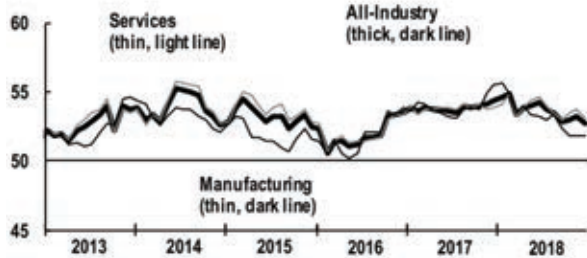
ECONOMICS GEOGRAPHY



# Global Business Sentiment

## JPMorgan global PMI output

Diffusion Index, sa



Source: IHS Markit, data through December 2018. Above 50.0 = increase since previous month.

## Caixin China Output PMI

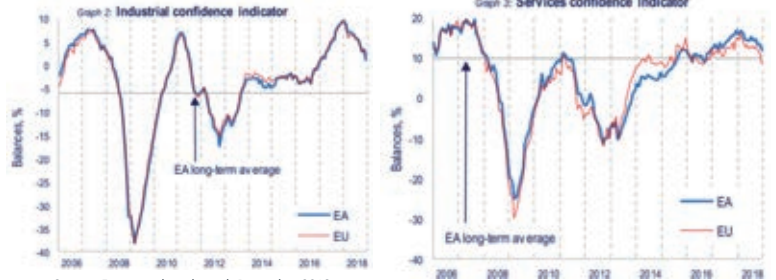
50 = no change on previous month, S.Adj.



Sources: IHS Markit, Caixin.

Source: IHS Markit, Caixin, data through December 2018. Above 50.0 = increase since previous month.

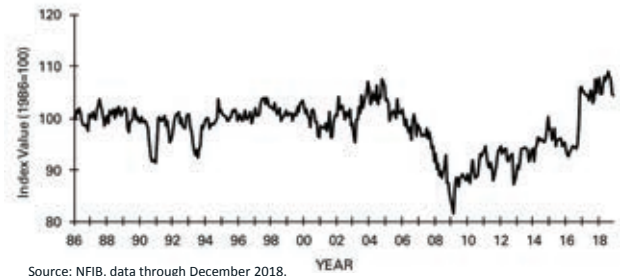
## EU and Euro Area Confidence Indicators



Source: Eurostat, data through December 2018.

## US NFIB Optimism Index

Based on Ten Survey Indicators  
(Seasonally Adjusted 1986=100)



Source: NFIB, data through December 2018.



# Employment

US Unemployment  
US Job Openings



Source: FRED, BLS, openings through November 2018, unemployed through December 2018.

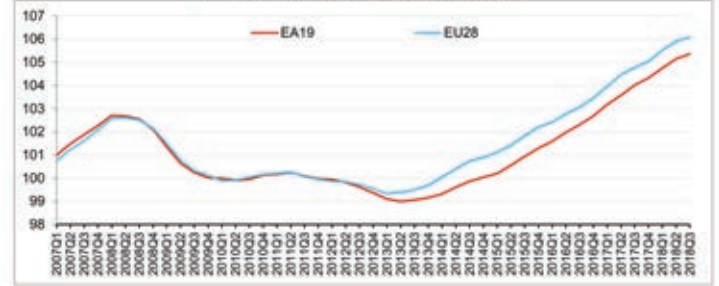
US Civilian Labor Force Participation Rate: 25-54 years



Source: FRED, BLS, data through December 2018.

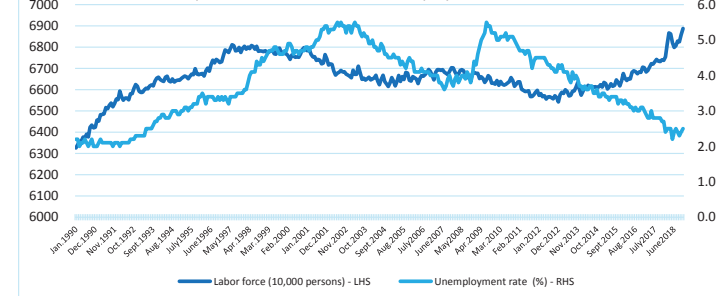
## Evolution of euro area and EU28 employment in persons

Index, 2010=100, based on seasonally adjusted data



Source: Eurostat, data through 2018 Q3.

## Japan: Labor Force Size and Unemployment Rates



Source: Statistics Bureau of Japan, data through November 2018.



## World Real GDP Growth Forecasts

	2016	2017	2018	2019
<b>IHS Markit (Jan 2019)</b>	<i>2.7%</i>	<i>3.3%</i>	<i>3.2%</i>	<i>2.9%</i>
<b>Oxford Economics (Jan 2019)</b>			<i>3.0%</i>	<i>2.7%</i>
<b>World Bank (Jan 2019)</b>	<i>2.4%</i>	<i>3.1%</i>	<i>3.0%</i>	<i>2.9%</i>
<b>IMF (Oct 2018)</b>	<i>3.3%</i>	<i>3.7%</i>	<i>3.7%</i>	<i>3.7%</i>
<b>OECD (Nov 2018)</b>	<i>3.1%</i>	<i>3.6%</i>	<i>3.7%</i>	<i>3.5%</i>

Notes: Methods of aggregation and base years differ across sources. Forecasts represented by italics.

# Innovation and What's Ahead for the U.S. Economy

25<sup>th</sup> Annual Business Forecast Luncheon

Sam M. Walton College of Business  
Rogers, AR  
February 1, 2019

Presented by:

Ross DeVol  
Fellow, Walton Family Foundation



## Presentation overview

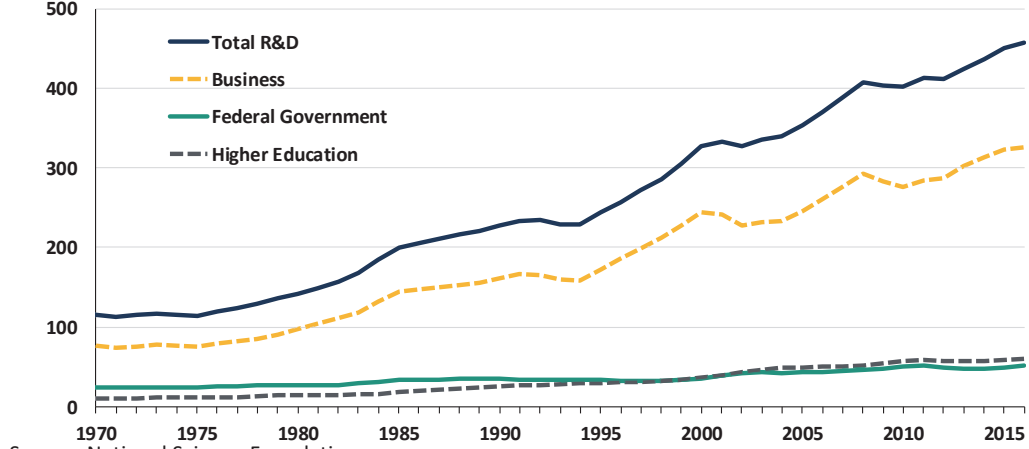
- Innovation and long-term growth
  - research and development
  - entrepreneurship and risk capital
  - human capital
  - STEM workforce
  - technology dynamism
- Near-term U.S. economic outlook
  - consumer
  - business investment
  - housing
  - trade
  - financial
  - fiscal
  - summary outlook



## Business increasingly driving innovation

### U.S. Research and Development Spending

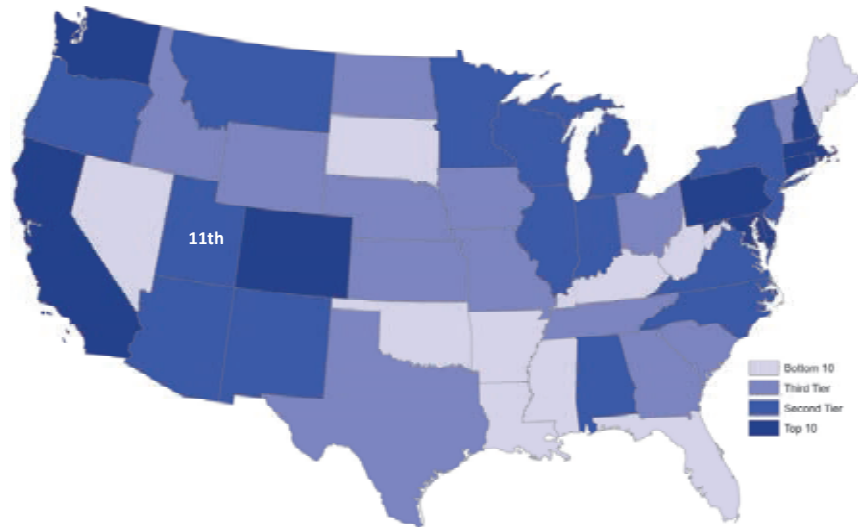
Billions of 2009 Dollars



Source: National Science Foundation



## STSI Research and Development Inputs index



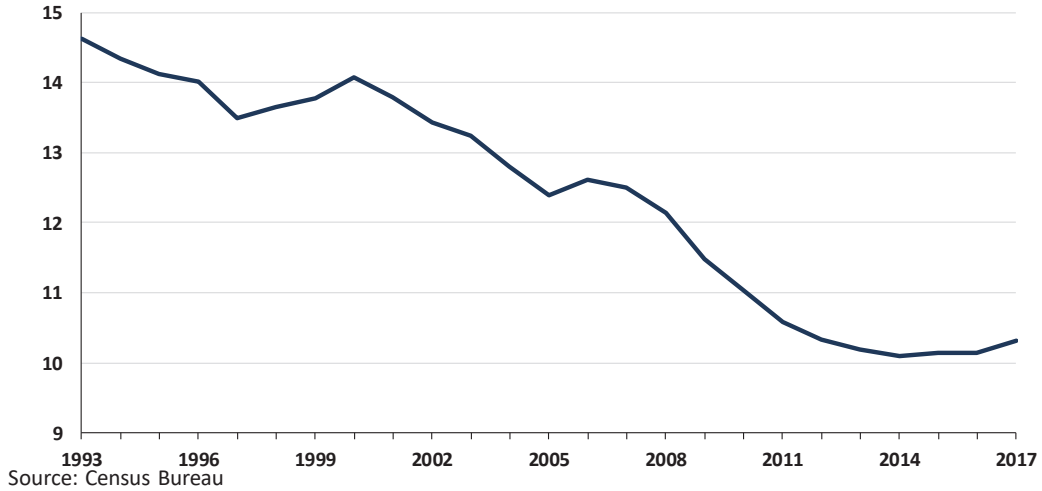
Source: Milken Institute



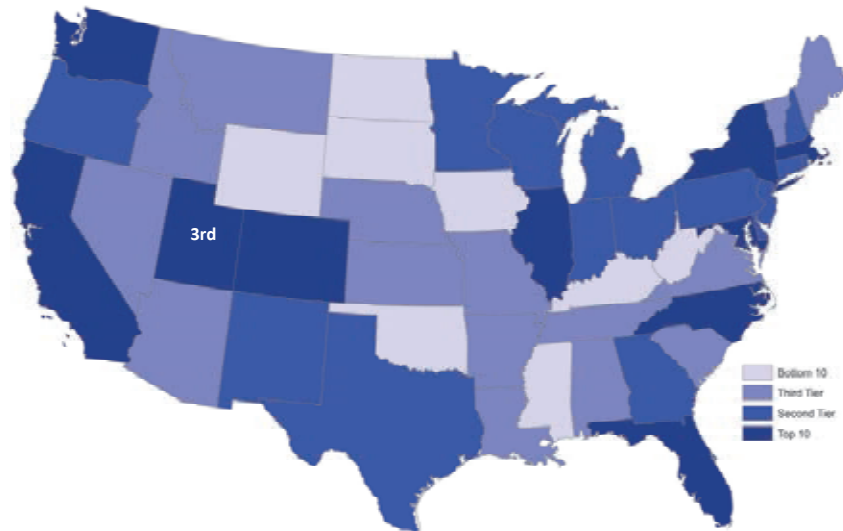


## Entrepreneurs vital to a dynamic economy

Percent of U.S. Employment at Young Firms



## STSI Risk Capital and Entrepreneurial Infrastructure Index

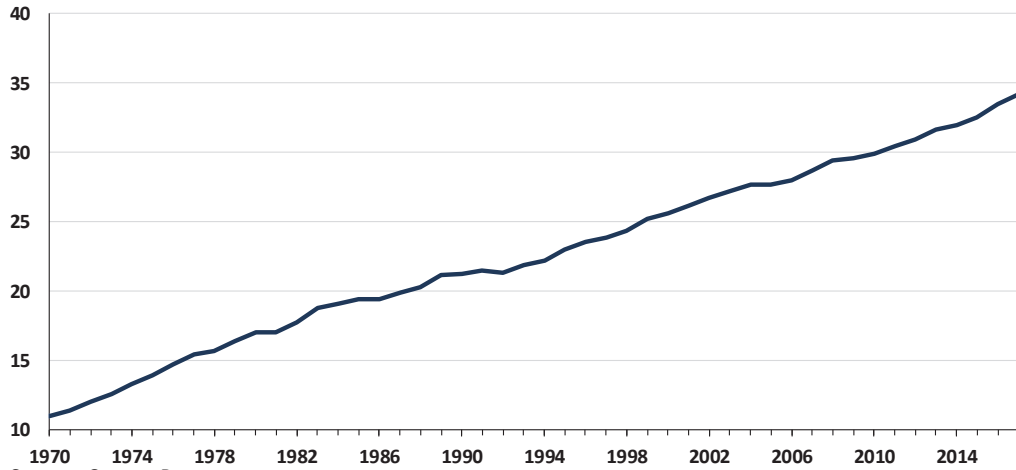


Source: Milken Institute

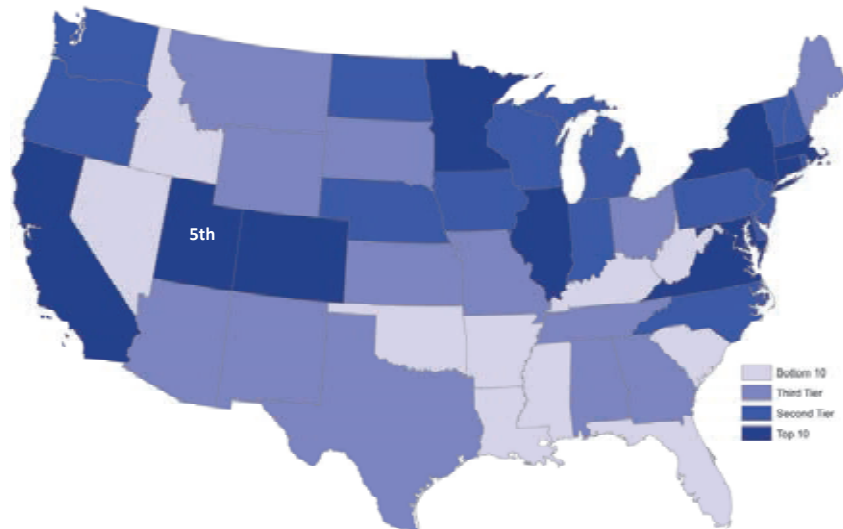


## Human capital investment key to growth

Percent of U.S. 25 and Older Population with a Bachelor's Degree or Higher



## STSI Human Capital Investment Index

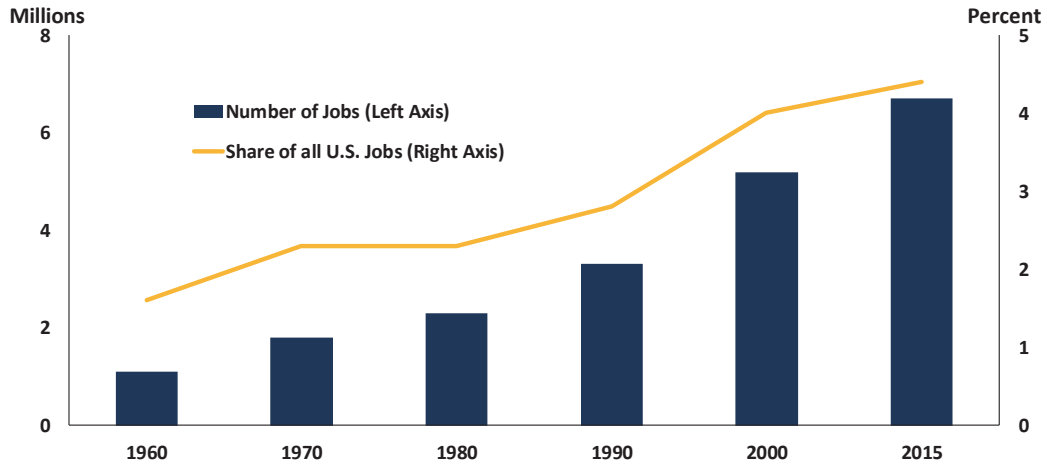


Source: Milken Institute

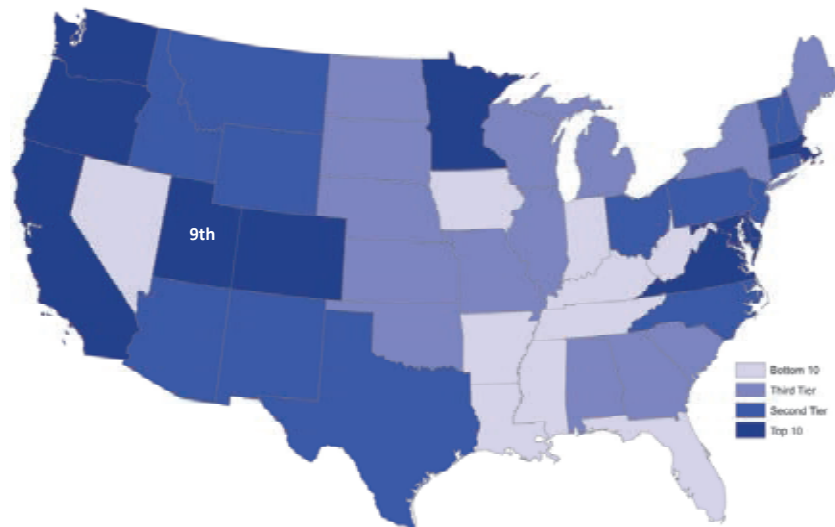


## STEM workforce converts research to viable firms

### U.S. Science and Engineering Jobs



## STSI Tech and Science Workforce Index

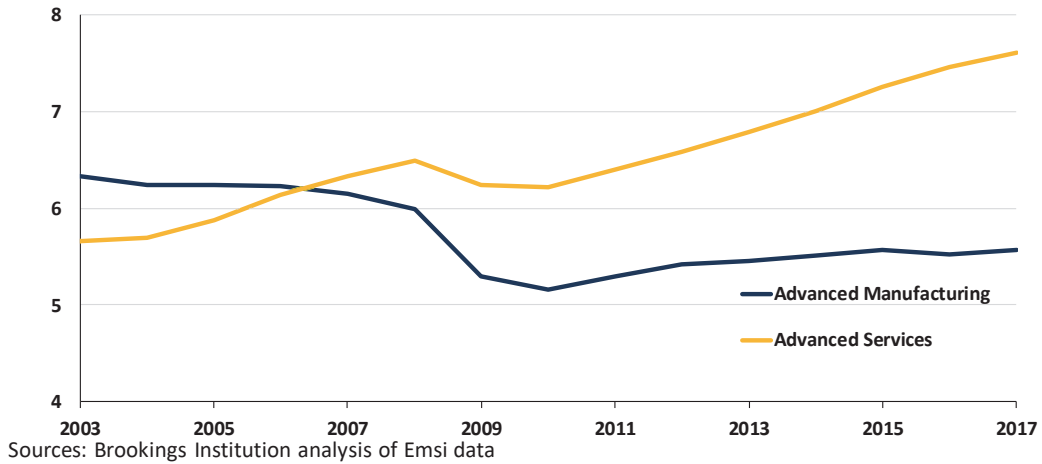


Source: Milken Institute



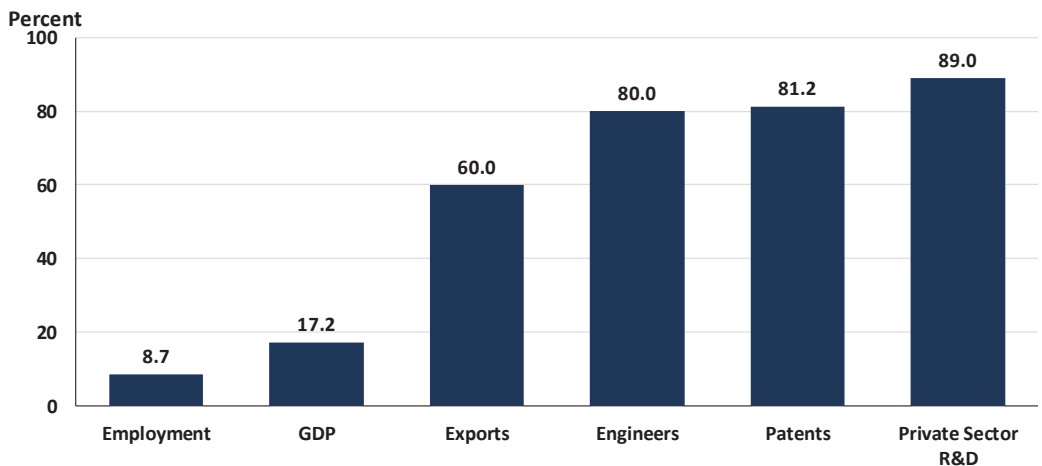
## Advanced services' success critical to job creation

U.S. Employment in Advanced Industries  
Millions of Workers

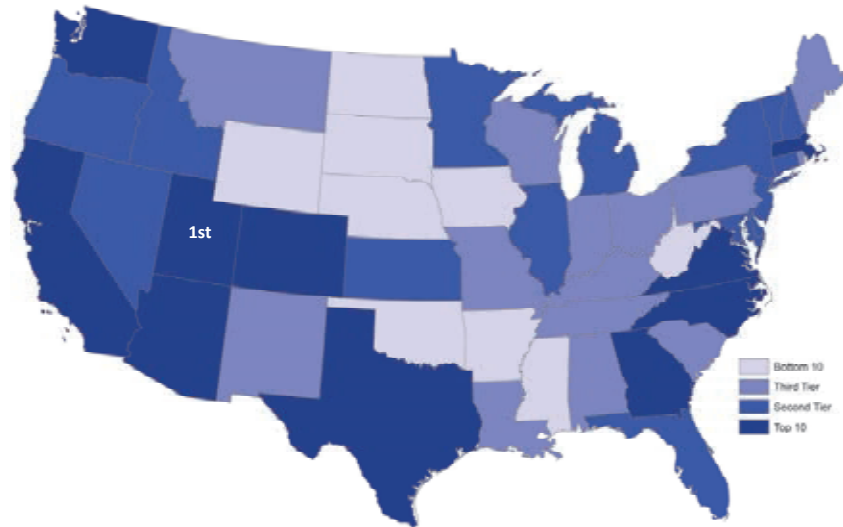


## Advanced industries account for majority of U.S. innovation

Advanced Industries' Share of 2015 U.S. Macro Measures



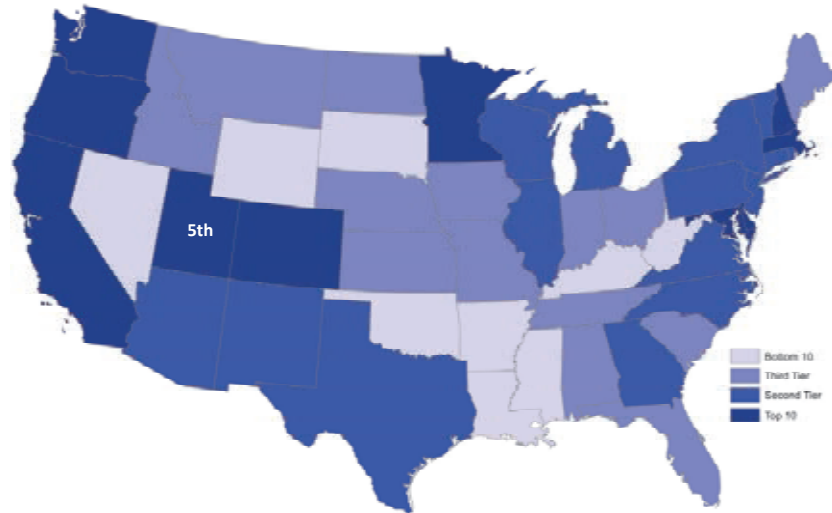
## STSI Tech Concentration and Dynamism Index



Source: Milken Institute



## State Science and Technology Index



Source: Milken Institute

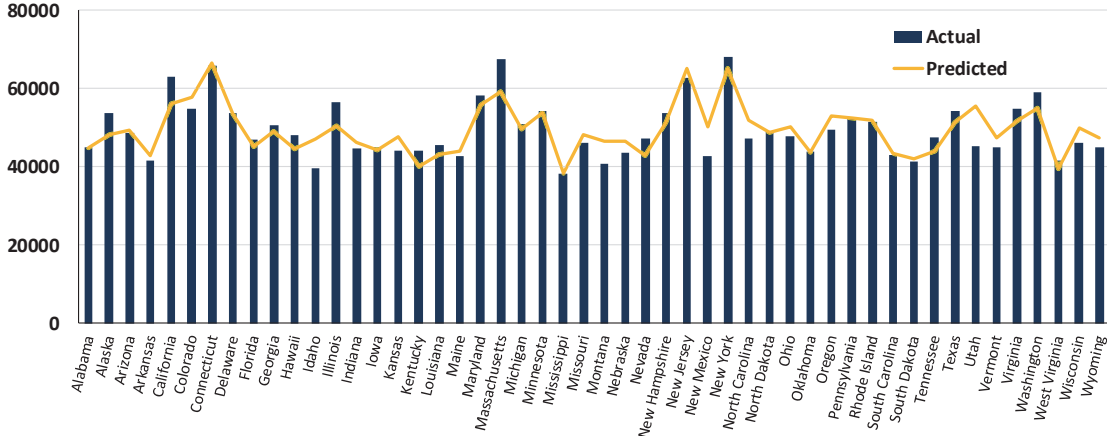




## Innovate to create high wage jobs

### Actual versus STSI-predicted Average Annual Pay

US Dollars



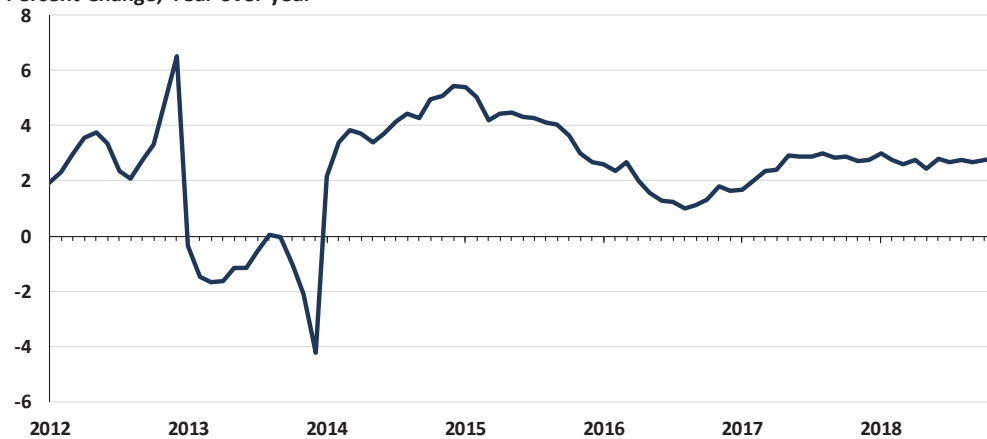
Source: Walton Family Foundation analysis of Milken Institute and Bureau of Labor Statistics data



## Income gains remain steady

### Real Disposable Income Growth

Percent Change, Year-over-year



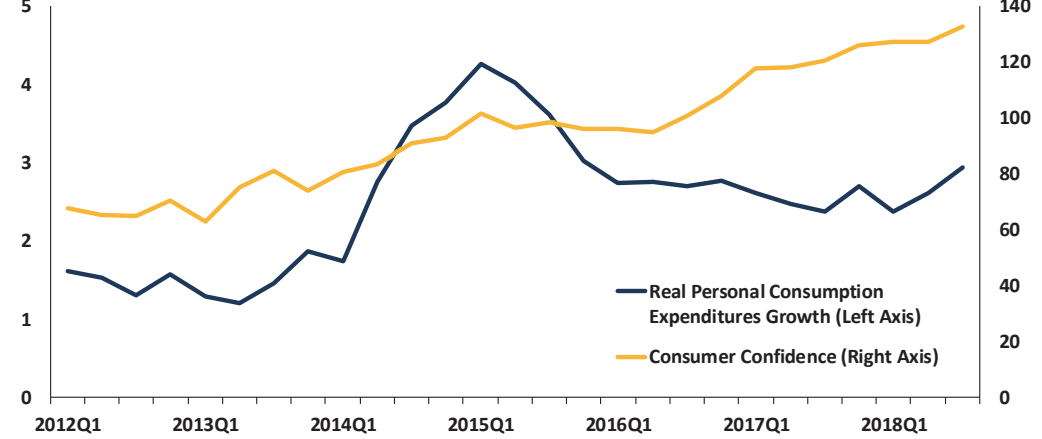
Source: Bureau of Economic Analysis



## Consumers able and willing to spend

### Consumer Spending and Confidence

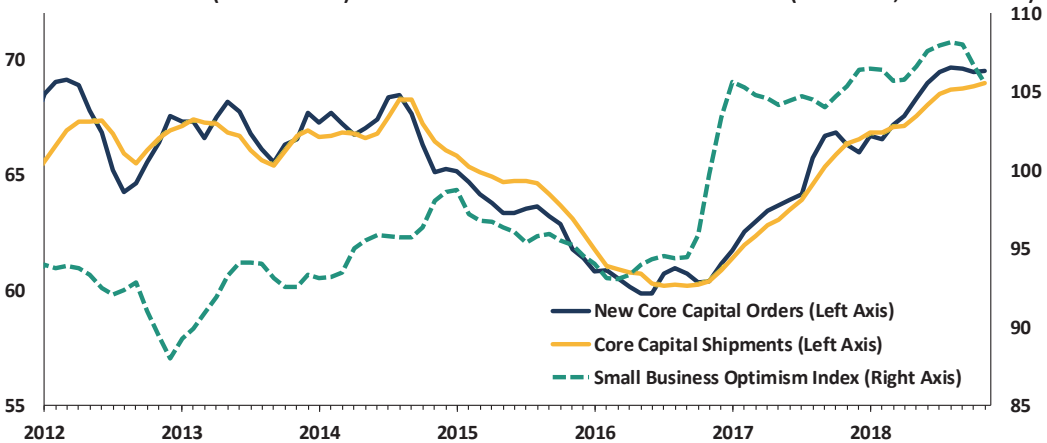
Percent Change, Year-over-year



## Businesses invest after tax and regulatory reform

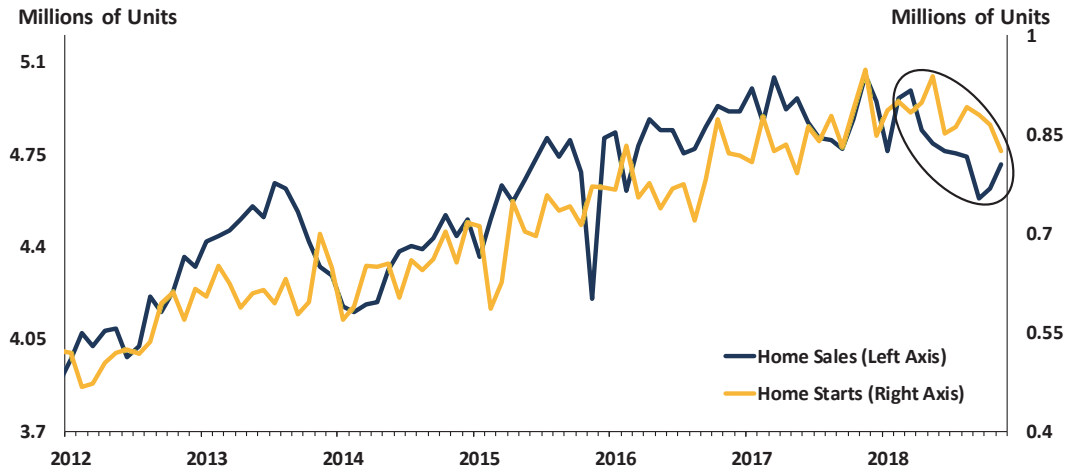
### U.S. Core Capital Good Purchases and Business Optimism

Billions of US Dollars (3-month MA)



## Home sales retreat after mortgage rates rise

Single-family Home Sales and Starts  
Millions of Units

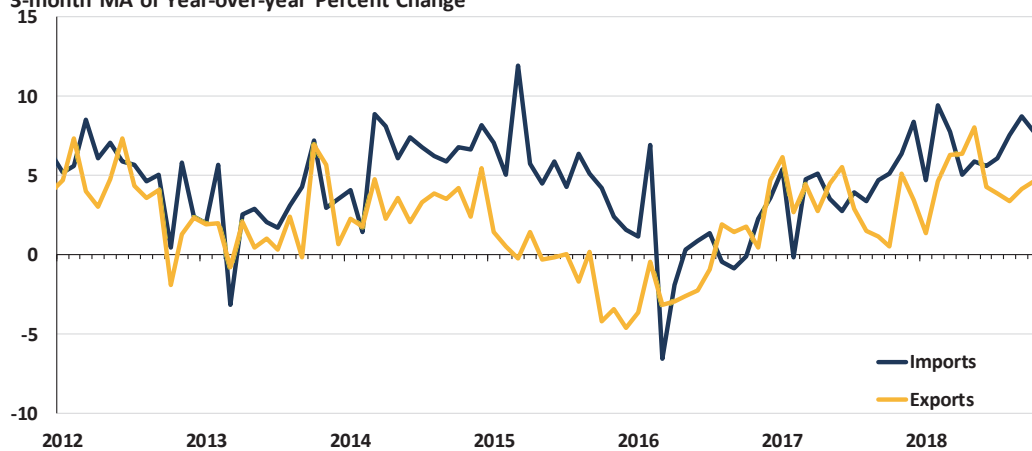


Sources: Census Bureau and National Association of Realtors



## Strong U.S. growth draws in imports, trade war looms

Non-petroleum Import and Export Growth  
3-month MA of Year-over-year Percent Change



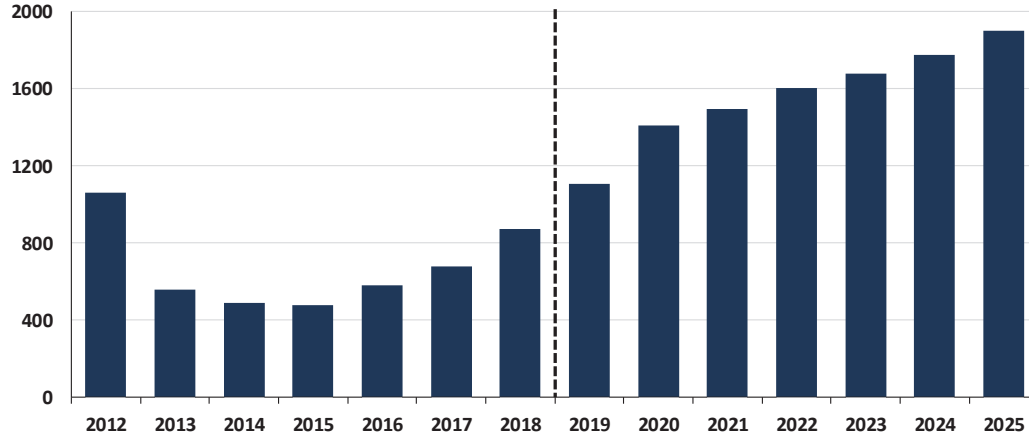
Source: Bureau of Economic Analysis



## Federal government spending adds 0.6 pp. to GDP growth in 2019

### Projected Federal Budget Deficits

Billions of US Dollars



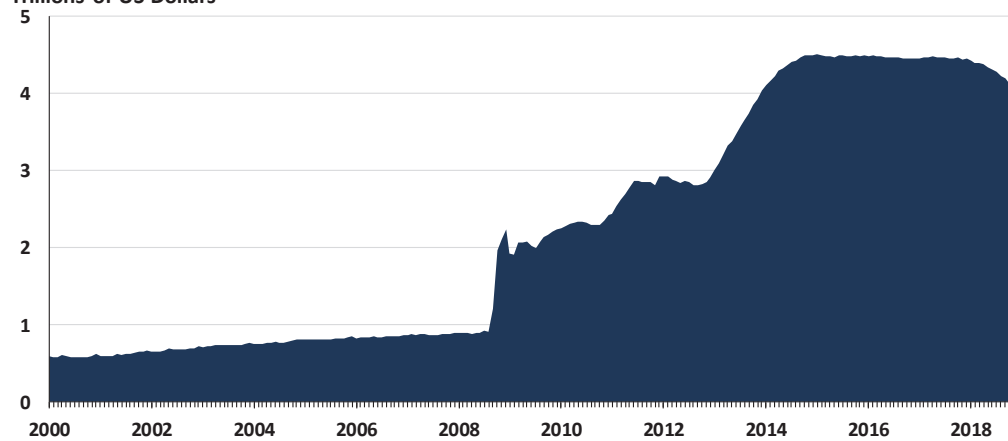
Sources: US Treasury and Moody's Analytics



## Fed starts to allow balance sheet to run off; Wall Street worries

### Federal Reserve Balance Sheet (Total Assets)

Trillions of US Dollars

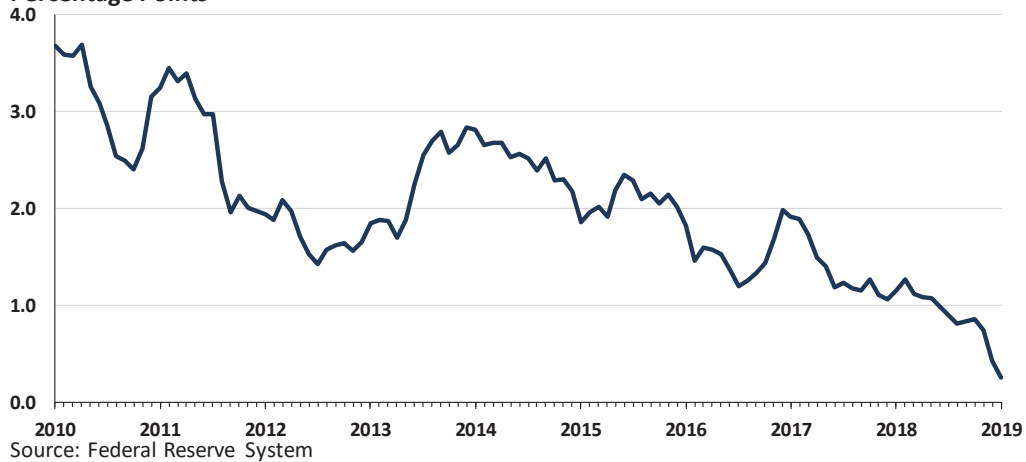


Source: Federal Reserve System



## Will yield curve invert? – Does it signal recession?

Spread Between 10-Year and 3-Month Treasuries  
Percentage Points



## Economic Outlook Summary

### Percent Change, Real

	2016	2017	2018	2019	2020
Consumption	2.7	2.5	2.7	2.6	1.0
Business Fixed Investment	1.7	4.8	5.5	5.4	2.1
Residential Investment	6.5	3.3	0.3	4.1	3.1
Exports	0.1	3.0	4.1	2.3	5.0
Imports	1.9	4.6	4.8	6.0	4.1
Government	1.4	-0.1	1.7	4.0	2.2
<b>GDP</b>	<b>1.6</b>	<b>2.2</b>	<b>2.9</b>	<b>2.6</b>	<b>1.2</b>



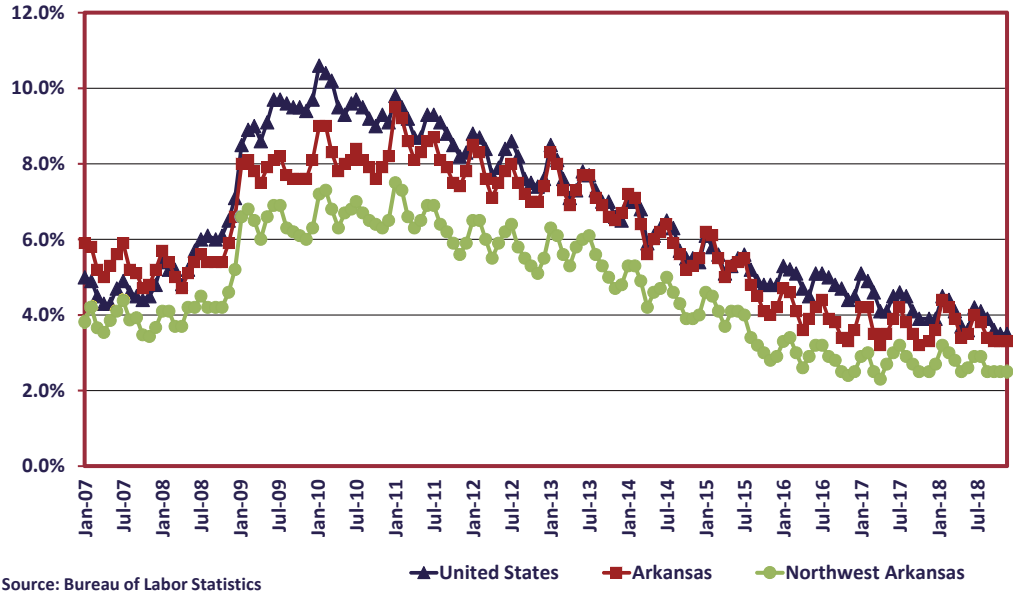


# The Arkansas Economy in 2019

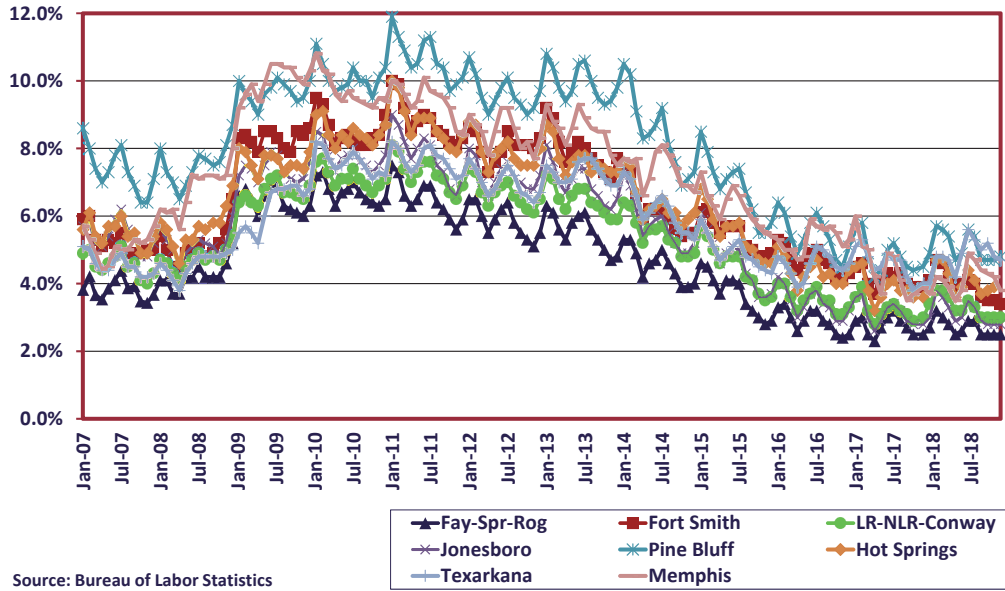
Mervin Jebaraj, Director  
Center for Business and Economic Research  
February 1, 2019

Twitter: #BF2019  
@uawaltoncollege @MervinJebaraj

Unemployment Rates, Not Seasonally Adjusted

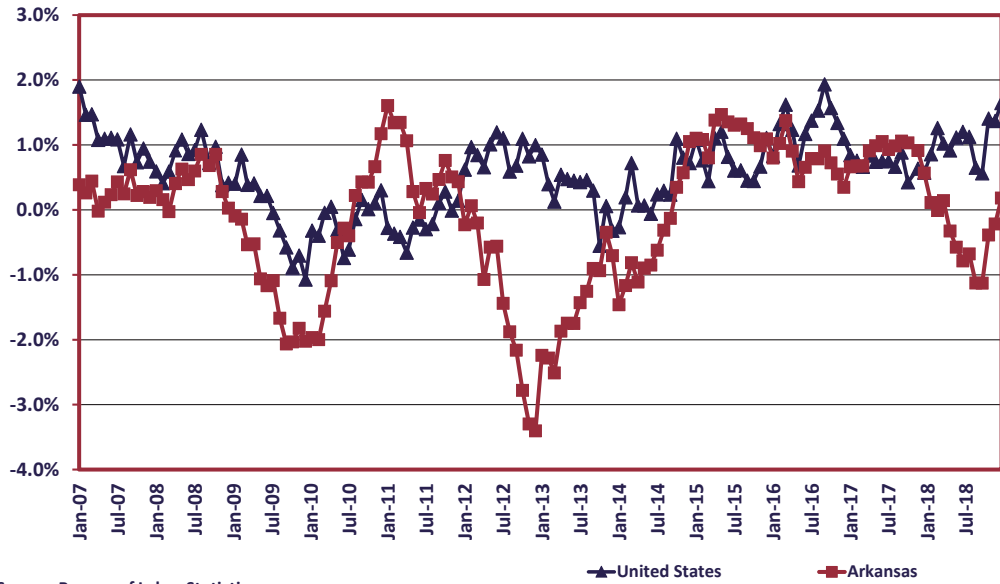


Unemployment Rates, Not Seasonally Adjusted



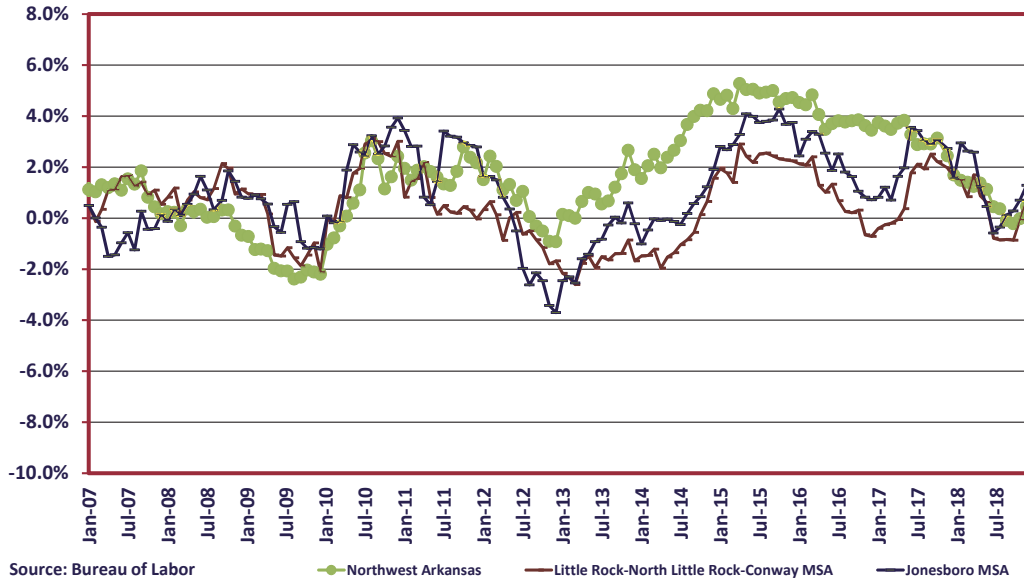
Source: Bureau of Labor Statistics

Labor Force, Year Over Year Percent Change



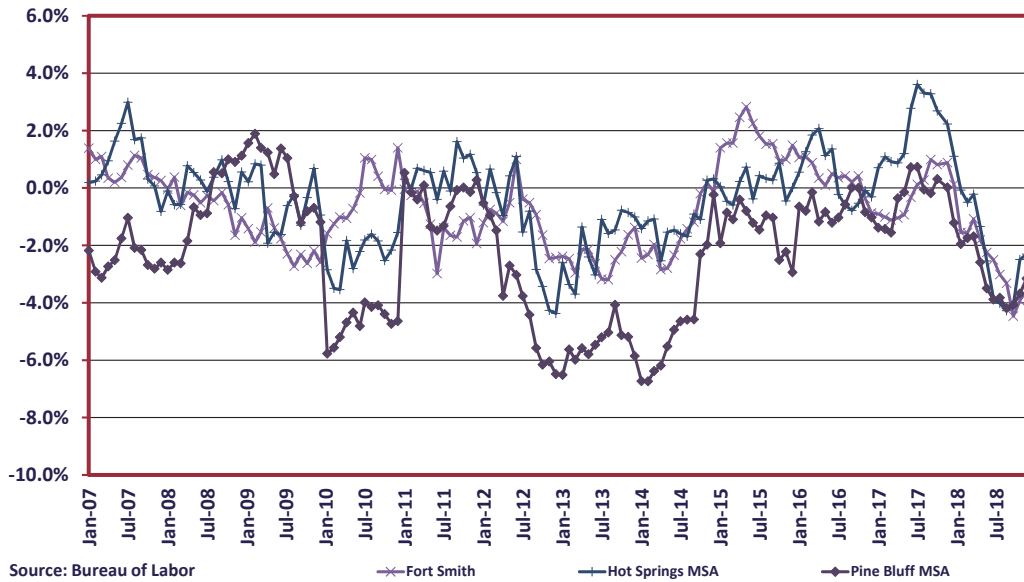
Source: Bureau of Labor Statistics

Labor Force, Year Over Year Percent Change



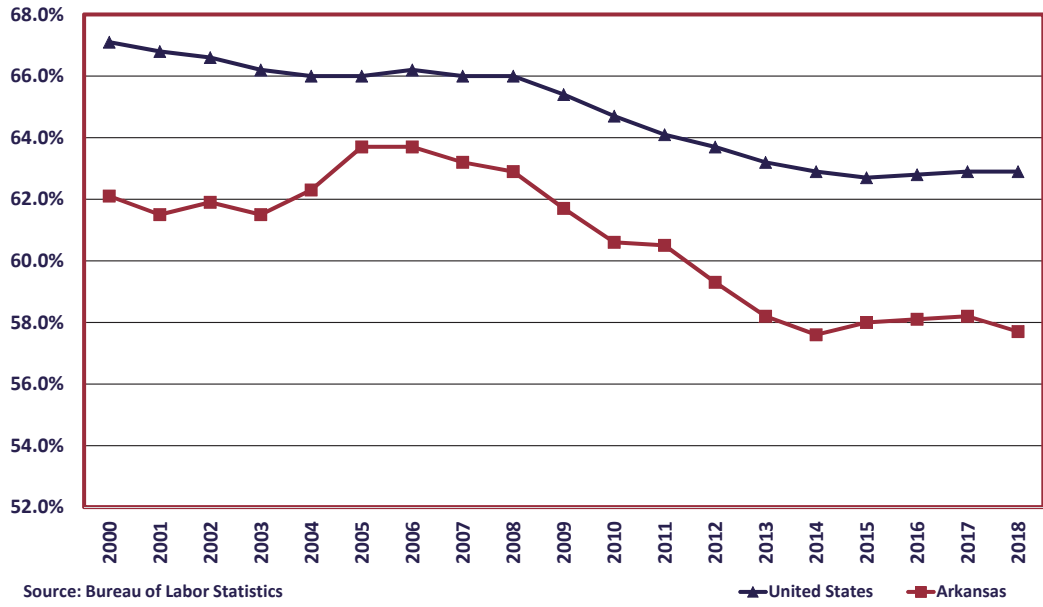
Source: Bureau of Labor Statistics

Labor Force, Year Over Year Percent Change

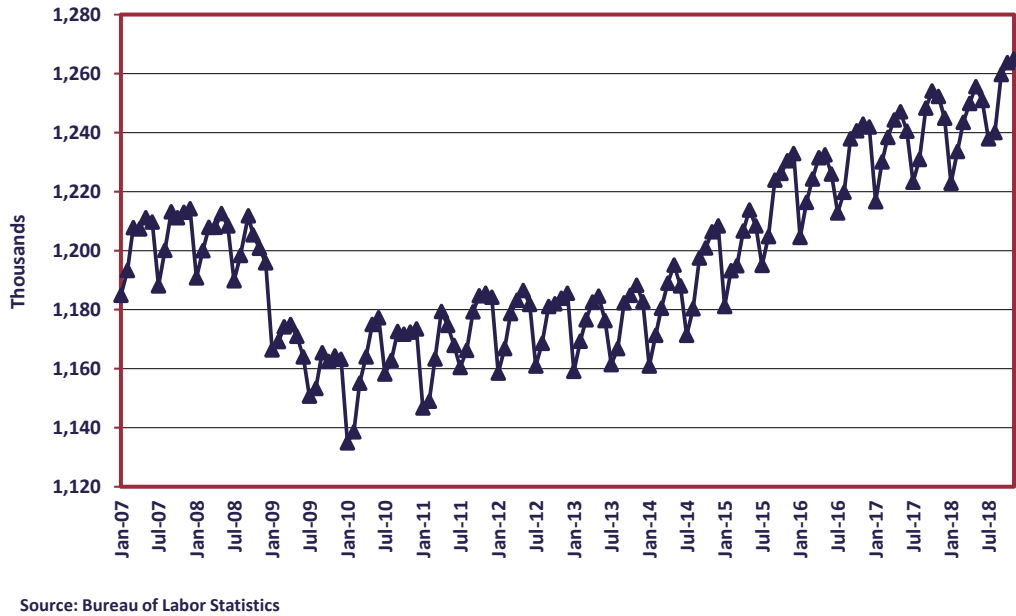


Source: Bureau of Labor Statistics

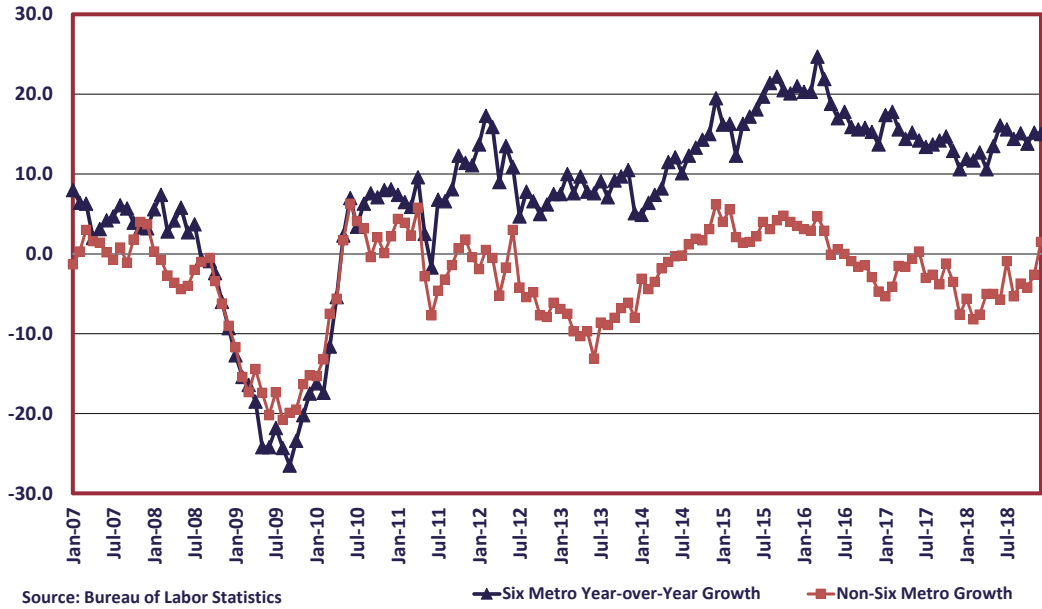
**Annual Labor Force Participation Rate**



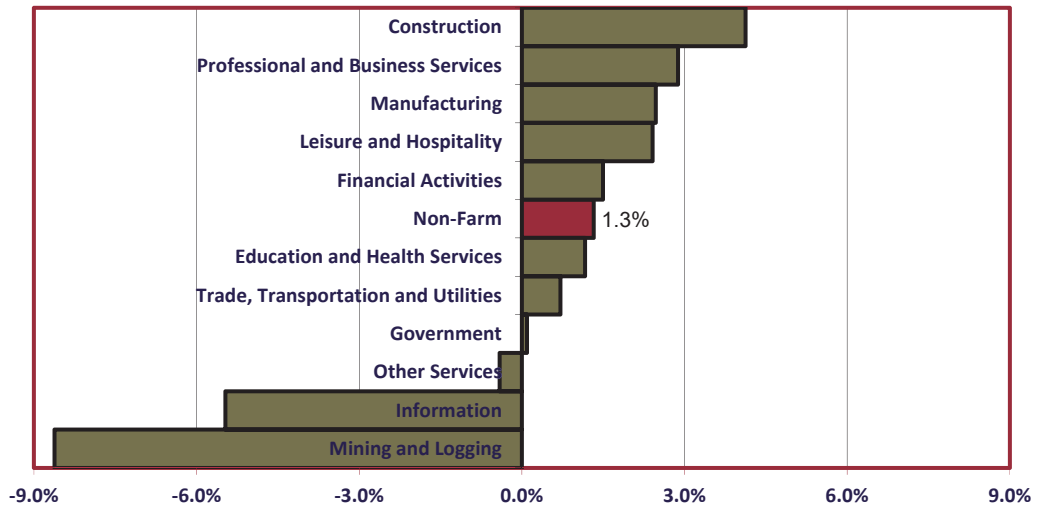
**Arkansas Non-Farm Employment**



### Metro v Non-Metro Arkansas Non-Farm Employment Growth

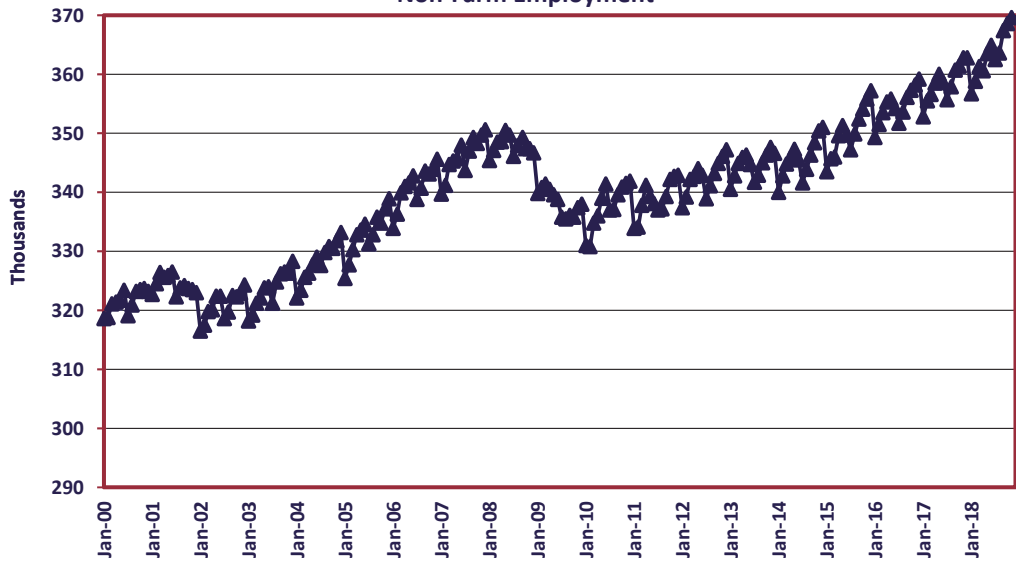


### Change in Arkansas Employment by Sector December 2017 - December 2018



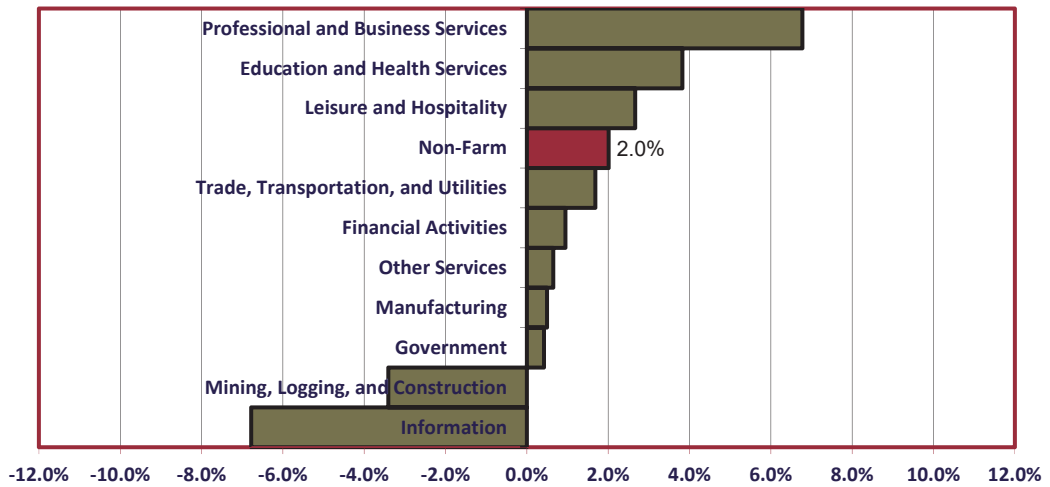


## Little Rock-North Little Rock-Conway MSA Non-Farm Employment



Source: Bureau of Labor Statistics

## Change in Little Rock-North Little Rock-Conway MSA Employment by Sector, December 2017 - December 2018



Source: Bureau of Labor Statistics, CBER Calculations



Source: Bureau of Labor Statistics



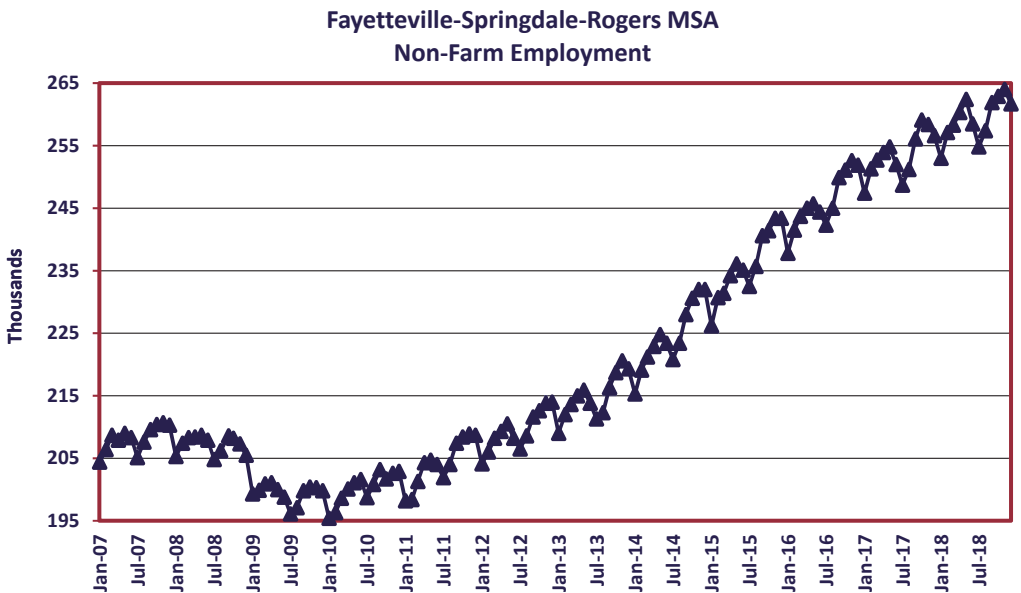
Source: Bureau of Labor Statistics



Source: Bureau of Labor Statistics

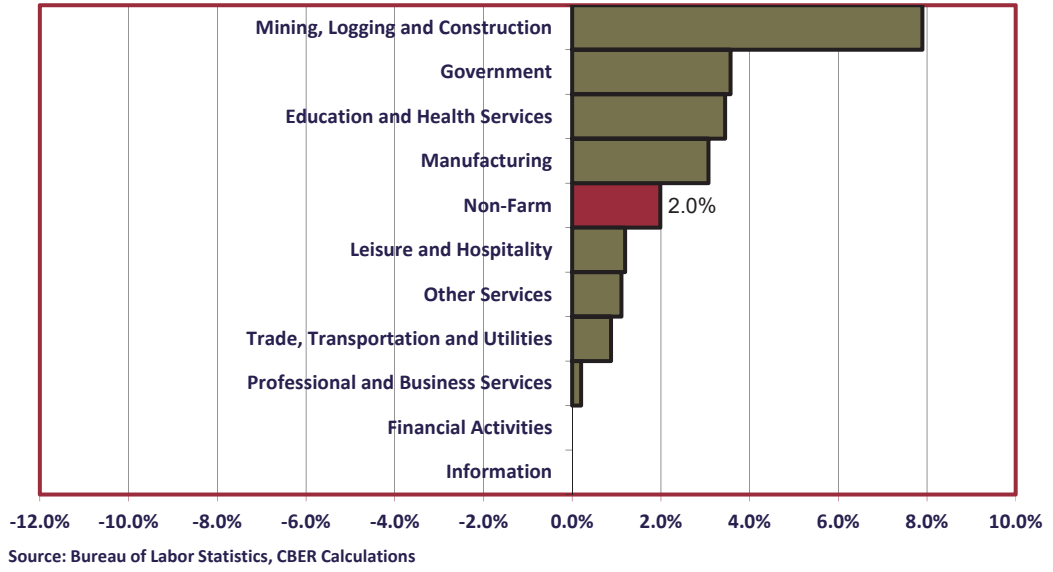


Source: Bureau of Labor Statistics

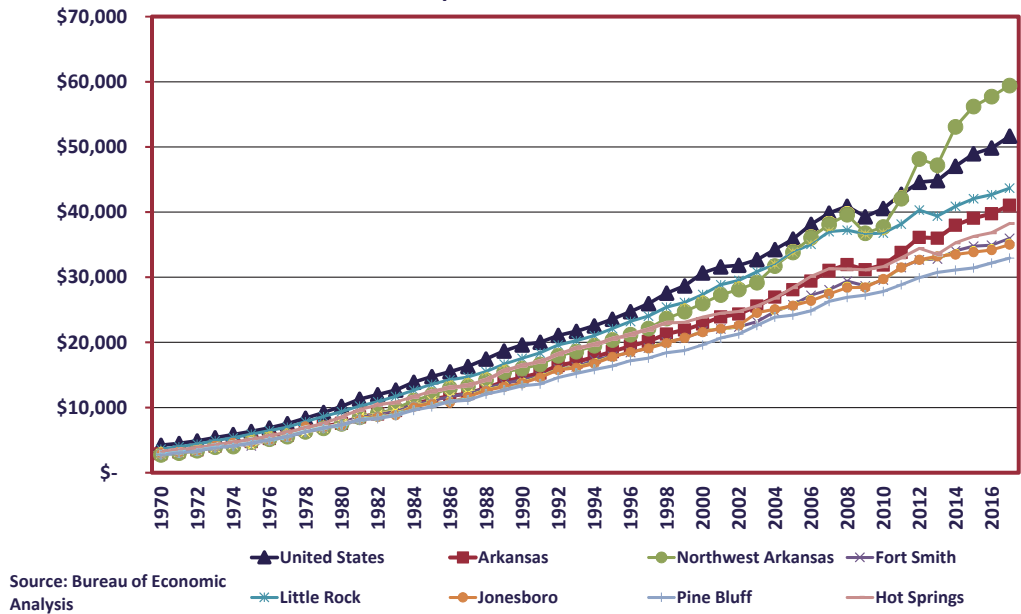


Source: Bureau of Labor Statistics

**Change in Northwest Arkansas MSA Employment by Sector,  
December 2017 - December 2017**



**Per Capita Personal Income**





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