Economic Update
U.S. & Michigan Webinar

Federal Reserve Bank of Chicago
February 28, 2017

Paul Traub
Senior Business Economist
# Main Economic Indicators

## Year-over-year Comparison

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP – Annual Growth Rate ¹</td>
<td>2.4%</td>
<td>2.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Unemployment Rate ²</td>
<td>6.2%</td>
<td>5.3%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Participation Rate ²</td>
<td>62.9%</td>
<td>62.7%</td>
<td>62.8%</td>
</tr>
<tr>
<td>Nonfarm Job Growth ³</td>
<td>2,558</td>
<td>2,876</td>
<td>2,493</td>
</tr>
<tr>
<td>PCE Core Inflation Yr. / Yr. ⁴</td>
<td>1.6%</td>
<td>1.4%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

1. Year-over-year  
2. Annual Average  
3. Annual Average Employment – Year-over-year change in thousands  
4. Annual Average PCE Core – Percent change year-over-year

Source: U.S. Bureau of Economic Analysis, Census Bureau and Bureau of Labor Statistics
U.S. Real GDP

GDP and Contribution to Percent Change, Q/Q at SAAR

Percent

<table>
<thead>
<tr>
<th>Year</th>
<th>Q1 '14</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 '15</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q1 '16</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>-1.2%</td>
<td>4.0%</td>
<td>5.0%</td>
<td>2.3%</td>
<td>2.0%</td>
<td>2.6%</td>
<td>2.0%</td>
<td>0.9%</td>
<td>0.8%</td>
<td>1.4%</td>
<td>3.5%</td>
<td>1.9%</td>
</tr>
<tr>
<td>PCE</td>
<td>1.7%</td>
<td></td>
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</tr>
<tr>
<td>Private Investment</td>
<td>1.7%</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Net Exports</td>
<td>-1.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Government</td>
<td>0.2%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Q4 2017 Contribution: 1.7% for PCE, 1.7% for Private Investment, -1.7% for Net Exports, 0.2% for Government, 1.9% for GDP

Source: U.S. Bureau of Economic Analysis, September 2016 Blue Chip Economic Indicators.
Real Retail Sales

Excluding Food Services - % Change Yr./Yr.

Percent

Source: Bureau of the Census
U.S. Light Vehicle Sales

S.A.A.R – Millions of Units


Source: Ward’s Automotive and BEA
U.S. Light Vehicle Incentives

As Percent of Transaction Price - SA

Source: Author’s calculation using Ward’s Automotive and J.D Power data.
Source: Thomson Reuters / University of Michigan, Conference Board and Haver Analytics
## Consumer Sentiment

### University of Michigan – Partisan Impact on Sentiment

<table>
<thead>
<tr>
<th></th>
<th>Opinion Change</th>
<th>Level Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>June - December 2016</td>
<td>Jan to Feb 2017</td>
</tr>
<tr>
<td></td>
<td>Dem</td>
<td>Ind</td>
</tr>
<tr>
<td>Index of Consumer Expectations</td>
<td>-24.1</td>
<td>+14.1</td>
</tr>
<tr>
<td>Partisan Divide (Dem - Rep)</td>
<td>-74.6</td>
<td></td>
</tr>
<tr>
<td>Year-ahead Income Expectations (median %)</td>
<td>-1.3</td>
<td>+1.0</td>
</tr>
<tr>
<td>Year-ahead Inflation Expectations (median %)</td>
<td>+0.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>Year-ahead unemployment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More Unemployment (percentage)</td>
<td>+29</td>
<td>-17</td>
</tr>
<tr>
<td>Less Unemployment (percentage)</td>
<td>-18</td>
<td>+18</td>
</tr>
</tbody>
</table>

Source: Thomson Reuters / University of Michigan
Real Private Domestic Investment

Contribution to Percent Change, Q3, 2016 - Q/Q at SAAR

Percent

<table>
<thead>
<tr>
<th></th>
<th>PDI</th>
<th>Nonresidential</th>
<th>Residential</th>
<th>Change in Inventories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>1.7</td>
<td>0.3</td>
<td>0.4</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: U.S. Bureau of Economic Analysis
I/S Ratios

Total Business and Light Vehicles - SA

Source: U.S. Census Bureau and WardsAuto.
ISM Purchasing Managers Index

Manufacturing and Composite, SA - Greater than 50 = Expansion

Source: Institute for Supply Management, Haver Analytics and FRED
U.S. Housing Starts

In Thousands of Units (SAAR) – Annual Average & Monthly Data

Source: U.S. Census Bureau
The U.S. Dollar & The Trade Deficit

Trade Weighted Dollar- Index 2010 = 100, Trade Deficit – Index 2010 = 100

Source: Federal Reserve Board and Haver Analytics
Real Government Consumption & Investment

Billions Chained $2009, Index – 2005 = 100

Source: U.S. Bureau of Economic Analysis
Fiscal Stimulus Remains Uncertain

- President elect’s plan includes large tax cuts and increased spending
  - Details still lacking in many areas
  - Final package depends on Administration and Congressional priorities

- Estimates of fiscal impact range from 0.5 to 1.0 percent on level of GDP by end of 2018, falling to zero by 2020

- Potential offsets to long-run growth from other policies
  - Trade restrictions
  - Immigration legislation
  - Affordable Care Act
  - Federal Reserves response to stronger demand and higher inflation

- Some analysts have elected not to change previous projections
Economic Potential by Decade

Real GDP Percent Change – Annual Average

Source: U.S. Congressional Budget Office
Business Confidence Surveys

Conference Board, Vistage, and NFIB, Index 2004 = 100

U.S. Real GDP Blue Chip Forecast

Annual Percent Change – Chained $2009

Source: BEA and January Blue Chip Economic Indicators
U.S. Real GDP – Actual and Potential

Billions Chained $2009 and Percent of Actual

Source: Bureau of Economic Analysis and the U.S. Congressional Budget Office

February 28, 2017

Federal Reserve Bank of Chicago
Monetary Policy
Employment & Inflation
F.O.M.C Statement

February 1, 2017

1. Information since the F.O.M.C. met in December indicates that the labor market has continued to strengthened and that economic activity has been expanding at a moderate pace.

2. Job gains have been solid in recent months and the unemployment rate stayed near its recent low.

3. Household spending has continued to rise moderately business fixed investment has remained soft. Measures of consumer and business sentiment have improved as of late.

4. Inflation increased in recent quarters but is still below the Committee’s 2 percent longer-run objective

5. Market-based measures of inflation compensation remain low; most survey-based measures of longer-term inflation expectations are little changed, on balance.
Nonfarm Employment & Unemployment Rate

Monthly and Annual Average Job Change & Percent Unemployed

Unemployment Rate & PCE Inflation

Percent Unemployed, PCE % Change Yr./Yr.

Wage Growth and Hours

Average Hourly Earnings Total Private - Percent Change Yr./Yr.

Inflation Compensation

5 Year and 10 Year Inflation Expectations

Source: Author’s calculation using Federal Reserve System data.


February 28, 2017

Federal Reserve Bank of Chicago
Yield Curve

10 Year – 1 Year Treasuries in Basis Points

Source: Board of Governors – Federal Reserve System
Inflation Expectations

Headline PCE Inflation – Yr./Yr. & Q4/Q4

Survey of Professional Forecasters – Q1 ‘17 Forecast

Source: Bureau of Economic Analysis and FRB Philadelphia Q4 ‘16 Survey
Appropriate pace of policy firming

Fed Funds Rate – Year End Projections
Michigan Economy
## Main Economic Indicators

### Michigan Data - Year-over-year Comparison

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<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GSP – Annual Growth Rate</strong></td>
<td>1.9%</td>
<td>1.6%</td>
<td>2.1%</td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
<td>7.1%</td>
<td>5.4%</td>
<td>4.7%</td>
</tr>
<tr>
<td><strong>Participation Rate</strong></td>
<td>60.5%</td>
<td>60.3%</td>
<td>61.3%</td>
</tr>
<tr>
<td><strong>Nonfarm Job Growth</strong></td>
<td>71.8</td>
<td>63.2</td>
<td>90.6</td>
</tr>
<tr>
<td><strong>CPI – All Items</strong></td>
<td>1.0%</td>
<td>-1.3%</td>
<td>1.7%</td>
</tr>
</tbody>
</table>

1. Year-over-year (2016 / 2015 Q3 YTD Average)  
2. Annual Average  
3. Annual Average Employment – Year-over-year change in thousands  
4. Annual Average – Detroit-Ann Arbor-Flint, MI (CMSA)

Source: U.S. Bureau of Economic Analysis, Census Bureau and Bureau of Labor Statistics
Michigan Real GSP

Total of Industries - Billions Chained $2009, % Change Q/Q at SAAR

Source: U.S. Bureau of Economic Analysis
Real Per Capita Income

Real $2009, % Change Yr./Yr.

Dollars

42,000.0

40,000.0

38,000.0

36,000.0

34,000.0

32,000.0

'05  '06  '07  '08  '09  '10  '11  '12  '13  '14  '15  '16

Percent

15.0

10.0

5.0

0.0

-5.0

-10.0

Note: U.S. Q3 ‘16 Per Capita Income was $44,792.

Source: U.S. Bureau of Economic Analysis

Q3 ‘16

$40,268

2.8%
ISM Purchasing Managers Index

SE Michigan Manufacturing and Composite, SA - Greater than 50 = Expansion

Source: Institute for Supply Management, Haver Analytics and FRED
Michigan Housing Starts

In Thousands of Units

Source: U.S. Census Bureau
Michigan & U.S. Nonfarm Employment

Index 2005 = 100, Thousands of Jobs

Source: U.S. Bureau of Labor Statistics
Nonfarm Employment

Employment Change, Yr./Yr. and Contribution by Super Sector

 Thousands

Net Change 2005 - 2016

Goods Producing  -129.0
Service Producing  144.7
Government  -78.7
Total Nonfarm  -63.0

Source: U.S. Bureau of Labor Statistics
Unemployment & Participation Rates

Percent of Labor Force - SA

Unemployment Rates

Participation Rates

Source: U.S. Department of Labor: Bureau of Labor Statistics and Haver Analytics
Unemployment by Select Areas

Percent of Labor Force - SA

Source: U.S. Department of Labor: Bureau of Labor Statistics and Haver Analytics

Dec ’16  3.3%  10.9%  5.6%  4.5%  5.9%  5.0%

Ann Arbor  Detroit  Flint  Grand Rapids  Lansing  Michigan
U.S. Light Vehicle Sales

Millions of Units


Source: Ward’s Automotive and BEA
Michigan Light Vehicle Production

Thousands of Units

<table>
<thead>
<tr>
<th></th>
<th>Car (LHA)</th>
<th>Truck (LHA)</th>
<th>Share of U.S. Total (RHA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'14</td>
<td>936</td>
<td>1,114</td>
<td>18.0%</td>
</tr>
<tr>
<td>'15</td>
<td>767</td>
<td>1,171</td>
<td>18.3%</td>
</tr>
<tr>
<td>'16</td>
<td>683</td>
<td>1,155</td>
<td>16.1%</td>
</tr>
<tr>
<td>'17</td>
<td>526</td>
<td>1,073</td>
<td>15.2%</td>
</tr>
<tr>
<td>'18</td>
<td>460</td>
<td>1,058</td>
<td>13.7%</td>
</tr>
<tr>
<td>'19</td>
<td>481</td>
<td>1,135</td>
<td>13.8%</td>
</tr>
<tr>
<td>'20</td>
<td>481</td>
<td>1,179</td>
<td>14.3%</td>
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</tbody>
</table>

Thousands

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>'14</td>
<td></td>
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<td>'15</td>
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<tr>
<td>'16</td>
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<td>8.0%</td>
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<td>'17</td>
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<td>12.0%</td>
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<tr>
<td>'18</td>
<td></td>
<td>16.0%</td>
</tr>
<tr>
<td>'19</td>
<td></td>
<td>20.0%</td>
</tr>
</tbody>
</table>

0 500 1,000 1,500 2,000 2,500

0 4.0% 8.0% 12.0% 16.0% 20.0%
Thank You!