

# Worcester Economic Indicators

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Fairman Cowan Lecture Series  
Worcester Regional Research Bureau  
La Maison Française, Assumption College  
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# Worcester Economic Indicators

## Outline

- I. Background
- II. What are Economic Indicators?
- III. Worcester Economic Index
- IV. Leading Indicators

# I. Background

- Started project in summer 2012
- *Worcester Economic Indicators*
  - First report released Feb 2014
  - Quarterly reports
- Goal: Provide regular updates on the performance of the local economy.

## II. What are Economic Indicators?

- Statistics that measure economic activity.
  - Coincident Indicators
    - Employment, Personal Income
  - Leading Indicators
    - Consumer Confidence, Building Permits

## II. What are Economic Indicators?

- Coincident Indicator - National Level
  - Gross Domestic Product (GDP)
    - Released quarterly by BEA
    - One month lag
    - U.S. Real GDP grew 2.6% in Fourth Quarter 2014

## II. What are Economic Indicators?

- Coincident Indicator - Local Level
  - Metropolitan Area GDP
    - Released annually by BEA
    - Long Lag: 2014 estimate will be released in September 2015
      - In 2013, Worcester Area GDP grew by 2.6%

## II. What are Economic Indicators?

- Coincident Indicators - Local Level
  - Payroll Employment
  - Household Employment
  - Unemployment Rate
- Each released monthly by BLS for metropolitan areas including Worcester

## III. Worcester Economic Index

- The Worcester Economic Index (WEI) is a measure of local economic activity that is estimated using
  - Payroll Employment
  - Household Employment
  - Unemployment Rate



# III. Worcester Economic Index

- How is it estimated?
  - Uses methodology developed by James Stock & Mark Watson
  - Is used to measure Massachusetts economic performance
    - Alan Clayton-Matthews of Northeastern University for MassBenchmarks  
([www.MassBenchmarks.com](http://www.MassBenchmarks.com))

# III. Worcester Economic Index

- How is it estimated?
  - The Stock/Watson method allows for the estimation of an unobservable underlying variable from observable data.
  - Huh?

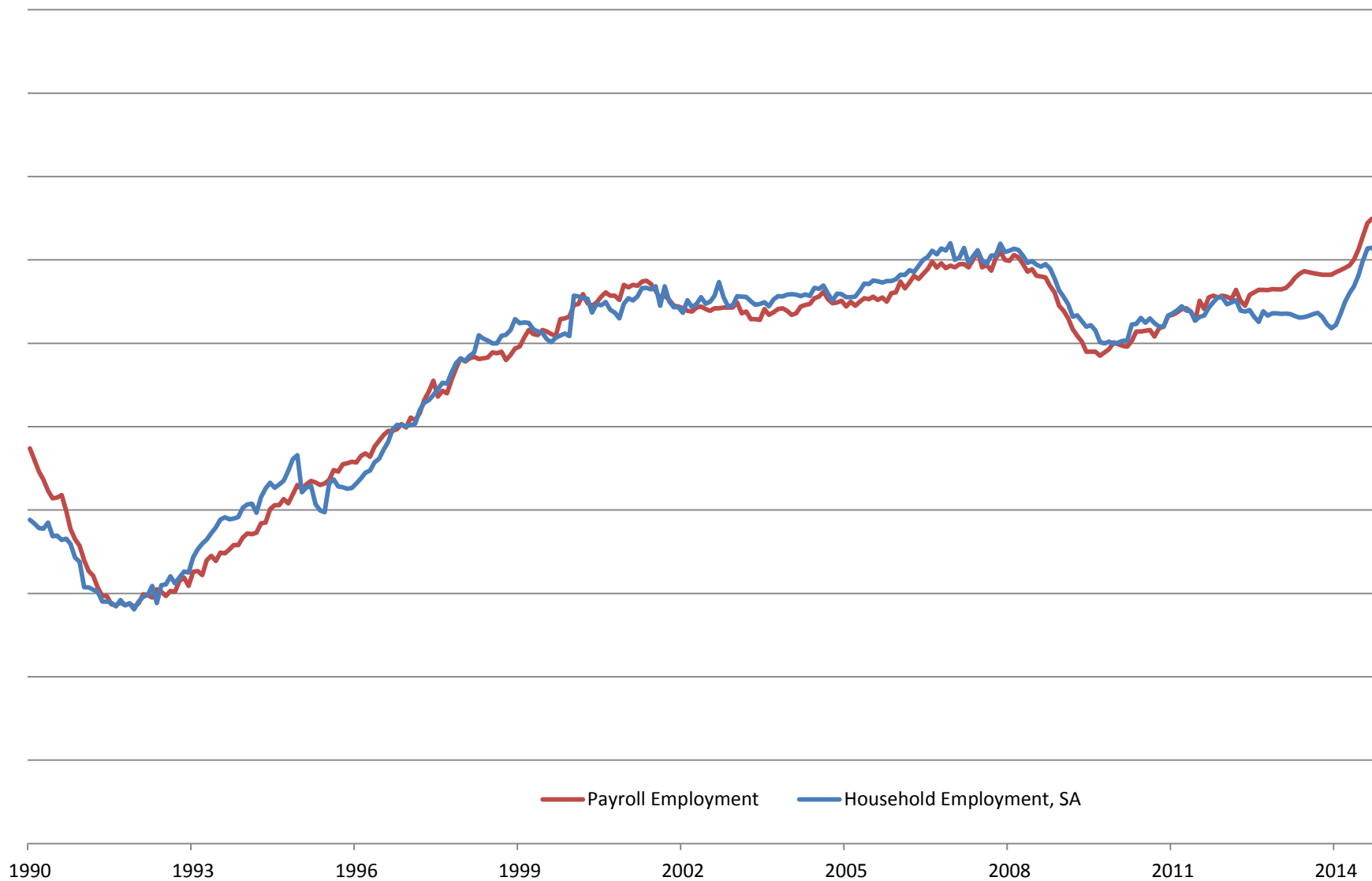
# Components of Worcester Economic Index

## Scaled to Payroll Employment, 1990-2014



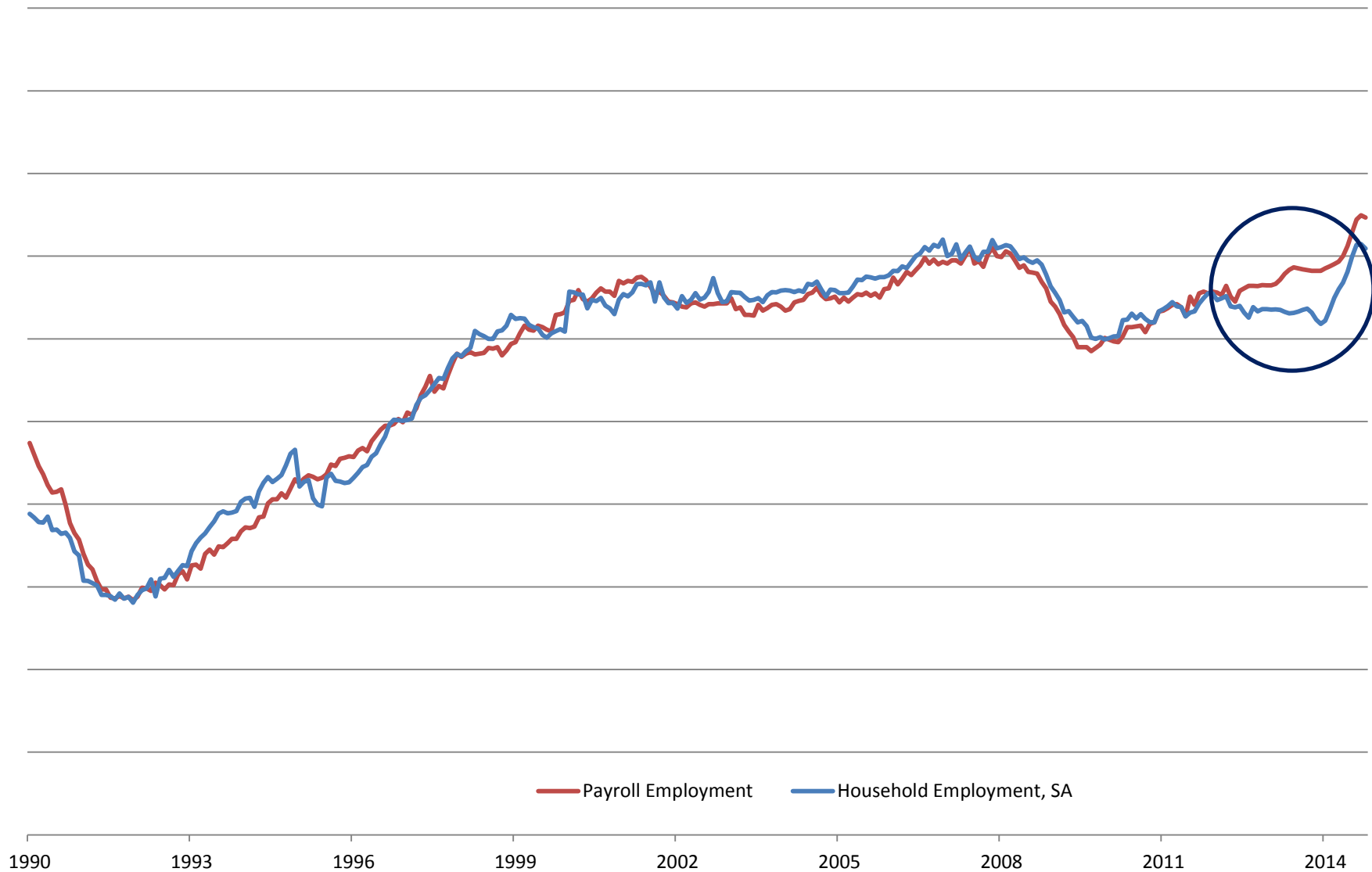
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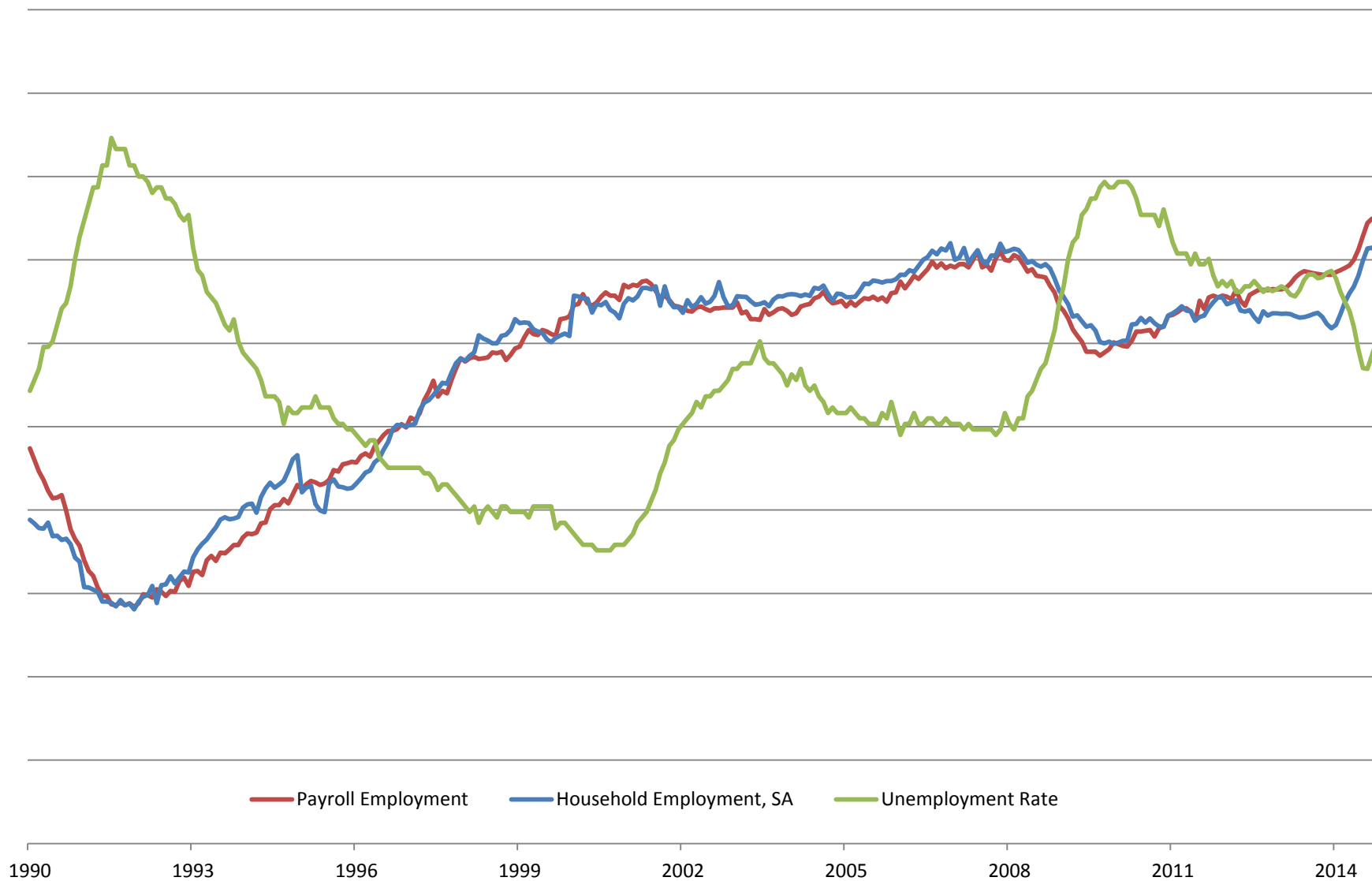
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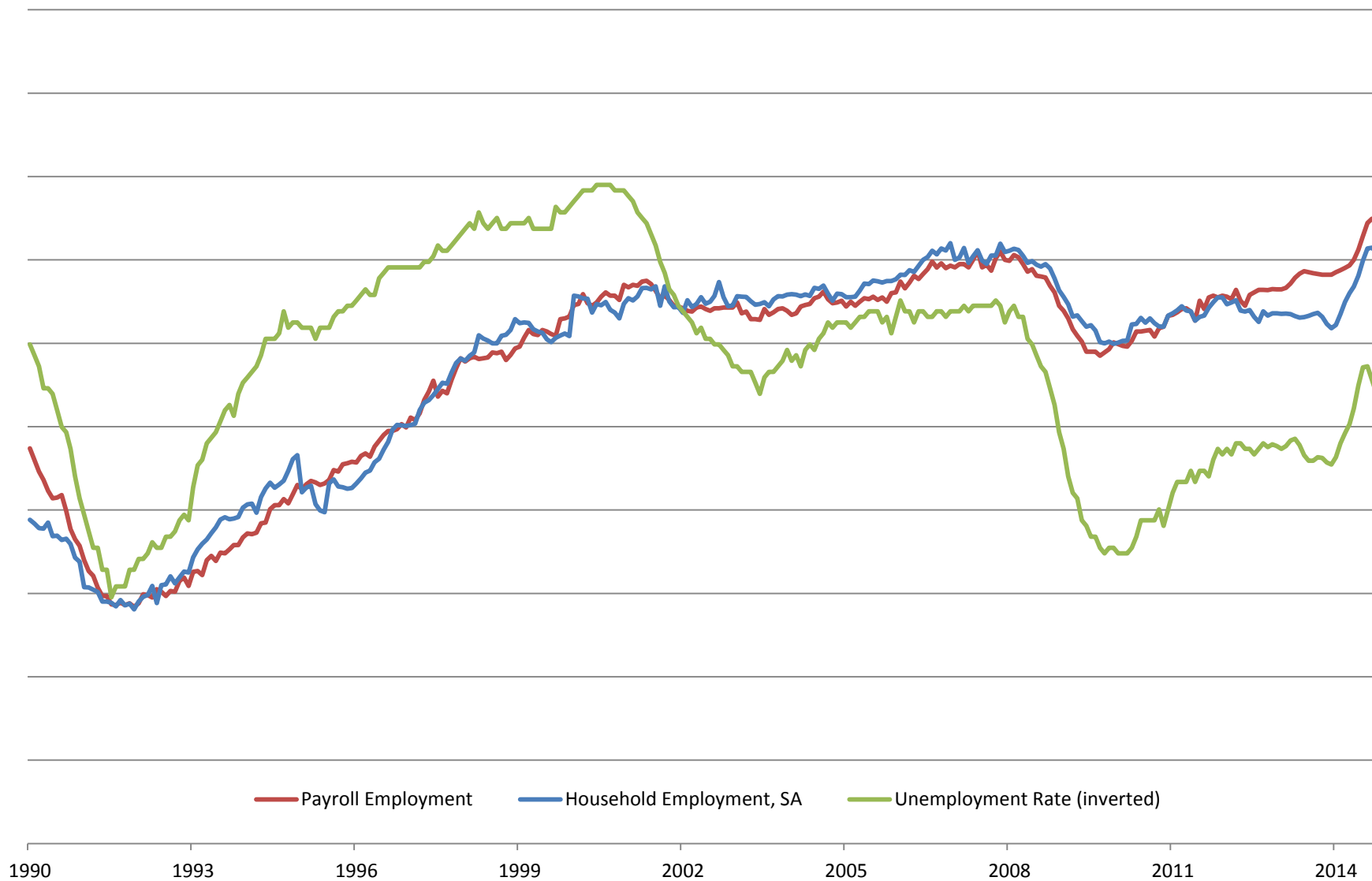
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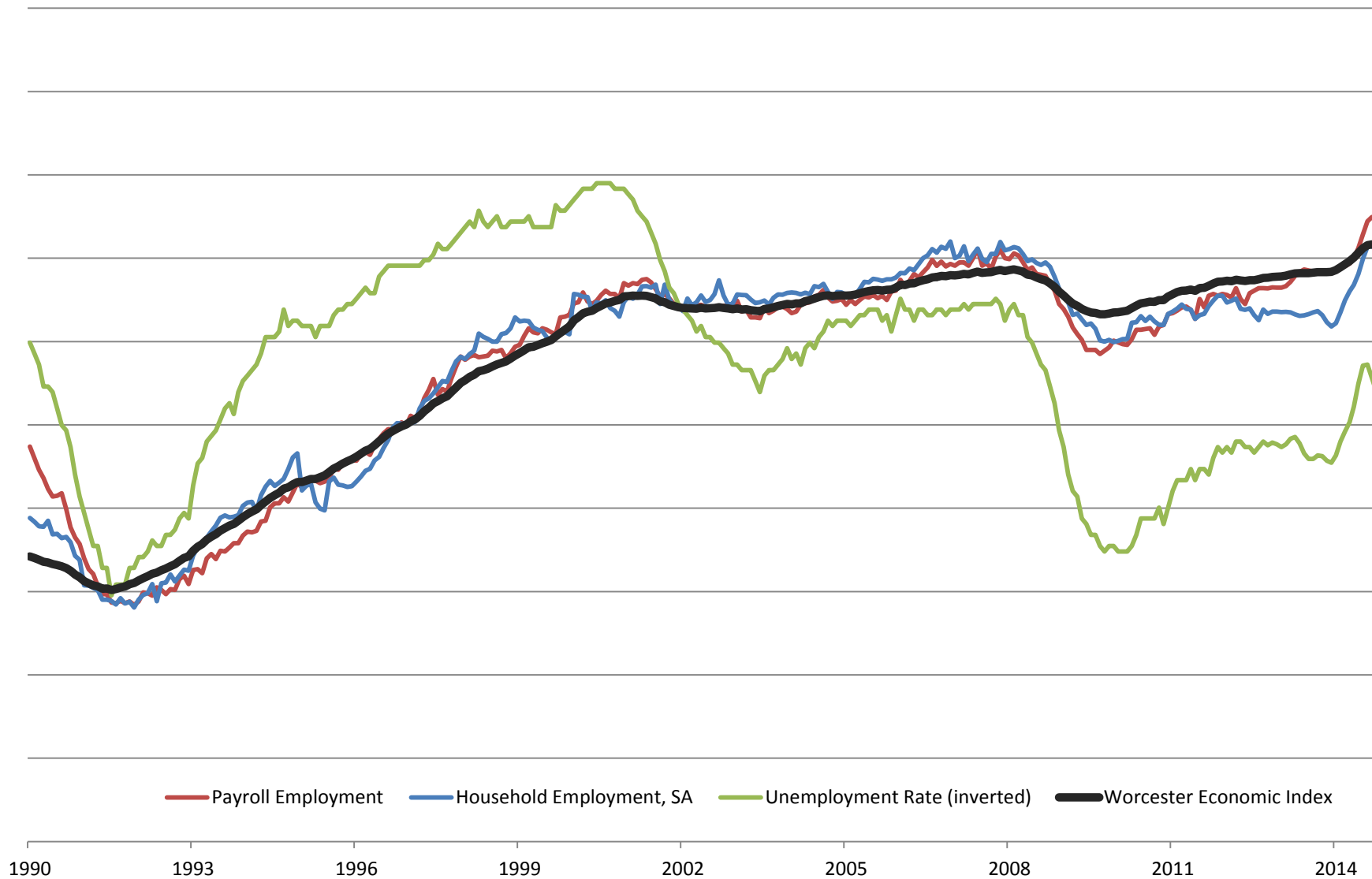
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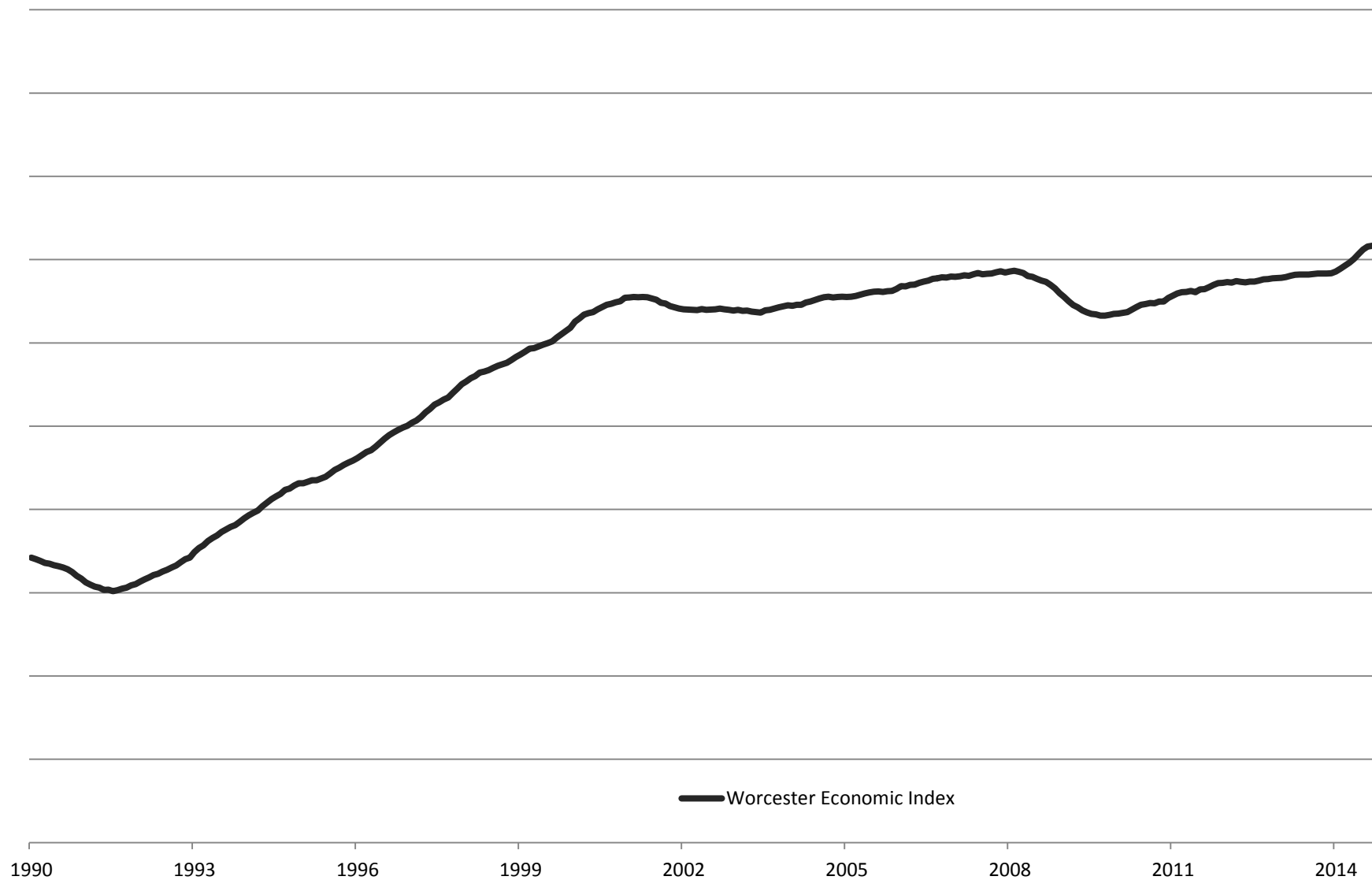
## Scaled to Payroll Employment, 1990-2014





# Worcester Economic Index

## Scaled to Payroll Employment, 1990-2014



# III. Worcester Economic Index

| <b>Month</b>   | <b>Worcester Economic Index</b> | <b>Change from prior month</b> | <b>Quarterly Growth Rate, Annualized</b> |
|----------------|---------------------------------|--------------------------------|--|
| June 2014      | 104.6                           | 0.5                            | 2 <sup>nd</sup> Q = 5.4%                 |
| July 2014      | 105.2                           | 0.6                            |  |
| August 2014    | 105.5                           | 0.3                            |  |
| September 2014 | 105.6                           | 0.1                            | 3 <sup>rd</sup> Q = 3.9%                 |
| October 2014   | 105.7                           | 0.1                            |  |
| November 2014  | 105.8                           | 0.1                            |  |
| December 2014  | 106.1                           | 0.3                            | 4 <sup>th</sup> Q = 1.7%                 |

### III. Worcester Economic Index

- Measures the economic performance of the Worcester area
  - Estimated using local coincident indicators
  - Updated estimates are included in each issue of *Worcester Economic Indicators*

## III. Worcester Economic Index

- Worcester Economic Index is a coincident index
- Wanted to include a forward-looking component in the reports, so let's talk about leading indicators

## IV. Leading Indicators

- Leading indicators are variables that tend to precede changes in the economy
- Used to help anticipate upcoming economic activity

## IV. Leading Indicators

- National Level - The Conference Board Leading Economic Index (10 components)
  1. Avg weekly hours, manufacturing
  2. New orders, consumer goods
  3. ISM<sup>®</sup> Index of New Orders
  4. New orders, capital goods
  5. S&P 500 Index

## IV. Leading Indicators

- National Level - The Conference Board Leading Economic Index (10 components)
  6. Leading Credit Index™
  7. Interest rate spread
  8. Consumer expectations
  9. Residential building permits
  10. Initial unemployment claims

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## IV. Leading Indicators

- Two Approaches
  1. Use selected national leading indicators to generate a 6-month forecast of the Worcester Economic Index
  2. Use four local leading indicators to calculate a diffusion index

## IV. Leading Indicators

1. Use selected national leading indicators to generate a 6-month forecast of the Worcester Economic Index
  - Consumer expectations
  - S&P 500
  - Interest rate spread
  - Leading Credit Index™

# Projected Growth of WEI

## 6-month growth forecast

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| <b>Component</b>            | <b>Contribution</b> |
|-----------------------------|---------------------|
| Long-run Trend              | 1.1%                |
| Consumer Expectations       | 0.2%                |
| S&P 500                     | -0.1%               |
| Interest Rate Spread        | 0.2%                |
| Leading Credit Index        | 0.6%                |
| Worcester Economic Index    | 0.3%                |
| Growth Forecast (Dec. 2014) | 2.3%                |

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## IV. Leading Indicators

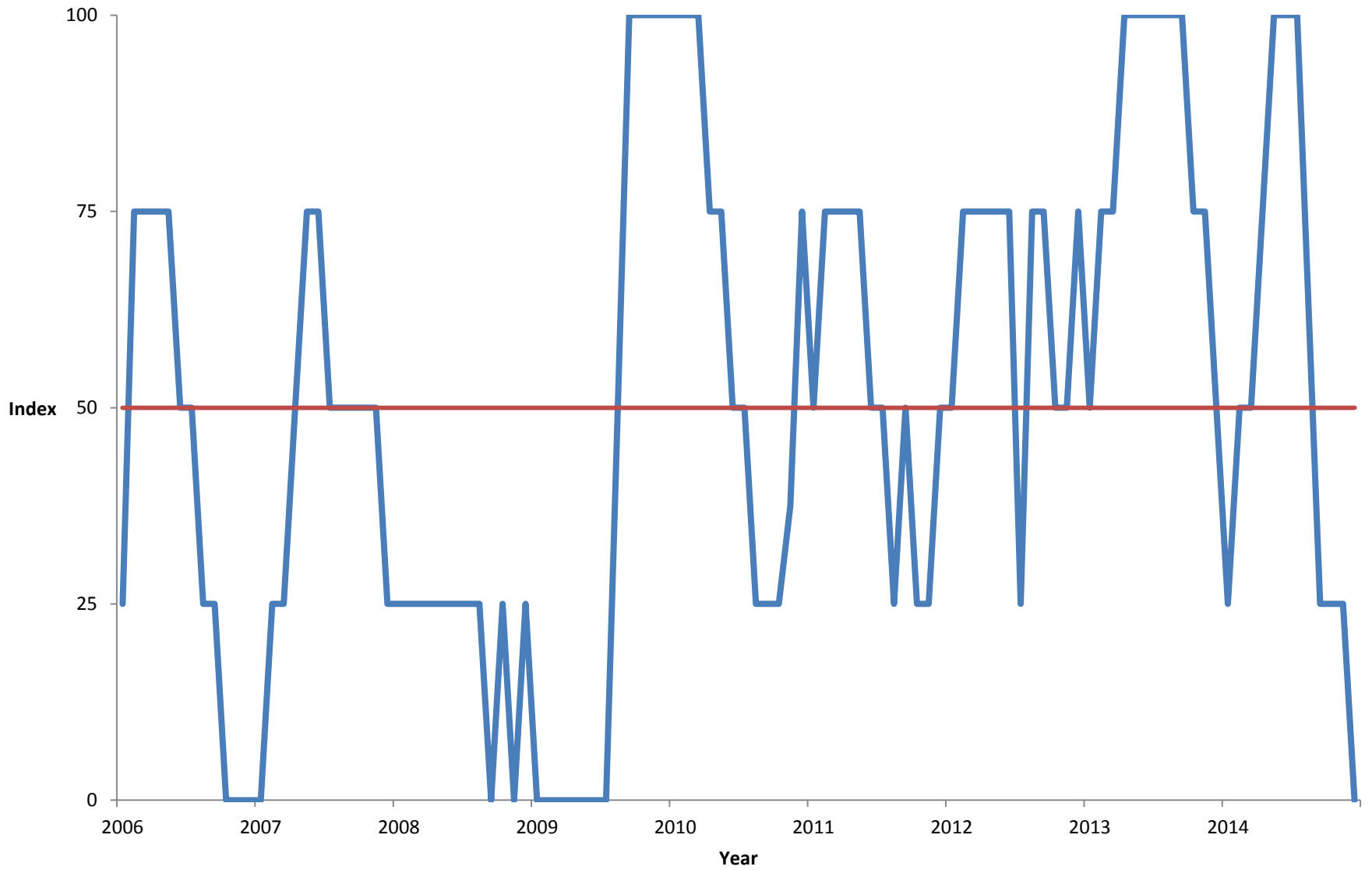
2. Use four local indicators to calculate a diffusion index
  - Building permits
  - Online help wanted ads
  - Business incorporations
  - Initial claims for unemployment

## IV. Leading Indicators

- A diffusion index summarizes how many of the leading indicators are providing positive signals for the local economy
  - Values above 50 indicate a positive economic outlook

# Diffusion Index of Leading Indicators

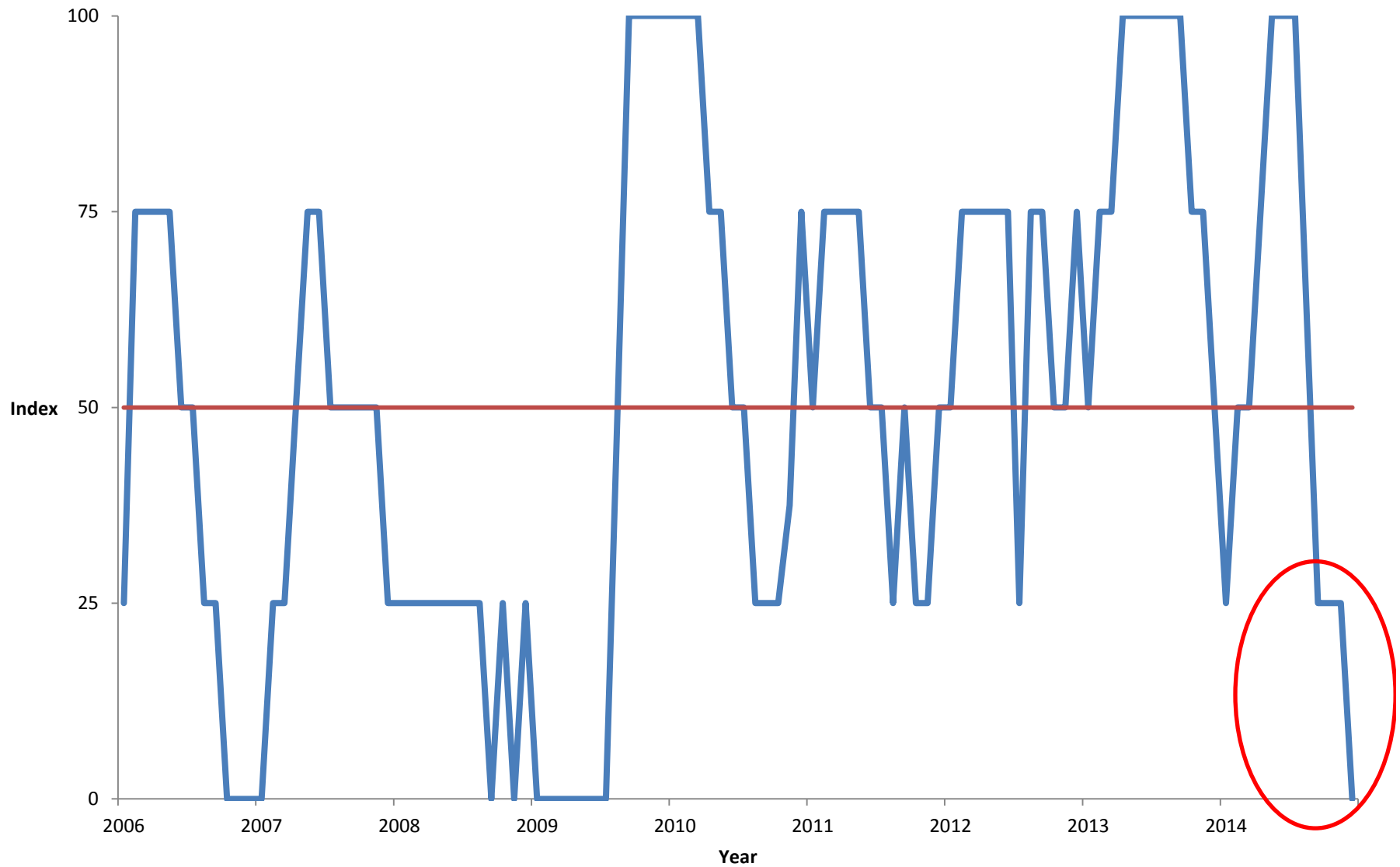
## Worcester Area, 2006 - 2014





# Diffusion Index of Leading Indicators

Worcester Area, 2006 - 2014





## IV. Leading Indicators

- Currently conflicting signals
  - Based on data through December 2014, the WEI is forecast to grow by about 2.3% over the next six months
  - A majority of the local leading indicators are down, suggesting a slowing of economic activity in the coming months

## IV. Leading Indicators

- One other forecast
  - Spring will arrive

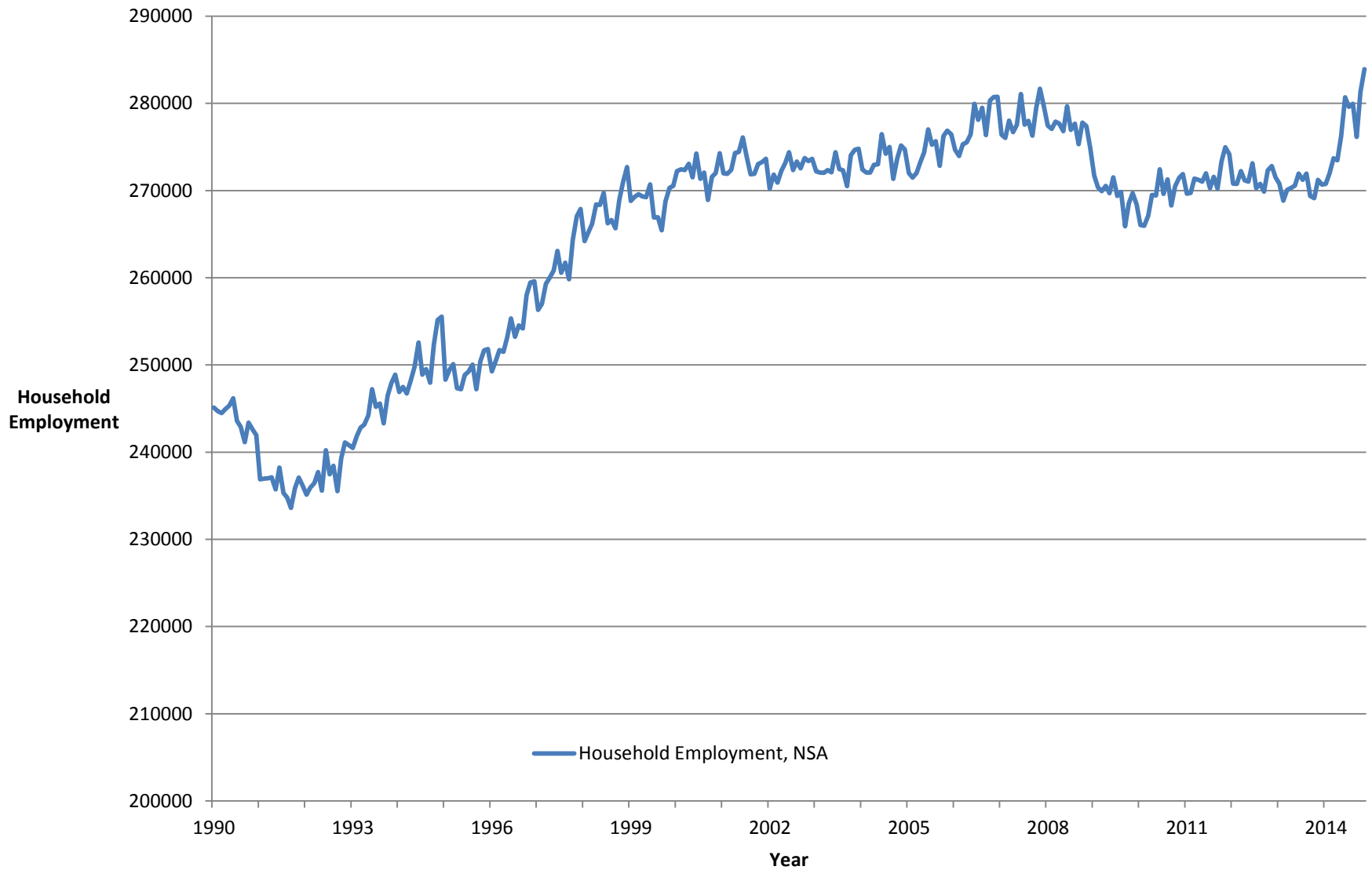
# Worcester Economic Indicators

Next Release: May 4<sup>th</sup>, 2015

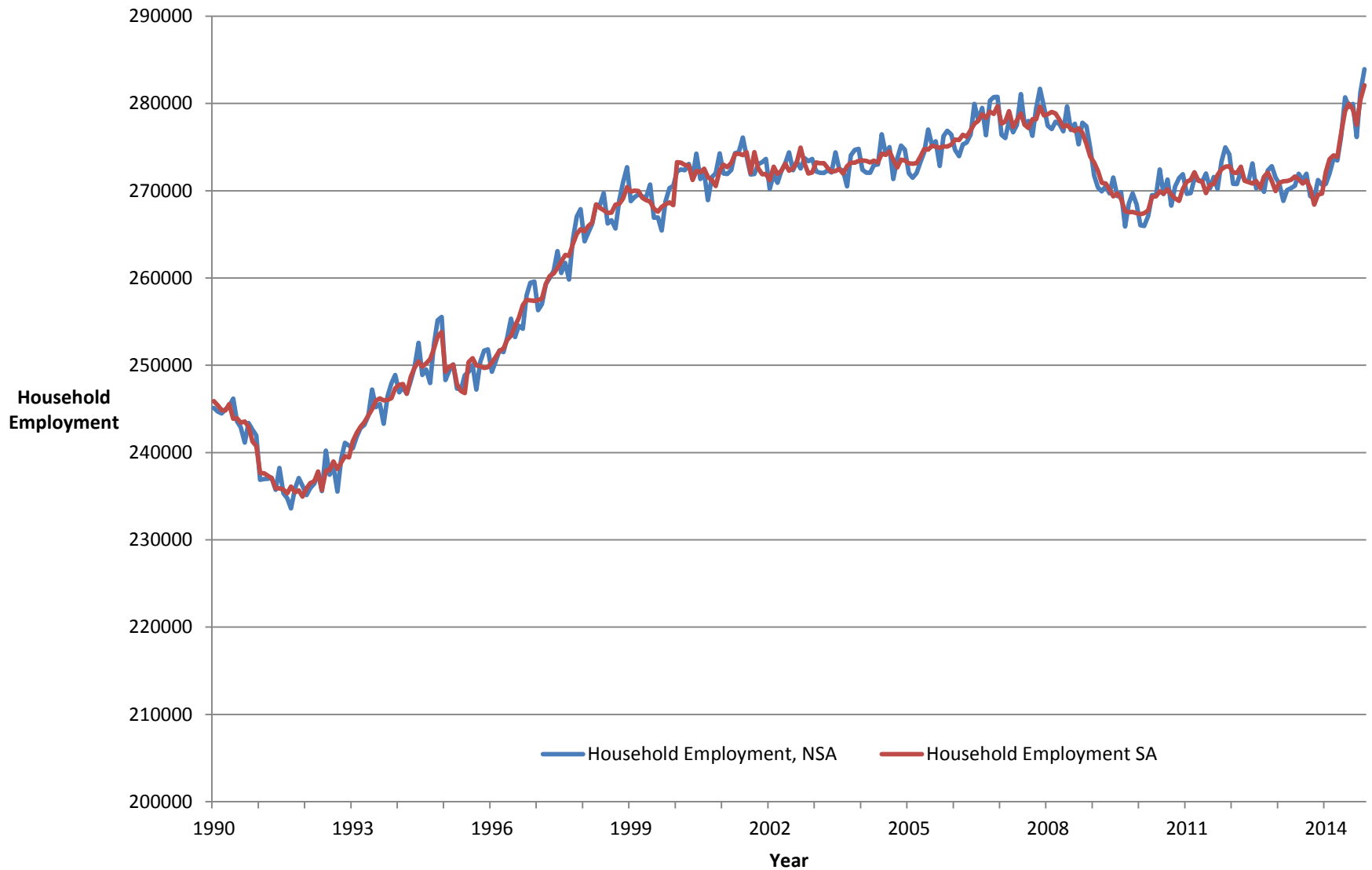
Available Online:

<http://www1.assumption.edu/worcester-economic-indicators-project/>

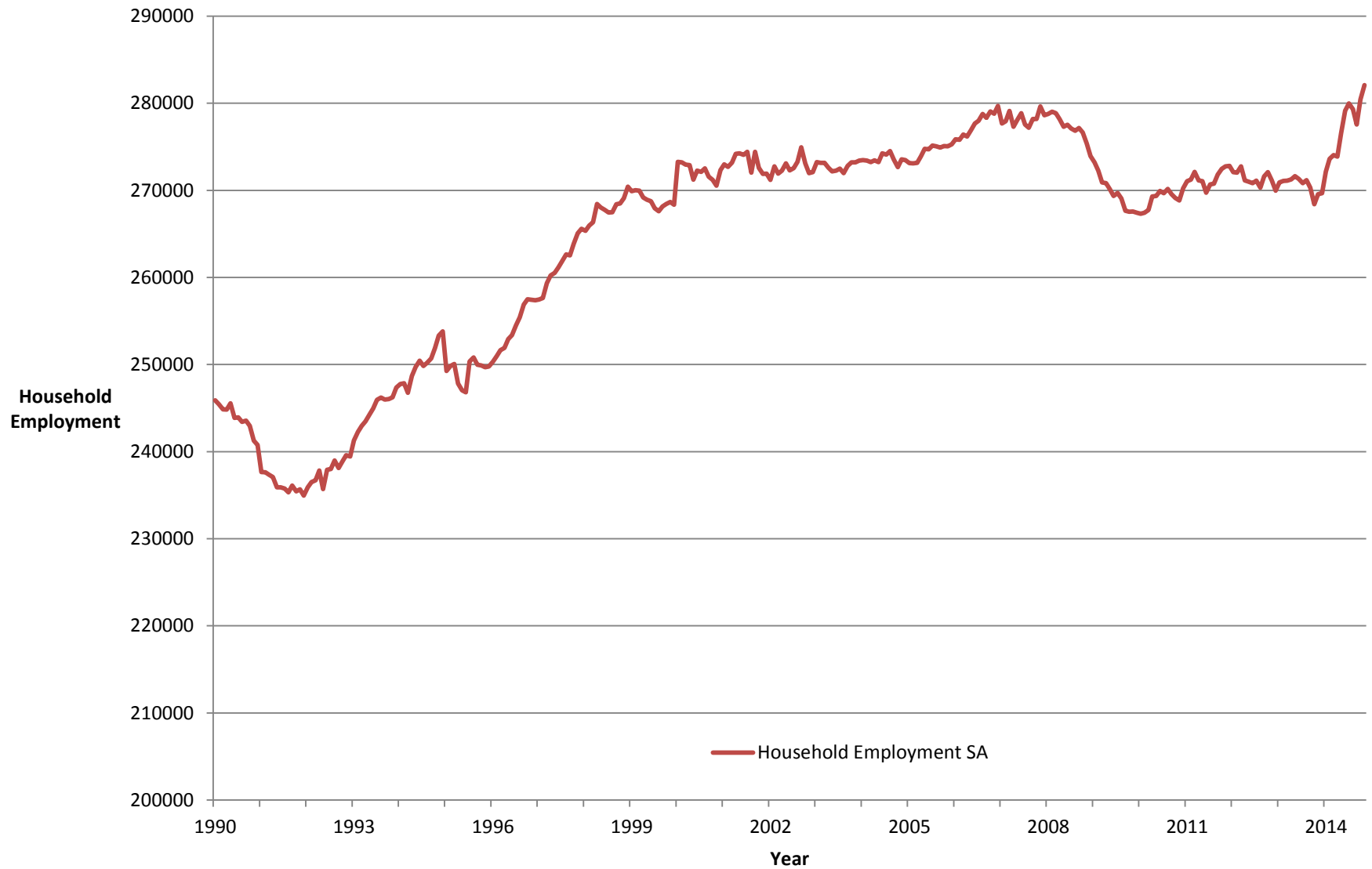
# Total Household Employment Worcester Metro Area, 1990 - 2014



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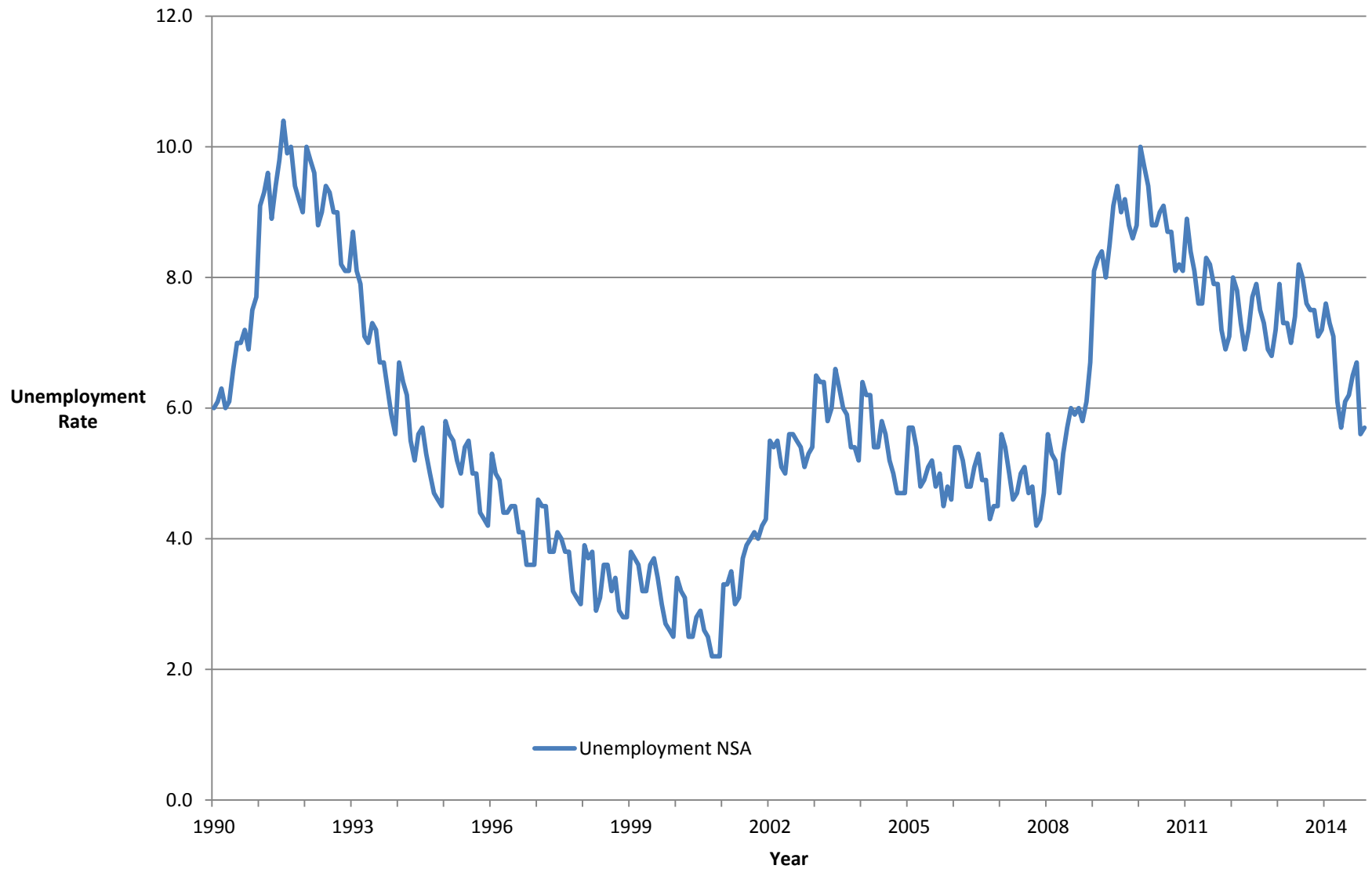


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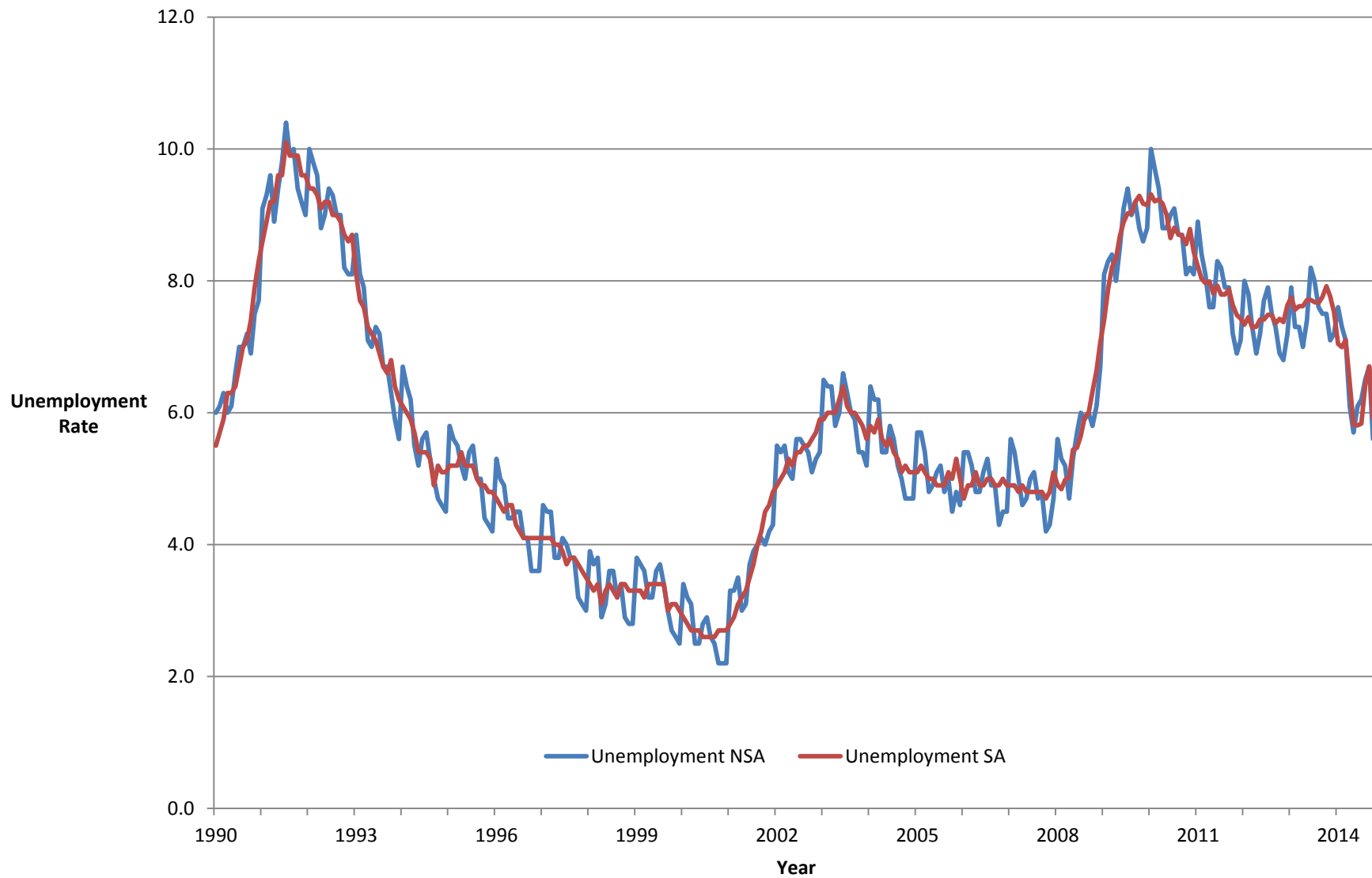
# Unemployment Rate

## Worcester Metro Area, 1990 - 2014



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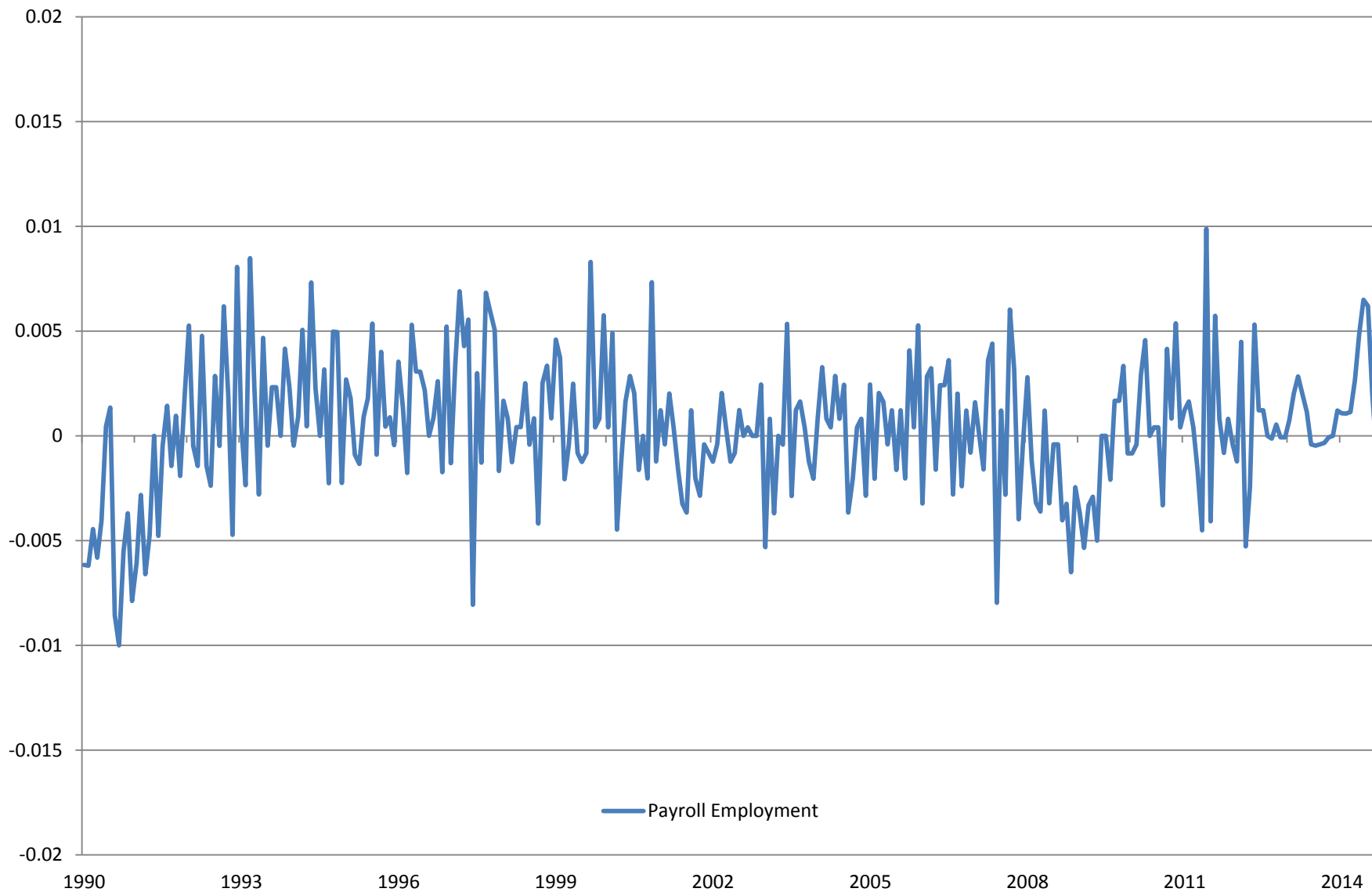
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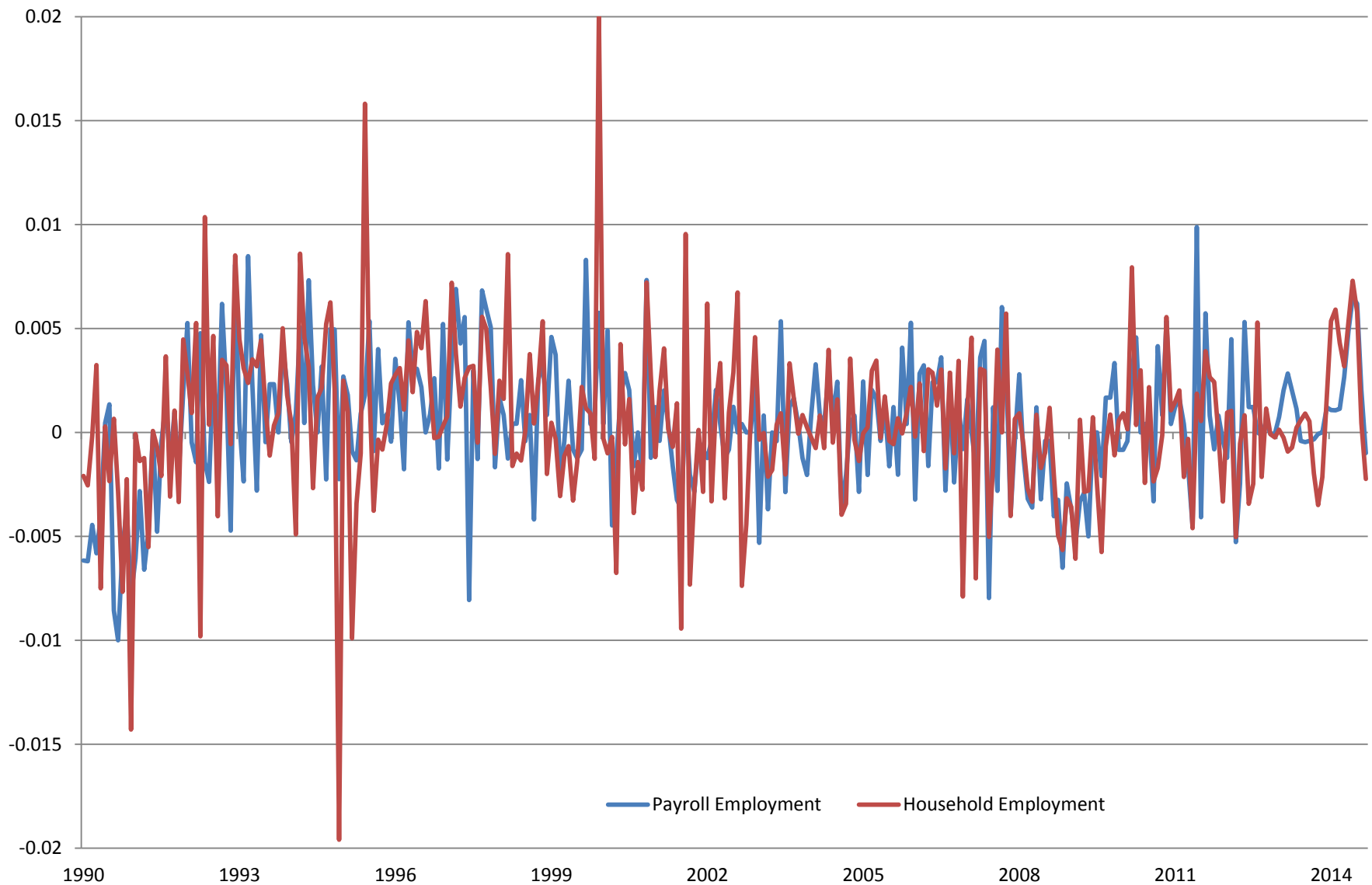
# Components of the Worcester Economic Index

## Monthly percent change, 1990-2014



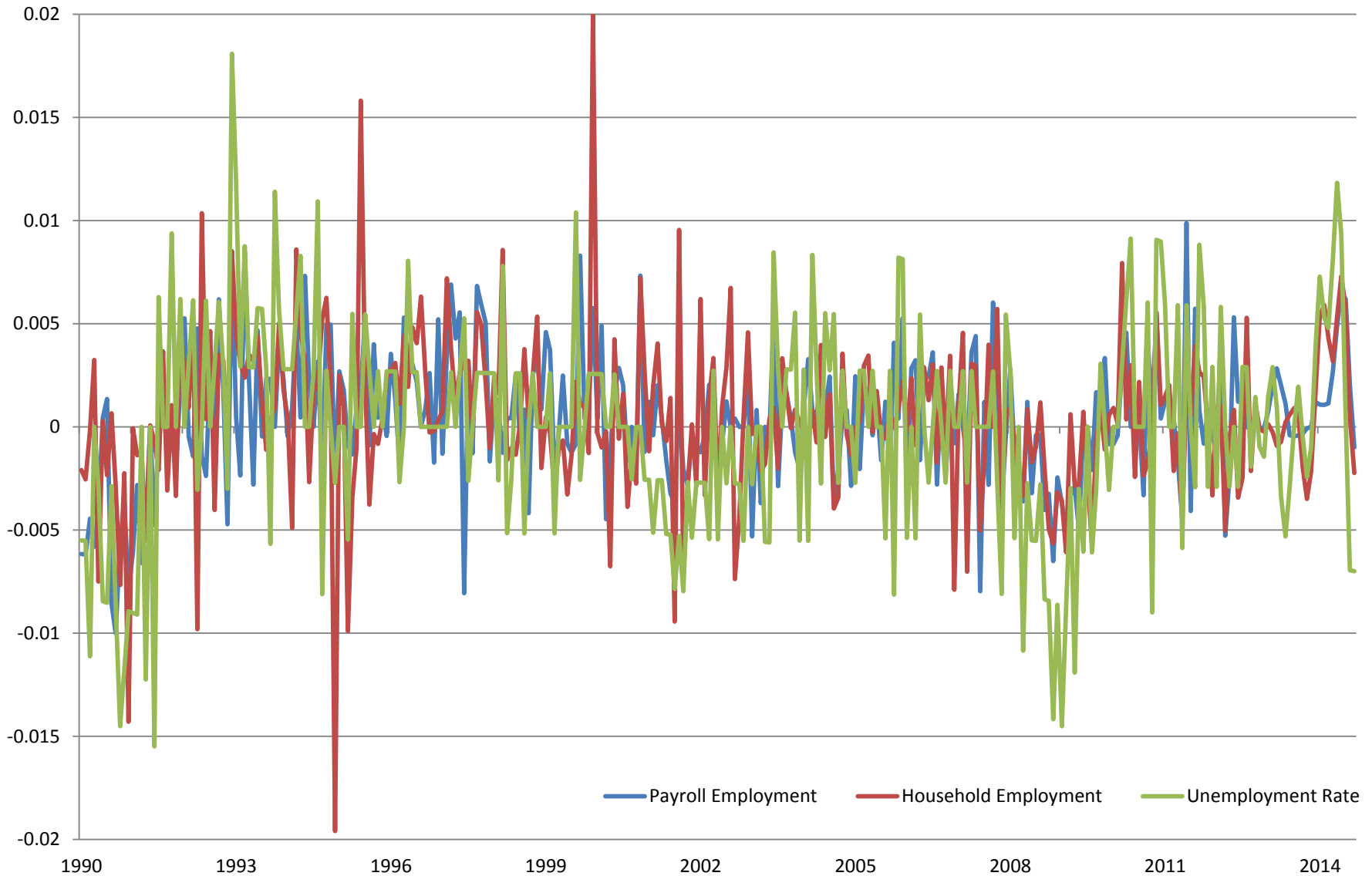
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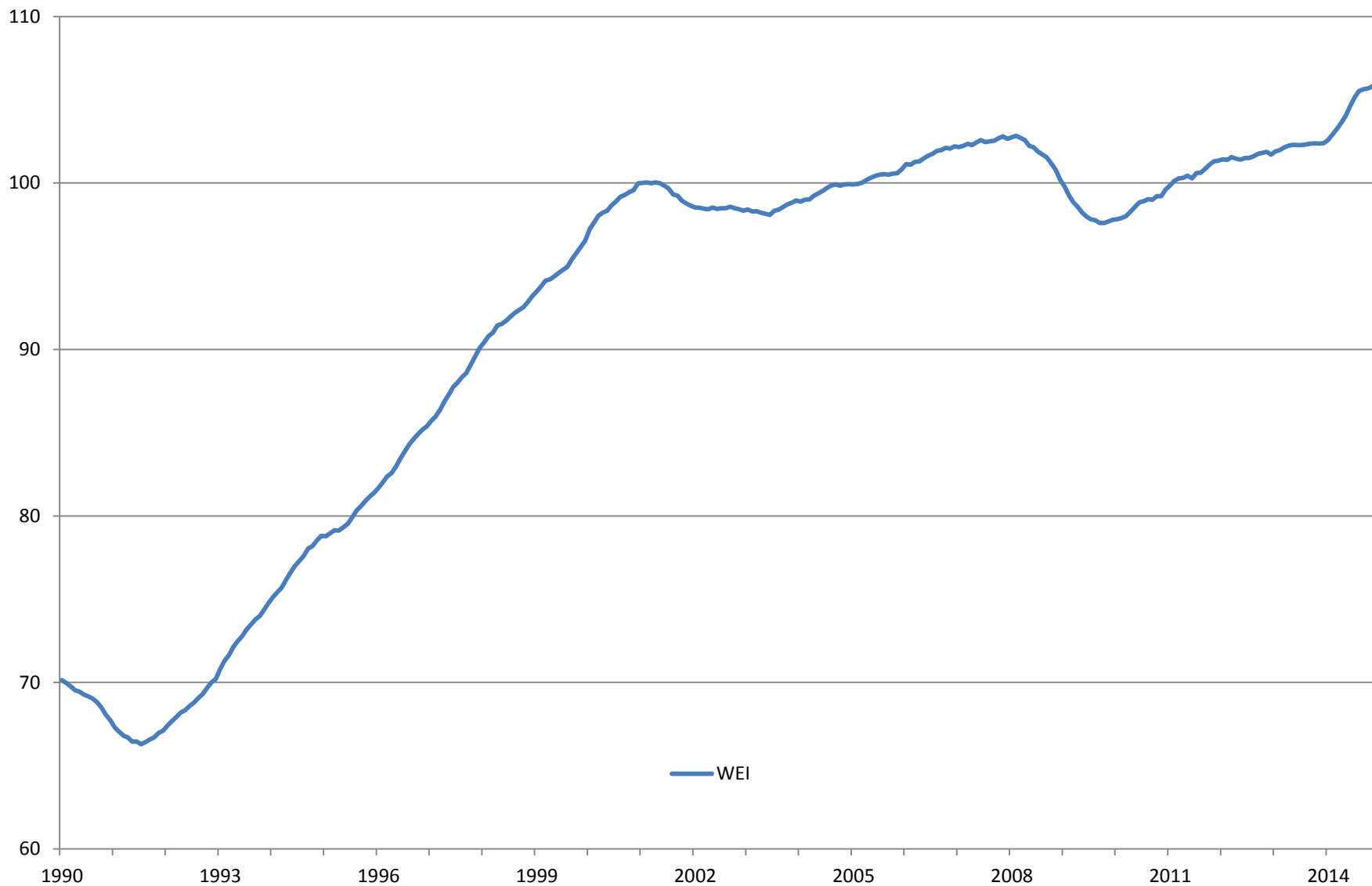
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## Monthly percent change, 1990-2014



# Projected WEI vs Actual WEI

## 1990-2014



# Projected WEI vs Actual WEI

## 1990-2014

