State Economic Activity: A Dynamic Factor Modeling Approach

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Cover Page

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Abstract

This paper presents a new state economic activity index (SEA-Index), which contains more explanatory information than existing methods. Using dynamic factor modeling techniques, we extract a common factor from a dataset of 15 variables. Twelve variables are state specific and the remaining three variables are at the U.S. macro level. For comparison purposes, the methodology and data set are consistent across all 50 states.

The existing state economic indices include a very limited amount of information. For example, the Federal Reserve Bank of Philadelphia's State Coincident Index (SCI) includes only four variables, which are heavily weighted to just one component of the economy – the labor market. As a result, the SCI is more of a labor market index than a state economic activity index. Moreover, labor market indicators may give an initial misleading reading as they are subject to substantial revisions. Given the slow recovery in employment following the past three recessions, the SCI may not provide a true representation of state economic activity. The SEA-Index, on the other hand, contains a broader assortment of variables and is a better proxy for state economic activity.

We find that while many states continue to see improvement in economic activity, the pace of growth is far more muted than reported by the coincident index. Specifically, the SEA-Index suggests continued solid improvement in states with a growth structure that is driven by the energy sector and the recent improvement in autos such as in North Dakota, Oklahoma, Michigan, Wyoming, West Virginia, South Dakota, Texas and Montana. States with the weakest economic activity have structures heavily weighted in hard hit sectors during the downturn such as housing, manufacturing, tourism and construction faced the most protracted recoveries.

Keywords: State Economic Activity; Dynamic Factor Model;
JEL Classifications: R11; C32.

State Economic Activity: A Dynamic Factor Modeling Approach

Introduction

The recovery from the Great Recession has been unusual in a number of ways. Job and income growth have grown much more slowly, as the lingering effects of the housing bust have weighed on household balance sheets and government finances. States where residential construction accounted for a large proportion of economic activity during the boom years have tended to suffer larger output and employment declines and recovered less than states with more diverse economies. Some of the states where housing declined the hardest have also tended to have outsized budget issues, which have also subsequently become a drag on state economic performance. Residential construction, home prices and tax revenues are obviously important metrics of state economic performance but these variables are not included in the currently available state coincident indices. There are many other economic variables available, which may also help capture a state's economic vitality and including a broader data set would improve the accuracy and usefulness of state coincident indices.

This paper presents a new state economic activity index (SEA-Index), which contains more explanatory information than existing methods. Using dynamic factor modeling techniques, we extract a common factor from a dataset of 15 variables and then that common factor is used as a representative of a state economic activity. Twelve variables are state specific and the remaining three variables are at the U.S. macro level. For comparison purposes, the methodology and data set are consistent across all 50 states.[1] The SEA-Index is a quarterly index, which dates back to 1980. The quarterly frequency allows us to include more variables in the estimation process.

The existing state economic indices include a very limited amount of information. For example, the Federal Reserve Bank of Philadelphia's State Coincident Index (SCI) includes only four variables: (1) nonfarm payrolls, (2) the unemployment rate, (3)

[1] For more detail about the variables and their names, please see the Data section of this paper.

average hours worked in manufacturing and (4) real wages and salary.[2] All of the variables included in the SCI are related to the labor market, which is just one component of the economy and are subject to substantial revisions. As a result, the SCI is more of a labor market index then a state economic activity index. Given the slow recovery in employment following the past three recessions, the SCI may not provide a true representation of state economic activity. The SEA-Index, on the other hand, contains a broader assortment of variables and is a better proxy for state economic performance.

We find that while many states continue to see improvement in economic activity, the pace of growth is far more muted than reported by the coincident index. Specifically, the SEA-Index suggests continued solid improvement in states with a growth structure that is driven by the energy sector and the recent improvement in autos such as in North Dakota, Oklahoma, Michigan, Wyoming, West Virginia, South Dakota, Texas and Montana. States with the weakest economic activity have structures heavily weighted in hard hit sectors during the downturn such as housing, manufacturing, tourism and construction faced the most protracted recoveries.

The rest of the paper is organized as follows. Section 2 discusses the importance of a state economic activity index. The econometrics of the dynamic factor modeling is explained in section 3. Section 4 presents the sources and definitions of the variables included in the estimation process. Section 5 provides empirical results and concluding remarks are gathered in section 6.

[2] See Crone (2003) for more detail about the SCI.

2. Why a New State Economic Activity Index is Needed?

This section discusses why a new economic activity index is needed and describes the limitations of currently available state coincident indices. A state's economic activity is a key factor in the decision-making process and is the most reliable indicator of state tax collections. Solid growth in a state's economy typically means that municipalities should be able to generate enough tax revenue to meet their obligations, absent structural impediments. The most effective and comprehensive measure of state economic activity and sustainability of tax revenue is the U.S. Bureau of Economic Analysis' calculation of real GDP by State. A simple regression shows that a one percent rise in real GDP typically leads to a 2.3 percent increase in state tax revenue.

While real GDP is a critical state economic indicator, the data are compiled on an annual basis and lag a year. Moreover, the last year's data is often revised substantially from its initially reported level. That said, a more timely measure of state economic activity is the state coincident index which is compiled by the Philadelphia Federal Reserve. The state coincident index is produced on a monthly basis and combines four state-level indicators to summarize current economic conditions including nonfarm payroll employment, average hours worked in manufacturing, the unemployment rate, and wage and salary disbursements.

According to the SCI, over the last year, state economic activity rose 2.8 percent in the first quarter. With the exception of Wisconsin and Alaska, economic growth was broad-based with the largest gains occurring in North Dakota, West Virginia and Michigan. We suspect the SCI may be somewhat misleading, as all four of its variables are heavily reliant on employment indicators, which are typically subject to substantial revisions. As a result, the SCI is more of a labor market index then a state economic activity index. Given the slow recovery in employment following the past three recessions, the SCI may not provide a true representation of state economic activity.

The Employment Bias

While the SCI is showing strong economic gains in states like North Dakota, Oklahoma, Michigan, Texas, and Montana, states such as South Dakota, Iowa and Wyoming are also seeing solid growth, but are ranked much lower in the index. Much of the underweighting in the SCI is due to lackluster labor market performance in these states. Montana is a good example. According to the SCI, state economic activity in Montana increased 1.6 percent in the first quarter ranking its performance in the lower third of the country. This is no surprise as nonfarm employment in Montana fell 0.3 percent in the first quarter. On the other hand, variables such as home prices, building permits, consumer credit and wage and salary growth all showed solid improvement in the first quarter.

Another example is Georgia, which showed that economic activity increased 2.2 percent in the first quarter, according to the SCI. While Georgia's economy is making progress, we suspect the recovery is much slower than the SCI purports. Other state variables paint a different picture. Growth in food stamps was the second highest in the nation, increasing 12.8 percent in the first quarter and tax revenue and wage and salary growth were also muted.

An Alternative Methodology: State Economic Activity Index

In this paper, we introduce a new index as a proxy of state economic activity that includes 15 variables using dynamic factor modeling. The State Economic Activity-Index (SEA-Index) contains a broader assortment of variables and is a better measure for state economic activity. The methodology and data set are consistent across all 50 states which makes the SEA-Index easily comparable across states. Moreover, while the SEA-Index is a coincident index, leading variables included in the index such as initial jobless claims, consumer credit, building permits, consumer price index, stock prices, and yield spread (10-year less fed funds rate) provide some predicative power.[3]

[3] See next section for more detail about the SEA-Index.

3. Econometric Methodology

The original dynamic factor modeling (DFM) approach dates back to the 1970s (Sargent and Sims (1977), Geweke (1977), Chamberlain (1983) and Chamberlain and Rothschild (1983)) and, during the 1990s, Stock and Watson (1999) improved the original DFM by utilizing advanced estimation techniques. The fundamental assumption of the DFM approach is that each economic variable can be decomposed into a common factor component plus an idiosyncratic component. The common component is driven by a few dynamic factors (far less than the number of available economic variables) underlying the whole economy.[4] Stock and Watson (1999) showed that, with reasonable assumptions, principal component analysis (PCA) can be used to estimate these components consistently. Furthermore, Stock and Watson (1999) employed the PCA and developed a national economic activity index for the U.S. economy. The Federal Reserve Bank of Chicago (Chicago Fed) followed the Stock-Watson approach and produced a national economic activity index for the U.S. economy, which is known the Chicago Fed National Activity Index (CFNAI).[5] The CFNAI is a weighted average of the 85 economic indicates. The index extracts first principal component from the 85 variables and then the first principal component is used as a representative of the national economic activity.

We follow the Stock-Watson (1999) and the Chicago Fed approaches and extract first principal component from the 15 variables of a state (12 state specific and 3 national variables) and then the component is used as a representative of a state's economic activity. The process is repeated for each of the 50 states and hence at the end we have 50 state economic activity indices.

Here we discuss, briefly, the DFM approach. For more detail, see Stock and Watson (1999). Let X_t be the n-dimensional vector of time series variables and it is observed for t=1,2,……,T. Additionally, X_t is transformed to be stationary, if not

[4] See Stock and Watson (1999 and 2002) for more detail about the DFM approach.
[5] For background information about the CHNAI, see the Chicago Fed website; http://www.chicagofed.org/webpages/publications/cfnai/index.cfm

stationary at level, and for notational simplicity we assume also that each series has a mean of zero.[6] The dynamic factor model representation of the X_t with $\bar{r}$ common dynamic factors f_t,

$$X_t = \rho_i(L) f_t + \varepsilon_{it} \qquad (1)$$

For i=1,2,…..,N, where $\varepsilon_{it} = (\varepsilon_{1t}, \varepsilon_{2t,\ldots\ldots\ldots}, \varepsilon_{Nt})$ is a $N \times 1$ idiosyncratic disturbance. $\rho_i(L)$ is a lag polynomial in non-negative powers of L, it is modeled as having finite orders of at most s, so $\rho_i(L) = \sum_{j=1}^{s} \rho_{ij} L^j$.

The finite lag assumption permits rewriting (1) as

$$X_t = \Lambda F_t + \varepsilon_t \qquad (2)$$

Where $F_t = \left(f_t', \ldots\ldots\ldots, f_{t-s}'\right)'$ is an $r \times 1$, where $r \leq (s+1)\bar{r}$. The i-th row of the Λ is $(\rho_{10}, \rho_{i1}, \ldots., \rho_{is})$ is a matrix of factor loadings. The key advantage of this static form is that the unobserved factors can be estimated consistently as $N,T \rightarrow \infty$ jointly by taking principal components of the covariance matrix of X_t , provided mild regularity conditions are satisfied (Stock and Watson, 2002).[7] An important note here is that since we are interested in the first principal component, we extract only the first component.

[6] We use year-over-year (YoY) percent form of all variables, except the yield spread. Assuming that the YoY percent form of the variables would solve non-stationary issue.
[7] See for detail, Stock and Watson (1999 and 2005).

4. The Data

The objective of this study is to develop an index, which captures a state's economic performance accurately. One way to increase the accuracy of an index is to include information from all major sectors of a state economy such as labor market, housing sector, consumers, and etc. Therefore, we try to include all possible and available information in the process of estimating the SEA-Index.

In the first step, we collect all available state level variables, of which there are not too many. We end up with approximately 20 variables. The next step is to eliminate those variables, which either have a short history or release with a longer lag time. The start dates for the SEA-Index goes back to 1981, we have eliminated the variables with a series history beginning after 1982. For example, population and net migration data are released with at least a one-year lag, while state GSP data dates back only to 1997, which is a very short history for our analysis, and is available only on an annual basis. The reason we choose 1981 as the start of the year is that most state level data date back to only 1980.[8] Furthermore, we are interested in examining SEA-Index activity during different business cycles and compared it to the national economy. That is, when the U.S. economy was in a recession, which states had negative growth and which did not. There are several business cycles during the 1981-2012 time period and thereby it would be fair to compare a state economy with the national economy during a business cycle during that time period.

At the end of this step, there are only twelve state level variables remaining in the dataset. We add three national level variables, which are the S&P 500 Index, CPI and the yield spread (The spread between 10-Year Treasury rate and the Federal Funds Target rate). The major reason to include national level variables in the SEA-Index is that states do share some common factors with these national economy measures. The S&P 500 index and yield spread are forward-looking indicators, as they are components of the U.S.

[8] Since we are using year-over-year percent form of the dataset and thereby the actual index start date is 1981:Q1.

index of leading indicators (most widely known as the LEI by the Conference Board). That is, these variables represent current economic conditions as well as expectations for the near-term prospects of the U.S. economy. Furthermore, there is not a single general price measure at state level and thereby we use the U.S. CPI (city average) as a proxy for a state price index.

We use a quarterly dataset and if a series is monthly then it is converted into a quarterly frequency using the average of three month. All data set, except the yield spread, are converted into a year-over-year percent form. The dataset is divided into the following sectors: labor market, income and spending, state finance, housing and other. See Appendix A for more detail. The dataset is obtained from the Moody's Analytics.

4.1 Labor Market

Labor market is an important element of a state economy and a healthy labor market may indicate a better state economic performance. We included four labor market related variables in our analysis. The variables are (1) nonfarm payrolls, (2) unemployment rate, (3) initial claims and (4) labor force. All four variables reported are reported on a monthly basis, but are converted into a quarterly frequency.

4.2 Income and Spending

Measures of personal income and spending also provide important insight, as a rise in these measures may indicate a state's economy is healthier, which could potentially lead to higher spending and tax revenues. In our model, we use the quarterly personal income and wages and salaries data available from the Bureau of Economic Analysis. Moody's Analytics provides an estimate of state level retail sales which is also included in the analysis to capture a state's personal spending activity.

4.3 State Finance

State tax revenue is another variable that is a useful predicator of state economic activity.[9] Revenue, as reported by the U.S. Census Bureau, fell significantly due to the

[9] Annual tax revenue data published from 1980-1994 by the U.S. Census Bureau was combined with the quarterly tax revenue data series which began in 1995, also published by the U.S. Census Bureau.

2007-2009 downturn from every revenue source and while state tax revenue lags the national recovery, some improvement in state finances foretells stability as economic drivers strengthen. In fact, an increase in employment, a key economic driver, may lead to a rise in income tax (if the state has one) and/or an increase in sales tax (if the state imposes one). Indeed, economic drivers may vary, as states have very different revenue streams. For example, Florida has no state income tax and depends heavily on sales tax, while Oregon does not have a sales tax but depends heavily on income tax (such a delineation further illustrates the need for distinct indices for each state).

4.3 Housing Sector

As the housing downturn was the main catalyst for the 2007-2009 recession, any state economic recovery will depend on a turnaround in the housing market. Home prices and building permit data series are included in the SEA-Index to judge a state's housing activities. According to the FHFA home price index, home prices fell 16 percent peak to trough. In select markets such as California, Arizona, Nevada and Florida, home prices fell by more than 35 percent from their peak. Moreover, the ever increasing number of foreclosures, short sales and REOs continue to put downward pressure on home prices. As a result, many households continue to grapple with sharp declines in net worth, which further impedes growth in consumer spending and economic activity. Due to declines in home prices, many borrowers are also finding they have negative home equity, meaning that they owe more on their home than it is worth.

4.4 Some other State and National Variables

Two more state level variables are included, which include the number of food stamps recipients and consumer credit. Three national variables, CPI, S&P 500 Index and the yield spread are also incorporated in the SEA-Index.

5. The Results

Our Findings: State Economic Activity More Muted

We find that while many states continue to see improvement in economic activity, the pace of growth is far more muted than reported by the coincident index. Specifically, the SEA-Index suggests continued solid improvement in North Dakota, Oklahoma, Michigan, Wyoming, West Virginia, South Dakota, Texas, and Montana (See Table 1). States with a growth structure that is driven by energy and the recent improvement in autos have shown the largest gains. While most states still have a negative reading, it suggests economic activity is still not close to pre-recession levels (Appendix B). Moreover, states with the weakest economic activity have structures heavily weighted in hard hit sectors during the downturn. In an earlier paper we found states with a heavy reliance on sectors hardest hit during the downturn such as housing, manufacturing, tourism and construction faced the most protracted recoveries. As a result, sharp declines in household net worth and weakened credit hampered consumer spending, which weighed down tax revenue.

5.1 States Showing Solid Growth in the SEA-Index

North Dakota: Let the Good Times Roll

The North Dakota economy was relatively unscathed by the Great Recession. Boosted by energy exploration and a business friendly environment, real GDP in North Dakota grew more than four times that of the nation at 7.6 percent in 2011. The state also boasts the lowest unemployment rate in the country at 3.1 in November. The tight labor market has supported growth in wages and salaries, which are up 13.6 percent from a year ago. The state continues to be a magnet for job seekers with population growth up 2.1 percent over the last year far surpassing the nation at just 0.7 percent. Furthermore, North Dakota avoided the housing boom and subsequent bust, leaving room for continued building in the state; total housing permits increased 62 percent in 2011 and home prices are up 4 percent. State fiscal conditions remain healthy as tax revenues have risen nearly 50 percent on a year-over-year basis in 2011 amid healthy gains in

commodity prices and income. North Dakota is one of nation's top oil producers. As a result, oil drilling and construction employment have risen at a double-digit pace since early 2010. With activity in the energy sector due mainly to new advances in technology rather than higher prices, the good times should continue to roll.

Oklahoma: Energy Boosts Employment Growth in the Sooner State

Fueled by the energy sector, Oklahoma has the second highest job growth in the nation. Following only North Dakota, employment growth in the Sooner State increased 1.3 percent and has been increasing since late 2010. The unemployment rate is at low 5.2 percent down from its cycle peak of 7.2 percent in 2009. With employment growth an important driver of tax revenue, Oklahoma's tax collections grew 13 percent in 2011. Real GDP data rose nearly 5 percent in 2011 and both the SCI and SEA-Index suggest growth should continue to pick up in 2012. On the hand, according to the FHFA home price index, home prices have struggled over the last year two years, but are poised to make a turn around. That said, based on CoreLogic data, negative equity is well below the national average. We suspect Oklahoma will continue to see solid employment growth, which should continue to bolster economic activity.

Michigan: Auto Manufacturing Aids the Wolverine State's Economy

The state of Michigan has been racked with economic troubles over the past decade, but has since made solid improvement. Led by gains in auto manufacturing, employment rose 1.9 percent over the past year in 2011. The housing market is also showing strong growth with building permits up 2.9 percent in 2011. Due to the downturn, the percent of underwater borrowers remains exceptionally high, but the share is declining with improving economic conditions. In addition, wages & salaries and personal income have increased over the past year. The Michigan economy still has a long way to go before recovering from its decade-long slump, but the recent improvement in employment, housing and income suggest the state's near-term outlook is finally improving.

5.2 States Showing a Weak Recovery in the SEA-Index

Nevada: Tourism Is Beginning to Improve, but Housing Is Still Languishing

Economic activity in Nevada is showing improvement, but remains bleaker than anywhere else in the country. The housing boom and bust hit Nevada particularly hard and the after effects are still looming. In Las Vegas, where the population swelled 37 percent between 2000 and 2009, house prices are now down 54.5 percent from peak to current. With the decline in prices, nearly 6 out of 10 homeowners owe more on their mortgage than their home is currently worth. Foreclosures remain near all-time highs, leaving a glut of homes on the market and further depressing home prices. Foreclosures should remain high for some time as delinquencies remain elevated With foreclosures still undermining Nevada's housing market, new home construction—a major component of the state's economy over the last decade—remains at a virtual standstill.

The state's fiscal conditions do not offer much comfort. Falling home values have the potential to negatively affect property taxes, which account for approximately 30 percent of state revenues. Similarly, consumer spending has been limited by high unemployment and weak income growth, dragging down sales tax collections, which make up roughly 55 percent of state revenues. Tax revenues will remain weak until the housing market and employment situation improve.

Georgia: Slow Recovery, but Signs of Life Emerging

Georgia's painstakingly slow economic recovery continues to show few palpable signs of shifting into higher gear, at least if you look at the most recent economic data. Georgia's unemployment rate has stubbornly remained above or near 8.5 percent since early 2009, but the latest nonfarm employment numbers show payrolls improving over the past year, producing a net gain of nearly 49,000 jobs over the same period. Long running problems in the housing market and the financial services sector continue to weigh on the state's overall economic performance. While private sector layoffs have subsided in other areas, public sector cutbacks have become a much more significant issue recently, with layoffs occurring at all levels of government. Corporate relocations

and business startups are rebounding but hiring associated with new projects lags behind previous recoveries.

Georgia saw one of the largest upward revisions to its employment data when the annual revisions were published in February 2012. The large upward revisions to job data also meant that the SCI for the state was understated for the prior year as well. The Quarterly Census of Employment and Wages data through March 2012 suggest that the state's employment data will be revised higher once again in early 2013.

6. Concluding Remarks

This paper presents a new state economic activity index (SEAI), which contains more explanatory information than existing methods. Using dynamic factor modeling techniques, we extract a common factor from a dataset of 15 variables. Twelve variables are state specific and the remaining three variables are at the U.S. macro level. For comparison purposes, the methodology and data set are consistent across all 50 states. The SEAI is a quarterly index which dates back to 1980. We chose quarterly frequency because we can include more variables.

We find that while many states continue to see improvement in economic activity, the pace of growth is far more muted than reported by the coincident index. Specifically, the SEA-Index suggests continued solid improvement in states with a growth structure that is driven by the energy sector and the recent improvement in autos such as in North Dakota, Oklahoma, Michigan, Wyoming, West Virginia, South Dakota, Texas and Montana. States with the weakest economic activity have structures heavily weighted in hard hit sectors during the downturn such as housing, manufacturing, tourism and construction faced the most protracted recoveries. As a result, sharp declines in household net worth and weakened credit hampered consumer spending, which weighed down tax revenue.

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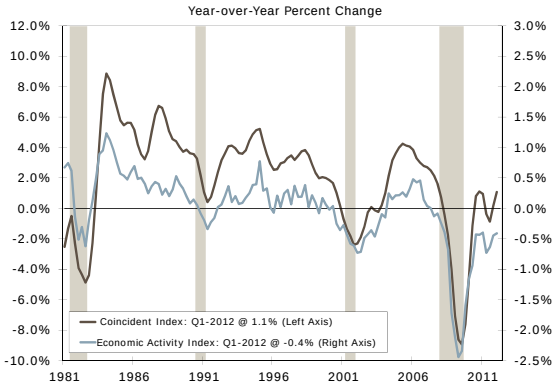
Appendix A

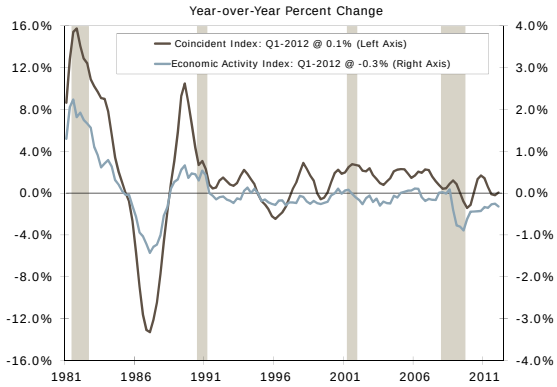
	Indicator	Source
1	Nonfarm Payrolls	U.S. Bureau of Labor Statistics (BLS): Current Employment Statistics (CES); Moody's Analytics: Extended JAN60 TO DEC89
2	Unemployment Rate	U.S. Bureau of Labor Statistics (BLS)
3	Labor Force	U.S. Bureau of Labor Statistics (BLS)
4	Initial Jobless Claims	U.S. Department of Labor: Employment & Training Administration (ETA)
5	Personal Income	U.S. Bureau of Economic Analysis (BEA): Quarterly Personal Income - Table 05
6	Wages & Salary	U.S. Bureau of Economic Analysis (BEA): Quarterly Personal Income - Table 05
7	Retail Sales	U.S. Census Bureau (BOC); Moody's Analytics Estimate
8	Tax Revenue	U.S. Census Bureau (BOC): Annual Survey of State Government Finances & Census of Governments
9	Home Prices	U.S. Federal Housing Finance Agency (FHFA); Freddie Mac; Fannie Mae
10	Building Permits	U.S. Census Bureau (BOC): Form C-404; Moody's Analytics Estimated
11	Food Stamp	U.S. Department of Agriculture (USDA): Food and Nutrition Service (FNS)
12	Consumer Credit	Federal Reserve System (FRB): Consumer Credit (G.19); U.S. Bureau of Economic Analysis (BEA); Moody's Analytics Estimates
13	S&P 500 Index	Standard & Poor's: 500 Composite Index –U.S. / Index Base: 1941-1943 = 10
14	Consumer Price Index	U.S. Bureau of Labor Statistics (BLS)
15	Yield Spread	10-Year Treasury Yield less Federal Funds rate
	10-Year Yield	Federal Reserve (H.15) Release, Constant Maturity, 10-YEAR - Yield – U.S.
	Federal Funds Effective Rate	Federal Reserve Board

State Economic Activity Index vs. Coincident Index

Alabama Coincident & Economic Activity Indices



Alaska Coincident & Economic Activity Indices



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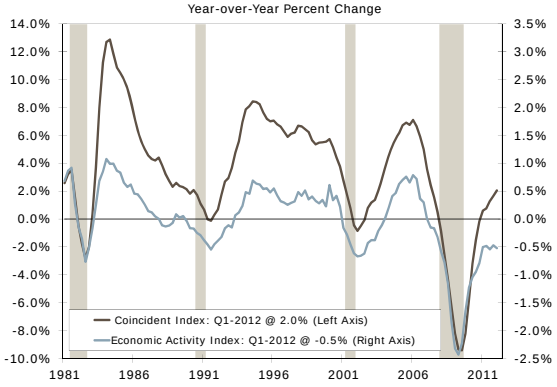
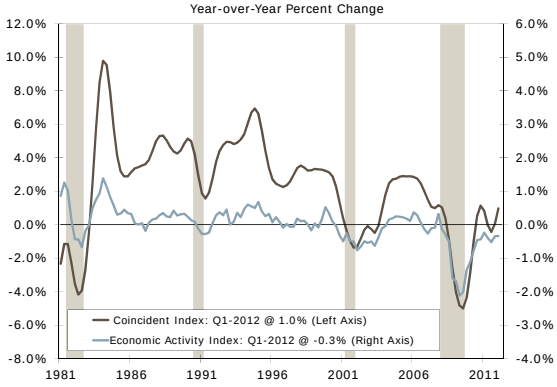
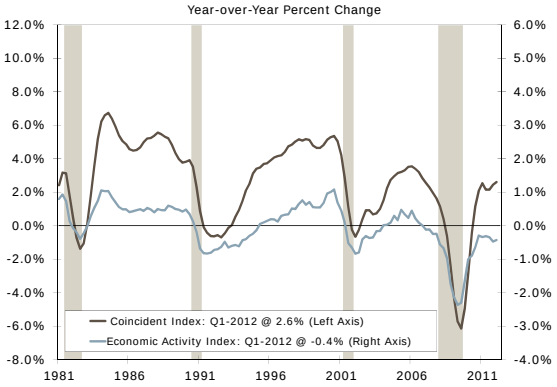


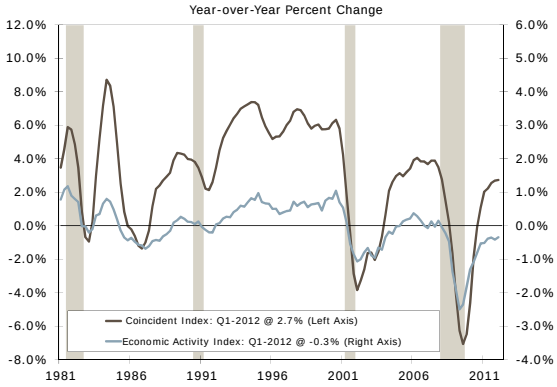
Arkansas Coincident & Economic Activity Indices



California Coincident & Economic Activity Indices



Colorado Coincident & Economic Activity Indices



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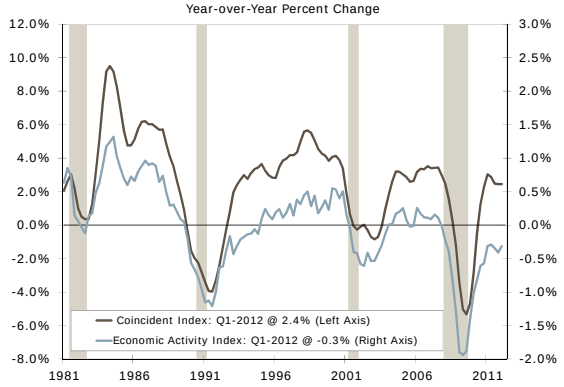
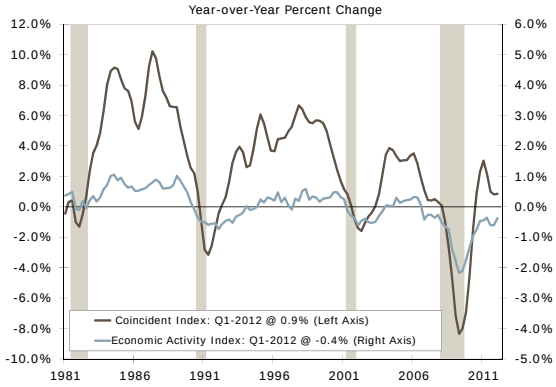
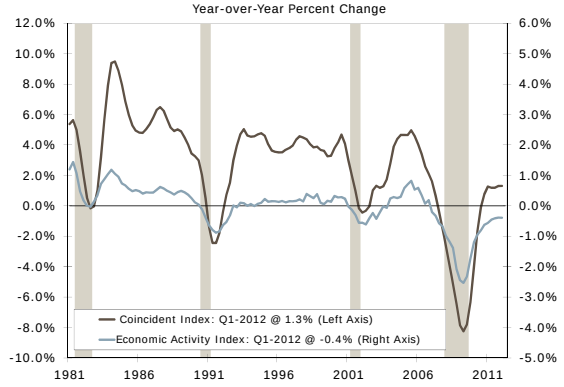


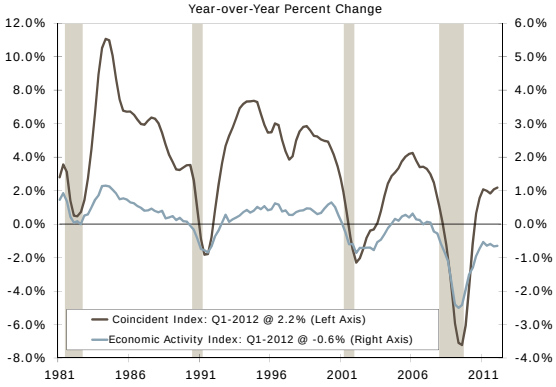
Delaware Coincident & Economic Activity Indices



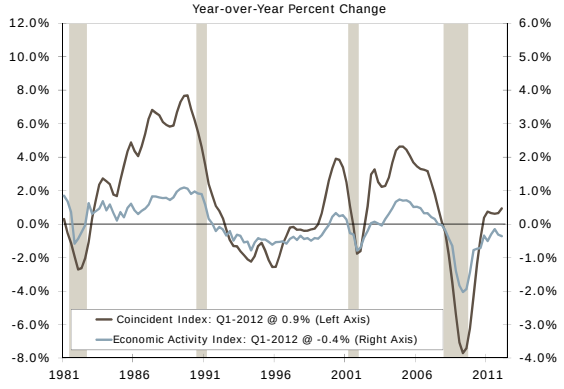
Florida Coincident & Economic Activity Indices



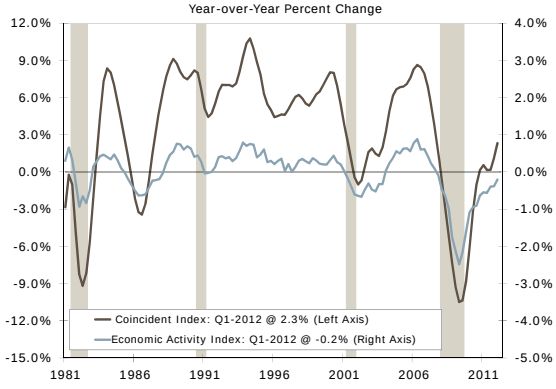
Georgia Coincident & Economic Activity Indices



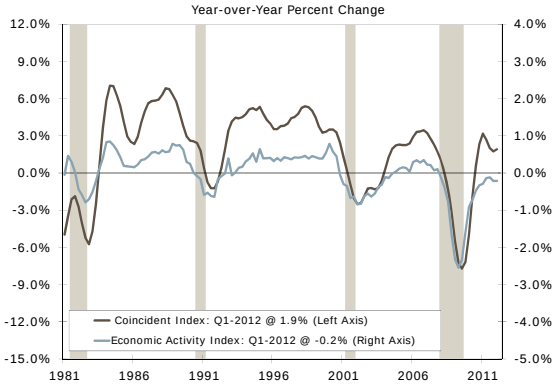
Hawaii Coincident & Economic Activity Indices



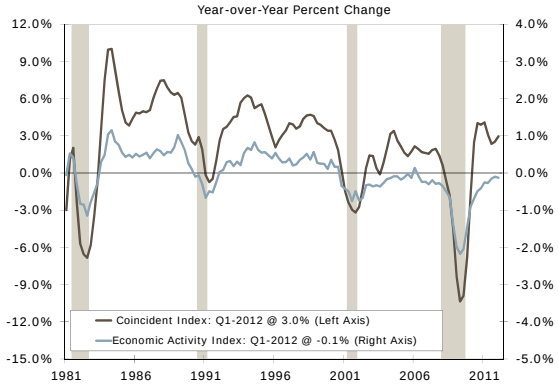
Idaho Coincident & Economic Activity Indices



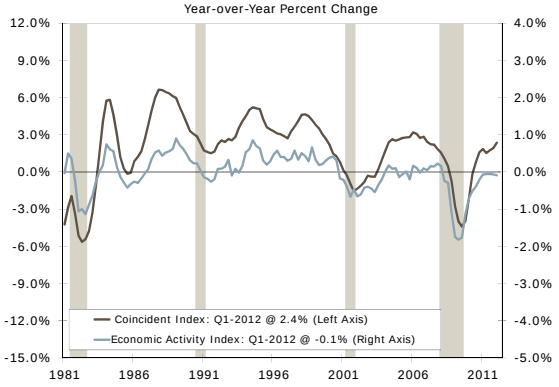
Illinois Coincident & Economic Activity Indices



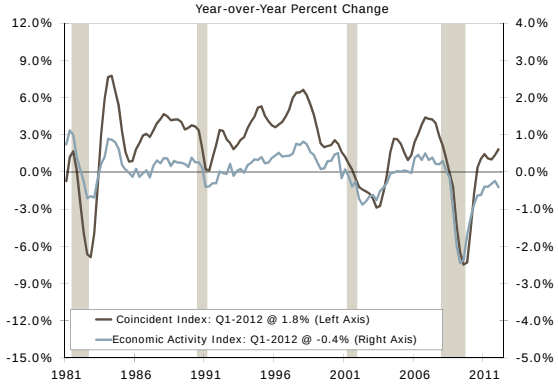
Indiana Coincident & Economic Activity Indices



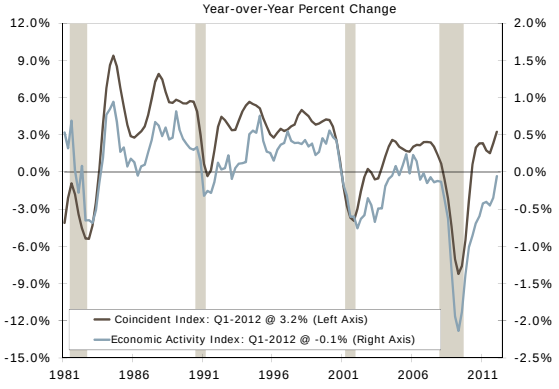
Iowa Coincident & Economic Activity Indices



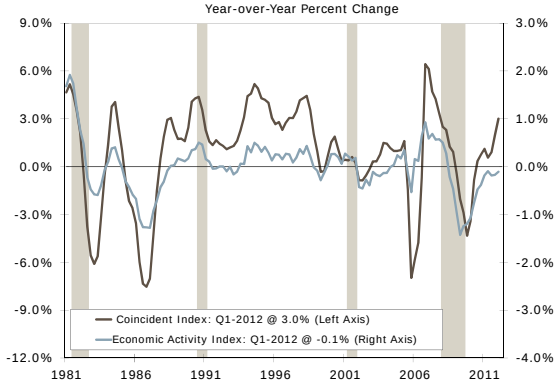
Kansas Coincident & Economic Activity Indices



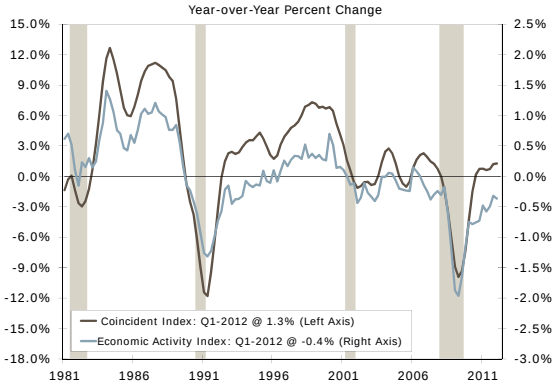
Kentucky Coincident & Economic Activity Indices



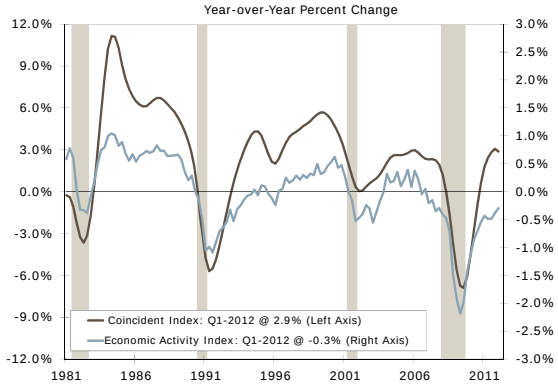
Louisiana Coincident & Economic Activity Indices



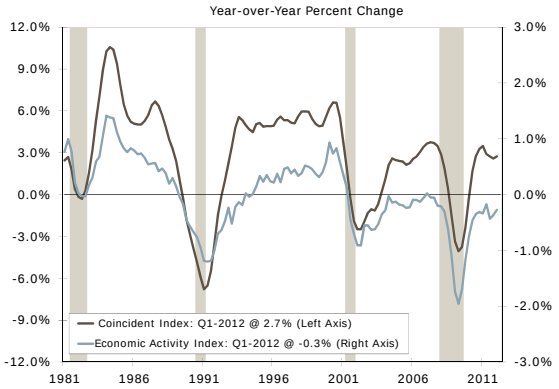
Maine Coincident & Economic Activity Indices



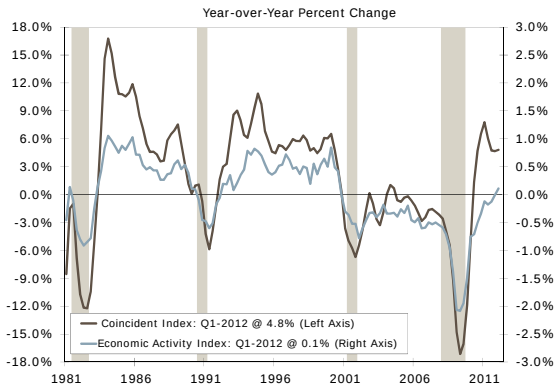
Maryland Coincident & Economic Activity Indices



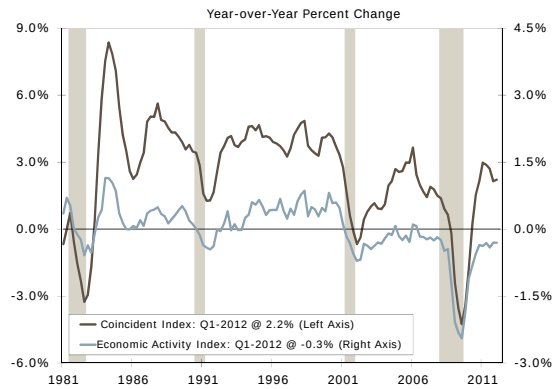
Massachusetts Coincident & Economic Activity Indices



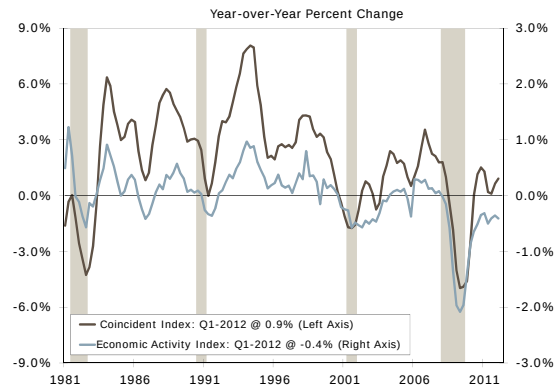
Michigan Coincident & Economic Activity Indices



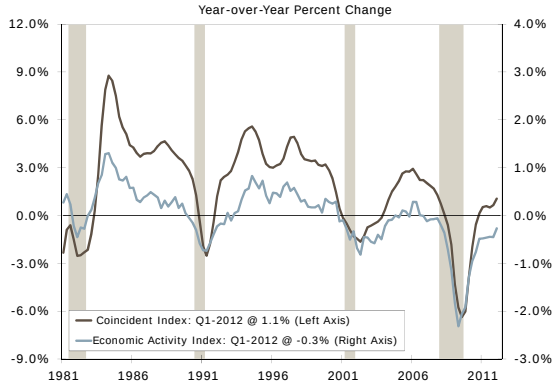
Minnesota Coincident & Economic Activity Indices



Mississippi Coincident & Economic Activity Indices



Missouri Coincident & Economic Activity Indices



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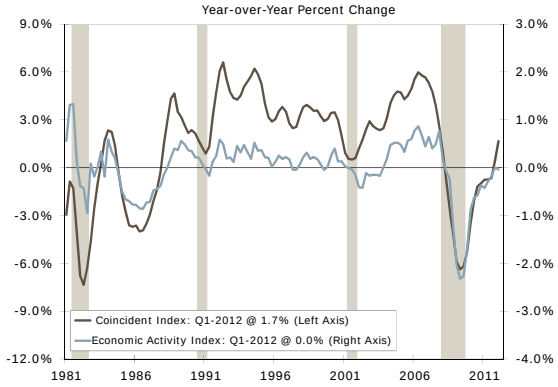
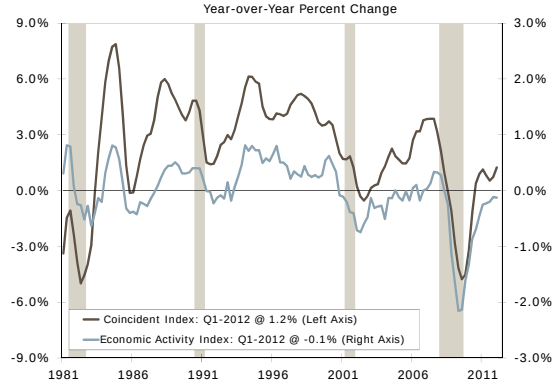
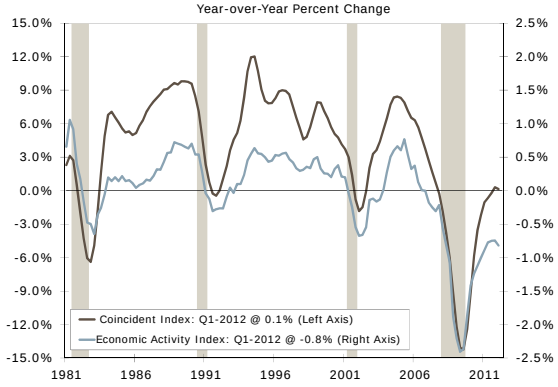


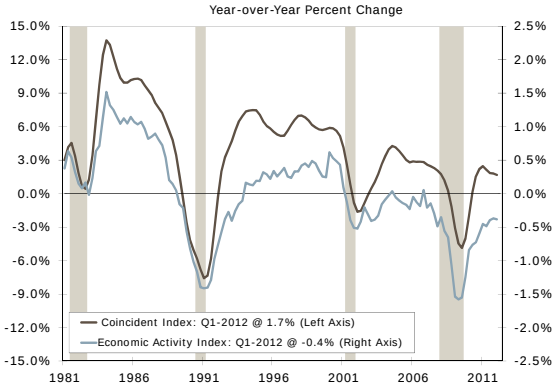
Nebraska Coincident & Economic Activity Indices



Nevada Coincident & Economic Activity Indices



New Hampshire Coincident & Economic Activity Indices



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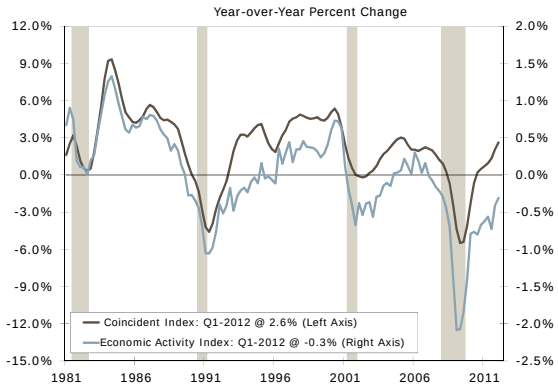

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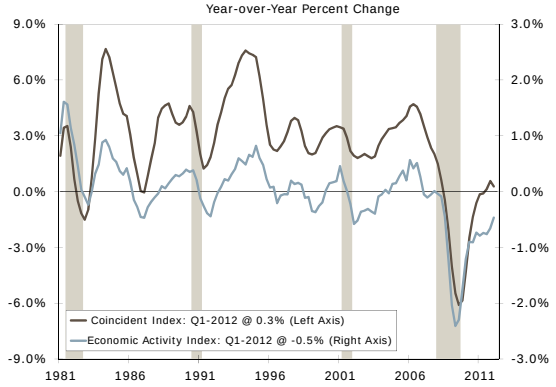

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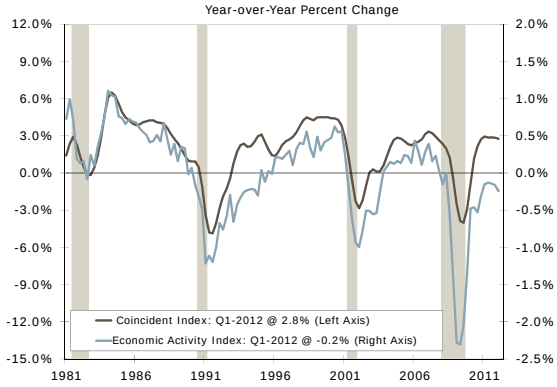
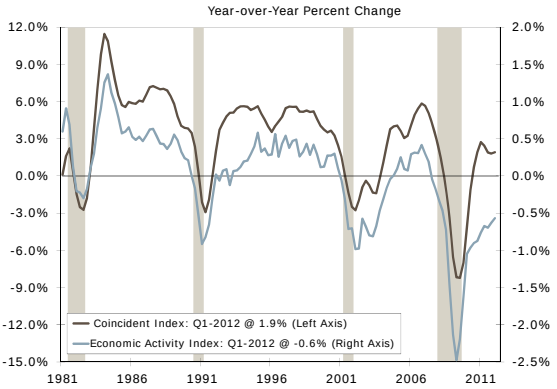
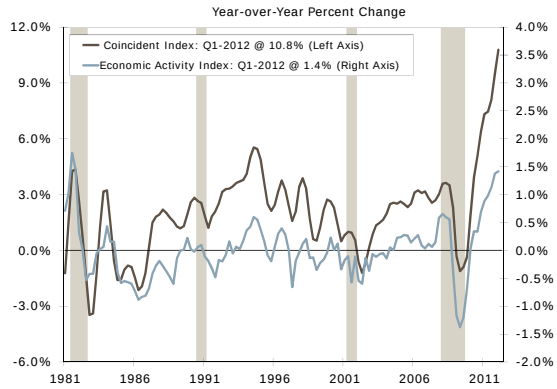


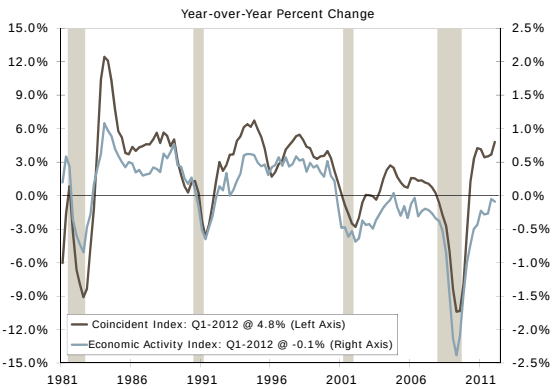
North Carolina Coincident & Economic Activity Indices



North Dakota Coincident & Economic Activity Indices



Ohio Coincident & Economic Activity Indices



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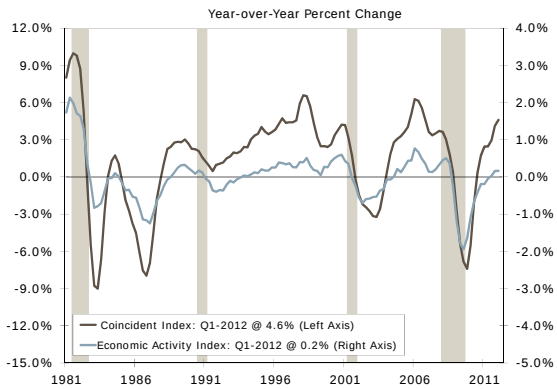

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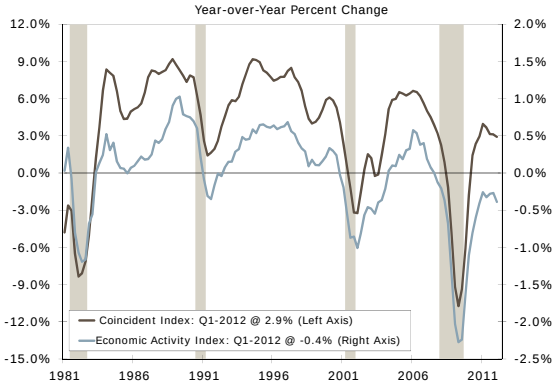

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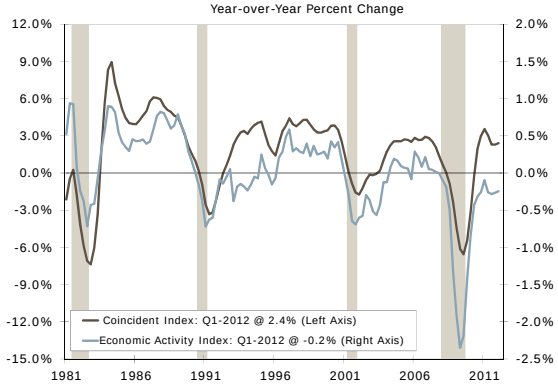
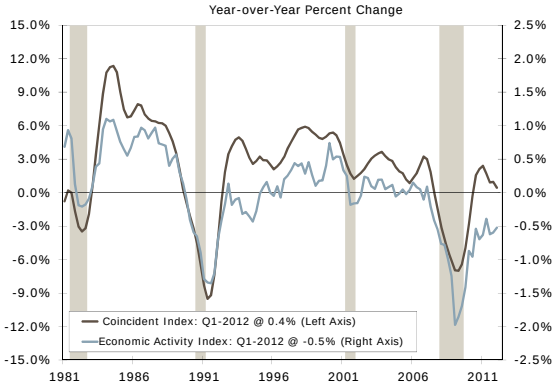
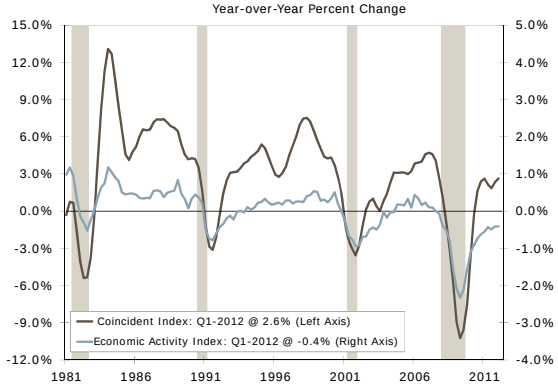


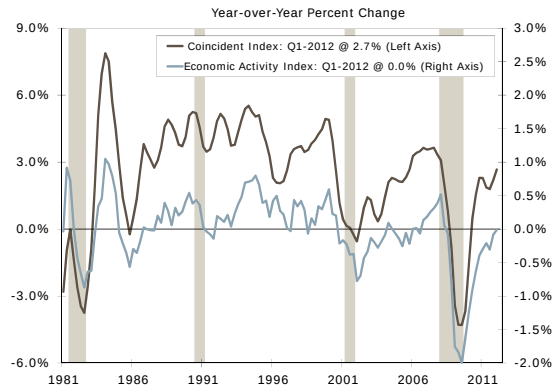
Rhode Island Coincident & Economic Activity Indices



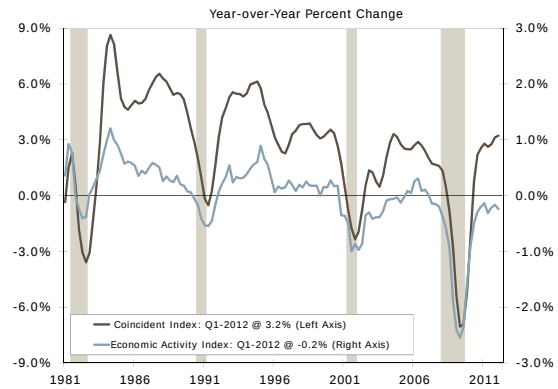
South Carolina Coincident & Economic Activity Indices



South Dakota Coincident & Economic Activity Indices



Tennessee Coincident & Economic Activity Indices



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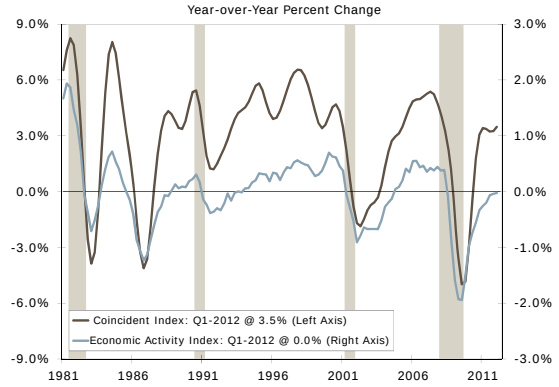
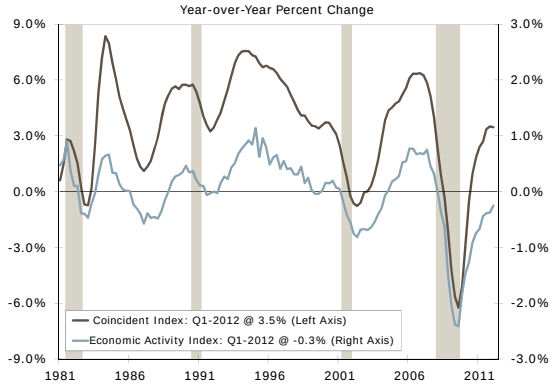
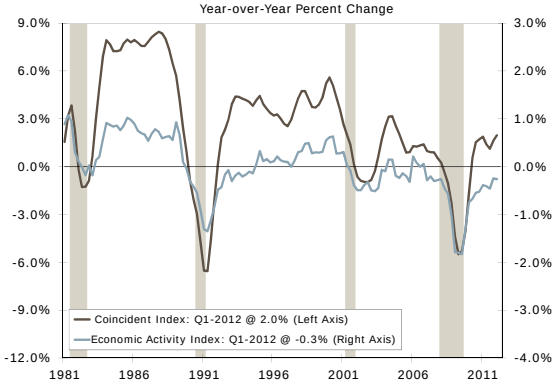


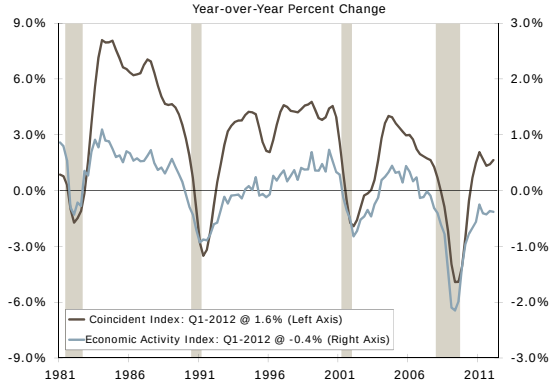
Utah Coincident & Economic Activity Indices



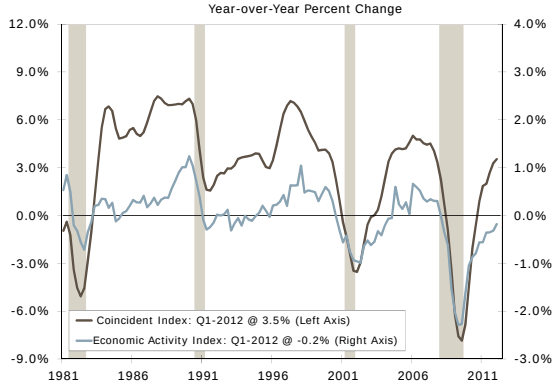
Vermont Coincident & Economic Activity Indices



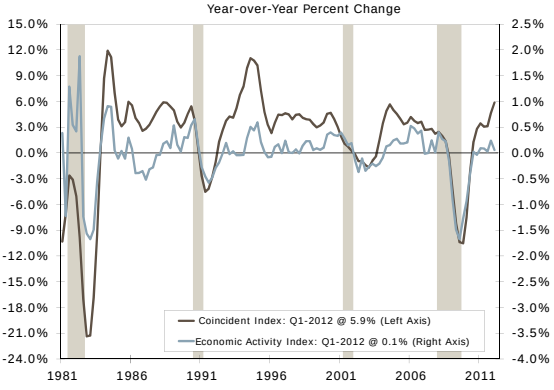
Virginia Coincident & Economic Activity Indices

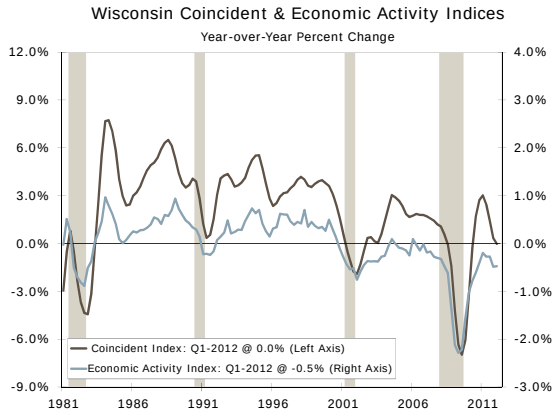


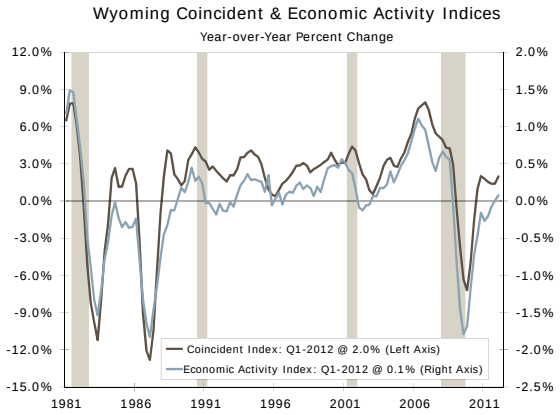
Washington Coincident & Economic Activity Indices



West Virginia Coincident & Economic Activity Indices




Wisconsin Coincident & Economic Activity Indices
Year-over-Year Percent Change
12.0%
9.0%
6.0%
3.0%
0.0%
-3.0%
-6.0%
-9.0%
4.0%
3.0%
2.0%
1.0%
0.0%
-1.0%
-2.0%
-3.0%
1981
1986
1991
1996
2001
2006
2011
Coincident Index: Q1-2012 @ 0.0% (Left Axis)
Economic Activity Index: Q1-2012 @ -0.5% (Right Axis)


Wyoming Coincident & Economic Activity Indices
Year-over-Year Percent Change
12.0%
9.0%
6.0%
3.0%
0.0%
-3.0%
-6.0%
-9.0%
-12.0%
-15.0%
2.0%
1.5%
1.0%
0.5%
0.0%
-0.5%
-1.0%
-1.5%
-2.0%
-2.5%
1981
1986
1991
1996
2001
2006
2011
Coincident Index: Q1-2012 @ 2.0% (Left Axis)
Economic Activity Index: Q1-2012 @ 0.1% (Right Axis)