

# State of Ingenuity: A Synthetic Economic Index

ANALYZING THE ECONOMIC IMPACT



UNIVERSITY OF WISCONSIN  
**WHITEWATER**

Fiscal and Economic Research Center

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## Executive Summary

Regions with high levels of growth and development experience benefits stemming from strong economic activity, whereas regions with stagnating or negative growth must analyze their economic conditions to improve them. Using data-based tools can help improve the overall economic condition of the region.

The Fiscal and Economic Research Center, using methodology created by the Philadelphia Federal Reserve Bank and others, has developed an economic growth index that tracks the economic progress of a region. The regions selected allow for a comparative analysis between parts of the United States, while controlling for regional phenomenon. During initial research, regions in California, Indiana, Georgia, Minnesota and New Mexico proved similar to the EDA region. This contributes to a more controlled study and allows for the development of an economic index.

Built using weighted standard deviations, the index includes a variety of economic variables with data ranging between the years 2000 and 2010. With a base-value of 100, the index calculates a new value for each observation period; this value pro-

vides a method by which progress (or regression) can be tracked. In other words, movements within the index reflect economic progress or reversals. For example, if a region's index is at 111 in 2007 and it falls to 107 in 2008, this reflects an overall regional economic malaise. Conversely, if a region's index increases from 111 in 2007 to 120 in 2008, the observed region is in a period of economic expansion.

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## Contributors

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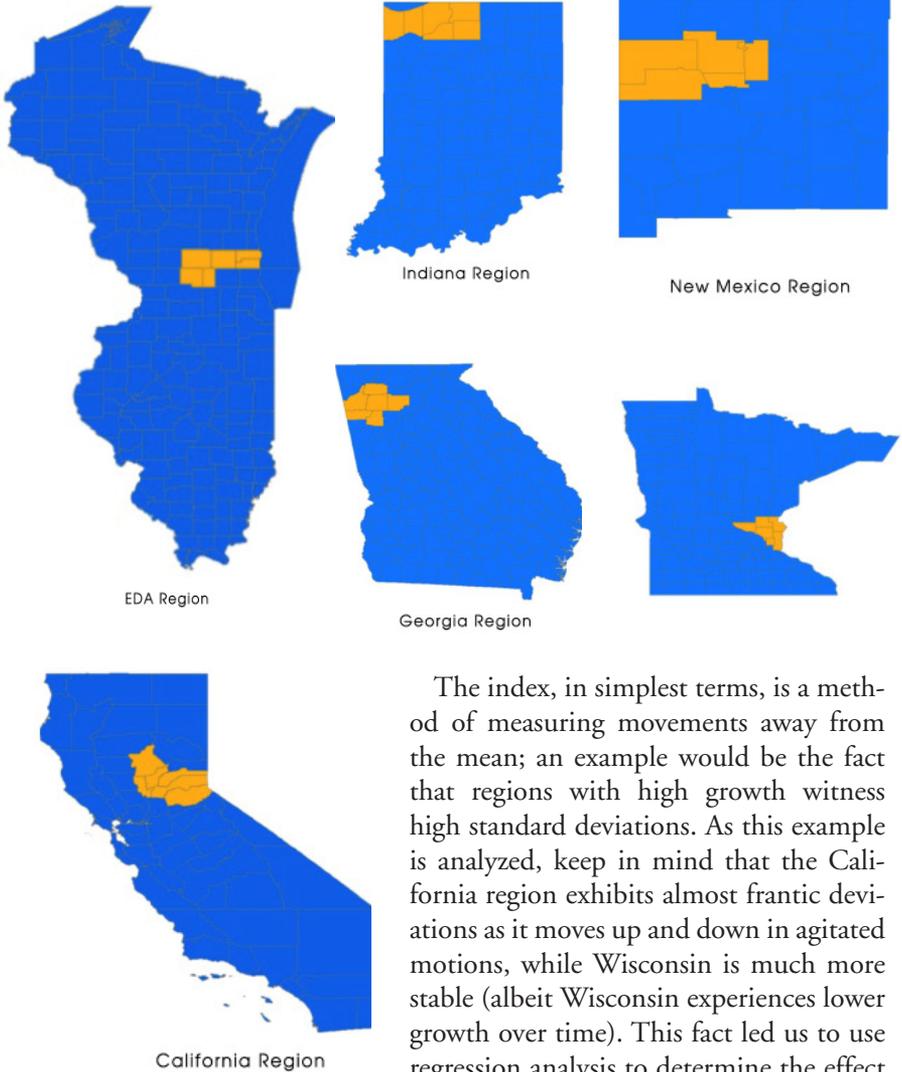
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## Figure 1 | Analyzed regions



The index, in simplest terms, is a method of measuring movements away from the mean; an example would be the fact that regions with high growth witness high standard deviations. As this example is analyzed, keep in mind that the California region exhibits almost frantic deviations as it moves up and down in agitated motions, while Wisconsin is much more stable (albeit Wisconsin experiences lower growth over time). This fact led us to use regression analysis to determine the effect that a number of indicators, time dummies and regional dummies have on the index.

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This study defines economic progress as a sustained period of economic growth, which can be either positive or negative. In accordance with this definition is the aggregate effect of eight economic indicators and the two categories of dummy variables:

1. Total Employment
2. Net Job Flows
3. Job Creation
4. New Hires
5. Separations
6. Total Monthly Earnings
7. Total New Hire Earnings
8. Total Unemployed
9. Time Dummies
10. Regional Dummies

The index developed by the FERC and its extension through regression analysis, is able to indicate some comparative economic trends among the observed regions:

- The EDA region in Wisconsin and Illinois (often simply referred to as “Wisconsin(eda)”) displays a positive, but almost non-material, improvement in economic progress since 2008. Graphically, Wisconsin eda has seen the least fluctuation in their index values between 2000 and 2010 relative to the comparative counties. However, this positive movement has not yet overcome the negative impact that followed the high economic point of 2006-2007.
- The California region shows a trend of generalized growth since 2000 that was only briefly hindered in recent years. However, regression results show that this region is in the midst of a rapid recovery relative to these other regions.

- Regression results indicate a non-material change in Indiana’s economic condition since 2007, and only display slight growth in the years between 2000 and 2007.

- Index measurements in the Minnesota region show stability from 2000-2007, after which the regression results indicate fluctuation between negative and positive trends with growth being mostly negative in recent years.

- The Georgia region had significant positive growth between 2000 and 2007. Since 2008, results show economic decline and, more recently, non-material negative growth.

- Even with an upwards trend in its index values, the New Mexico region, according to the regression results, has only seen slight economic growth since 2000. In recent years, this region shows the most negligible changes in its level of growth, though it is on track for positive economic growth.



Figure 2 | Graphical comparison of select regional economic trends

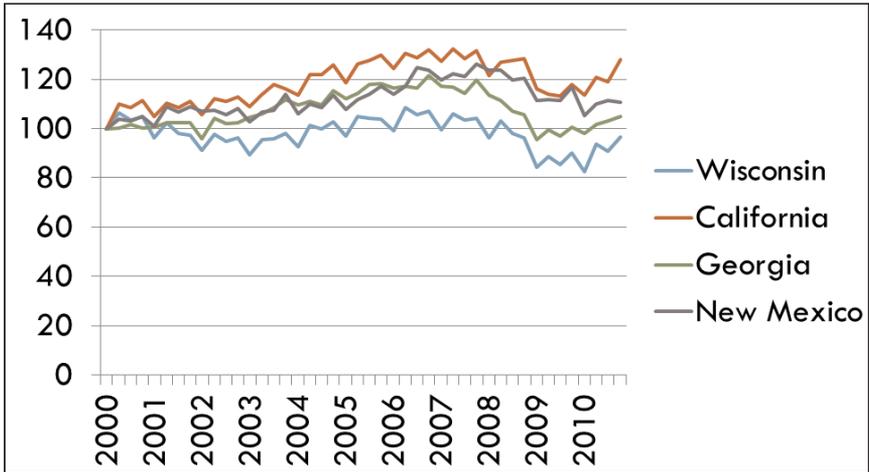


Figure 3 | Graphical comparison of select regional economic indices (continued)

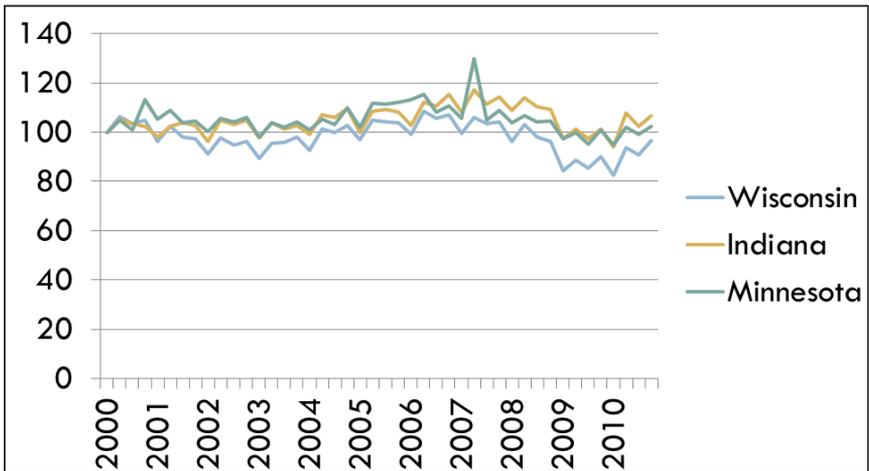




Figure 4 attempts to translate the results of the ols regression to a visual format. In this regression, the economic index is the dependent variable. The other variables (such as Total Unemployed, Total New Hires, Monthly Earning...) are those variables that impact the positive or negative movement of the index. Variables whose coefficients are above the 0.000 line have recently (since 2008) contributed to the increase in the economic index. For example, the level of Total Unemployed in Wisconsin is a positive force for it's economy relative to other regions. However, New Hires and Job Creation are

negative forces. Figure 4 is a valuable tool for evaluation—while Minnesota's index has benefitted greatly from its relatively low level of Total Unemployed, it suffers greatly from low level of Net Job Flows. In another example, both California and Georgia have witnessed high levels of Job Creation since 2008 (relative to the other regions). Wisconsin, on the other hand, features stability. While it is aided slightly by the relatively low level of unemployment and Job Separations, it is harmed slightly by negative levels of New Hires, Job Creation and Total Earnings.

**Figure 5** | Comparison of total unemployment expressed as the percentage of labor force unemployed

Total Unemployed (% of Labor Force)						
	EDA Region	California	Georgia	Indiana	Minnesota	New Mexico
2000	4.0%	6.4%	3.4%	3.3%	3.2%	4.7%
2001	5.6%	6.9%	4.0%	4.8%	4.1%	4.6%
2002	6.5%	7.8%	4.6%	5.8%	4.8%	5.0%
2003	6.8%	8.1%	4.5%	6.0%	5.3%	5.3%
2004	6.1%	7.7%	4.6%	5.6%	4.9%	5.2%
2005	5.8%	6.9%	4.7%	5.6%	4.5%	4.8%
2006	5.3%	6.6%	4.2%	5.4%	4.5%	3.8%
2007	5.8%	7.2%	4.5%	4.9%	5.2%	3.4%
2008	7.4%	9.5%	6.7%	7.0%	6.2%	4.6%
2009	12.7%	14.0%	11.0%	12.4%	9.1%	6.4%
2010	12.1%	15.3%	10.5%	11.0%	8.3%	7.2%

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## Conclusion

This research shows that the examined indicators and variables can have significant impacts on the indices, and overall economic status, of a region. This analysis serves as a baseline study to review the conditions that existed in Wisconsin prior to 2008 and after 2008, and to compare Wisconsin with other similar regions around the United States. Further research will continue the analysis of these regions as data for 2011 and 2012 become available. As the new data is factored into the

index, more regions will be added in order to eliminate the possibility of fixed effects that may be unique to the various regions. However, even with a limited level of data, some conclusions based on current observations can be made. The Wisconsin region features a stable economy that can experience economic growth with a focus on job creation and new hires. These two areas will ultimately lead to a change in the index and a positive view of the current economy.