

## RESEARCH BRIEF

# The Aggregate Implications of Regional Business Cycles

Based, on BFI Working Paper No. 2019-04, "[The Aggregate Implications of Regional Business Cycles](#)," by Martin Beraja, assistant professor, MIT; Erik Hurst, professor, UChicago Booth School of Business; and Juan Ospina, researcher at the Bank of the Republic in Columbia

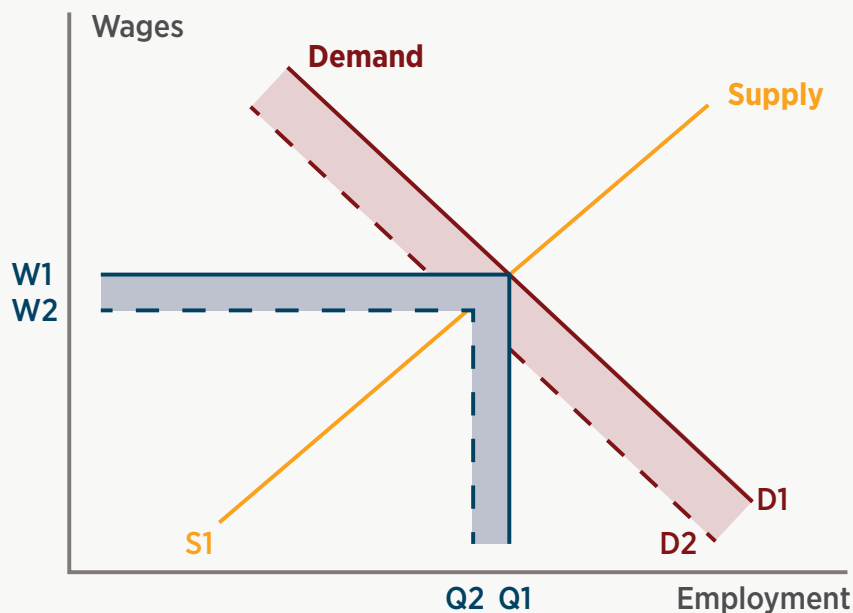
### KEY TAKEAWAYS

- ✓ Employment fell during the Great Recession, but wages held steady—at the aggregate level
- ✓ Regionally, declines in employment were met with large corresponding wage drops
- ✓ Existing models fail to explain this phenomenon
- ✓ This new research sheds light on how aggregate data can mask variation—and explanatory power—at the regional level

The Great Recession of 2007-09 was the worst US economic downturn since the Great Depression, with the unemployment rate peaking at 10 percent and the broader measure of unemployment that includes discouraged workers and those working part-time for economic reasons (known as U6), at 17.1 percent. However, those are aggregate numbers, and many regions of the country fared much worse while others experienced a relatively mild decline.

In other words, regional economies experience business cycles that are related to but, in some ways, are distinct from the national economy. Also, while the US economy is obviously a collection of those regional economies, it matters how those regional economies are aggregated, according to "[The Aggregate Implications of Regional Business Cycles](#)," by Martin Beraja, assistant professor at MIT, Erik Hurst, professor at UChicago Booth School of Business, and Juan Ospina, PhD candidate at UChicago. Better understanding of the relationship among regional economies, the authors argue, and better aggregation methodologies, have important implications for our understanding of fluctuations in the national economy.

Figure 1



Their insights are based on a methodological approach that incorporates regional variation into aggregate models that can also address such questions as how aggregate shocks, like a downturn in housing prices, play out at a regional level and how those various regional experiences roll up the aggregate economy. For economists, these technical advances could improve the performance of macro models; for policymakers, such technical improvements could better inform policy options.

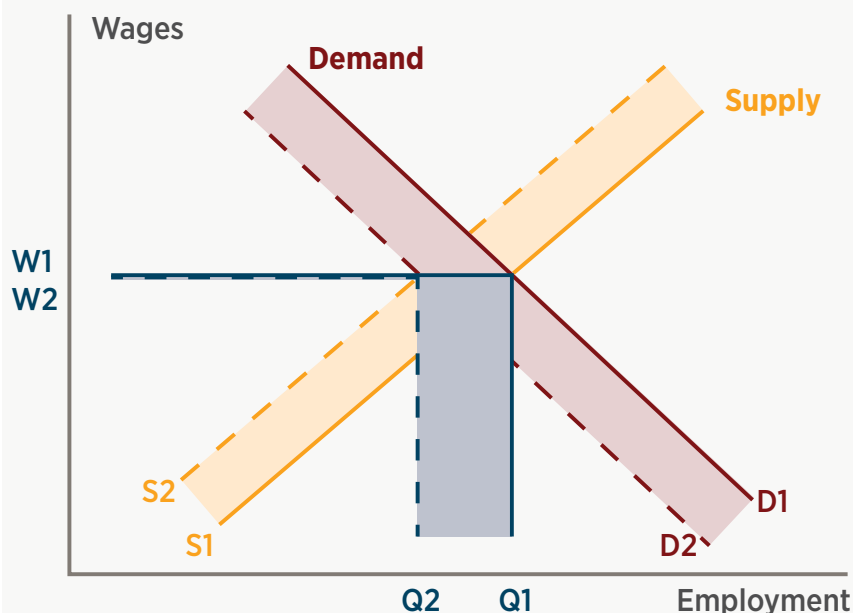
### Resolving regional and aggregate puzzles

There are a number of challenging questions about the Great Recession that, depending on the answer, lead to different policy solutions. For example, what caused the large drop in employment? Why did housing prices collapse at such varying rates across the country? Why didn't aggregate wages fall along with labor demand or, as the ensuing recovery progressed, why didn't they rise along with an uptick in labor demand, even while wage variation occurred across regions? In other words, why were aggregate wages so "sticky?"

The phenomenon of sticky wages had vexed economists before the Great Recession, but the persistence of sticky wages in the wake of the downturn challenged those responsible for setting policies to raise incomes and stimulate the economy.

To answer such questions, researchers have used aggregate data alone or aggregate data combined with household/firm-level data to model business cycles. Other methods involve measuring the difference, for example, in how much house prices or wages fell across districts, and then extrapolating to determine aggregate levels. As the authors note, the first approach ignores valuable information in regional data, and the second misses elements that are important at an aggregate level but not at a regional level.

Figure 2



This paper combines these two methods, using regional and aggregate data to update existing models and allowing researchers to identify key structural parameters that, under certain assumptions, are common between regional and aggregate economies. These new models deliver better explanatory power than existing methodologies. For example, existing models offer no explanation for why aggregate wages did not move much during the Great Recession while, at the same time, there was a strong correlation between wage and employment movement at the regional level.

Regional economies experience business cycles that are related to but, in some ways, are distinct from the national economy.

How can we explain the phenomenon of sticky wages in the face of declining labor demand? As Figure 1 illustrates, a decline in labor demand would normally drive down wages along with employment. If employers are demanding fewer workers, and if the supply of workers remains the same, then employers could expect to offer lower wages to meet their labor needs. However, two shocks occurred during the Great Recession: not only a decline in labor demand but also a drop in labor supply. Figure 2 shows how a decline in labor demand, coupled with a drop in supply, could result in less employment while wages remain relatively steady, or sticky. Given the flexibility in wages they estimate during the Great Recession by exploiting cross-region variation, the authors find that aggregate labor supply shocks are needed to explain the slow recovery in employment as well as the seeming stickiness of aggregate wages in the face of declines in aggregate employment.

## Conclusion

The details of the methodological contributions of this paper are described in the full paper, but the effect of these technical evolutions may also impact how policymakers make decisions about economic policy. As the example of sticky wages described above reveals, a better understanding of the relationship between economic phenomena at the regional vis a vis the aggregate level has important implications. Understanding regional dynamics and how to best incorporate regional variation into aggregate models can yield better results and, in the end, better policy.

## CLOSING TAKEAWAY

Understanding regional dynamics and how to best incorporate regional variation into aggregate models can yield better results and, in the end, better policy.

### READ THE WORKING PAPER

NO. 2019-04 · JANUARY 2019

#### **The Aggregate Implications of Regional Business Cycles**

[bfi.uchicago.edu/Hurst-WP-201904](http://bfi.uchicago.edu/Hurst-WP-201904)

### MORE ABOUT



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