



HETEROGENOUS SPACE

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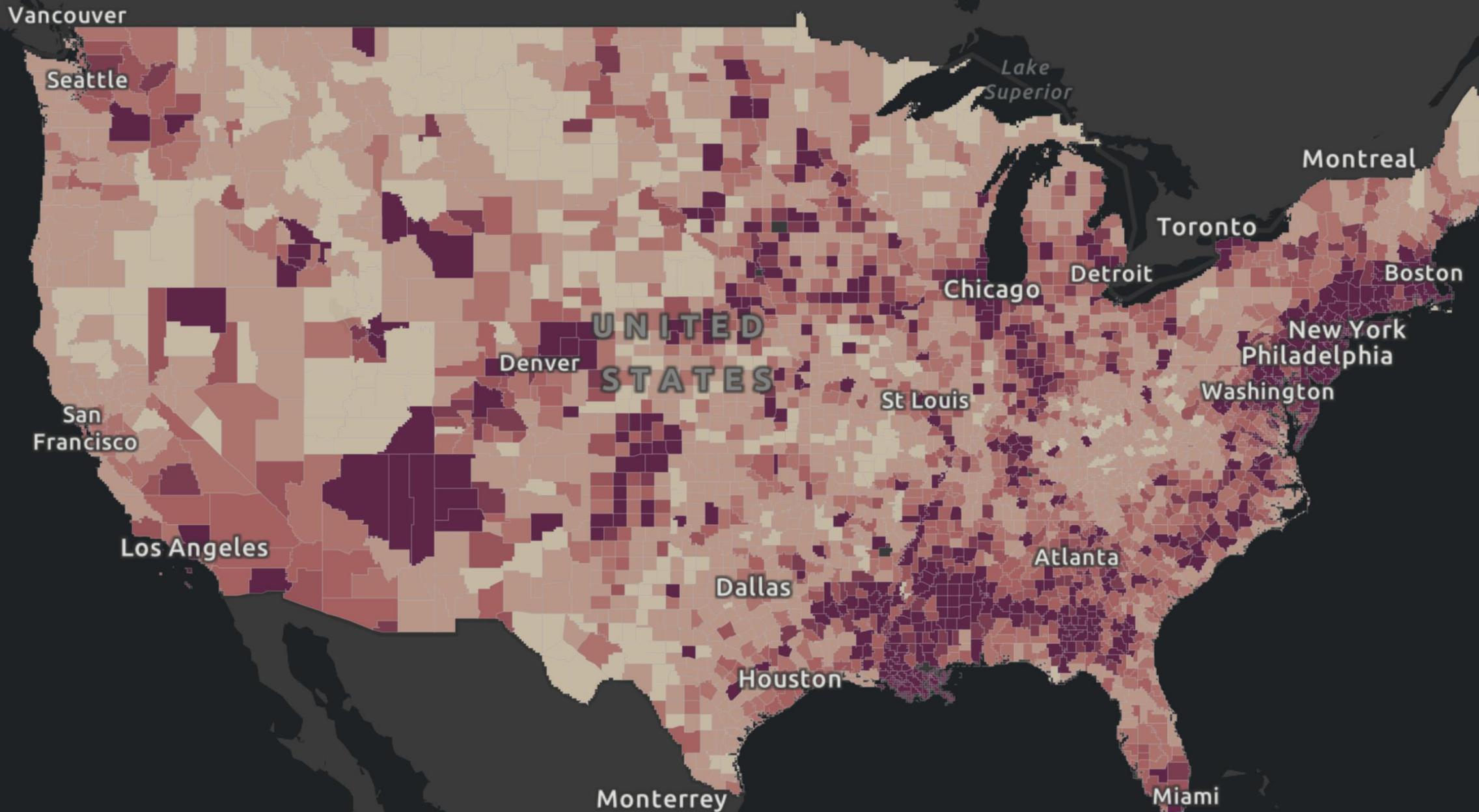
ASYMMETRIC INFORMATION

- Regional scientists very aware of challenges/new models & theory at the macro level but
- Macro economists are unaware of what goes on at the regional level
- Vines and Wills (2018) assembled collection of articles in *Oxford Review of Economic Policy* in connection with the Rebuilding Macroeconomic Theory Project a response to the failure of macro models to forecast and explain the Great Recession 2008-2012.
- Identified four main changes to the core model:
 - to emphasize financial frictions,
 - to place a limit on the operation of rational expectations,
 - to include heterogeneous agents, and
 - to devise more appropriate microfoundations.

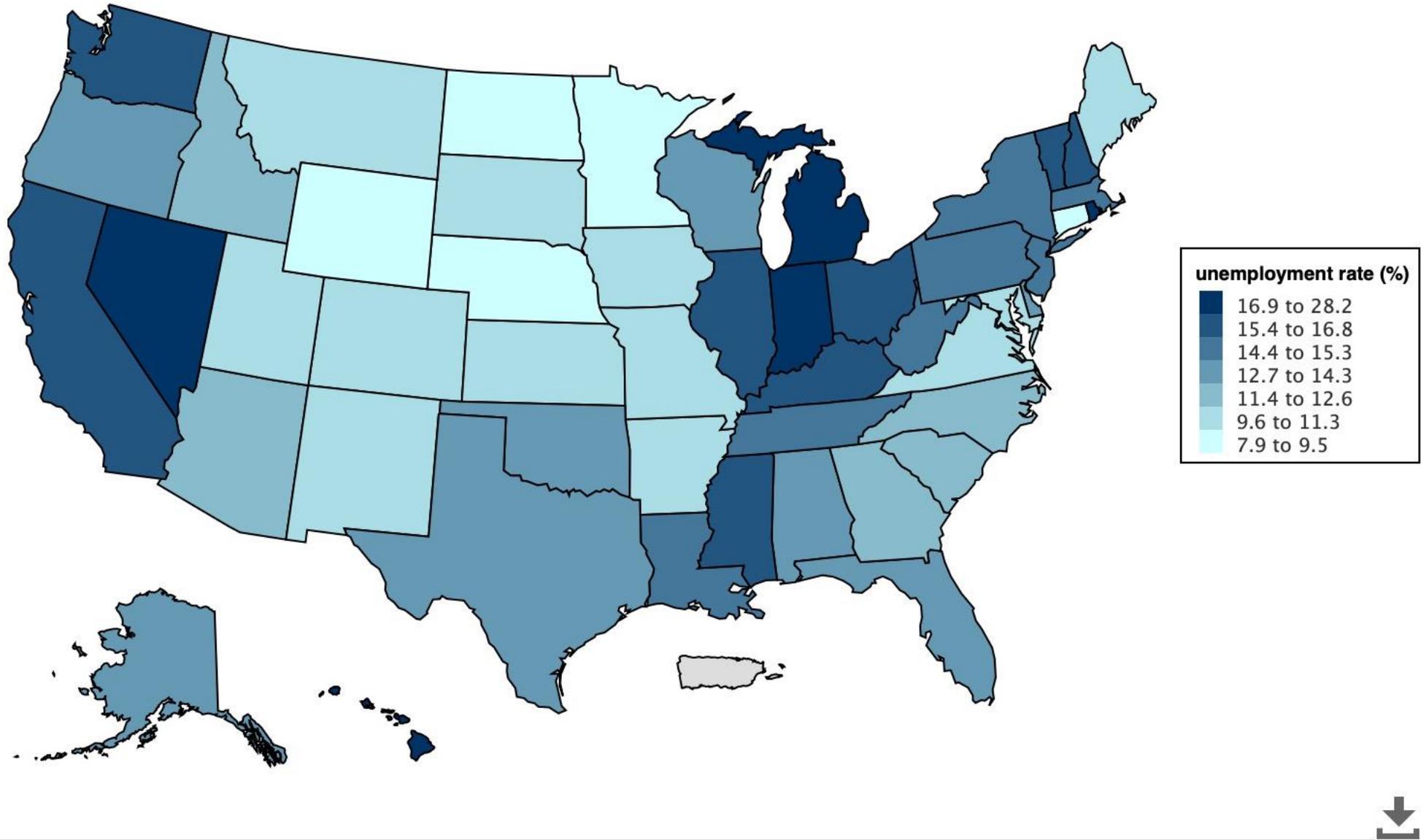
ASYMMETRIC INFORMATION

- What is missing from the list?
- Addressing spatial heterogeneity – **the microfoundations of the macro economy**
- Two recent examples show spatial distribution of
 - Coronavirus infections by county in the US
 - State unemployment rates in the US

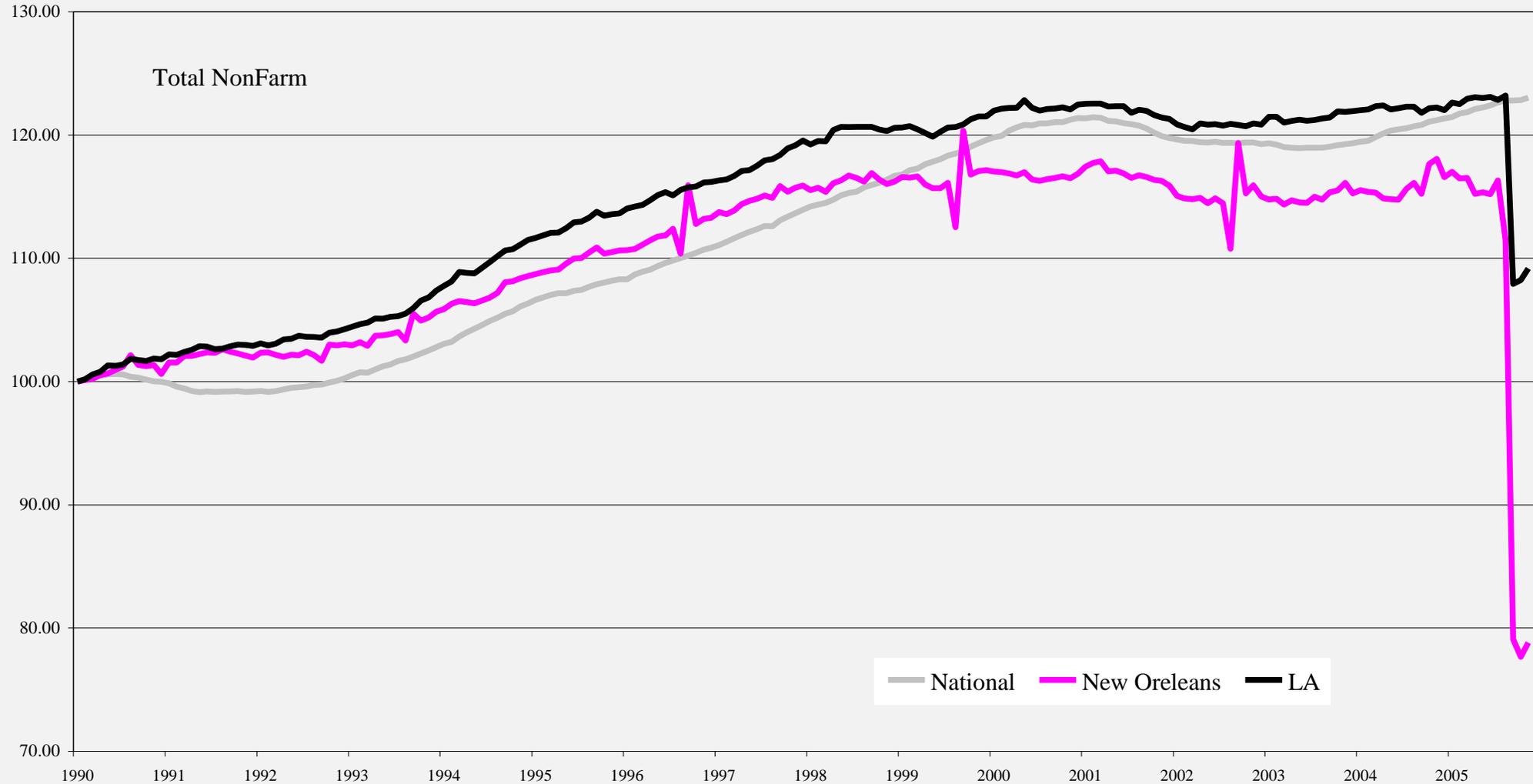
COVID-19 Confirmed case by County, May 25, 2020



Unemployment rates by state, seasonally adjusted, April 2020



EMPLOYMENT INDEX FOR US, LOUISIANA, NEW ORLEANS 1990-2006 1990=100



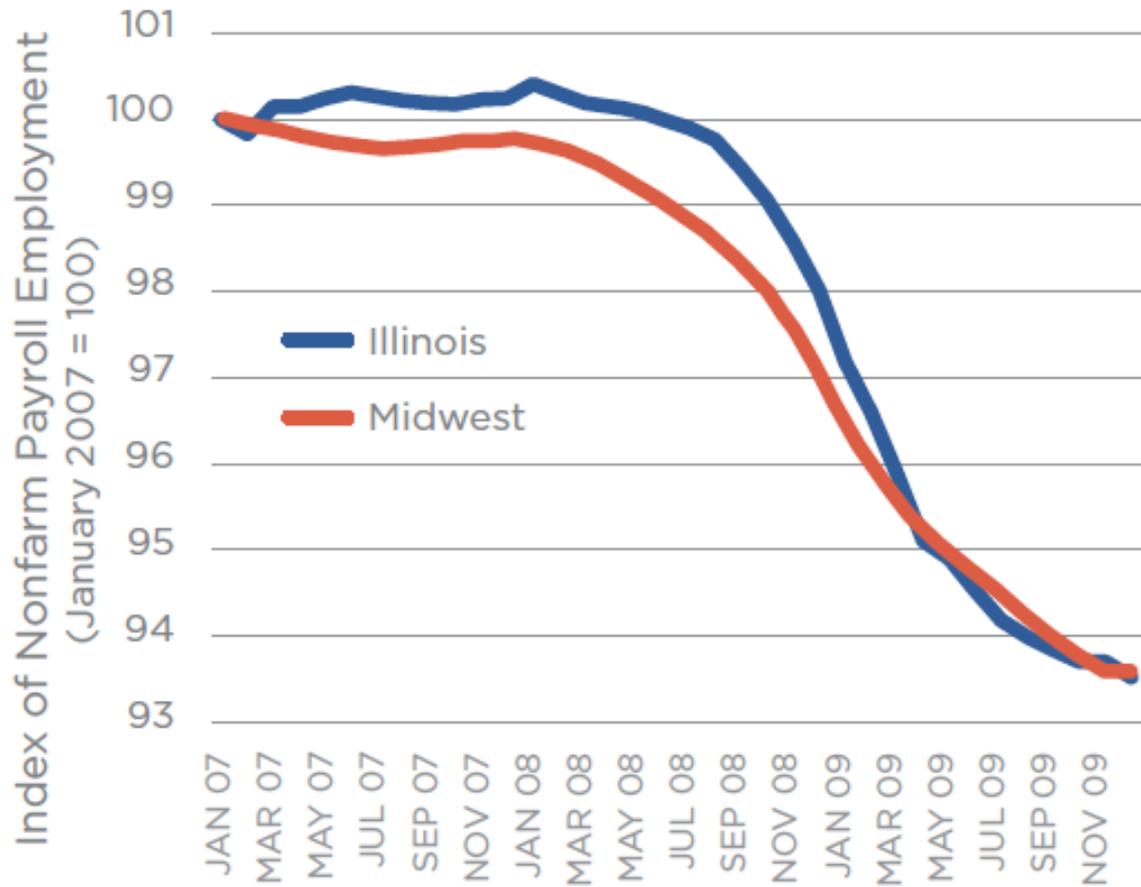
GENERAL REMARKS

- The loss of over 30 million jobs in two months is unprecedented in US Post Second World War economic history
- The loss of jobs wipes out a decade of employment gains since the last recession
- In April, the unemployment rates (seasonally adjusted) were
 - US **14.7%** (change since March 10.3 percentage points) January 2020 **3.6%**
 - IL **16.4%** (change since March 12.2 percentage points) January 2020 **3.5%**
 - Chicago **15.9%** (change since March 10.9 percentage points) January 2020 **3.2%**
- Significant changes in the labor force participation rate* (decline from 65.2 to 63.2 March to April) and employment participation rate** (decline from 61.9 to 53.1)
- **Decline so dramatic, our employment forecasting models cannot make 12-month ahead forecasts**
- Illinois now has only 30,400 more jobs than in 1990.

*share of persons >15 years old who have jobs or who are actively looking for jobs

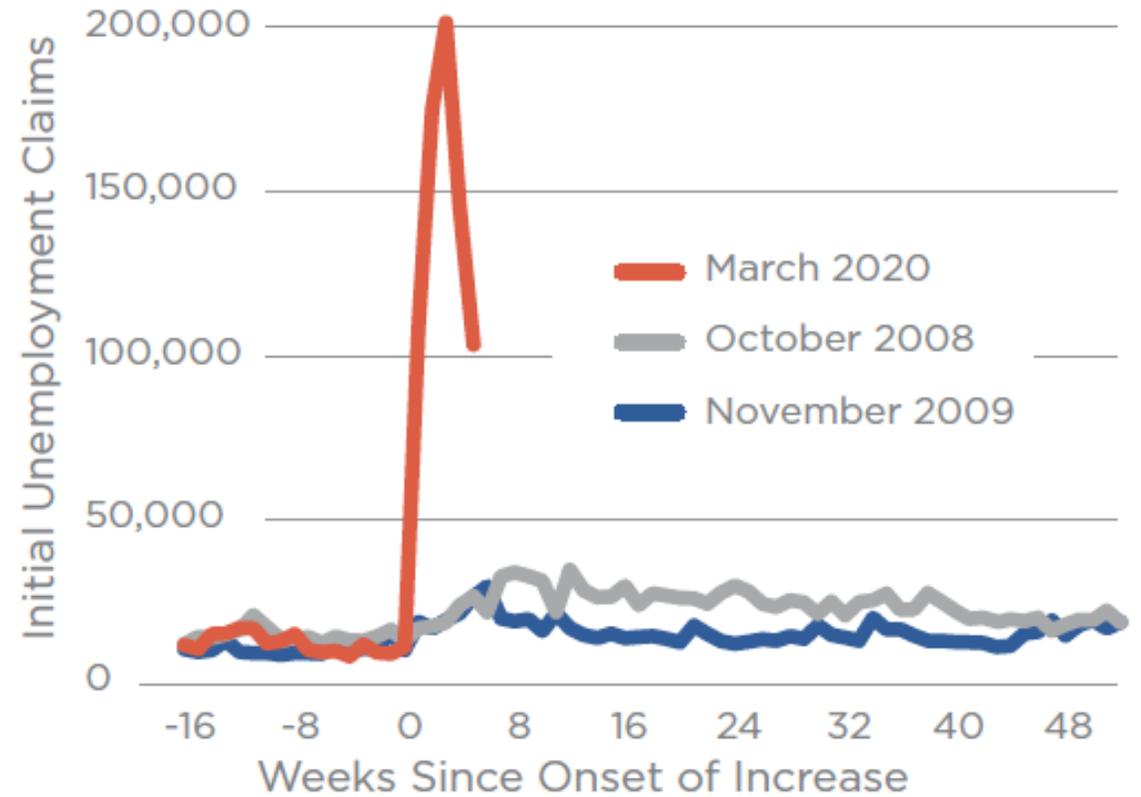
**share of persons >15 years old who have jobs

Figure 1: Index of employment decline during the Great Recession



Source: U.S. Bureau of Labor Statistics.

Figure 2: Initial unemployment claims (Illinois)

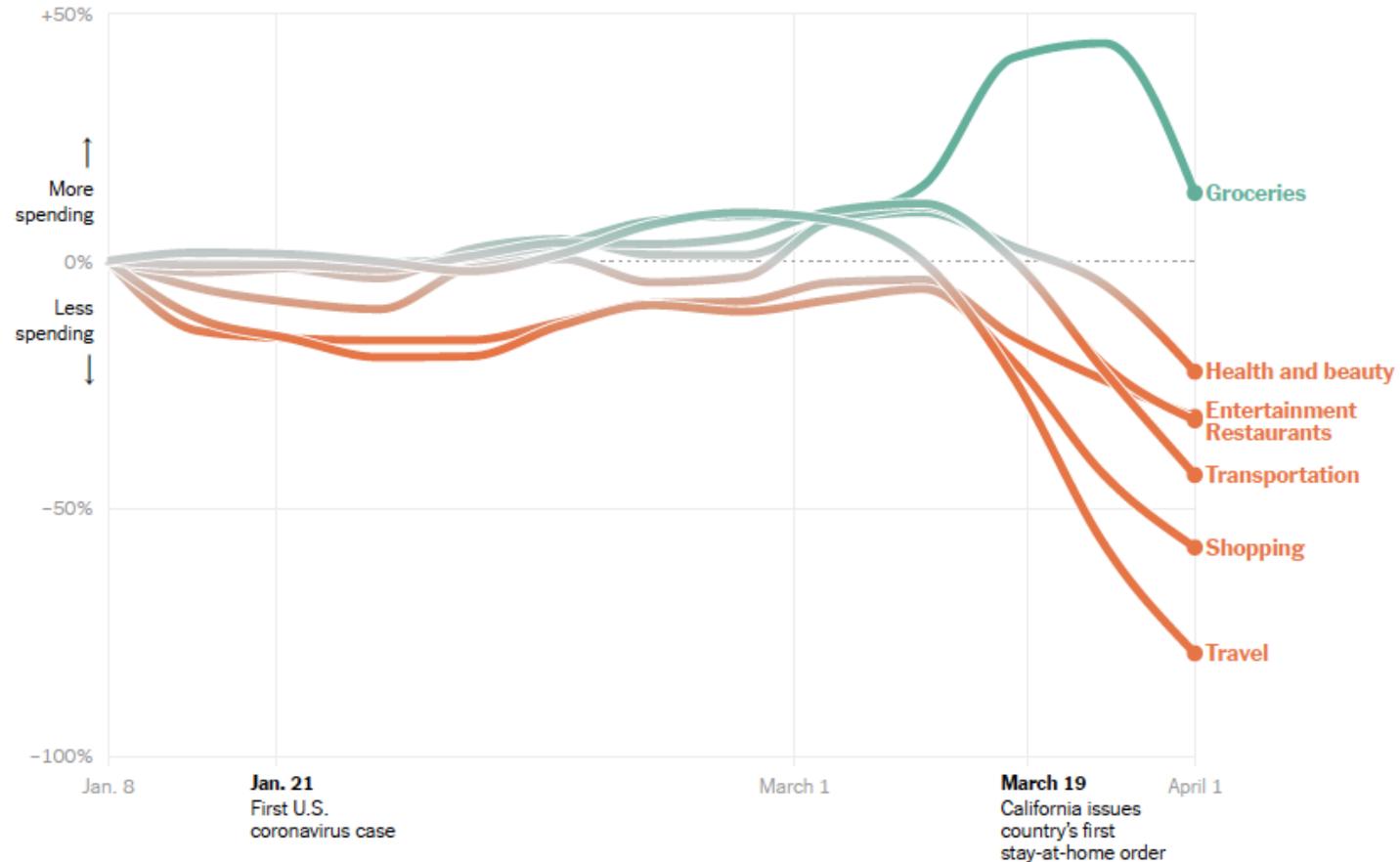


Source: U.S. Department of Labor. Unemployment Insurance Weekly Claims Data. Retrieved May 10, 2020 from <https://oui.doleta.gov/unemploy/claims.asp>.

How the Virus Transformed the Way Americans Spend Their Money

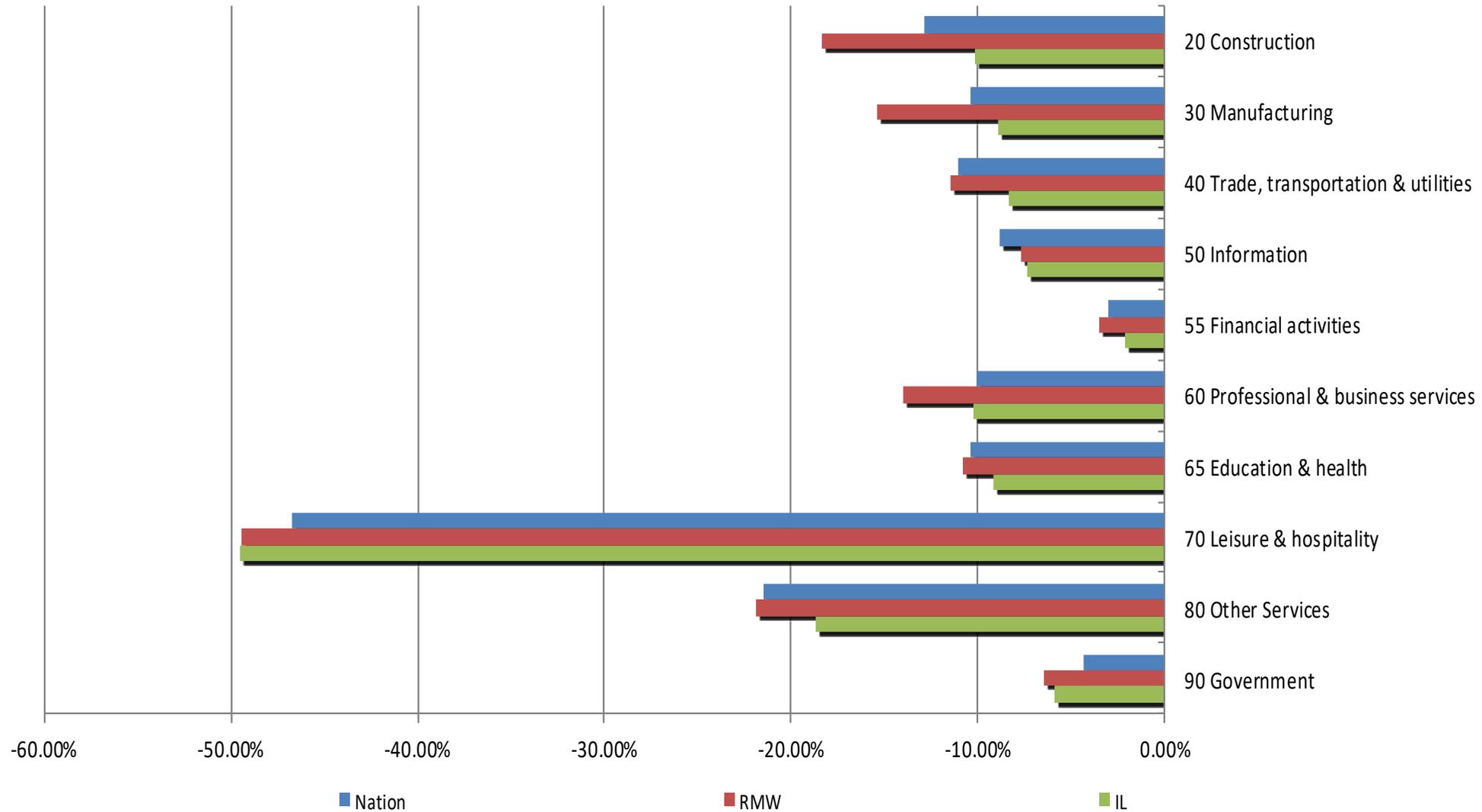
By Lauren Leatherby and David Gelles April 11, 2020

Change in credit and debit card spending



The chart shows the percentage change in spending from the beginning of the year. Each line is an average of the previous two weeks, which smooths out weekly anomalies. | Source: Earnest Research

Total Non-Farm Employment growth rate by Sector, Mar 2020 – Apr 2020





**May
2020
Negative**

	Mar 2020 – Apr 2020		Last 12 months		Apr 2020
	Growth Rate %	Number of Jobs	Growth Rate %	Number of Jobs	Shadow U.R.*
Total non-farm employment					
Nation	-13.55	-20,537,000	-12.92	-19,447,000	22.96
RMW	-15.38	-3,156,400	-15.92	-3,289,600	23.81
Illinois	-12.58	-762,200	-13.44	-822,800	24.77

ASSUMPTIONS

Box 1: Assumptions used in the econometric input-output model

- The impacts will be realized over a one-year period that began April 2020.
- 550,000 Illinois jobs will be lost over the full year (calculated as just over 4% of total U.S. job losses, using estimates of 15 million jobs lost over the year and the relative Illinois share of national GDP).⁴
- 40% of the direct losses will be concentrated in three sectors identified by Moody's Analytics⁵ and the Brookings Institution⁶ as vulnerable sectors:
 - Trade and Transportation, Professional and Business Services, and Leisure and Hospitality;
 - These sectors account for 16% of the Illinois economy in 2019.
- The remaining 60% of losses will be distributed across all other sectors.

SUMMARY IMPACTS ILLINOIS

Industry	Output (\$m)	Income (\$m)	Employment
Resources	-89	-32	-1,090
Construction	-2,657	-1,283	-26,450
Nondurable Manufacturing	-1,040	-160	-2,320
Durable Manufacturing	-905	-261	-4,110
TCU	-14,046	-4,218	-65,630
Trade	-2,177	-748	-21,620
FIRE	-2,219	-429	-9,370
Services	-52,595	-19,683	-389,620
Government	-379	-1,696	-30,290
Total	-76,110	-28,515	-550,520
Direct Effects	-61,893	-21,851	-400,000
Indirect Effects	-14,217	-6,664	-150,520
Multiplier	1.23	1.30	1.38

Source: Illinois Econometric Input-Output Model, Details at <http://www.real.illinois.edu/products/models.html>.

Notes: TCU is Transportation, Communications and Public Utilities; FIRE is Finance, Insurance and Real Estate.

HOW DO WE BEST MEASURE, EVALUATE AND INTERPRET SPATIAL SPILLOVERS?

- Regional economists/regional scientists have not made a strong case for the need to address macroeconomic spatial heterogeneity, showing the difference in impacts/forecasts from a macro model versus one built as a macro aggregation of multi-regional models
- It is not enough to acknowledge that there are likely to be spillovers/spillins from development/growth/decline in one region on other regions
- **How should these be modeled and incorporated into multi-regional macro models?**
- Remaining slides (no time to show) provide examples