

The Synchronization of U.S. Regional Cycles: Evidence from Retail Sales, 1919-1962

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Introduction

- ▶ Importance of synchronized business cycles for a well-functioning currency union
- ▶ Earlier literature
 - ▶ Compare degrees of synchronization between regions of the US and between countries of the Eurozone
 - ▶ Role of trade and financial integration as possible drivers of synchronization
- ▶ Previous literature focus on postwar data



Outline

Introduction

Data

Synchronization index

Drivers

Conclusion



Retail Sales by Federal Reserve Districts

- ▶ Soon after beginning operations, the Federal Reserve established a nationwide network for collecting information about the economy
- ▶ In 1919, the Fed began tabulating data about Retail Sales, which it viewed as a fundamental measure of consumption
- ▶ Park and Richardson (2010) were the first to use Retail Sales by Federal Reserve Districts to proxy regional economic activity during interwar
- ▶ We extend their data collection efforts and assemble an unbalanced monthly panel dataset from January 1919 to April 1962

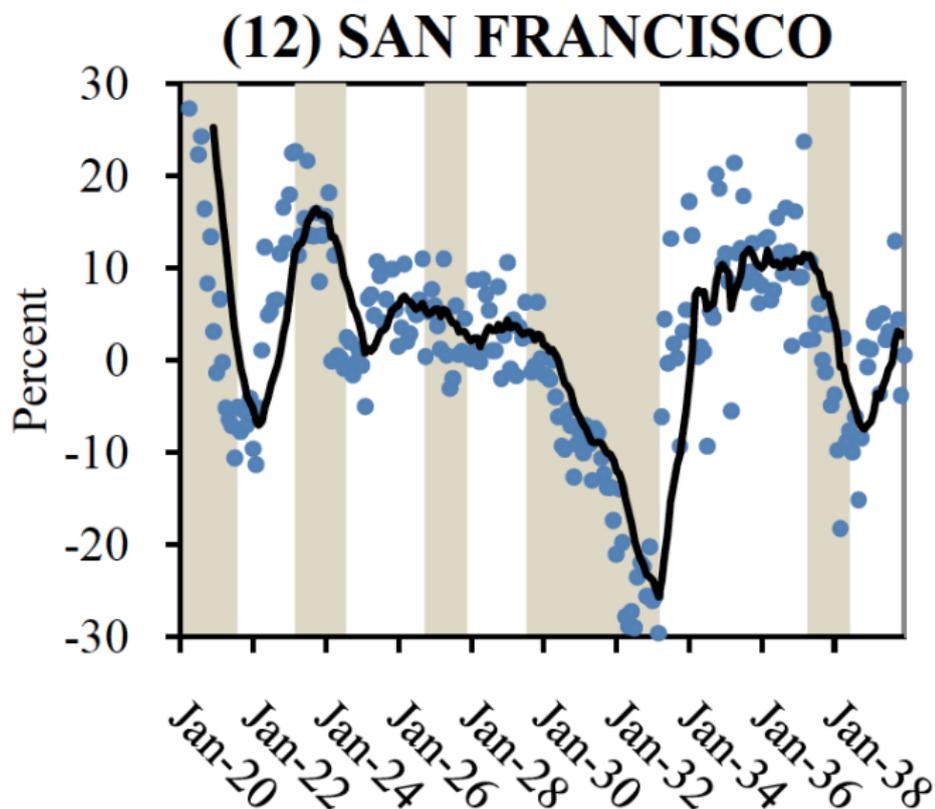
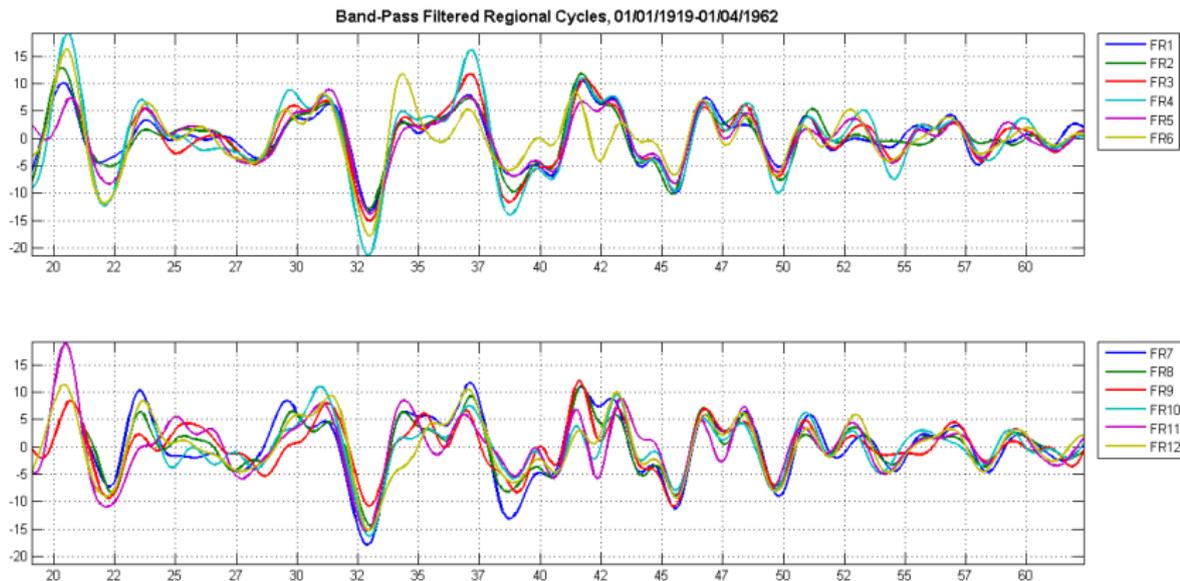


Figure: Retail Sales growth, Source: Park and Richardson (2010)



Isolate business-cycle components





Synchronization index

We follow Cerqueira (2014) to construct a synchronization index that corrects for changes in volatility

1. Find breaks in volatility of our series for the US

$$\frac{Y_{Cyclical,t}^{US}}{Y_{Trend,t}^{US}}$$

2. Normalize each regional series by estimated volatility for the respective segment d

$$y_{i,t}^* = \left(\frac{Y_{Cyclical,t}^i}{Y_{Trend,t}^i} \right) / \sigma^d$$

3. Calculate synchronization index on corrected series

$$Synch_{i,US,t} = - |y_{i,t}^* - y_{US,t}^*|$$



Figure: Synchronization index 1924-1962

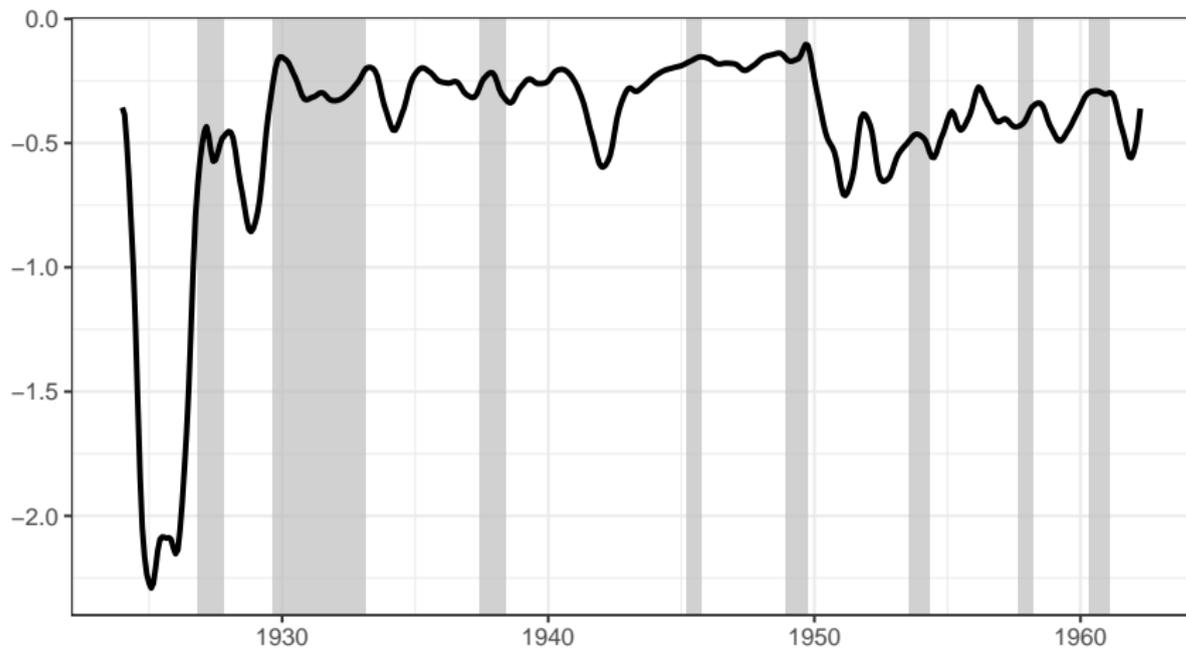
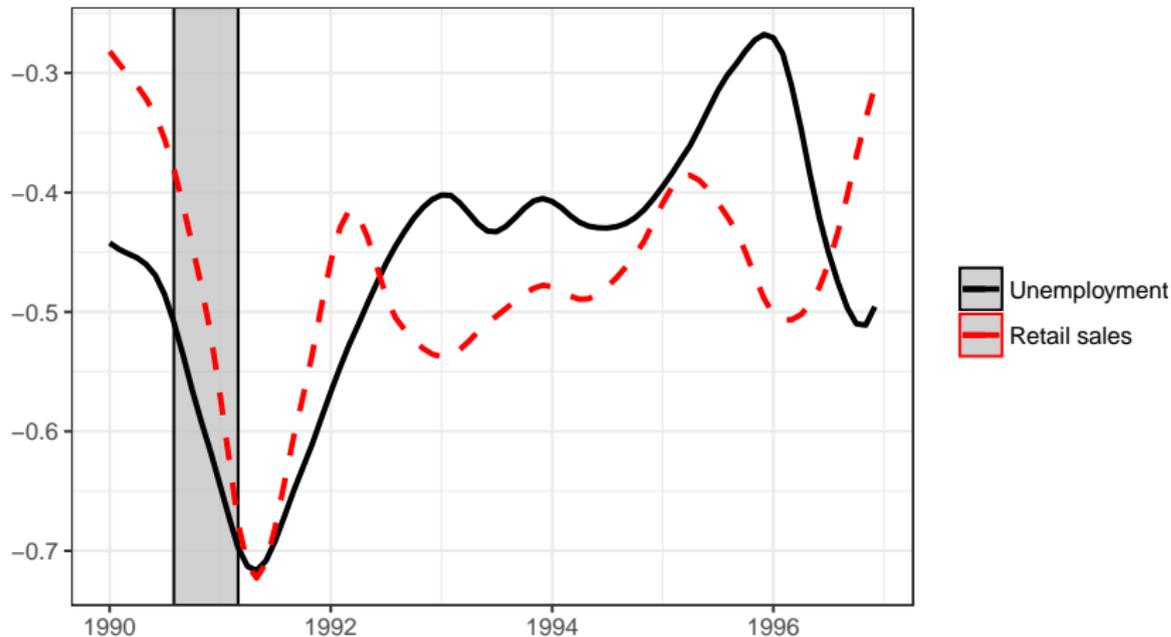




Figure: Synchronization index for Retail Sales vs. Unemployment Rates





Possible drivers

- ▶ Change in sectoral structure or types of shocks
- ▶ Better adjustment mechanisms (wage/price flexibility, migration)
- ▶ Income transfers from regions that are doing well to regions that are not



Regional Treasury Transfers

- ▶ Treasury expenditures and receipts in a Federal Reserve District are reflected in changes in the Treasury's General Account on the balance sheet of the Federal Reserve Bank in that district
- ▶ Yearly data from Bowsheer (1961) for 1945-1959

$$\text{Synch}_{i,US,t} = \alpha \text{Tr}_{i,t} + \gamma \text{sign}(y_{i,t} - y_{US,t}) + \beta [\text{sign}(y_{i,t} - y_{US,t}) \times \text{Tr}_{i,t}] + u_{it}$$

- ▶ We find $\hat{\beta} < 0$ and statistically significant



Conclusion

- ▶ 1930s were a "defining moment" for regional synchronization
- ▶ Countercyclical regional transfers associated with high regional synchronization in postwar period
- ▶ Belke, Domnick, Gros (2016) find for EMU that peripheral countries decreased synchronization with regards to the core and among themselves after 2007