Disentangling Economic Recessions and Depressions

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The paper

- Are depressions/booms intrinsically different from recessions/expansions?
- Properties: duration, amplitude, cumulated movements, and excess cumulated movements
- A four-regimes business cycle model
- Estimation method: nonparametric outlier detection
- Extension: predictive ability of financial and macroeconomic variables?
  - multinomial logit
  - real output growth, inflation, and stock market preserve predictive power
  - term spreads only for recessions
Overview

- Indeed a question of interest: what defines a depression?
- A clever approach
- Depression as a surprise to financial markets?
  - market expectations do not foresee them.
  - does this matter for what causes depressions?
- Paper not just restricted to depressions but interesting results on predictive power of macro/financial variables for recessions & expansions.
Questions

1. Outlier detection by bootstrap
   - an outlier is only defined at a given probability (tail distribution)
   - **Question**: is the 1929 Depression the only depression, or just more severe than in 2007?
   - does it not somewhat implicitly prespecify the number of outliers when setting critical values?
     - 17 cycles, outlier detection with \( p \)-values of 0.2-0.3: 4 detected outlying phases
     - impact of \( k \) (and critical bandwidth) on outlier detection in the mean-trimmed mean (MTM).

   - The empirical method is interesting but
     - It may help to provide some idea about the tail probabilities a normal would give these outliers.
     - comparison with alternative simple techniques?

2. No exceptional periods detected after WWII:
   - break in volatility? // Great moderation
   - can we compare financial markets pre and post WWII? (yield curve expectations...)

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Business Cycles

(d) Real output growth

(a) Term spread
Suggestions for extensions

- In multinomial model, use current state as part of information $I_t$
- Reduce the number of regimes?
  - two or three regimes by disregarding the sign of movements?
  - i.e. focus on $|\Delta y_t|$, like APARCH/EGARCH – maybe only in exceptional periods
- Robustness to the outlier detection method?
  - trimmed mean: GARCH in mean.
  - four regime Markov switching
  - Autometrics (M-estimator) or LASSO for outlier detection?
- NBER dating:
  - quarterly measures only
  - financial variables may require higher frequency
  - alternative measures (HP filter...)

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