Downward Nominal Wage Rigidity in the U.S. during and after the Global Financial Crisis

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Downward Nominal Wage Rigidity

- Important in both micro- and macroeconomics
- Did the severe labor market distress from the GFC reduce DNWR?
  - Cost of DNWR to firm arguably larger
    - When in distress
    - In low-inflation environment
  - Workers have fewer outside options
  - Workers nominal wage cuts are more acceptable when the firm is hurting
  - Previous evidence for U.S. mixed
- Is macroeconomic importance of rigidity mitigated by other factors?

Contributions of this paper

- Nationally representative survey of establishments beginning 1983
- Estimate degree of DNWR over time
- Using several estimators

Types of Data

- Several types of data in literature for U.S.; all have pluses and minuses
- Household Surveys
  - Measurement error
- Employer Surveys
  - Less prone to measurement error
  - Mostly small and unrepresentative samples
- Administrative sources or payroll records
  - Little measurement error
  - Not representative of entire U.S.
  - Earliest begin with 1998

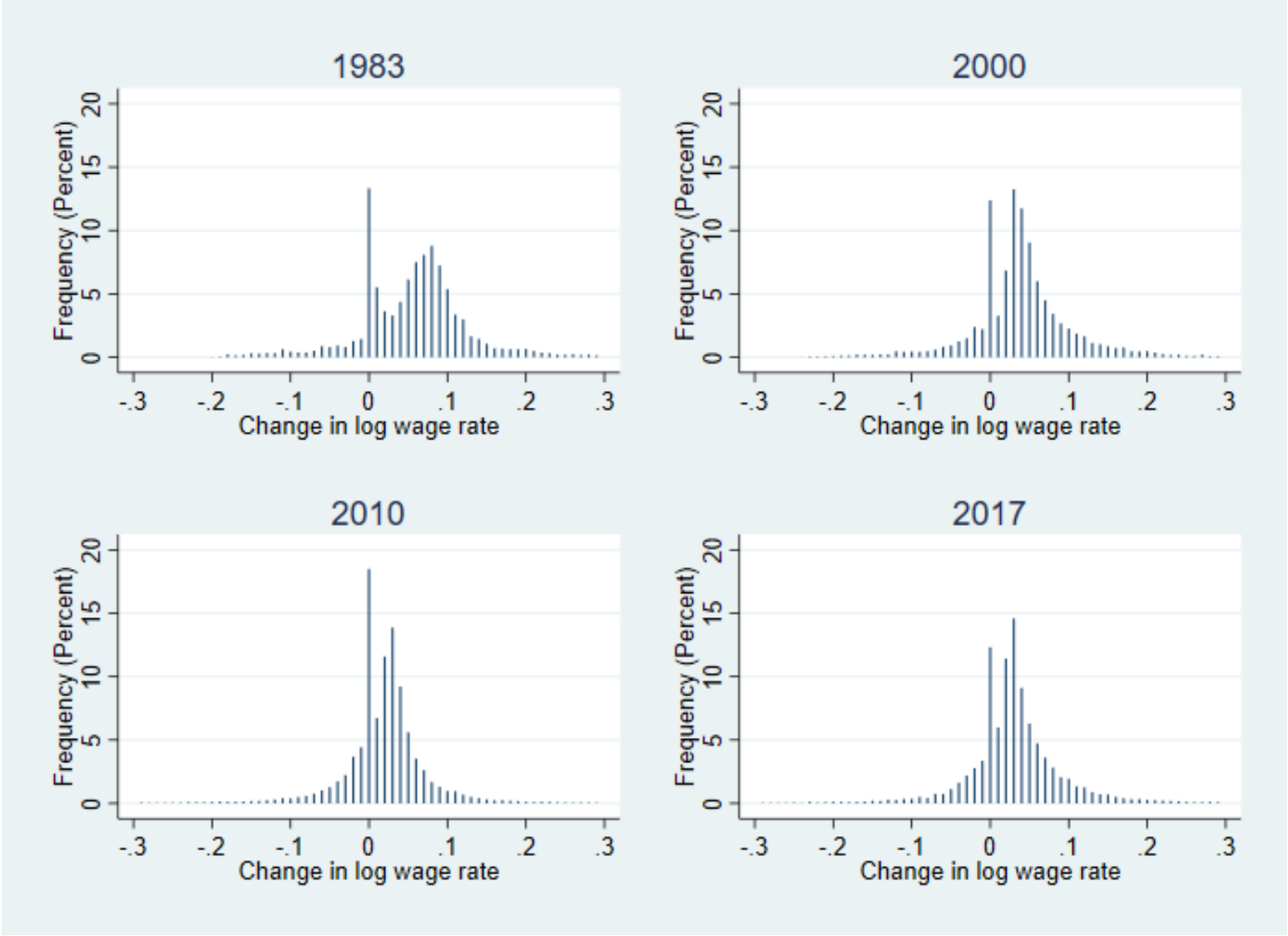
Our Data

- Individual observations underlying the BLS' Employer Cost Index
  - Survey of employers → accuracy
  - Nationally representative
  - Large: Avg 18,000 jobs in 4,000 private establishments per year
  - Wage changes span 1983-2019
  - Panel structure
  - Wages & salaries and benefits separately

Our Data, continued

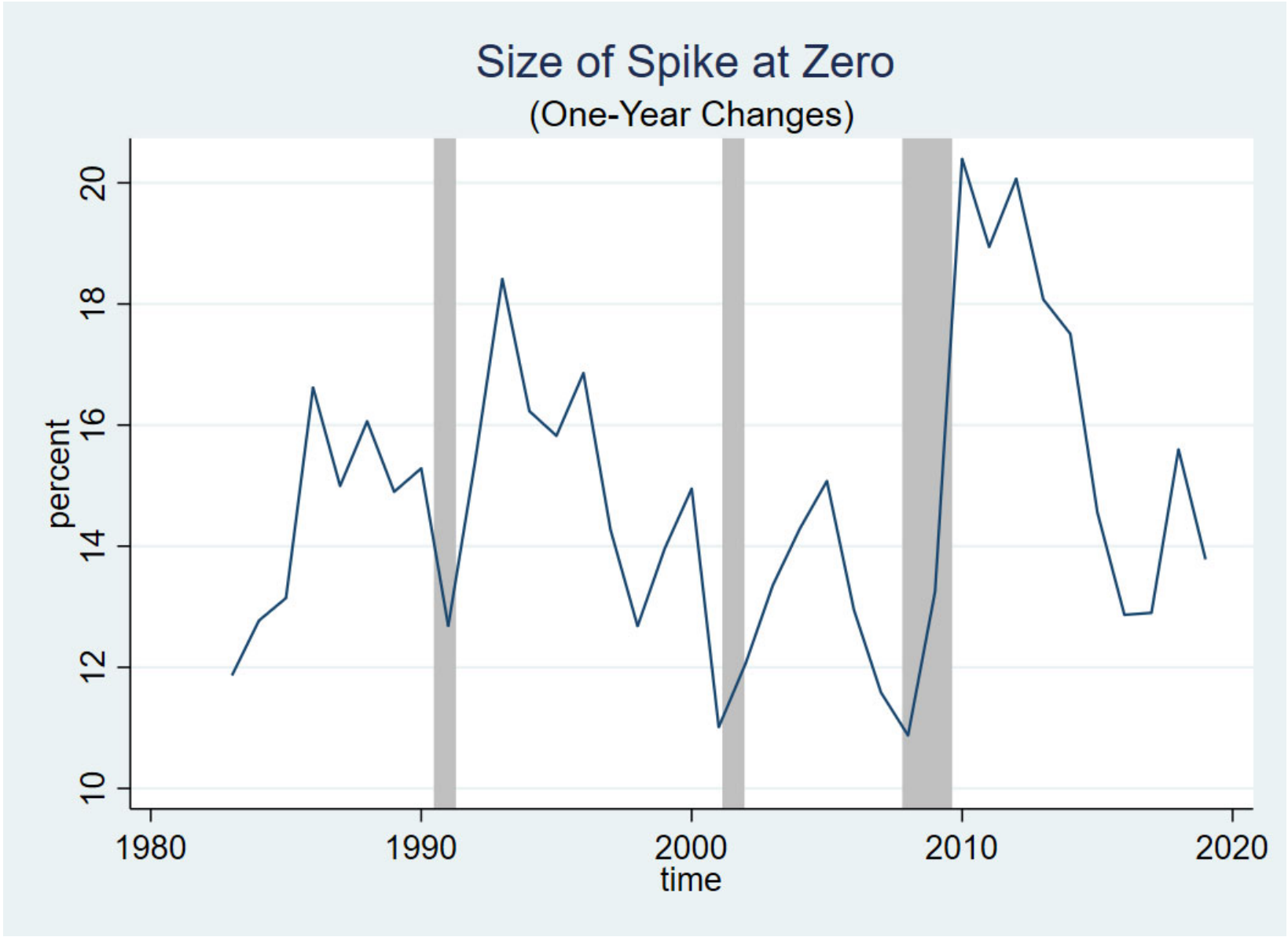
- Unit of observation is a specific *job* in a specific establishment
- Average wage across workers in that job
- Advantages and disadvantages
  - Rigidity at the job level may be relevant for macro implications
  - Rigidity at the worker level more relevant for micro questions
  - Being job averages, may be affected by changes in personnel

(12-month changes)



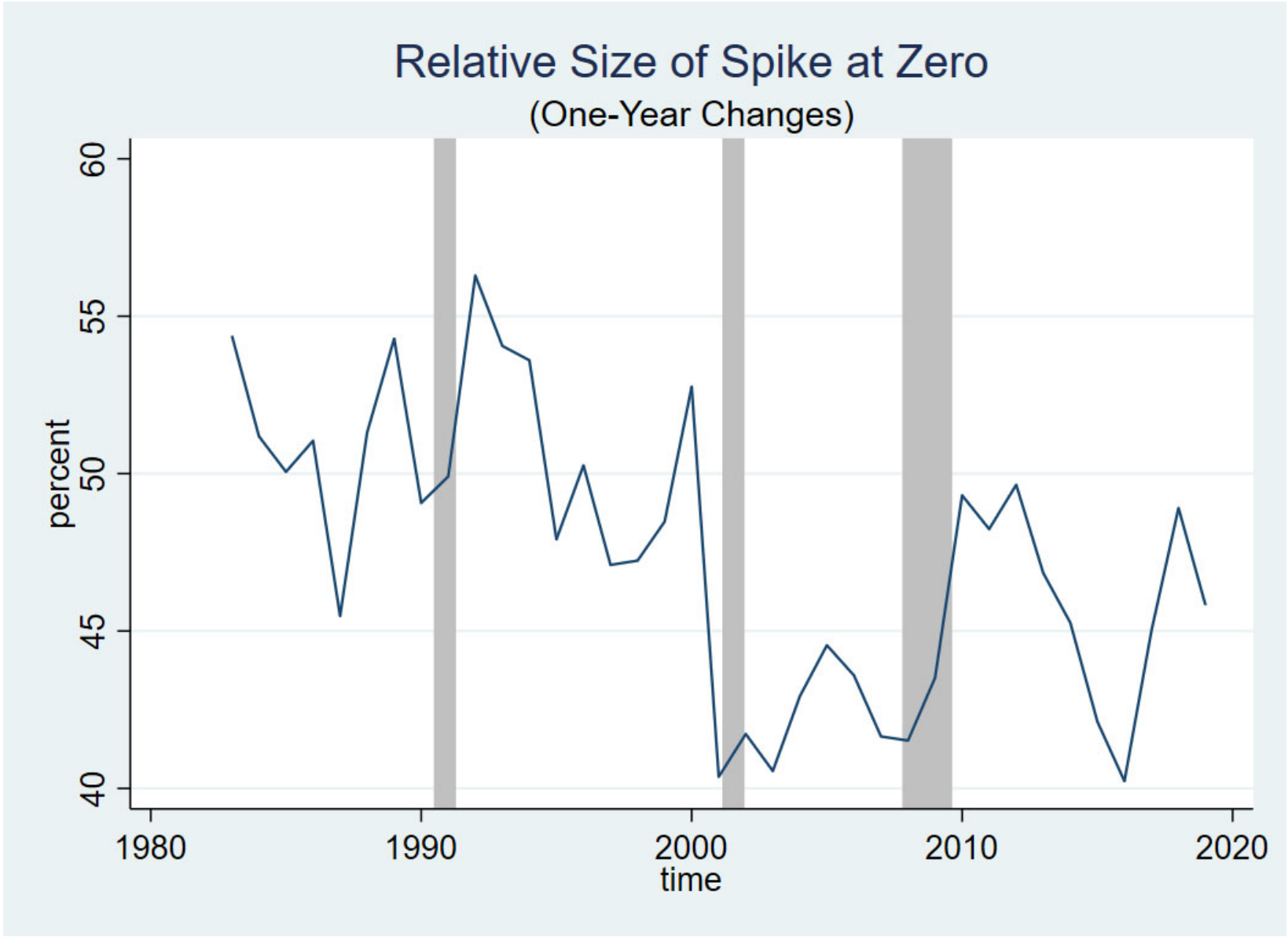
Estimator #1: Size of Spike at Zero

- Used in numerous studies
  - Daly, Hobijn, and Lucking (2012); Daly and Hobijn (2014); Kurmann and McEntarfer (2019); Jardim et al. (2019); Grigsby et al. (2019); Jardim, Solon, and Vigdor (2019)


Size of Spike at Zero
(One-Year Changes)
percent
10
12
14
16
18
20
1980
1990
2000
2010
2020
time

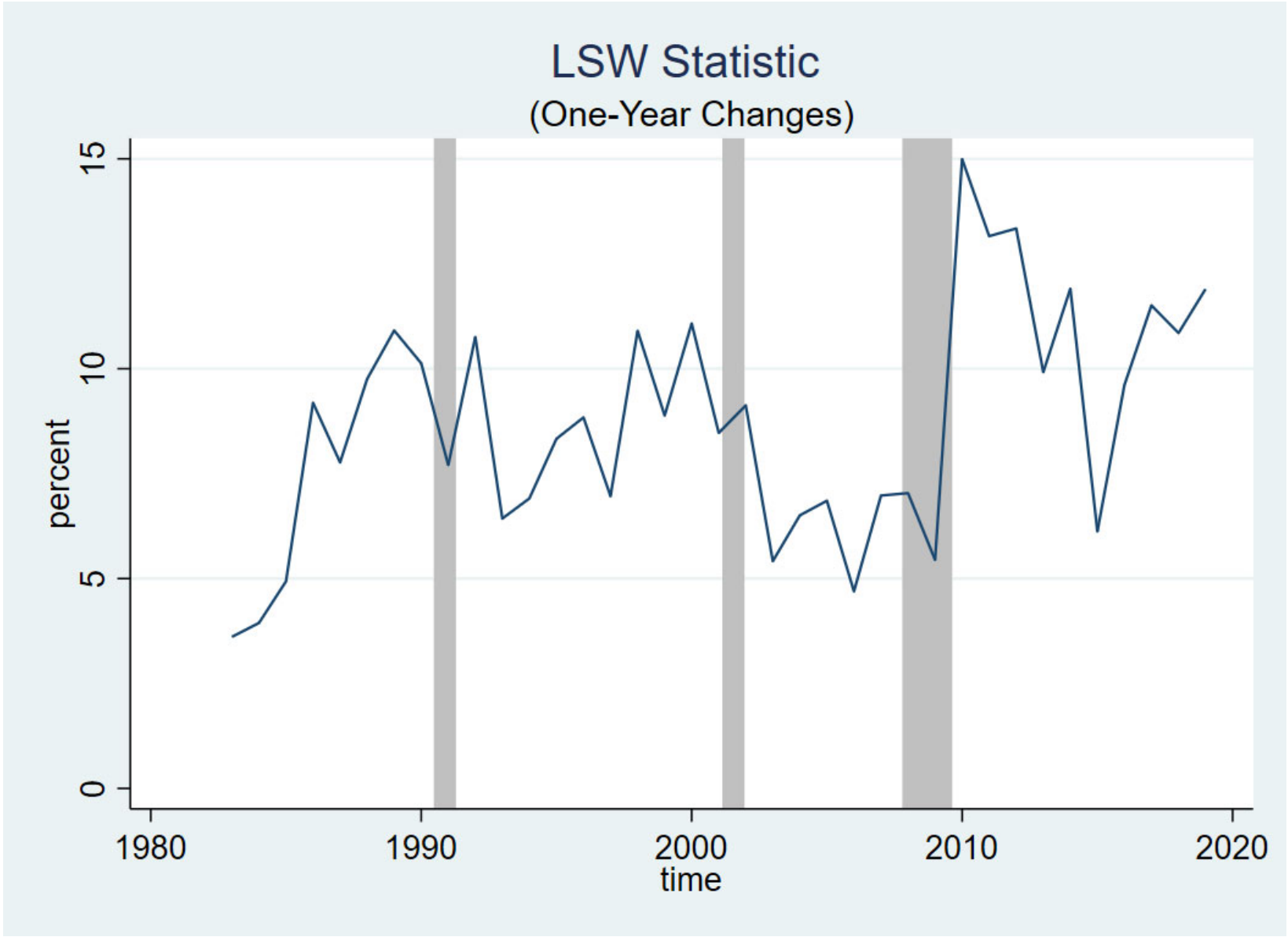
Relative Size of Spike

- Increase during in 2009-10 may reflect only a leftward shift in entire distribution, within a constant rigidity “structure”
- Dickens et al (2007) suggests ratio of zeros to non-positive wage changes


Relative Size of Spike at Zero
(One-Year Changes)
percent
60
55
50
45
40
1980
1990
2000
2010
2020
time

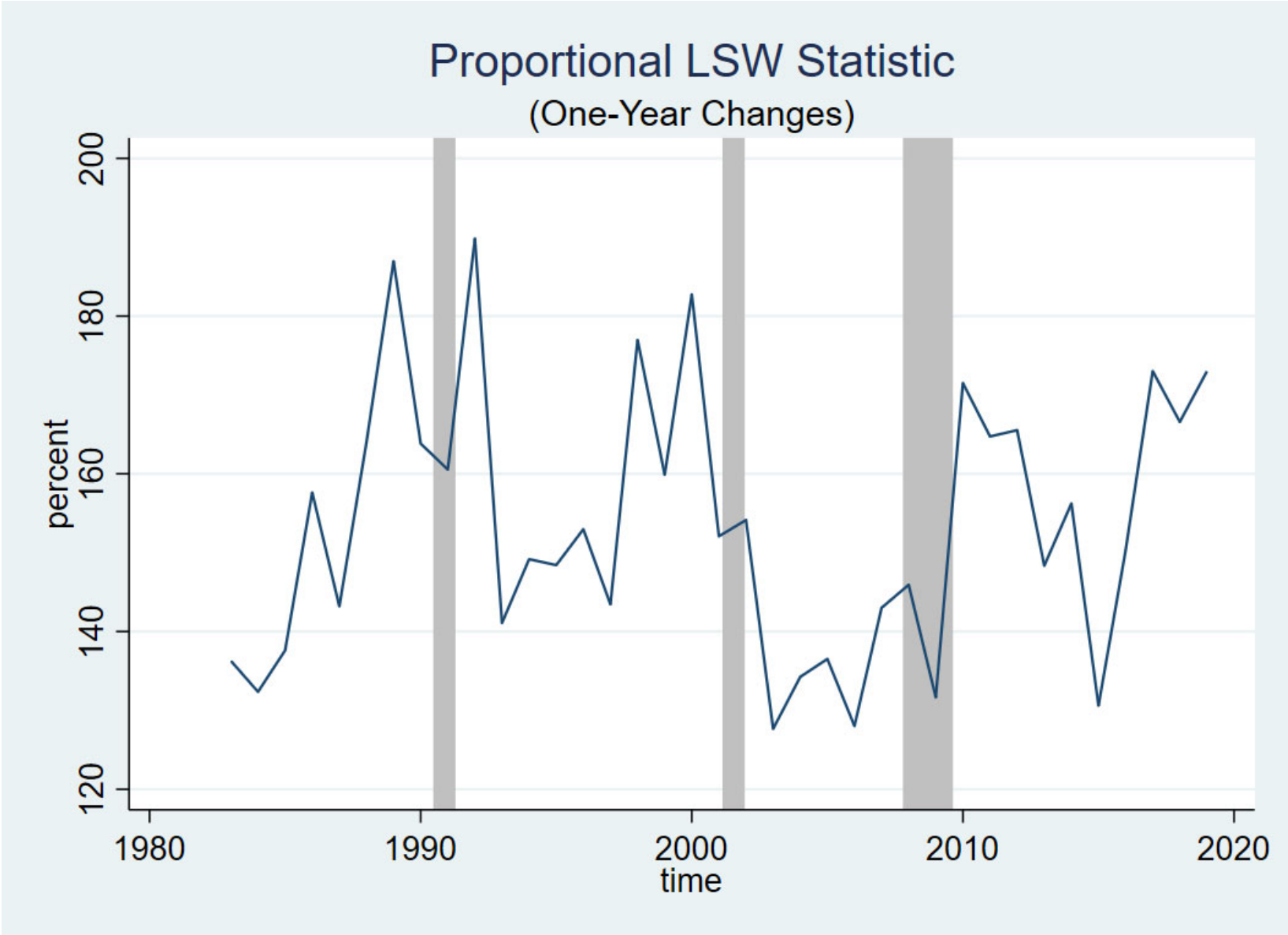
Estimator #2:
Lebow, Stockton, Wascher (1995)

- “LSW statistic” measures an asymmetry between the upper and lower parts of the histogram
- (mass>2*median) – (mass<0)


LSW Statistic
(One-Year Changes)
percent
0
5
10
15
1980
1990
2000
2010
2020
time

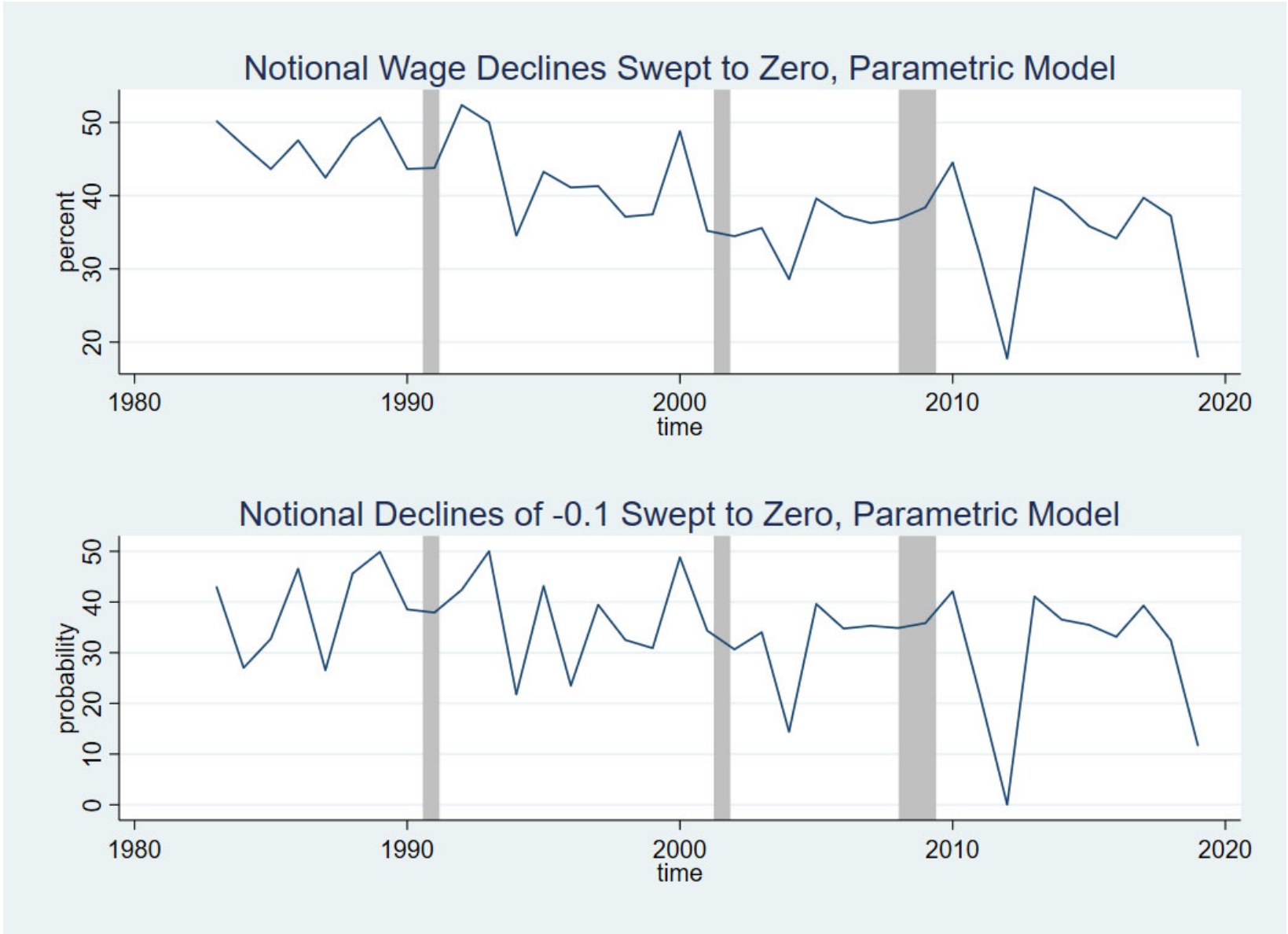
Proportional LSW

- Here, too, increase in 2009-10 may reflect only a leftward shift in entire distribution, within a constant rigidity “structure”
- Alternative is ratio of the LSW statistic to mass>2*median


Proportional LSW Statistic
(One-Year Changes)
percent
120
140
160
180
200
1980
1990
2000
2010
2020
time

Parametric Model

- In spirit of Altonji & Devereaux (2000) and Fehr & Goette (2005)
- Notional log wage changes follow a two-sided symmetric Weibull distribution
- Probability of rigidity is a declining function of distance below zero
- Menu-cost rigidity also allowed
- Parameters of notional distribution and of rigidities vary freely by year
- Calculate proportion of notional wage reductions swept to zero
- Calculate probability of any particular notional reduction being swept to zero by rigidity


Notional Wage Declines Swept to Zero, Parametric Model
percent
20
30
40
50
1980
1990
2000
2010
2020
time
Notional Declines of -0.1 Swept to Zero, Parametric Model
probability
0
10
20
30
40
50
1980
1990
2000
2010
2020
time

Why DNWR may not have Macro Effects?

- Benefits? No. Results similar when we examine total compensation
- Perhaps employers take a multiple-year perspective


1-year changes, 2010
Frequency (Percent)
0
5
10
15
20
-.3
-.2
-.1
0
.1
.2
.3
Change in log wage rate


2-year changes, 2010
Frequency (Percent)
0
5
10
15
20
-.3
-.2
-.1
0
.1
.2
.3
Change in log wage rate

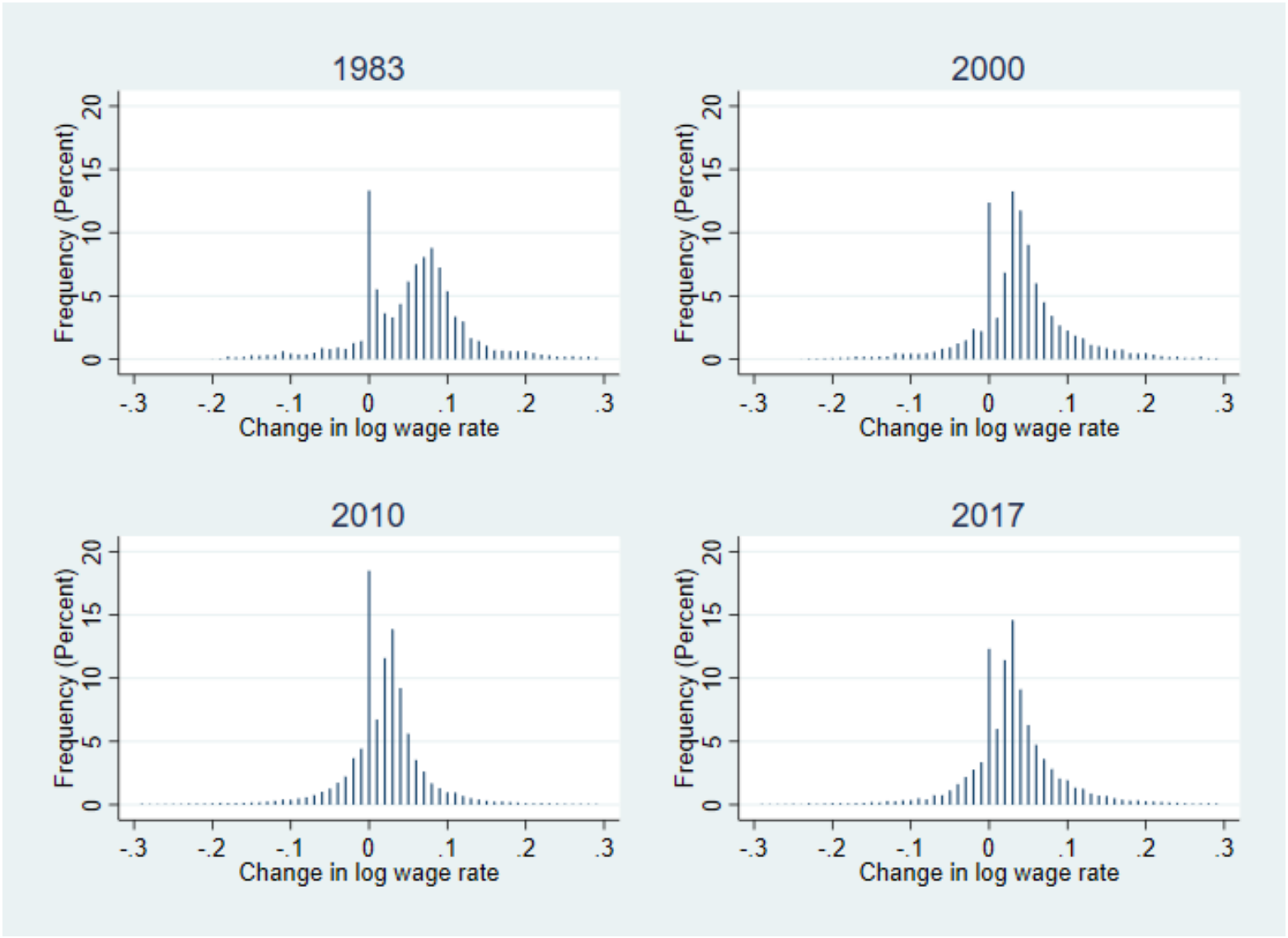

3-year changes, 2010
Frequency (Percent)
0
5
10
15
20
-.3
-.2
-.1
0
.1
.2
.3
Change in log wage rate

Constant-employment sample

- Likelihood of turnover increases with length of period
- Sample of jobs with no change in number of employees
- Data begin with 2006
- Similar decrease in apparent rigidity at 2- and 3-year horizons

Summary

- There is significant DNWR in the U.S.
- No evidence that great distress of 2008-9 recession reduced rigidity
- Rigidity much smaller at two- and three-year horizons


1983
2000
2010
2017
Frequency (Percent)
0
5
10
15
20
-.3
-.2
-.1
0
.1
.2
.3
Change in log wage rate