

# Recent Differences in Survey and Administrative Measures of Payroll Job Growth

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*Any opinions expressed are those of the authors and do not constitute policy of the Bureau of Labor Statistics*



# BLS measures of payroll jobs

## Current Employment Statistics (CES)

- Monthly survey of 629,000 establishments
- Usually released first Friday after reference month
- Sampled from and benchmarked to QCEW
- Change in matched establishments

## Quarterly Census of Employment and Wages (QCEW)

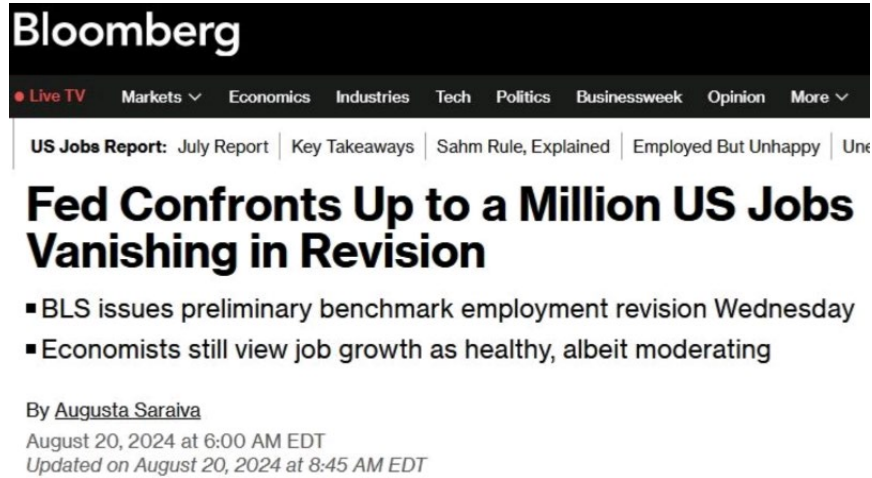
- Administrative count from Unemployment Insurance tax filings
- ~12 million establishments
- Initial release ~5 months after end of quarter
- State-owned data – 51+ different Unemployment Insurance systems
- Many uses beyond payroll employment

# CES is benchmarked to QCEW annually

- QCEW is the primary benchmark source for CES and sets the employment **level**: CES survey used to estimate **change**
  - ▶ CES National – Set benchmark level for March and rely on survey for month-to-month change in historical series
  - ▶ CES State and Area – Replace all months with QCEW
- CES issues a **preliminary benchmark** on initial Q1 QCEW
- Data users (e.g., Dallas and Philly Fed) make **early benchmarks** comparing CES-QCEW as other quarters made available



# 2024 preliminary benchmark closely watched



**Bloomberg**

• Live TV Markets Economics Industries Tech Politics Businessweek Opinion More

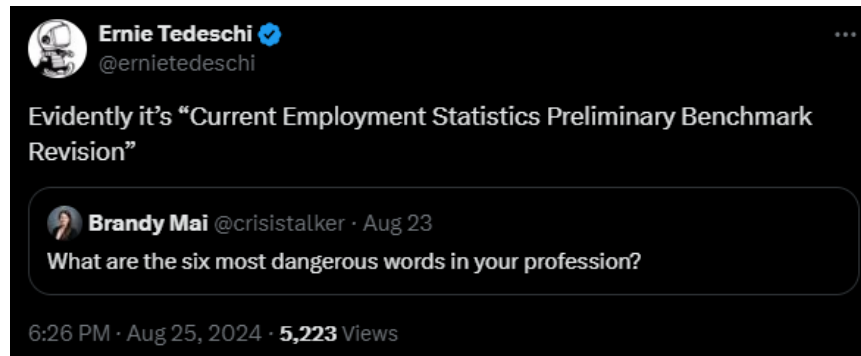
US Jobs Report: July Report | Key Takeaways | Sahm Rule, Explained | Employed But Unhappy | Une

## Fed Confronts Up to a Million US Jobs Vanishing in Revision

- BLS issues preliminary benchmark employment revision Wednesday
- Economists still view job growth as healthy, albeit moderating

By [Augusta Saraiva](#)  
August 20, 2024 at 6:00 AM EDT  
Updated on August 20, 2024 at 8:45 AM EDT

(X.com)



**Ernie Tedeschi** @ernietedeschi

Evidently it's "Current Employment Statistics Preliminary Benchmark Revision"

**Brandy Mai** @crisistalker · Aug 23

What are the six most dangerous words in your profession?

6:26 PM · Aug 25, 2024 · 5,223 Views



(YouTube)

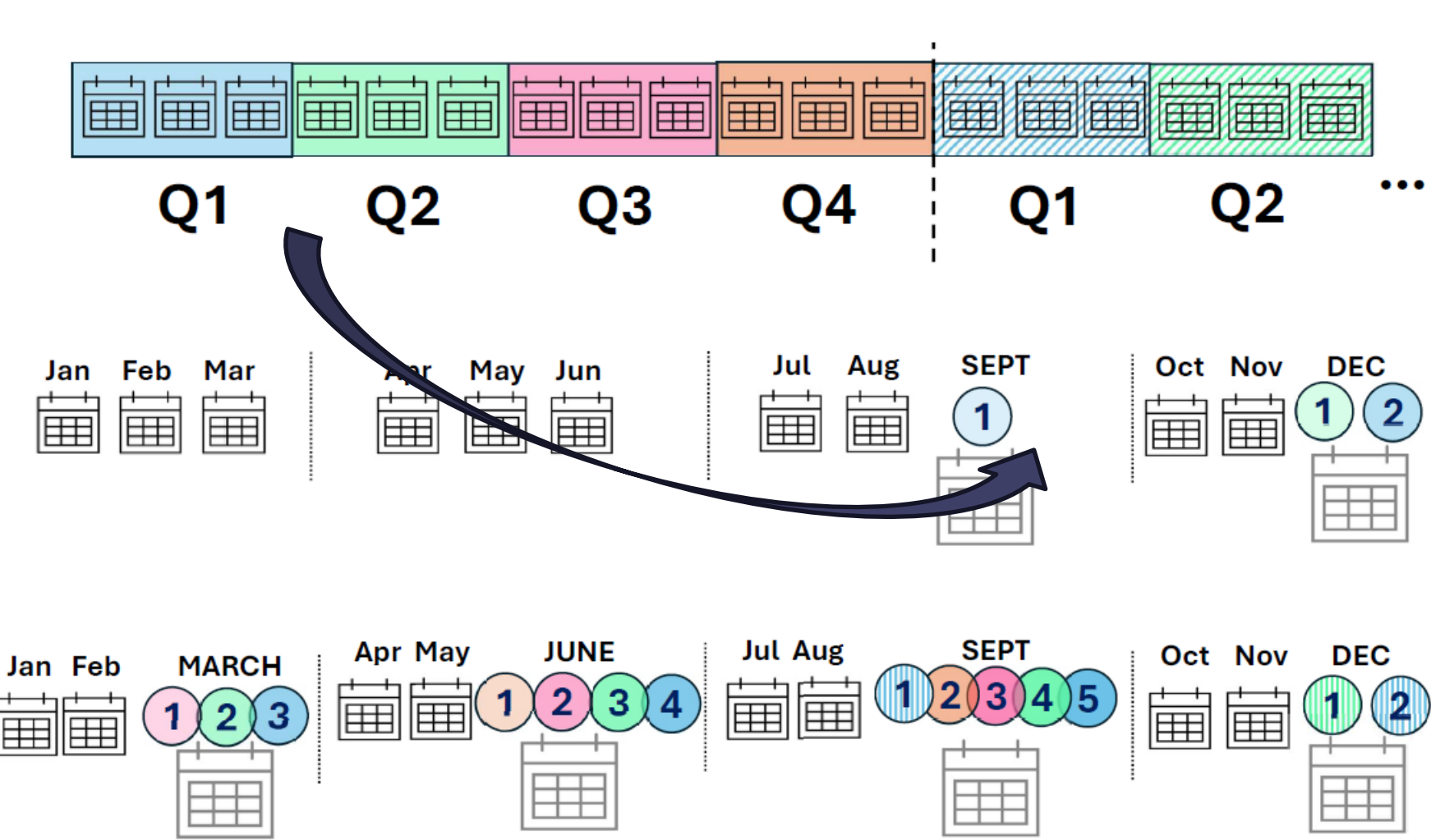


SEPTEMBER 19, 2024

## Senator Marshall Demands BLS Commissioner Testifies on 800,000 Downward Revision to 2023 Jobs Report



# QCEW Publication Cycle

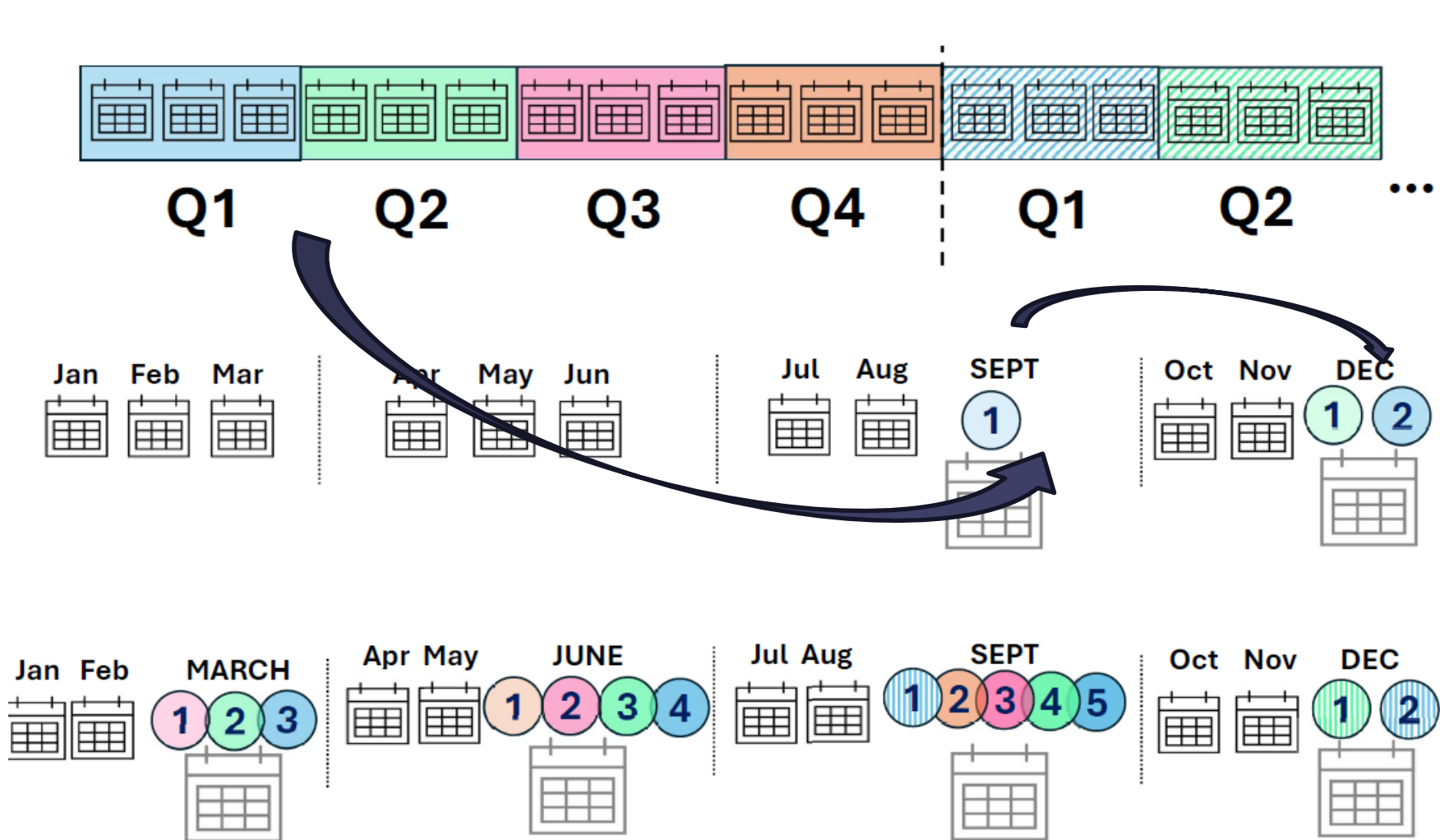


color of circle = which quarter of the year the data is for

# in circle = which cut #



# QCEW Publication Cycle



**color of circle** = which quarter of the year the data is for

**# in circle** = which cut #

Q1 has 5 cuts  
 Q2 has 4 cuts  
 Q3 has 3 cuts  
 Q4 has 2 cuts

1<sup>st</sup> revision: **cut2 - cut1**  
 after 2<sup>nd</sup> revision: **cut3 - cut1**  
 after 3<sup>rd</sup> revision: **cut4 - cut1**  
 after 4<sup>th</sup> revision: **cut5 - cut1**

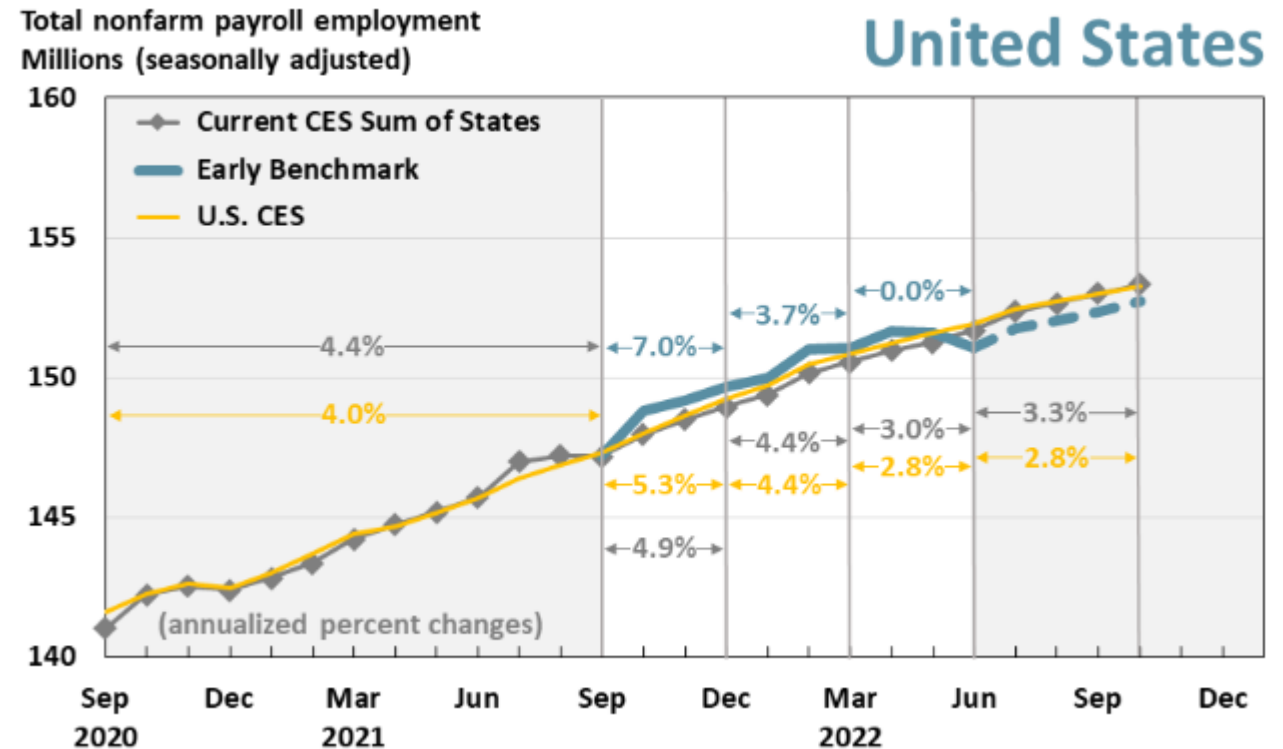




# Philly Fed Early Benchmark 2022 Q2

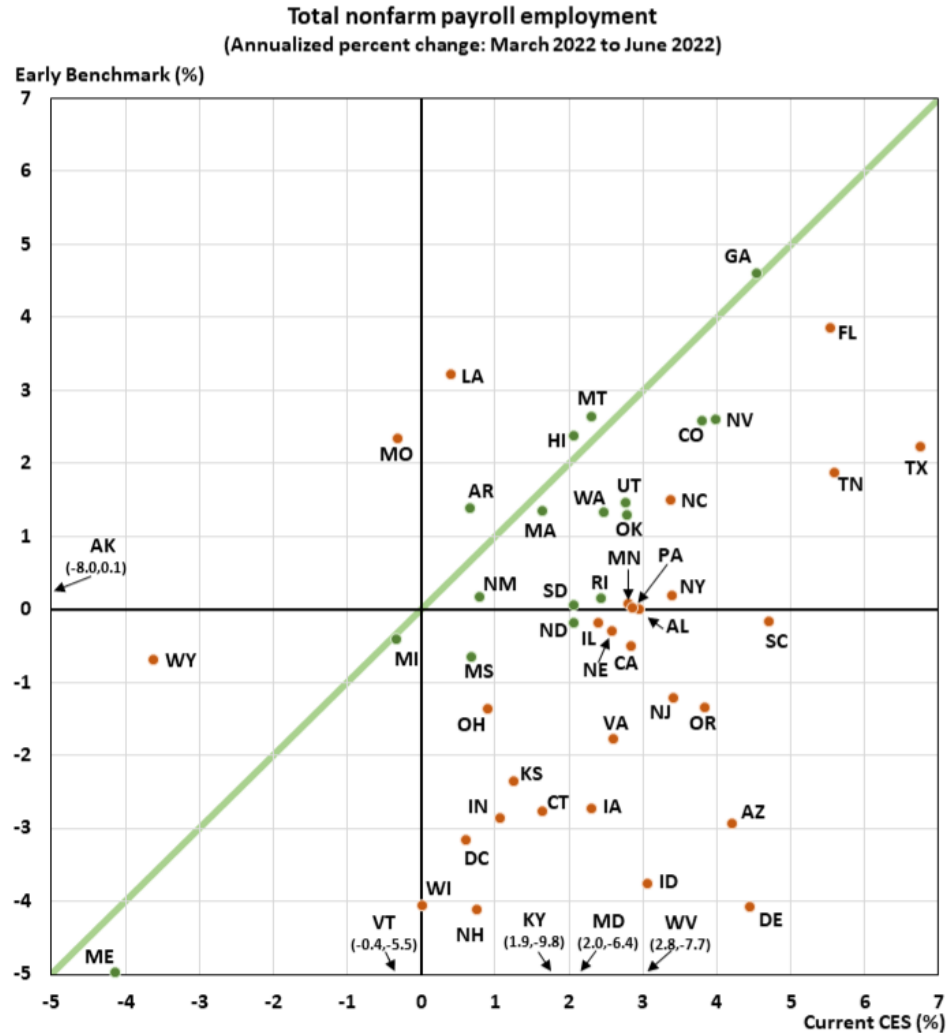
“In the aggregate, **10,500** net new jobs were added during the period rather than the **1,121,500** jobs estimated by the [CES] sum of the states”

- Replaces 3-months of survey estimates with QCEW
- Note difference in June 2022 (not April / May)
- Launched BLS research project



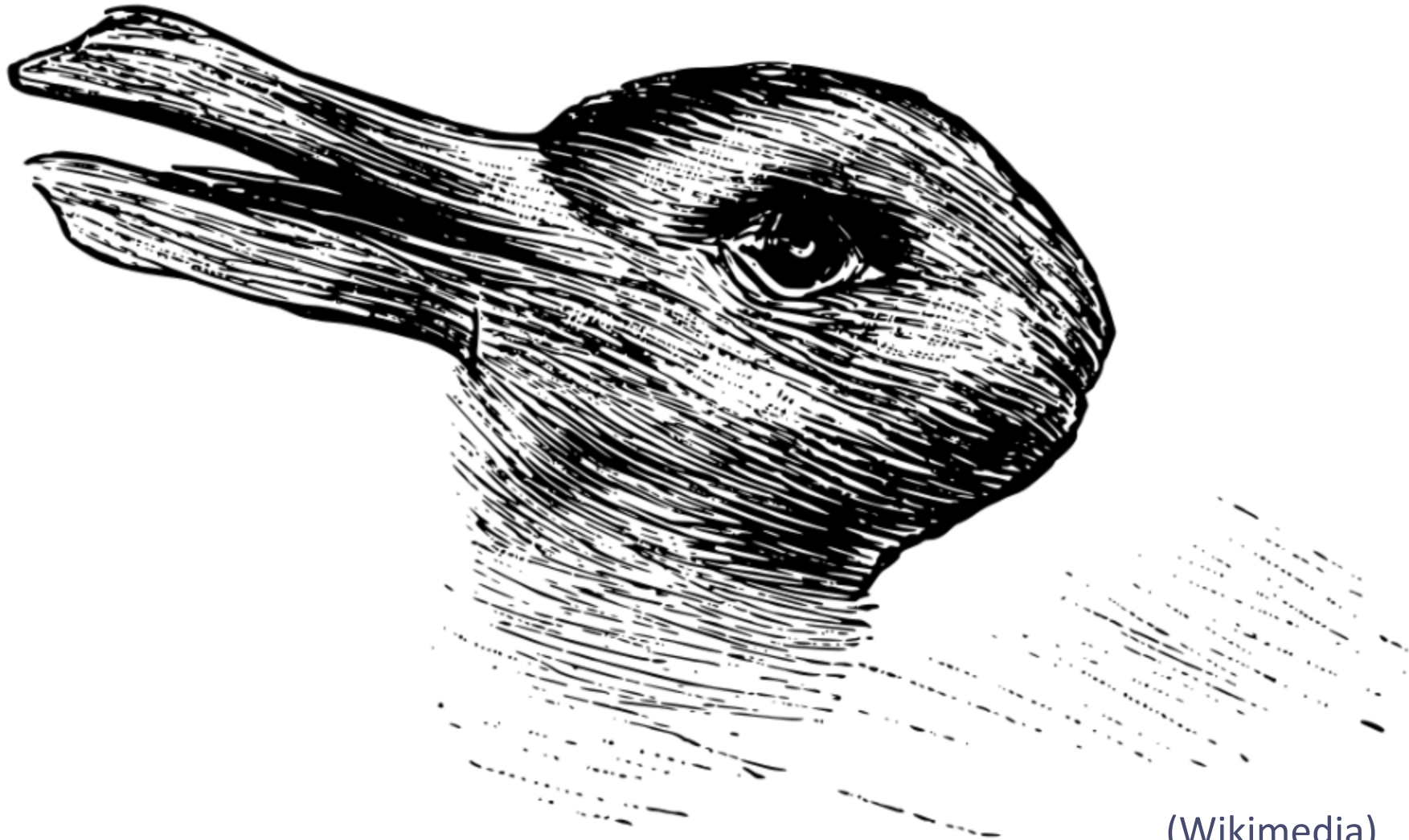
# CES-QCEW Differences Widespread

- Philly Fed analysis of 2022 Q2 suggested CES overstated job growth in 43 of 51 states





# What happened in June 2022?



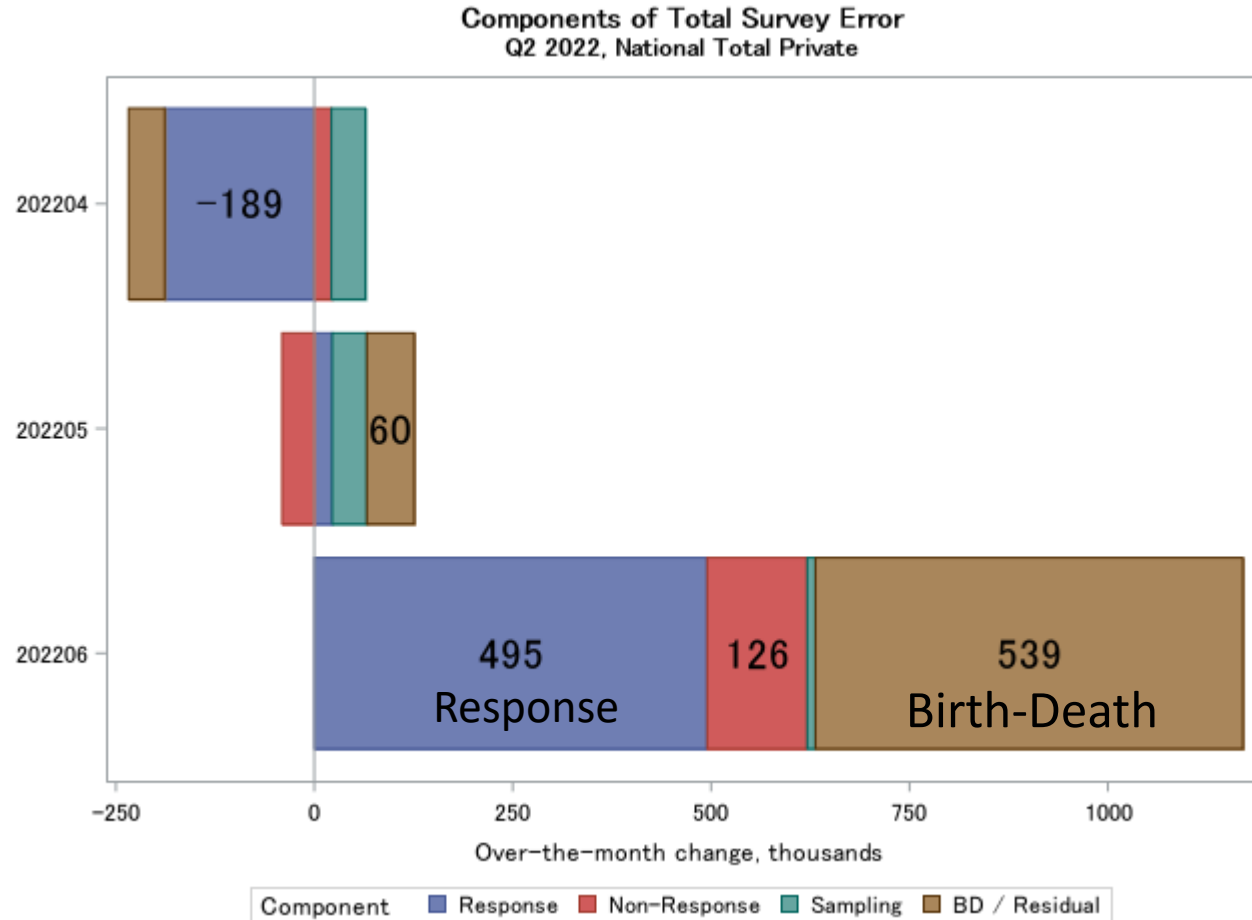
(Wikimedia)

# CES and QCEW Total Statistical Error

Error Source	CES	QCEW
<b>Coverage</b>	Business Births-Death model/forecast	Births and Deaths should be captured
<b>Sampling</b>	Probability survey	<b>None</b> – census count
<b>Nonresponse</b>	Implicit imputation - assumes MCAR within cells	Imputation for missing/late establishments
<b>Response</b>	Reported monthly, edit/screening, etc.	Reported quarterly, <b>wages</b> of primary interest to UI tax system; data may be reported by 3 <sup>rd</sup> party agent
<b>Processing / Administrative</b>	Review/editing focused on most influential reporters, key nonrespondents	State UI systems widely varied; Editing focused on largest accounts

# CES-QCEW Decomposition

- Match CES and QCEW, **assume QCEW = truth**, and decompose divergence
- June 2022 largely explained by spike in closings/zeros in QCEW (539k) and response differences (495k)



# June 2022 Zeros – Third Party Agents?

- States suggested payroll providers (3<sup>rd</sup>-party agents) were the cause
- 5 states regularly submit info on agents to BLS
  - ▶ MA and WA edited for 0s before transmitting to BLS
  - ▶ CA, AZ, SC showed higher rates of zeros among agents

State	Percent Agent (June 2022)	% of Agents Dropping to Zero	% of Non-Agents Dropping to Zero
Massachusetts	65%	0.9%	0.6%
South Carolina	<b>57%</b>	<b>6.4%</b>	<b>1.1%</b>
Arizona	33%	5.9%	4.5%
Washington	26%	0.4%	0.3%
California	<b>18%</b>	<b>9.2%</b>	<b>1.9%</b>

# June 2022 Zeros – Pay Period Length?

- Def: Worked or paid for pay period including the 12<sup>th</sup>
- Compare respondents who reported **zero to QCEW** vs. **positive to CES** in June 2022
- Zeros very rare among respondents with weekly pay periods (counter-intuitive!)
- Pay period info unknown for over half of CES respondents

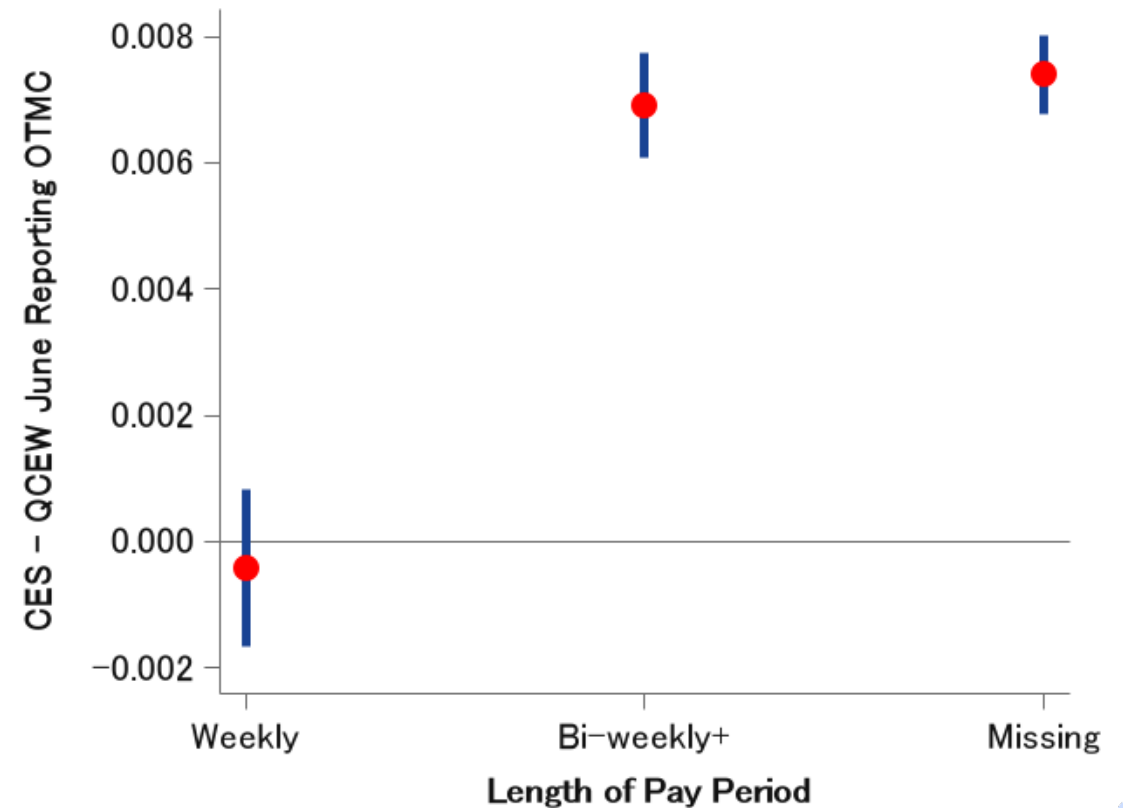
CES Pay Period	Total Count	Zero Count	Zero Pct
Unknown	175083	1554	0.9%
Weekly	40535	51	0.1%
Bi-weekly	86557	338	0.4%
Semi-monthly	17666	77	0.4%
Monthly	3827	70	1.8%



# Pay Periods and June 2022 Reporting Difference

$$(\Delta CES - \Delta QCEW) = \delta_1 WEEKLY + \delta_2 BIPLUS + \delta_3 MISSING$$

Bi-weekly+ or unknown pay period →  
CES about 0.7 log points more positive reported job growth than QCEW





# June/July 2022 calendar

- June 12<sup>th</sup> fell on a Sunday – respondents using “day of” not “payroll period containing”?
- Agents filing UI tax before some clients in June 12-25 pay period got paid?
- July 4 holiday and increased reporting error?

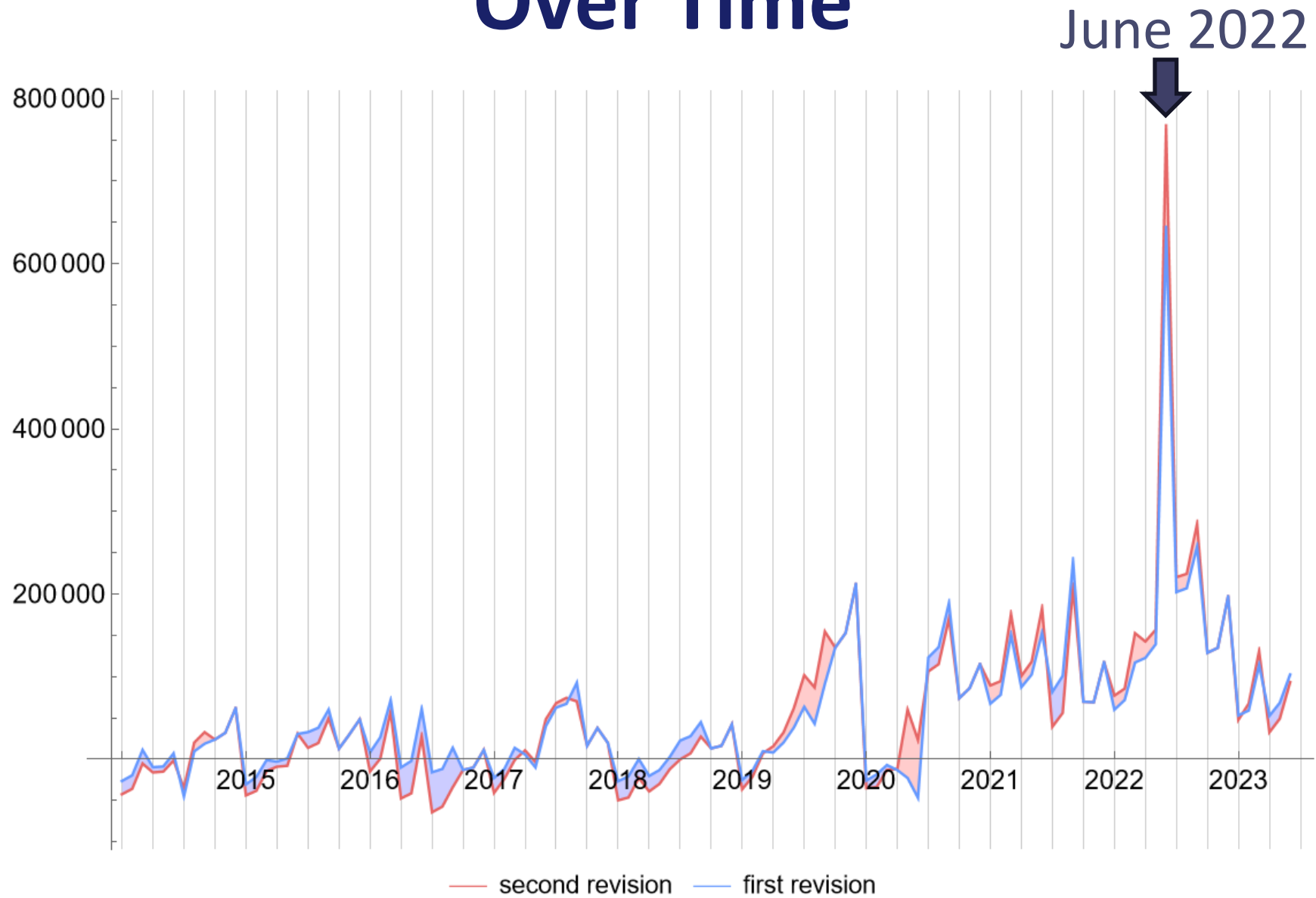
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
June				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30	1	2
July	3	4	5	6	7	8	9



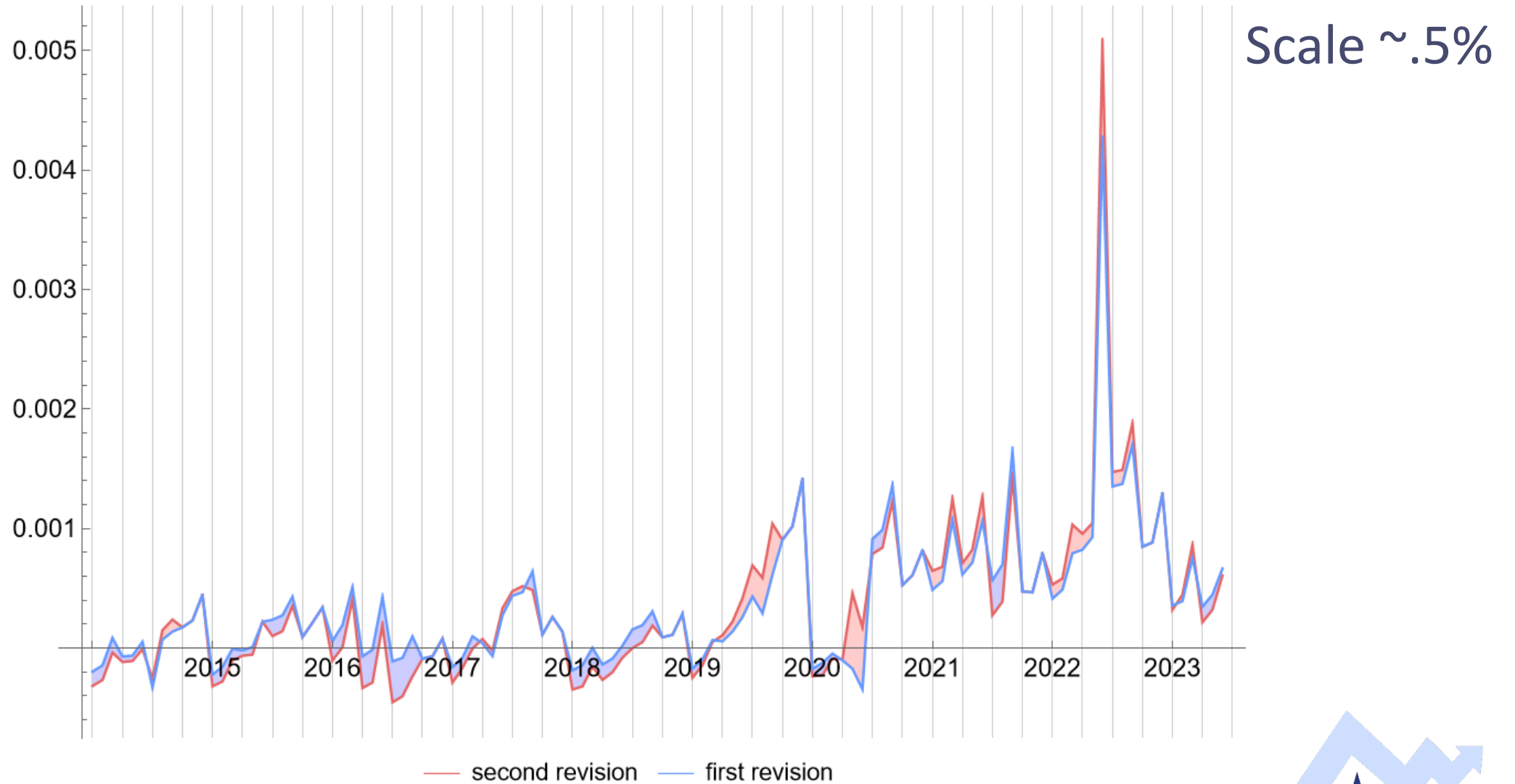
# QCEW Revisions



# Over Time



# Same, but on relative basis



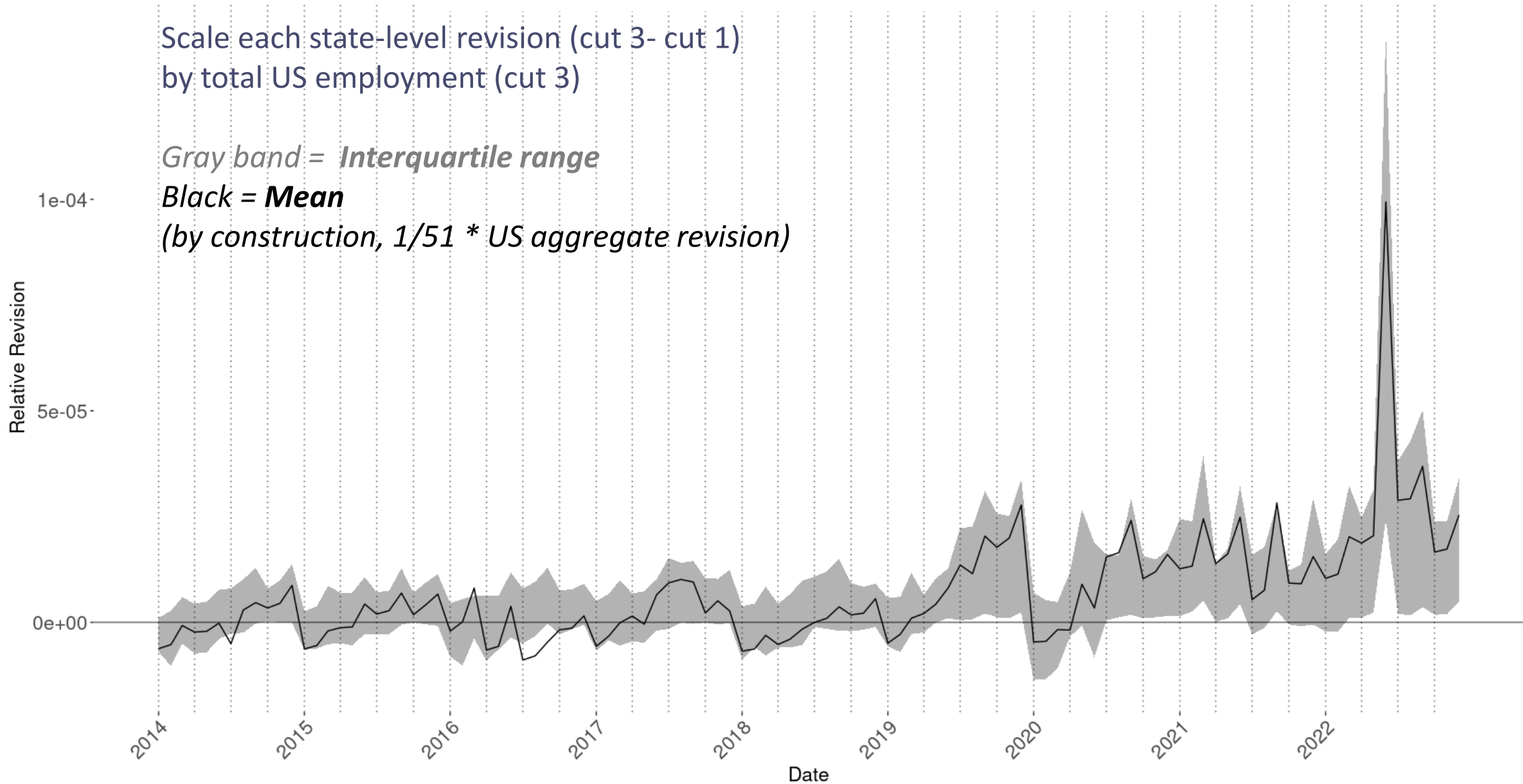
# Across States

Scale each state-level revision (cut 3- cut 1)  
by total US employment (cut 3)

*Gray band = Interquartile range*

**Black = Mean**

*(by construction,  $1/51 * US$  aggregate revision)*

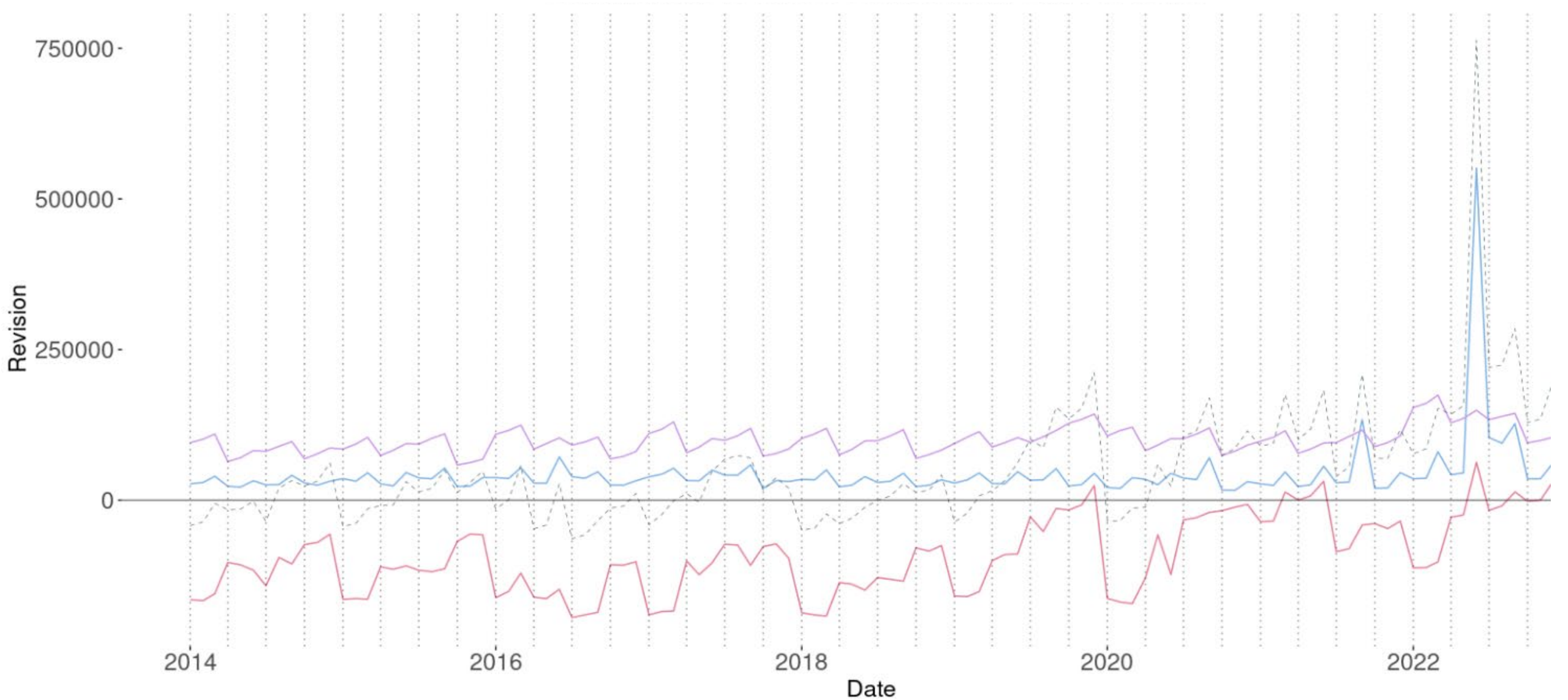


# Which records drove June 2022 revision?

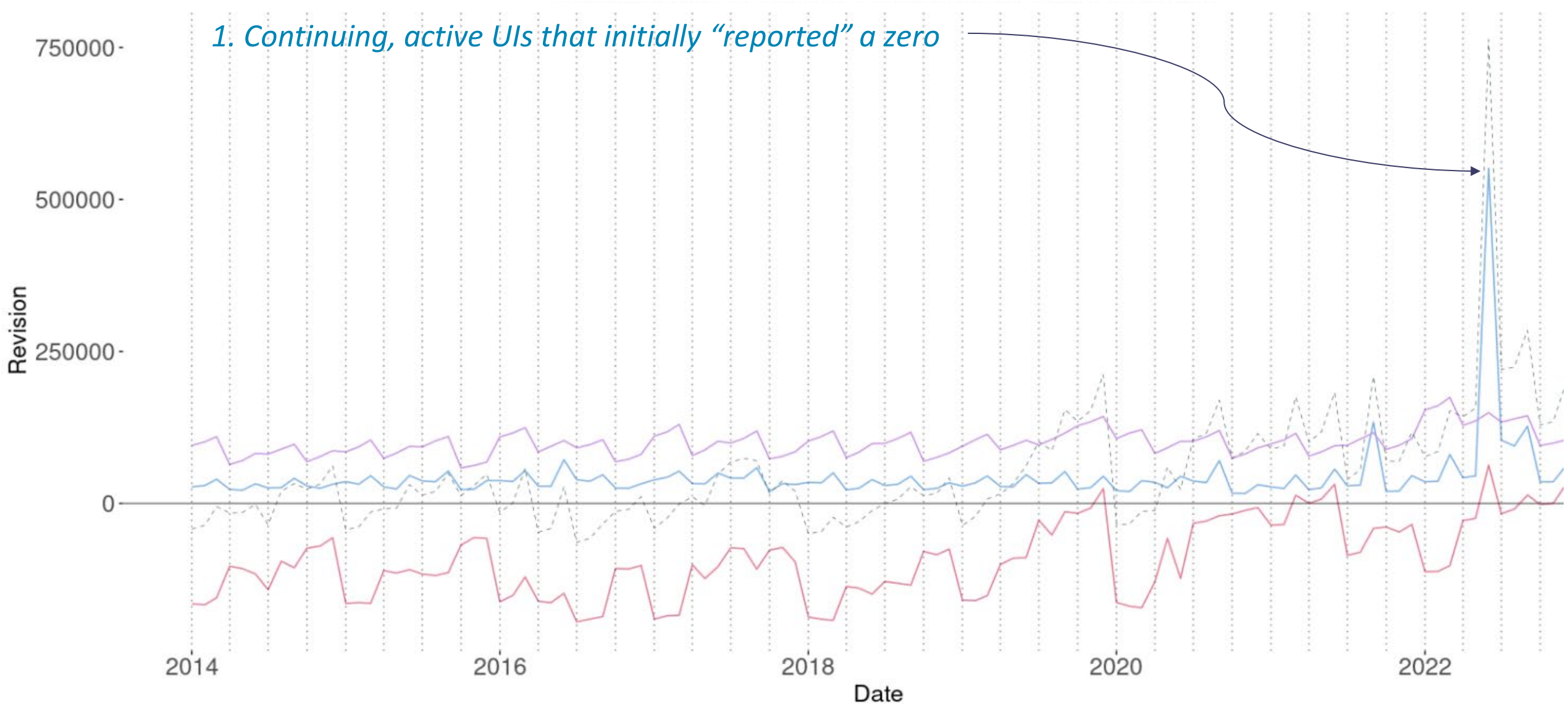




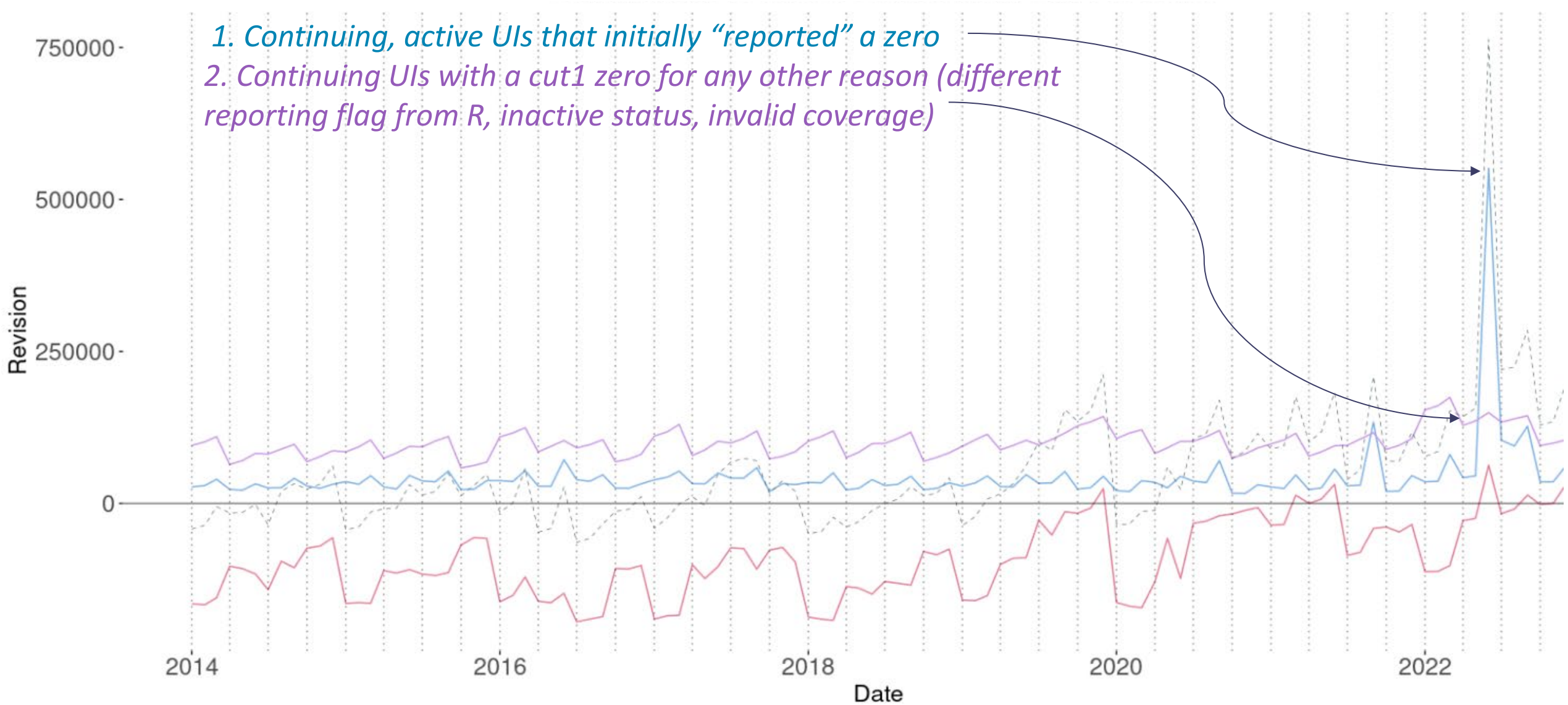
# Contributions to revisions based on conditions



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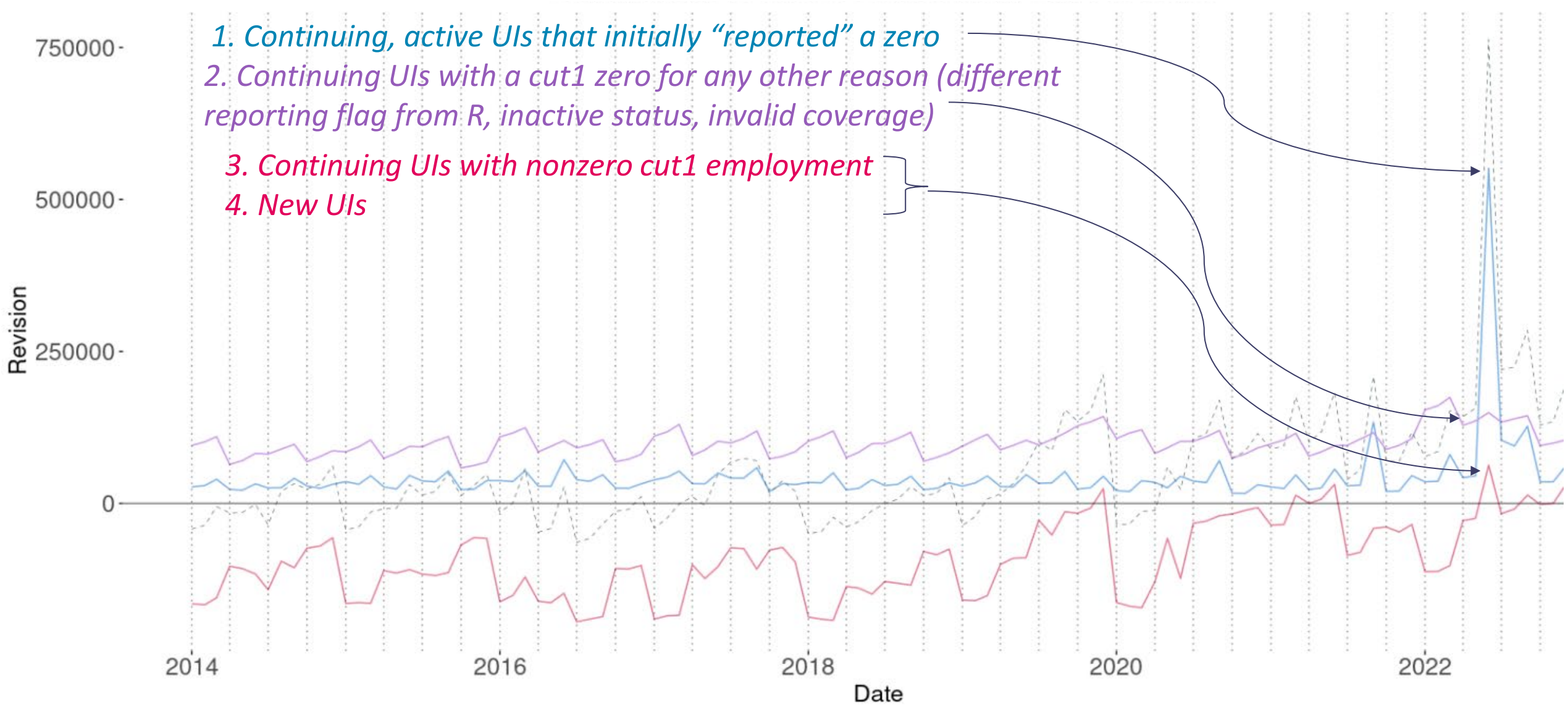


# Contributions to revisions based on conditions





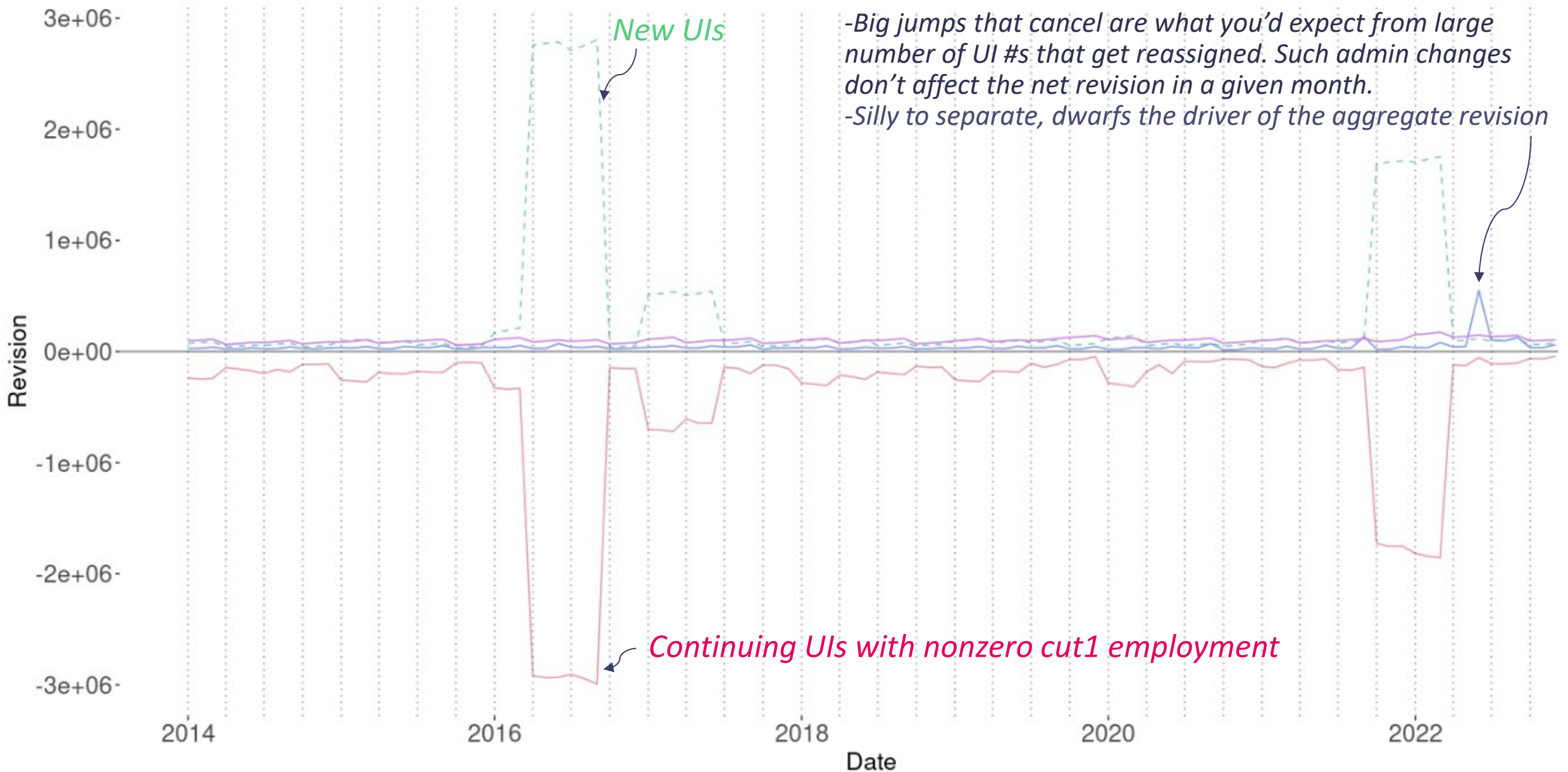
# Contributions to revisions based on conditions



# Why combine groups 3 and 4?



# Because they are close to a wash



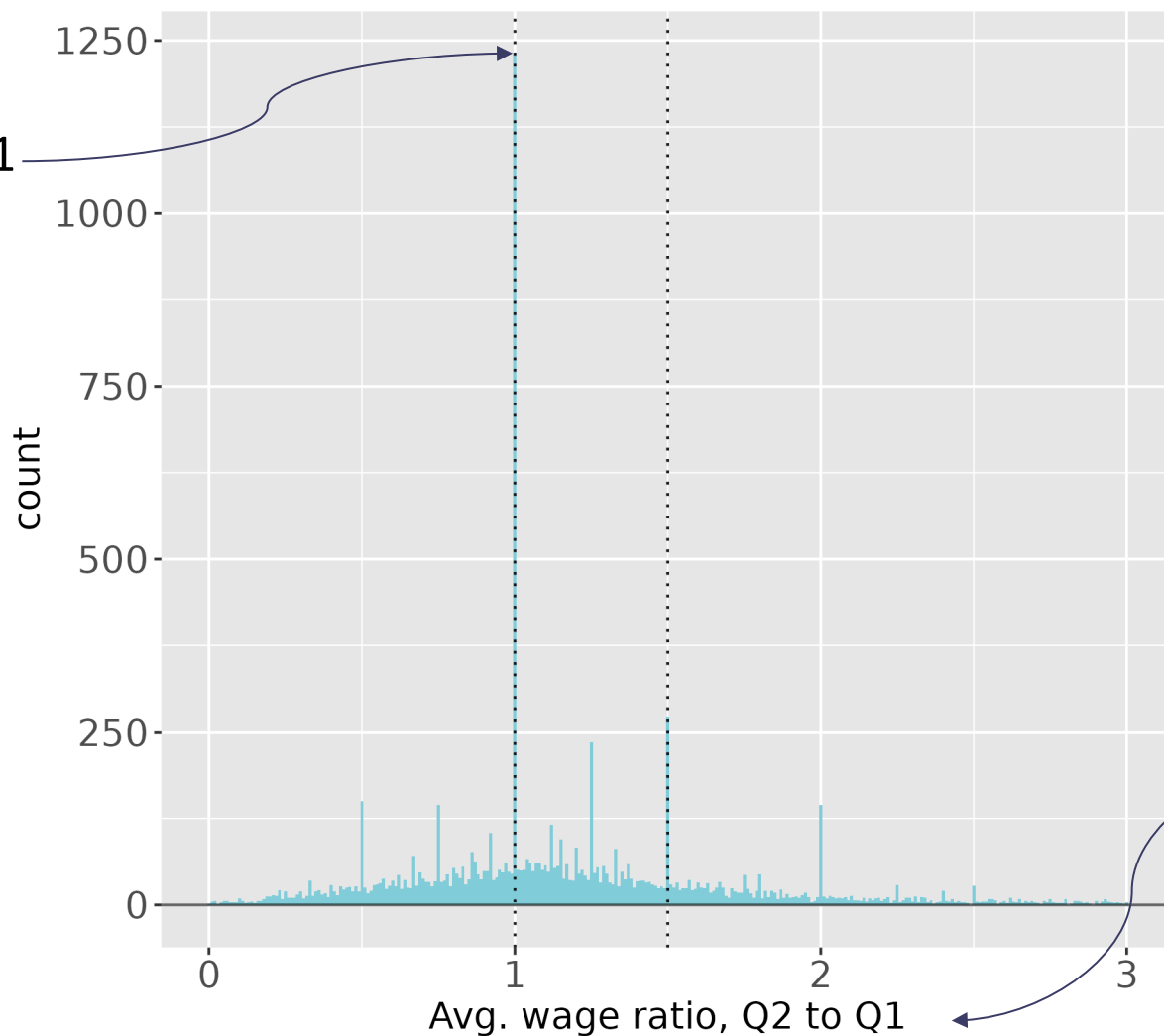


# Month Reported 3 Zeros



# Average Monthly Wage/Employee

NY employers avg. wage ratios  
for June 2022 that do not revise



“current” quarter = quarter of interest (Q2 2022)

Define **Current** quarter  
to prior quarter ratio of  
avg wage/person,  
*using info available  
at the time of cut 1 of  
current quarter:*

$$y = \frac{W_{Q2, \text{cut1}}}{M_{Q2, \text{cut1}}}$$

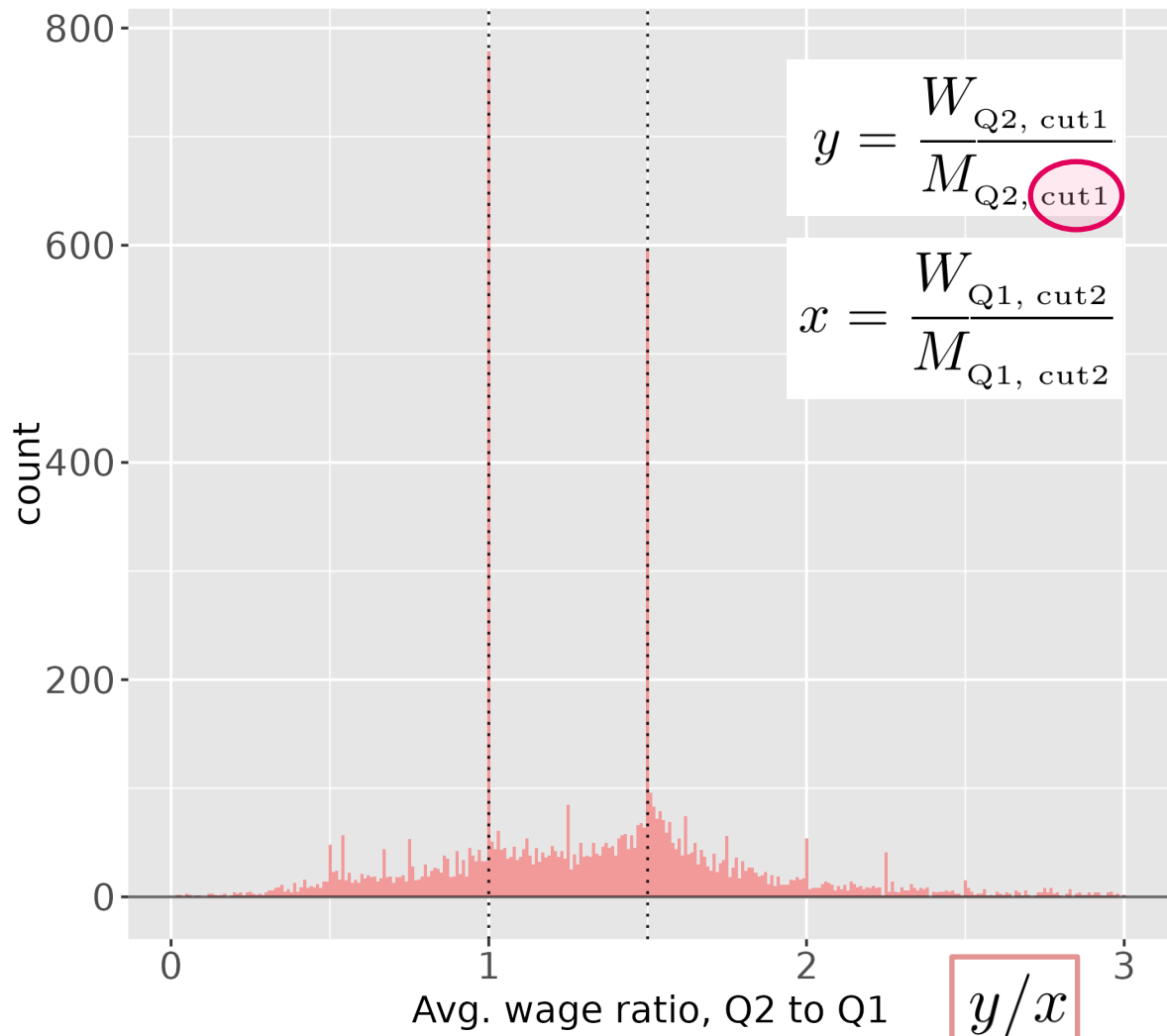
$$x = \frac{W_{Q1, \text{cut2}}}{M_{Q1, \text{cut2}}}$$

$y/x$

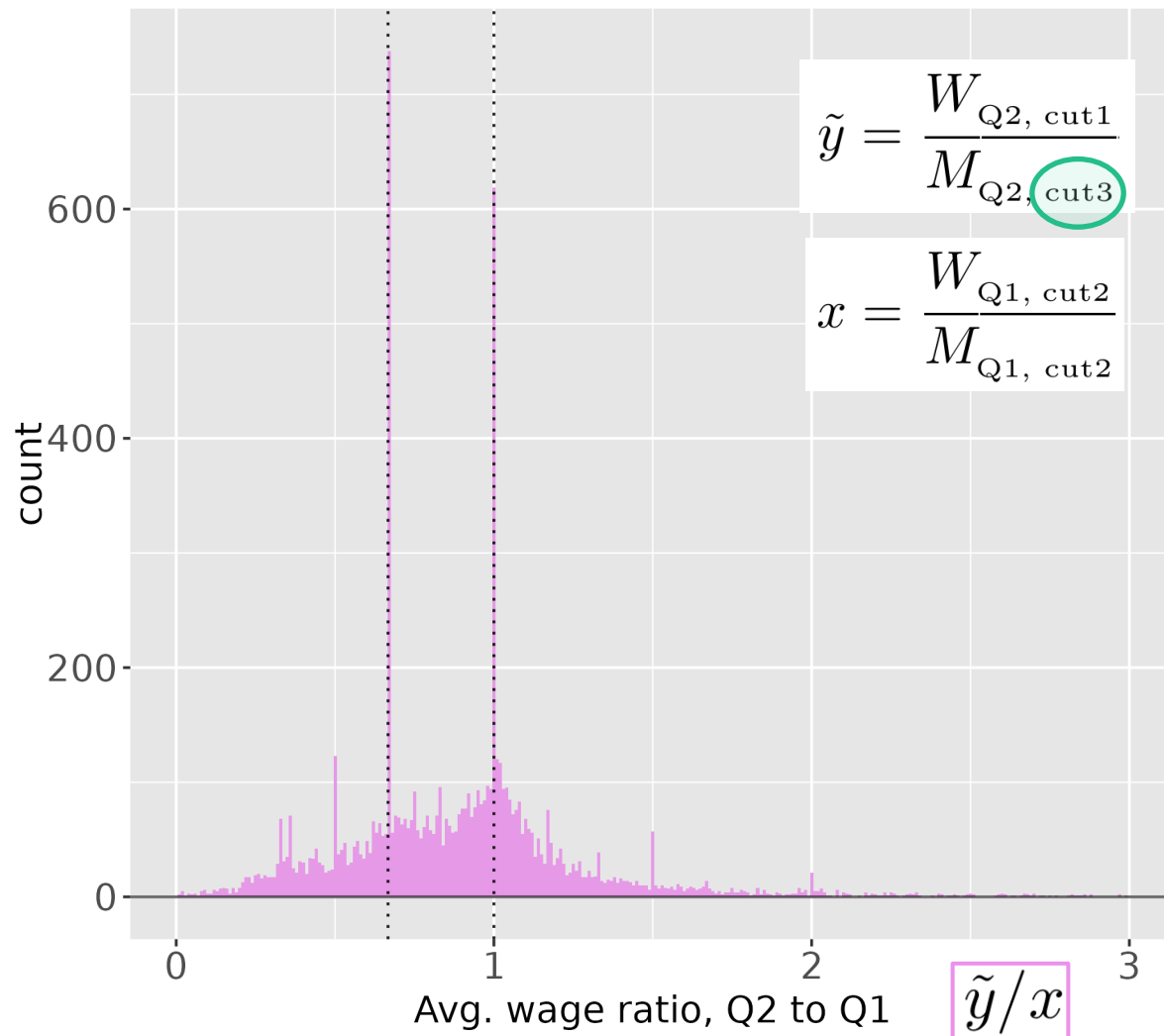


# For Month 3 Zero Records That Revise

Avg. wage ratios before employment revision for NY employers with June 2022 zeros that later revise



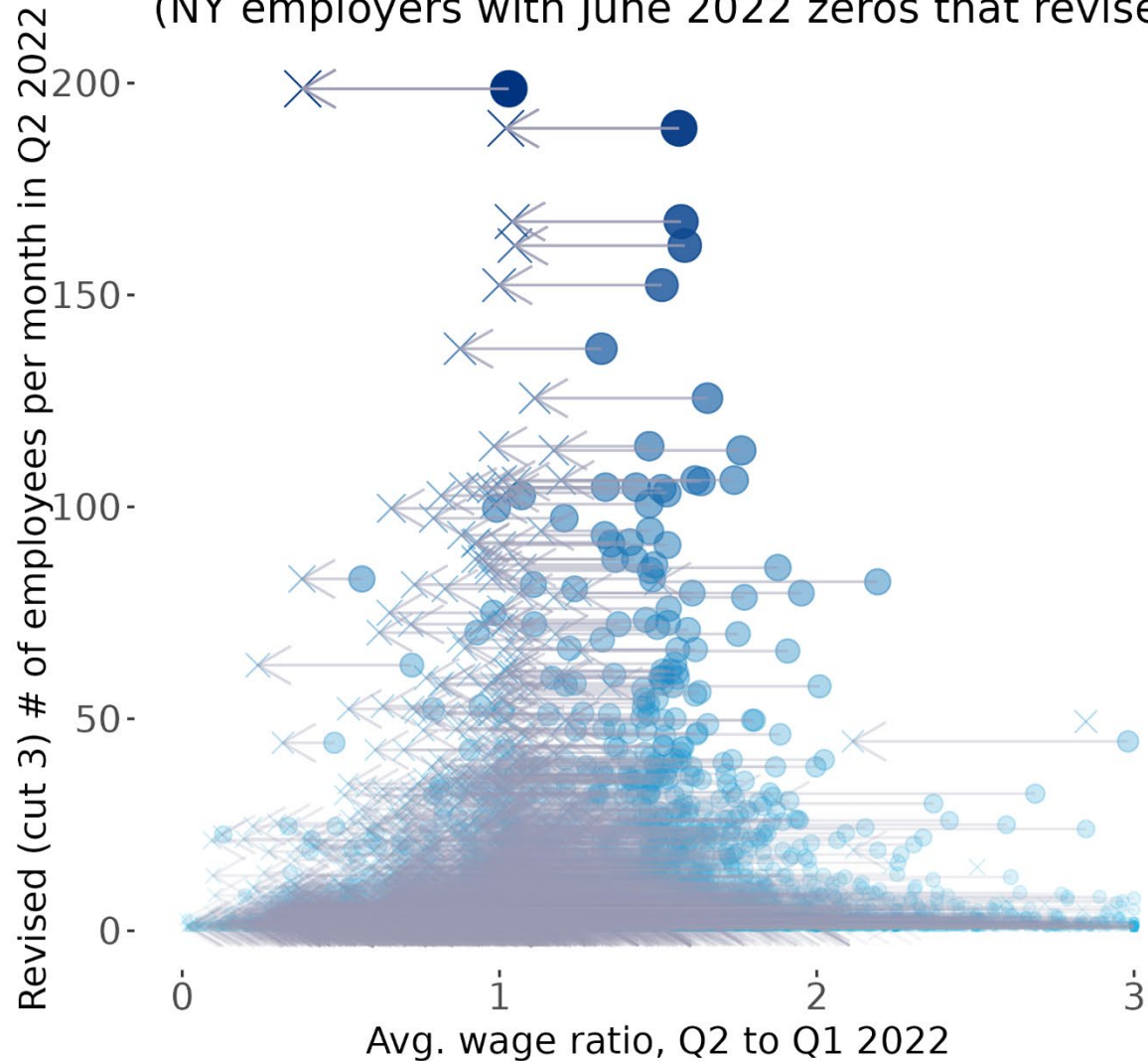
Avg. wage ratios after employment revision for NY employers with June 2022 zeros that revise



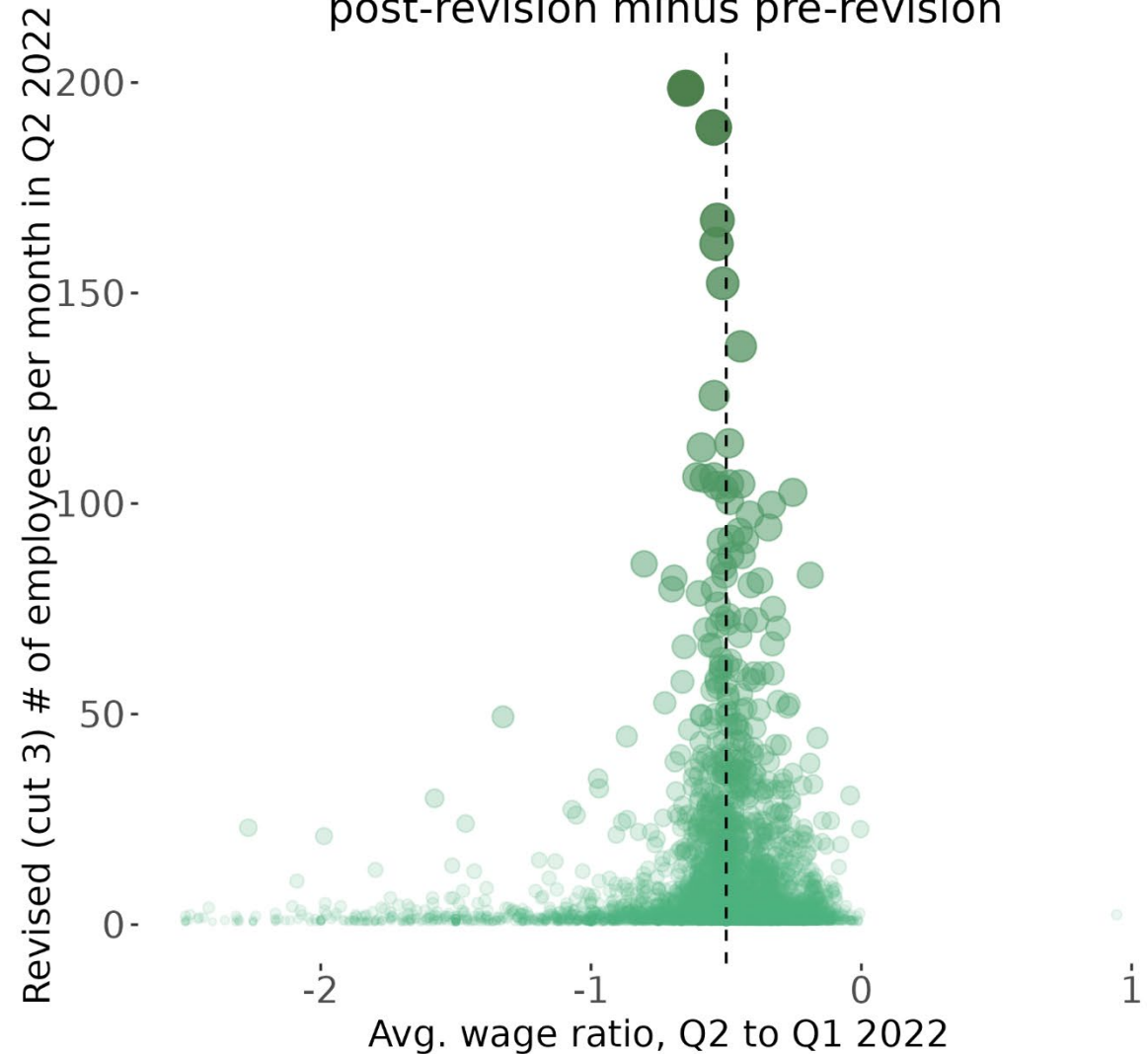
# By Employer

$$\tilde{y}/x - y/x$$

Shift in average wage ratios due to employment revis  
(NY employers with June 2022 zeros that revise)



Displacement between average wage ratios  
post-revision minus pre-revision



# Current and next steps

- Developing models to predict month 3 zero records' employment revisions using indicators related to average monthly wage/employee
- June 2022 revision was unique, widespread (geographically, and across industry). Causal mechanism still undetermined – may require data beyond the QCEW.
- Goal is to fix errors before 1<sup>st</sup> publication, so it's important to understand what happened in June to prevent large revisions in the future



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