

Analyzing Near-Current Employment Changes by Employer Characteristics using the Quarterly Census of Employment and Wages and Current Employment Statistics

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In ordinary times...

- **Current Employment Statistics Survey (CES)**
 - ▶ Monthly survey, estimates available since 1939
 - ▶ 140,000 employers over 440,000 worksites each month
 - ▶ **3 week lag**



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- **Quarterly Census of Employment and Wages (QCEW)**
 - ▶ Employment and wages
 - ▶ All establishments covered by the Unemployment Insurance (UI) system
 - ▶ **5 month lag**



These are no ordinary times

- Interest in employment by employer size in 2020
 - ▶ **NEW:** Use CES to produce timely research estimates
 - ▶ Federal Reserve uses ADP data benchmarked to the QCEW, discussed in Cajner et al. (2020)
- We use the same methodology to estimate employment change by average pre-pandemic wage

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- We summarize our methods and major findings



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- We compare CES-based research estimates of employment by size and wage-classes in 2020 with similar estimates based on QCEW data



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- We summarize our methods and major findings
- We compare CES-based research estimates of employment by size and wage-classes in 2020 with similar estimates based on QCEW data
- We provide updates of CES-based research estimates by size and wage-classes through mid-2021



Methods

- Assume no births in CES since February 2020
 - ▶ Will show small impact of births on employment using QCEW



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- Categorize employers
 - ▶ average annual wages in the QCEW in 2019
 - ▶ average employer size in 2019
 - “Employer” refers to common EIN
 - ▶ detailed industry

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- Categorize employers
 - ▶ average annual wages in the QCEW in 2019
 - ▶ average employer size in 2019
 - “Employer” refers to common EIN
 - ▶ detailed industry
- Model employment and closure probabilities in the CES for non-responders
- Examine private-sector only (unlike CES publications)



Nonrespondent Imputations

Example:

- Pre-pandemic nonrespondents closed with a 20-percent higher probability than *respondents* in the same group
 - ▶ Group is size class x sector
 - ▶ Nonresponse in CES
 - ▶ Closure status based on QCEW

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- **Assume** fraction of nonrespondents in group with zero employment is 20-percent higher than the proportion of *respondents* reporting zero employment in CES
- **Assume** remaining nonrespondents have same employment change as *respondents* in group

Births and Closures/Deaths

CES

Births:

- There is a 12+ month lag between first employment and becoming eligible for CES sample

Closures:

- We observe reported “0” employment or nonresponse
 - ▶ Many small employers reported “0” employment in April 2020 and returned in May or June 2020

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QCEW

Births:

- Establishments must file UI reports for all employees
- We classify new employers by size or wage group using 2020-2021 data

Closures/Deaths:

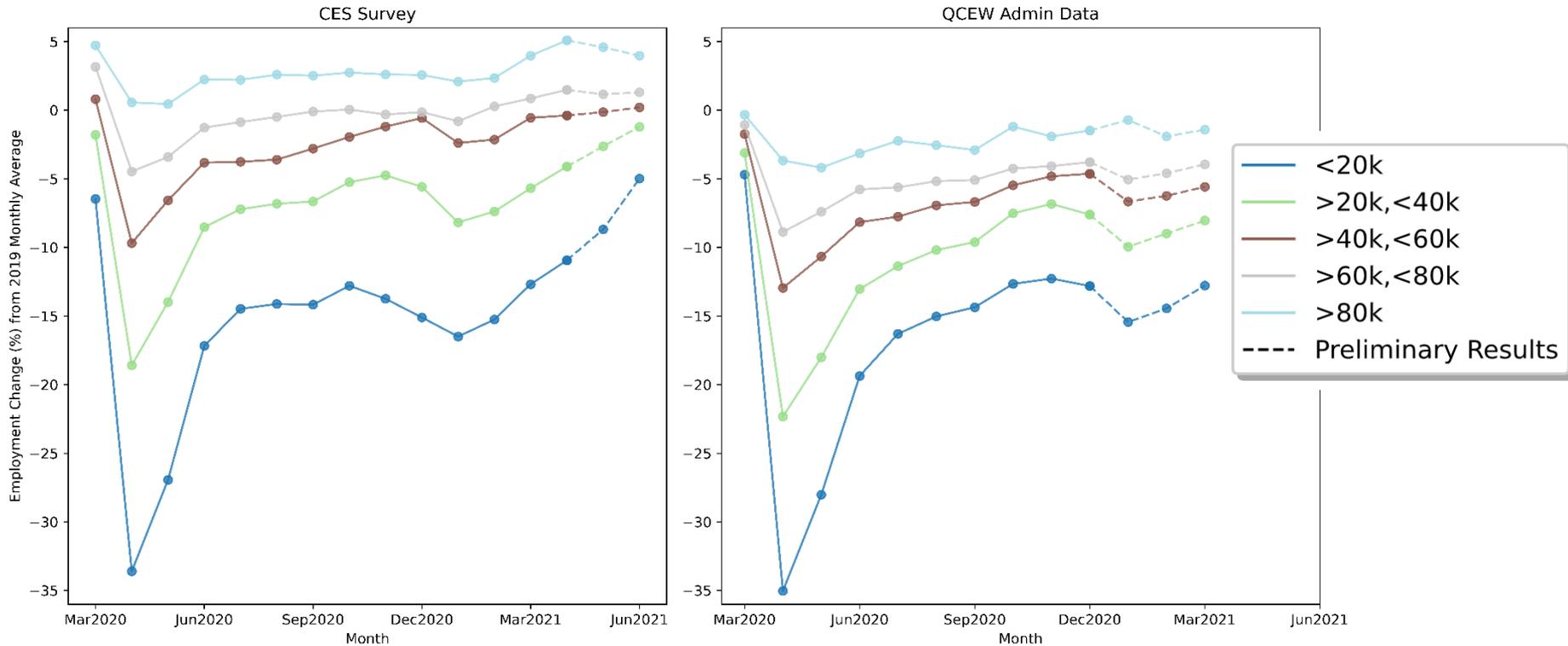
- Identify “0” employment or inactive in UI filings

Employment Change from 2019 by Wage

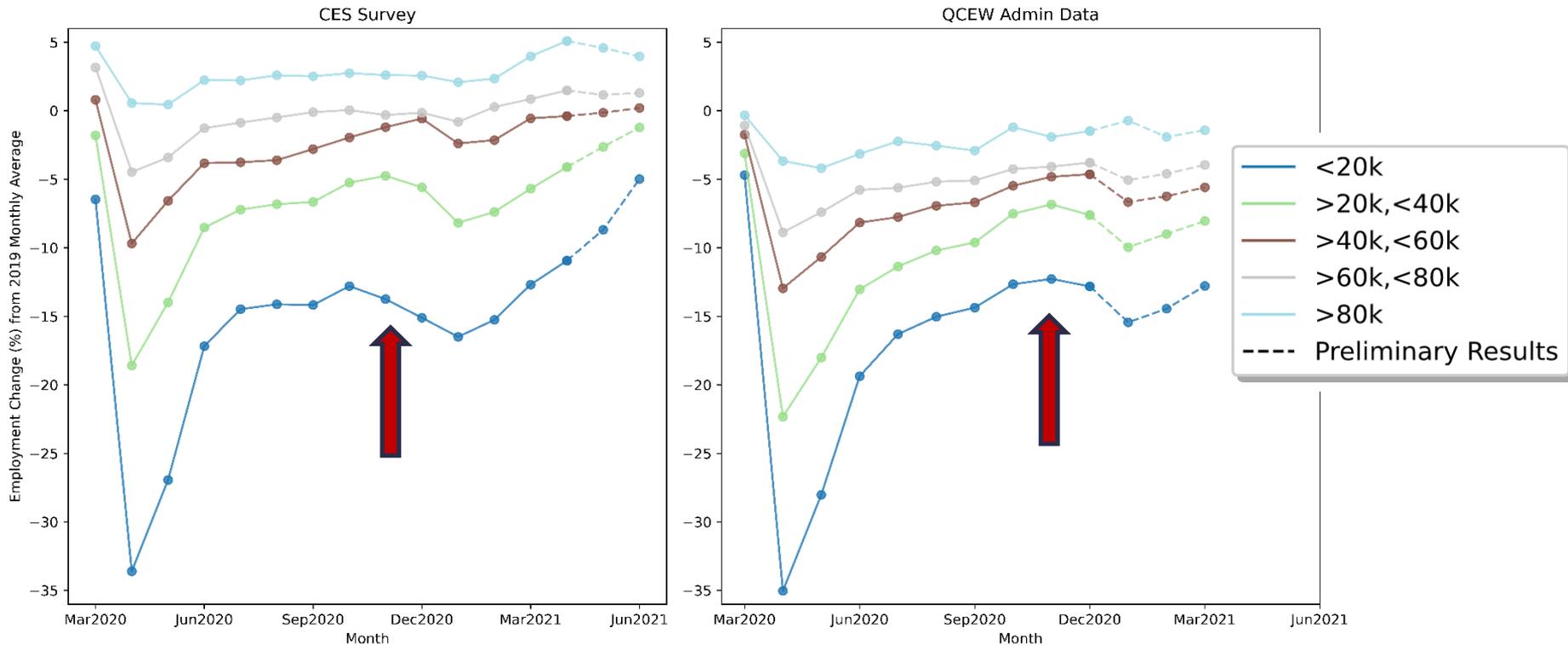
Based on 2019 Wages Paid per Employee



Overall Change from 2019 Monthly Employment Average by Average 2019 Compensation per Reported Employee



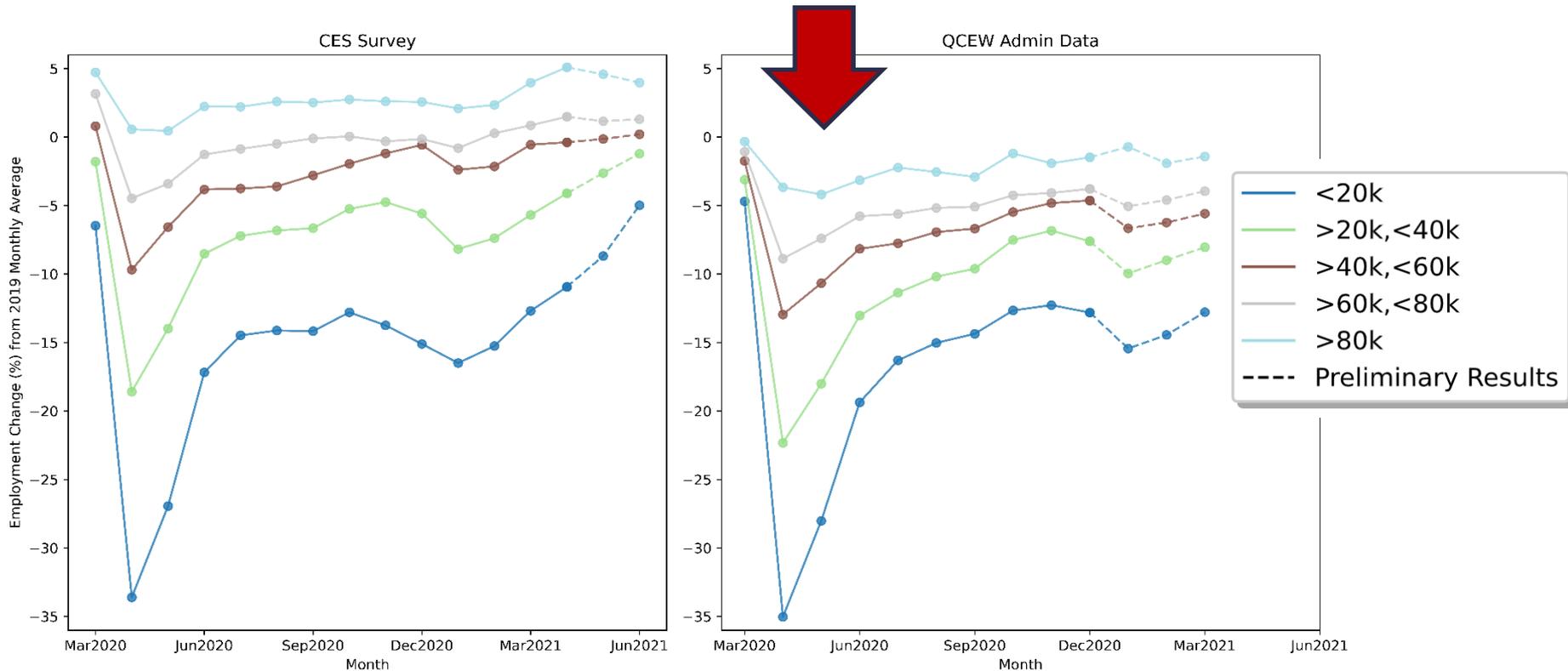
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Lower-paying employers suffer greater job loss

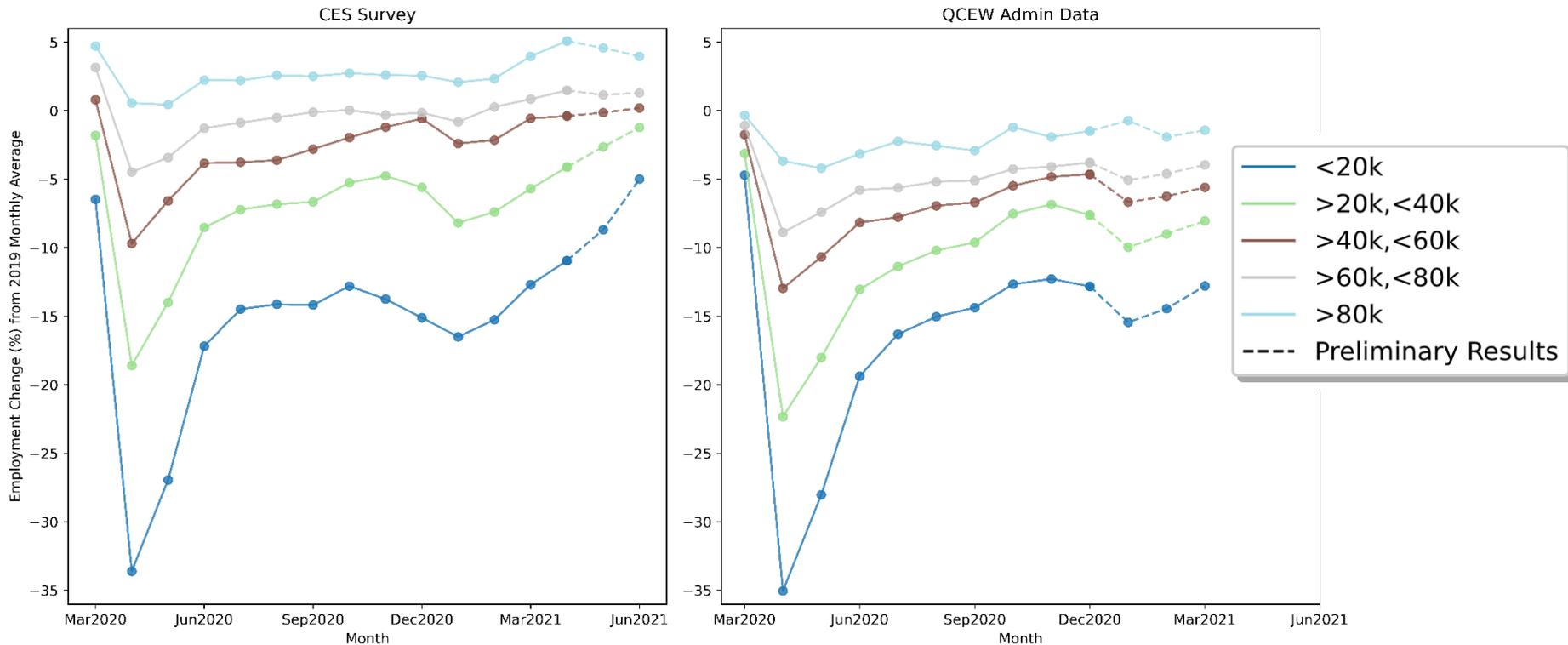


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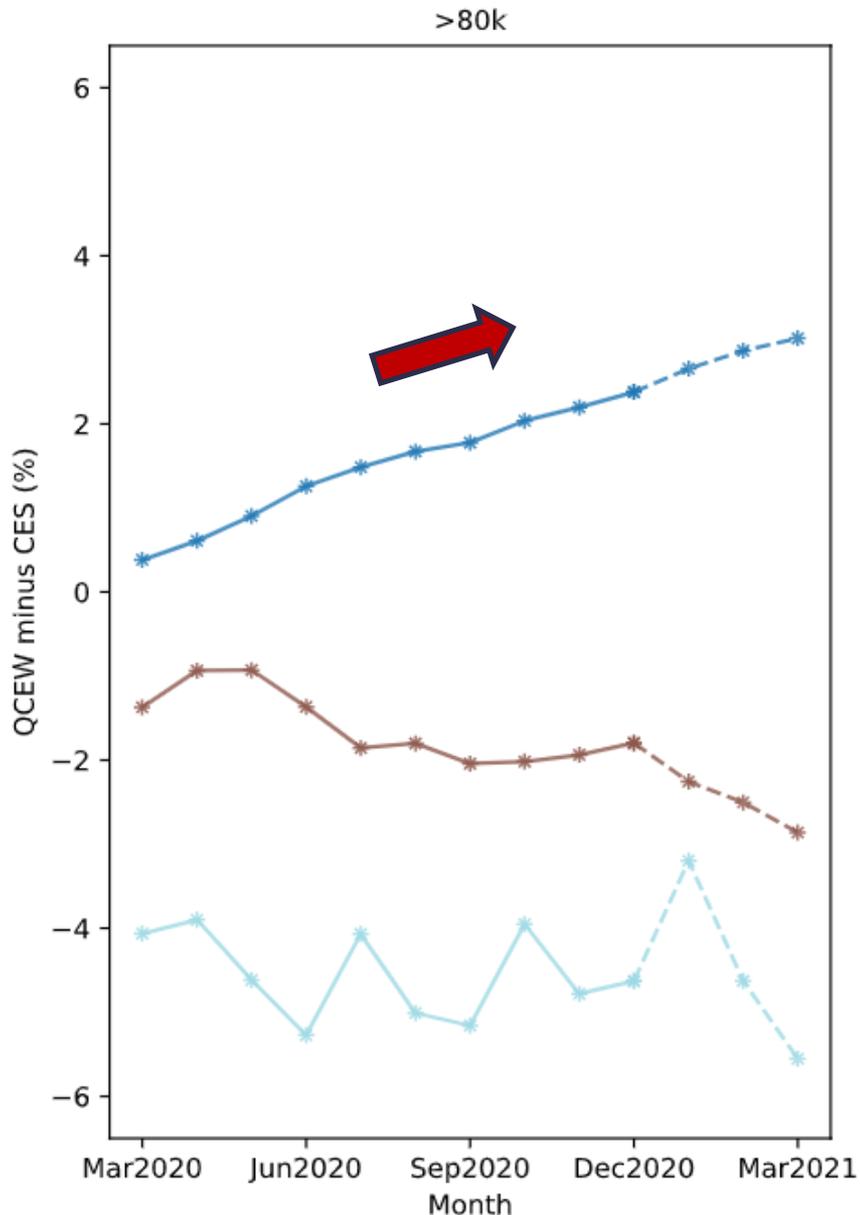
Bigger employment drops in QCEW than CES research series

Overall Change from 2019 Monthly Employment Average by Average 2019 Compensation per Reported Employee



**No clear time component to differences
between QCEW & CES research series**



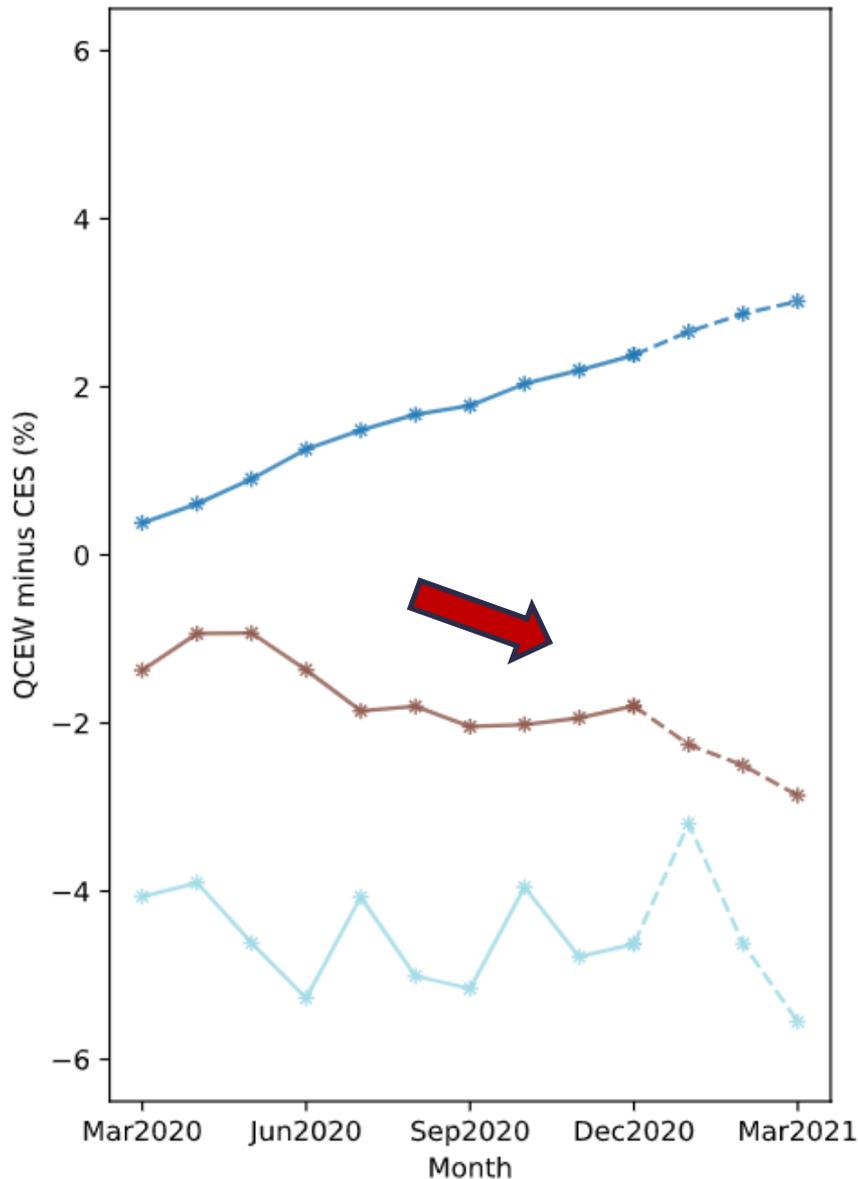


- Employment Gain due to Births in QCEW
- Employment Loss due to Closures in QCEW minus CES closures
- Emp. Change for Continuing Establishments in QCEW minus CES
- - - Preliminary Results

- Employment due to births steadily increasing



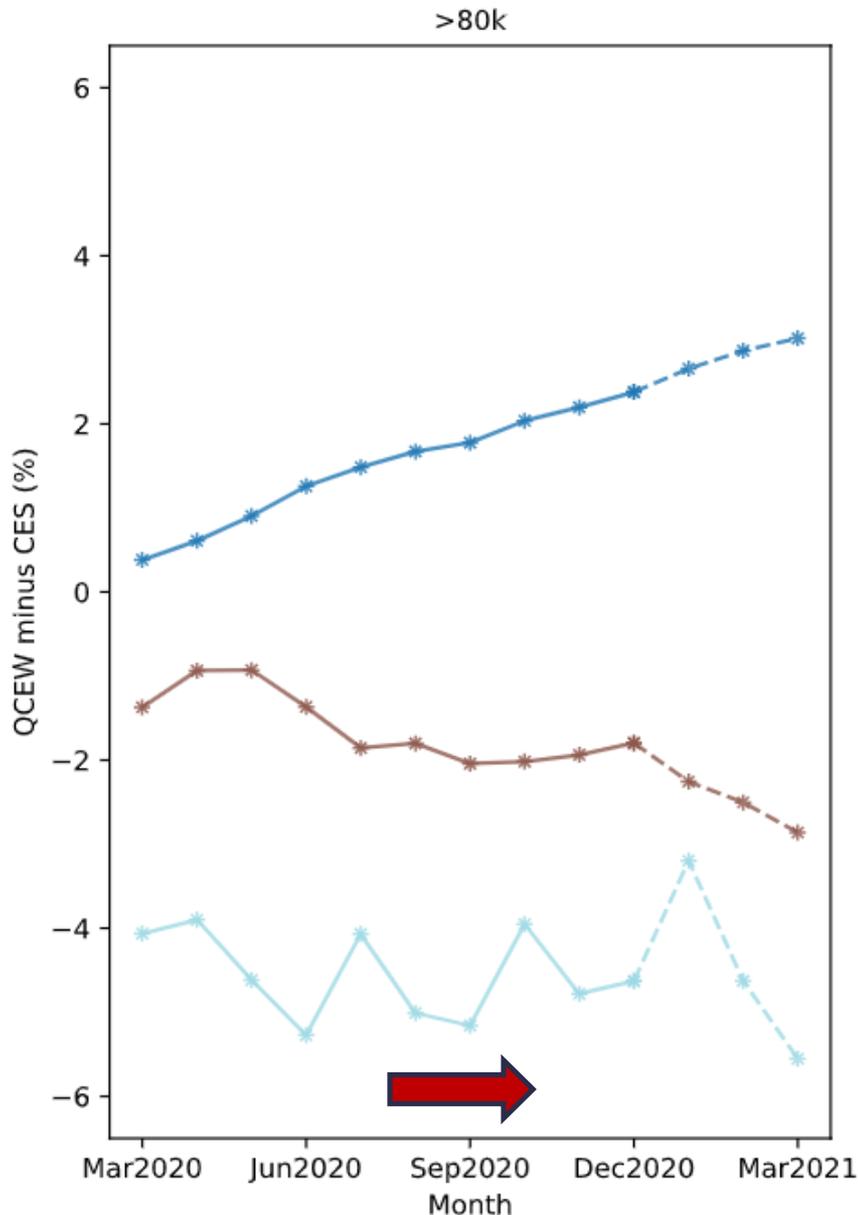
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- Closure underestimates steadily increasing and are near net zero with births



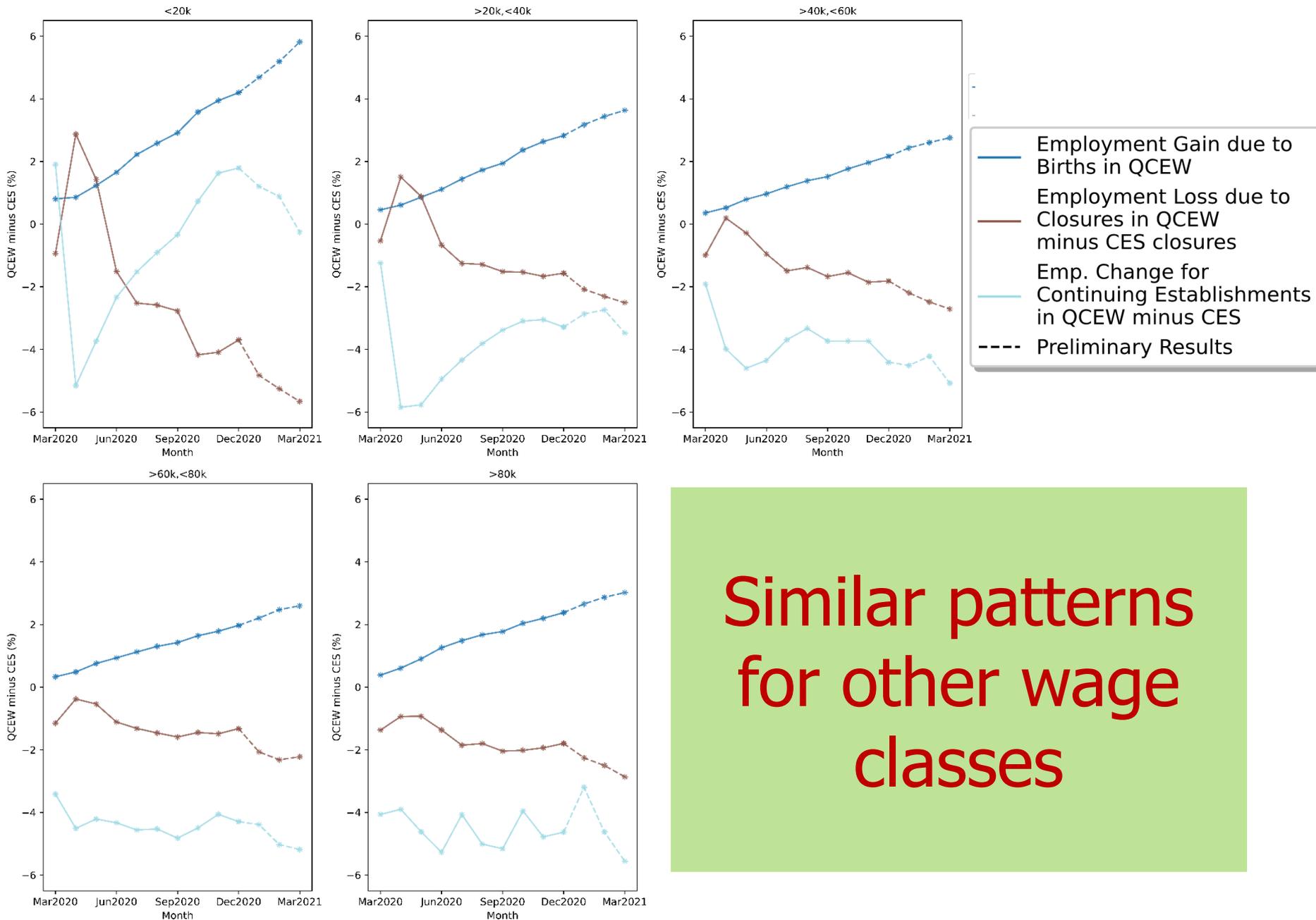


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- Continuing employment consistently overestimated in our CES estimates



QCEW minus CES
by Component of Employment Change by Average 2019 Compensation per Reported Employee



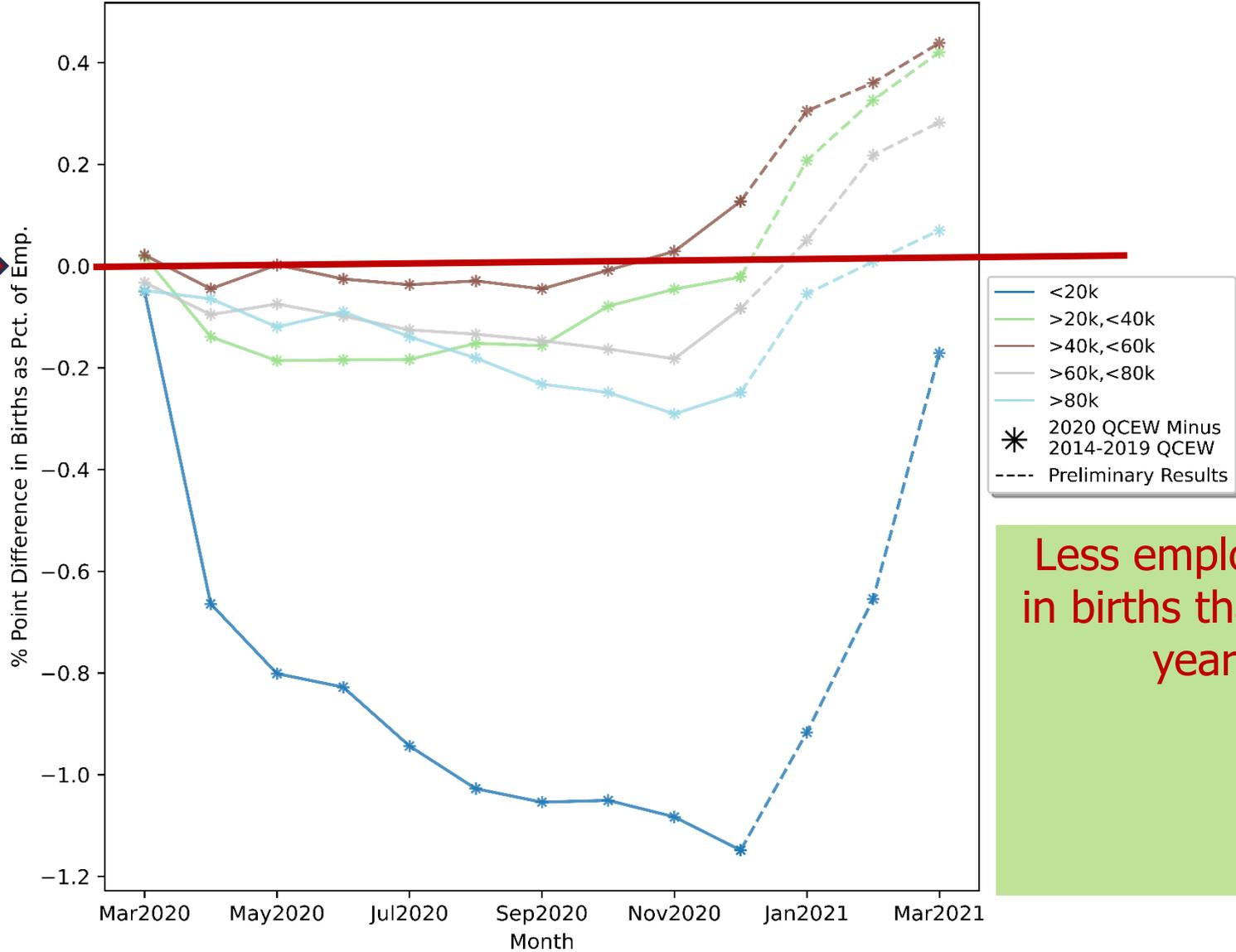
Similar patterns
for other wage
classes

Historical Employment from Births

- **March 2021:** Employment increased 6% from births for lowest wage class
 - ▶ Is this unusual?
- Look at historical QCEW as a comparison
 - ▶ 2014-2019
 - ▶ Subtract historical data from pandemic recession data
- Increase in new business applications
 - ▶ Haltiwanger (2021)
 - ▶ Are these translating into employment?

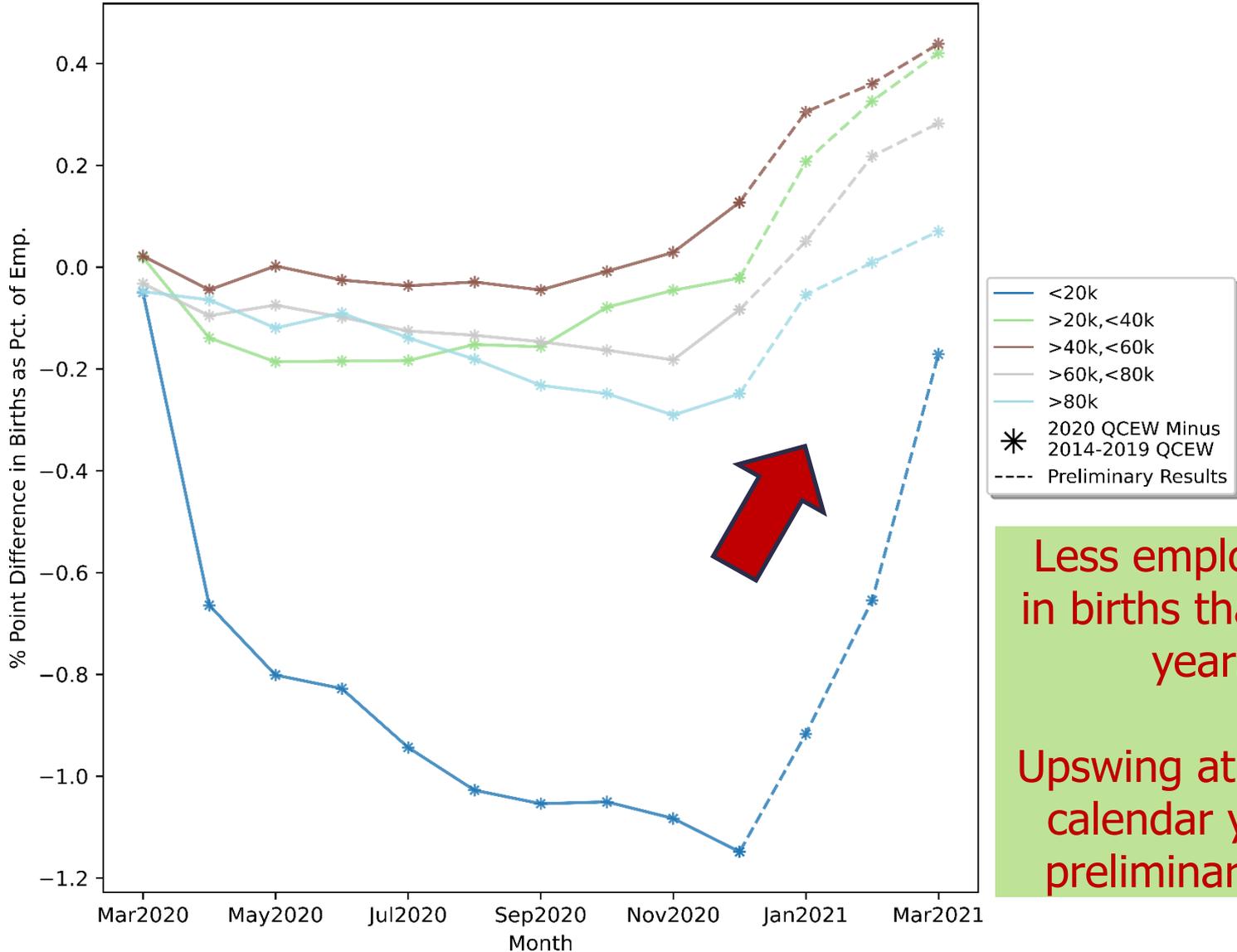


Difference between 2020 QCEW and 2014-2019 QCEW Employment due to Births by Average 2019 Compensation per Reported Employee



Less employment
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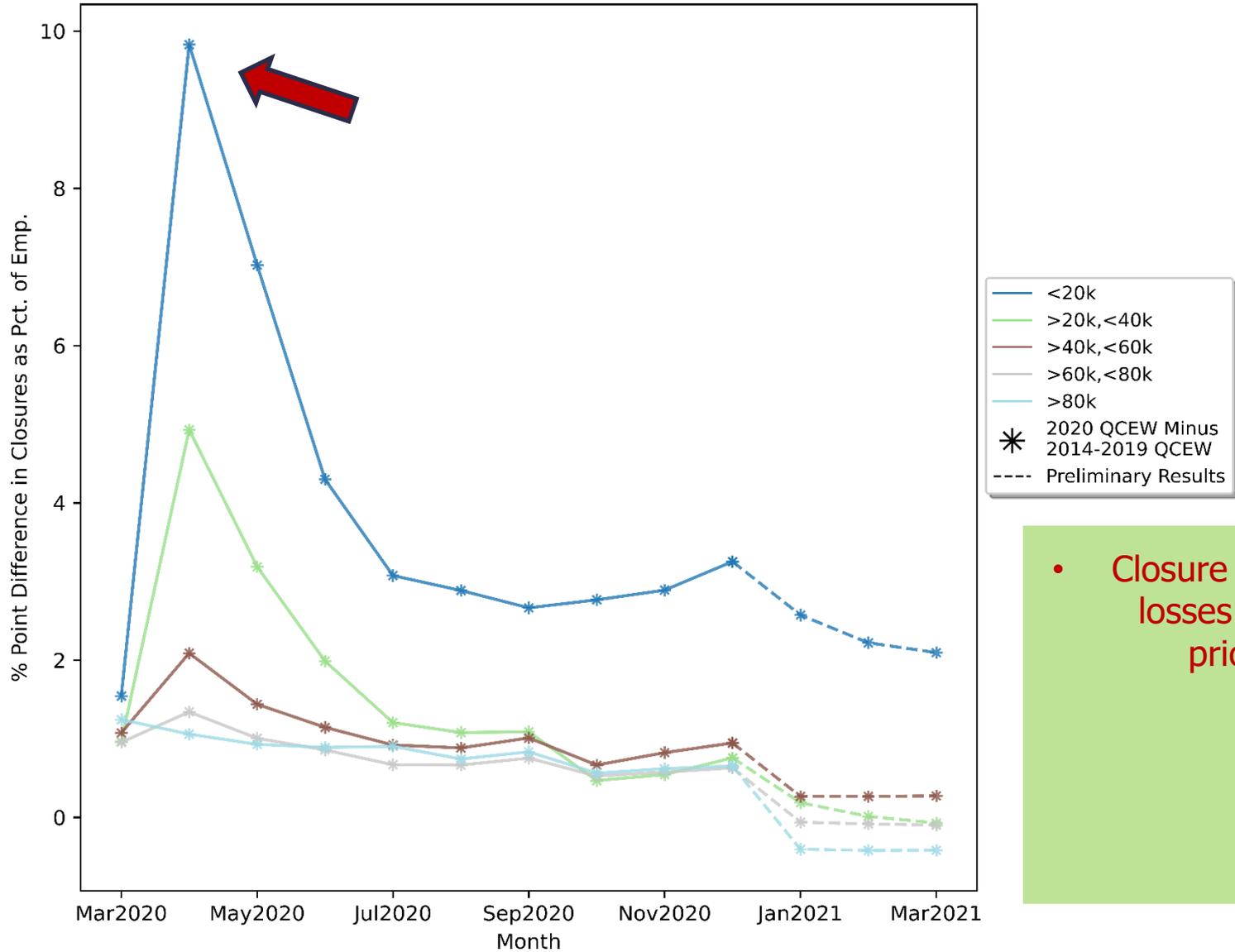
Less employment in births than prior years

Upswing at start of calendar year in preliminary data

Comparison to Historical Employment Loss from Closures

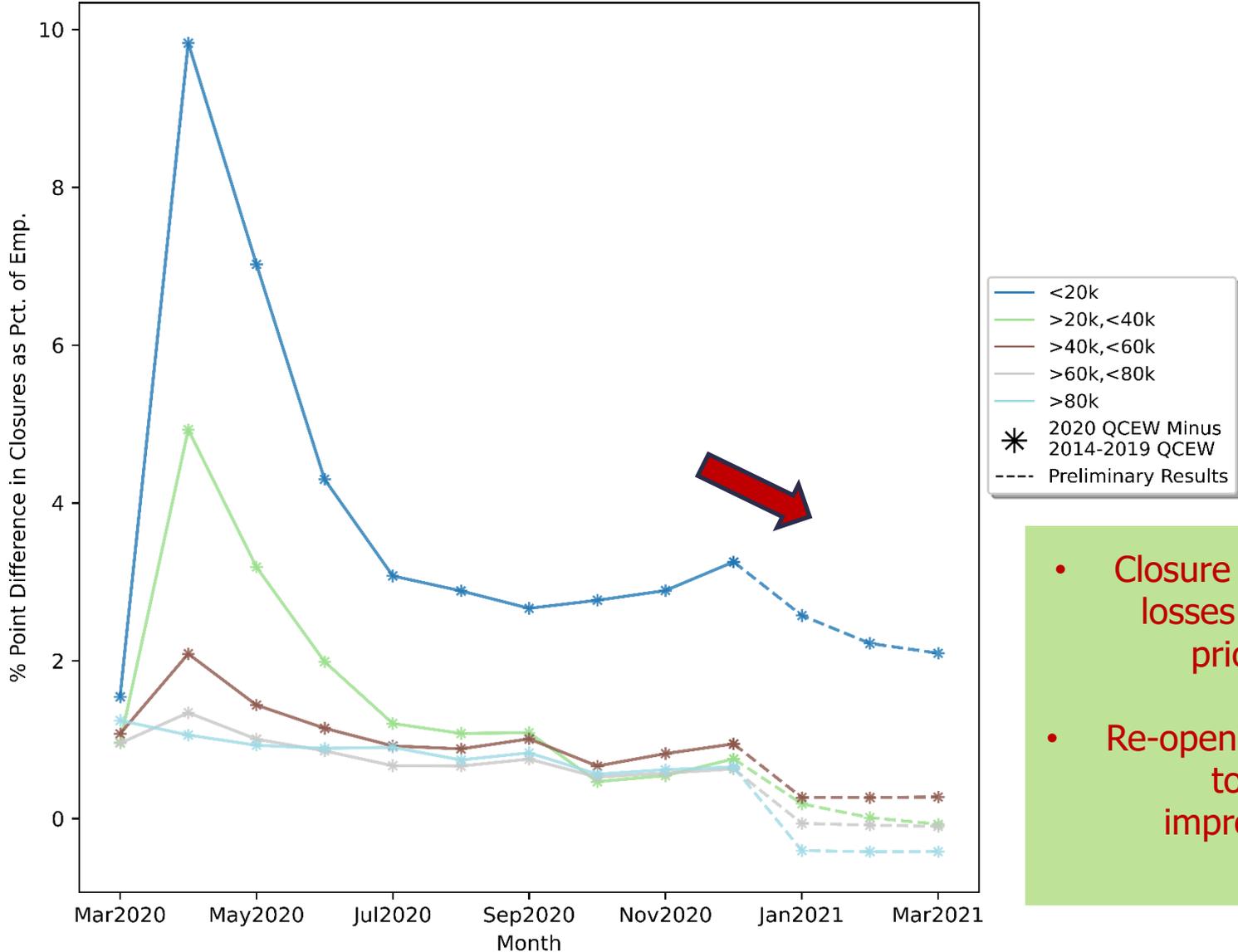


Difference between 2020 QCEW and 2014-2019 QCEW Employment Loss from Closures by Average 2019 Compensation per Reported Employee



• Closure employment losses far exceed prior years

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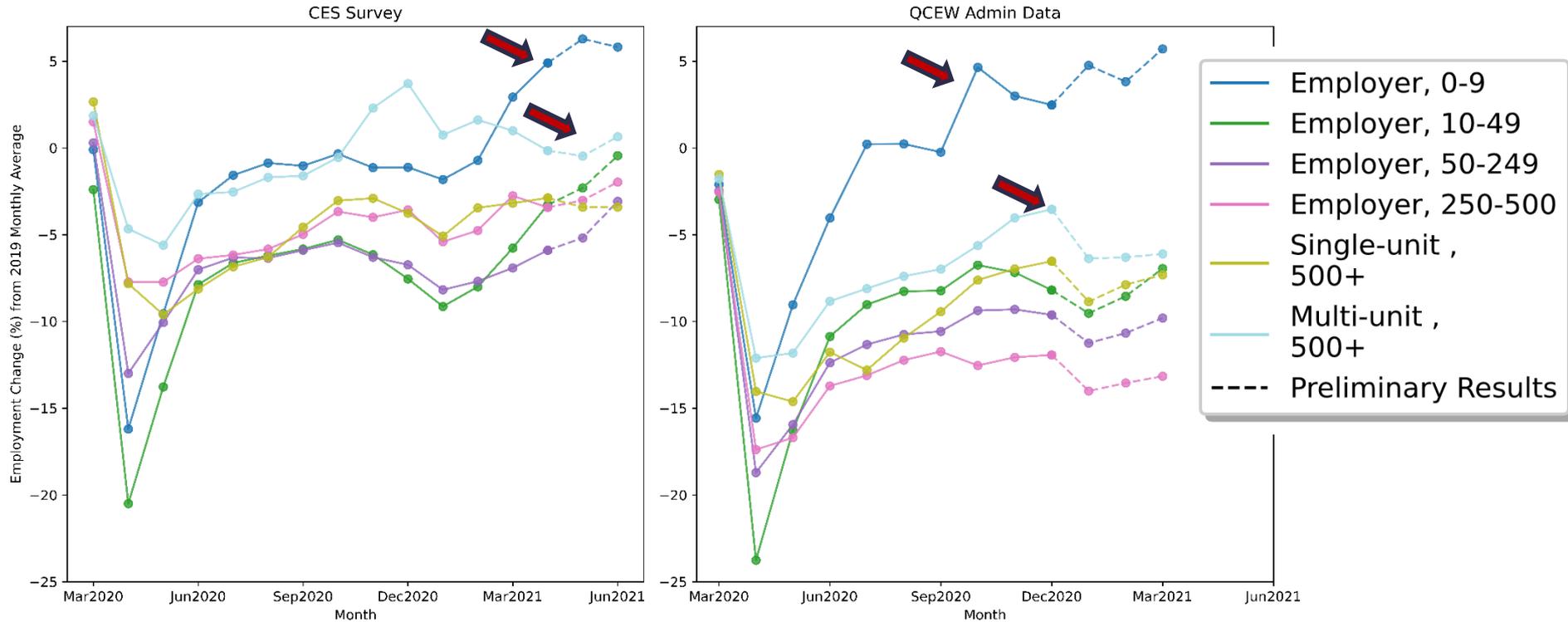
- Closure employment losses far exceed prior years
- Re-openings have led to some improvements

Estimates by Size

Based on 2019 EIN Employment



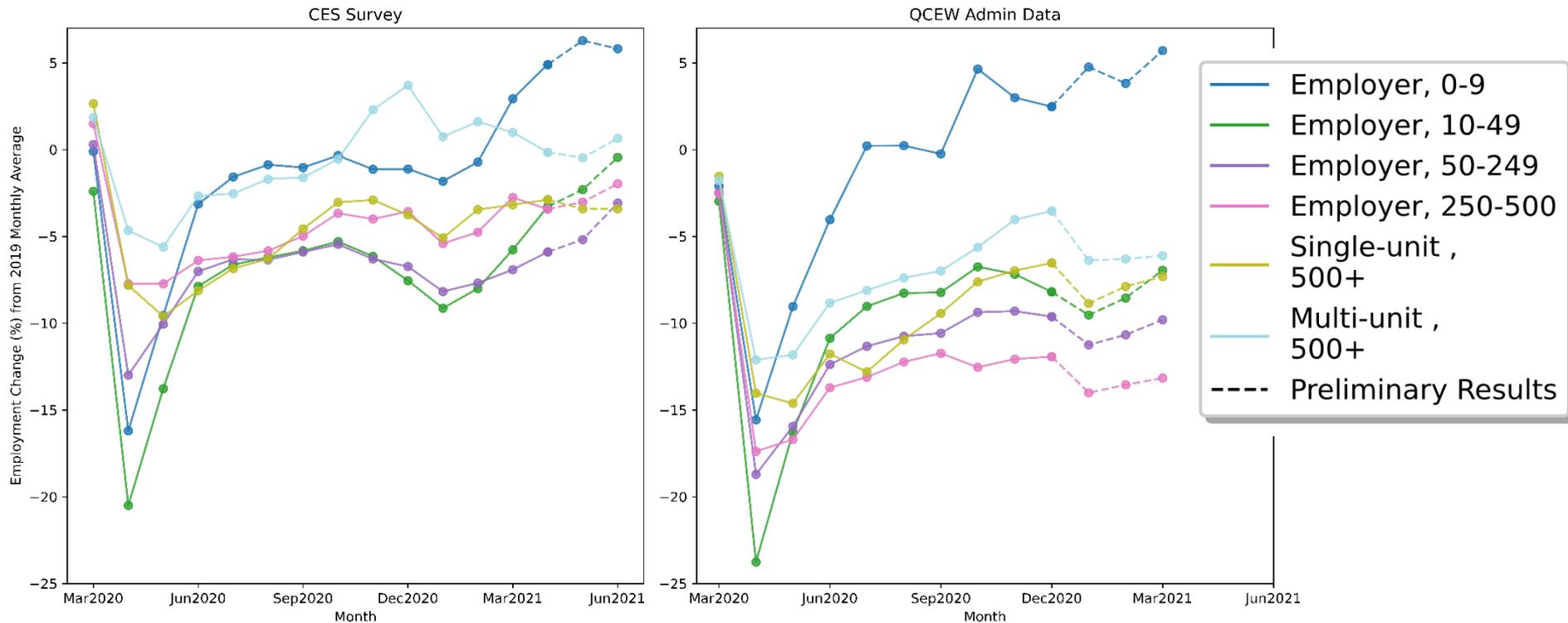
Overall Change from 2019 Monthly Employment Average by Detailed Size Class in 2019 by Multiunit Status



- Very small employers and large multiunits have done best since April 2020



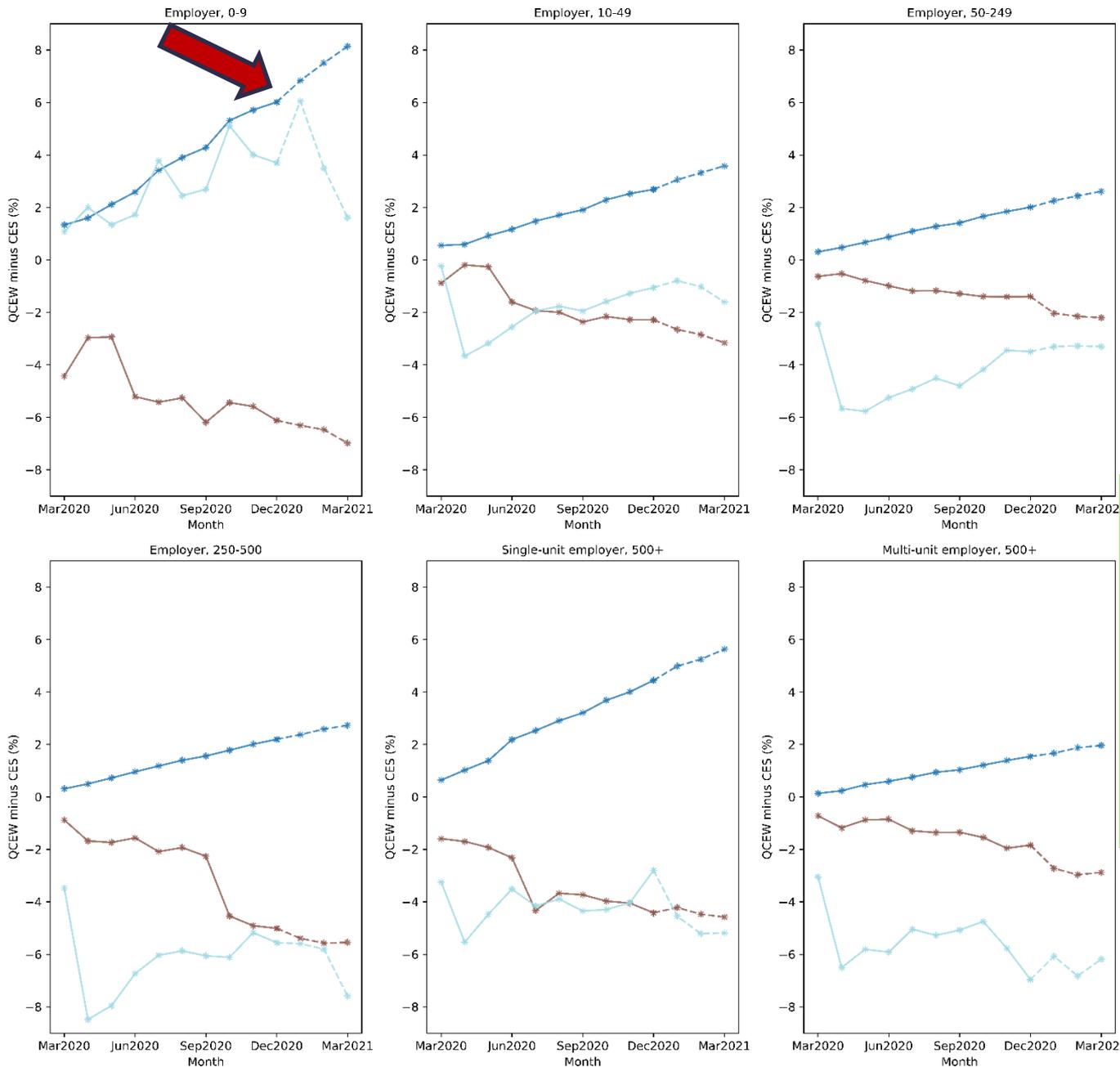
Overall Change from 2019 Monthly Employment Average by Detailed Size Class in 2019 by Multiunit Status



- Very small employers and large multiunits have done best since April 2020
 - Underestimated smallest size class in CES research series
 - Overestimated other classes in CES research series



QCEW minus CES
by Component of Employment Change by Detailed Size Class in 2019 by Multiunit Status

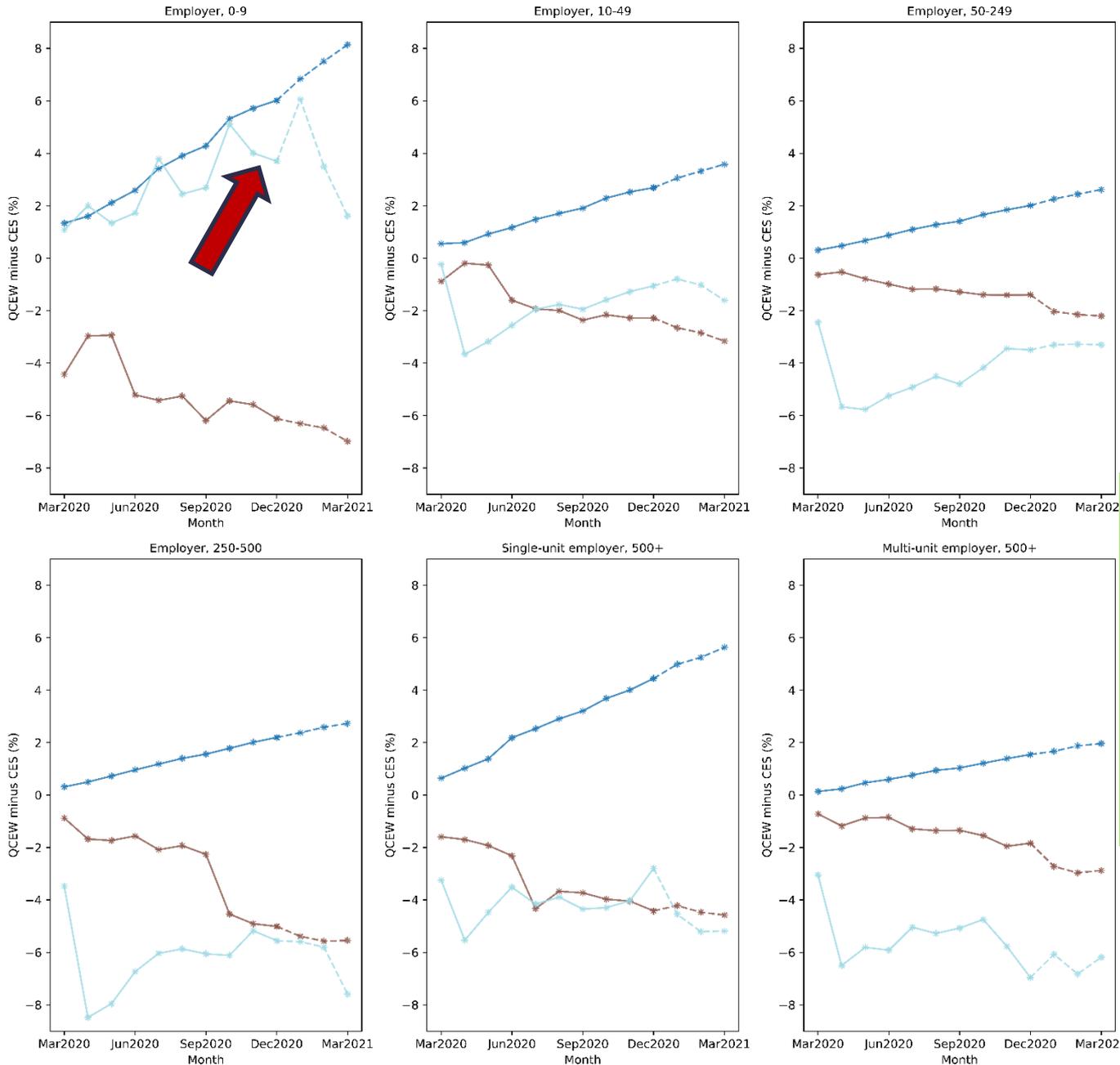


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More birth employment in smallest size class

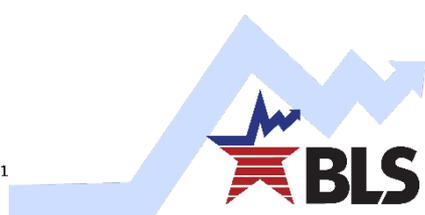


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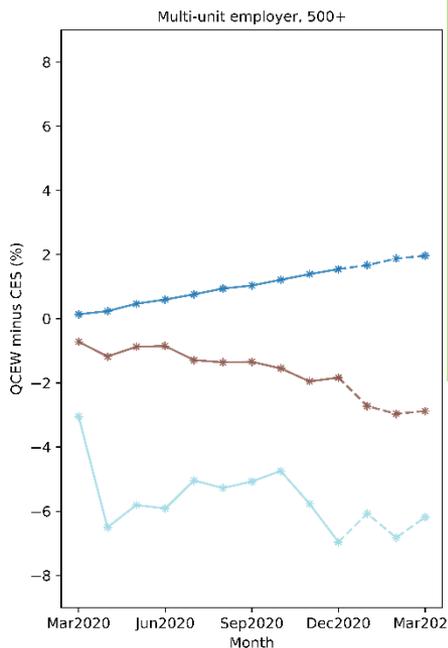
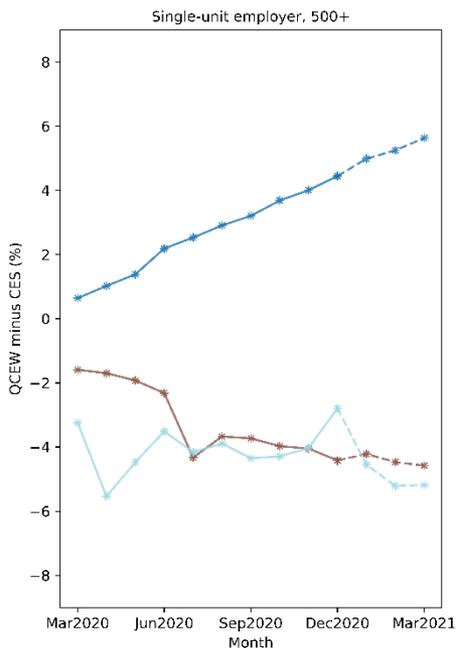
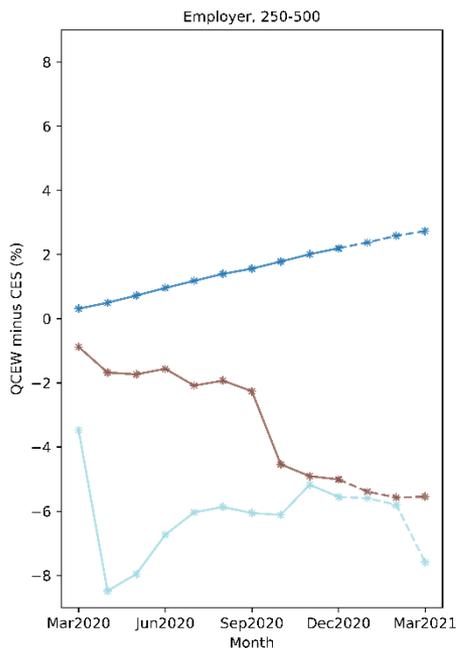
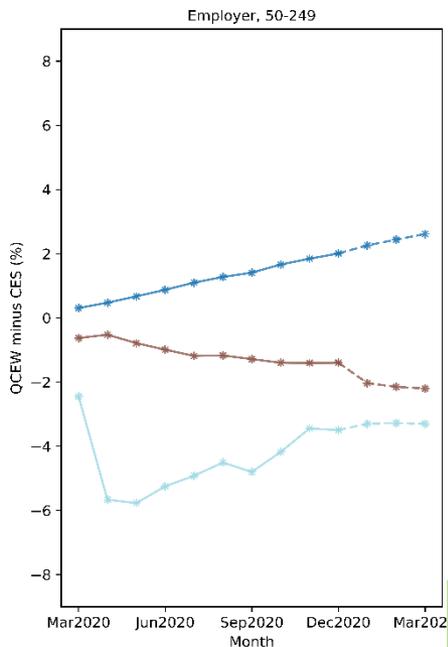
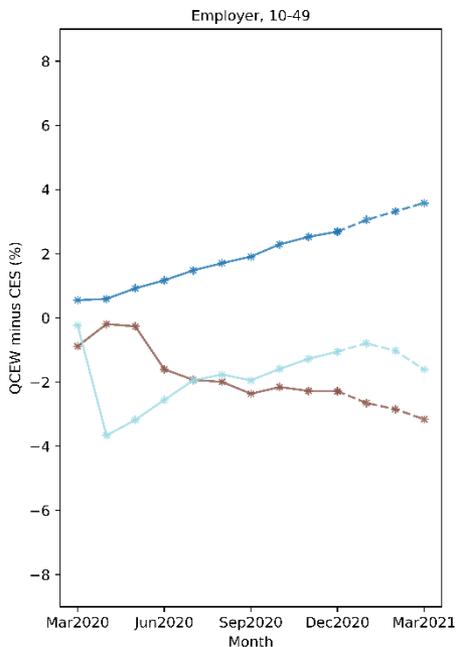
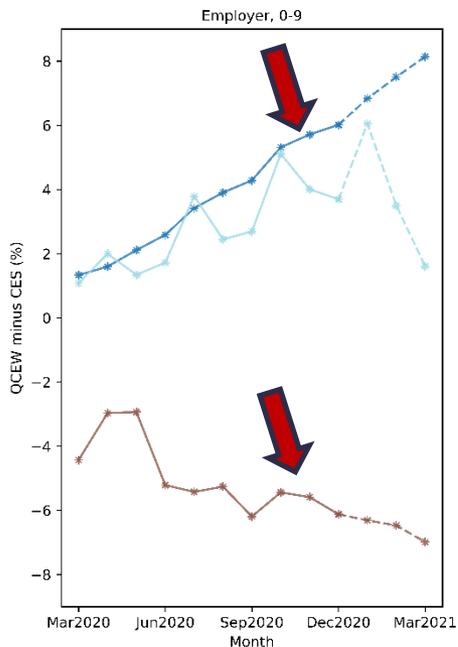


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Underestimated
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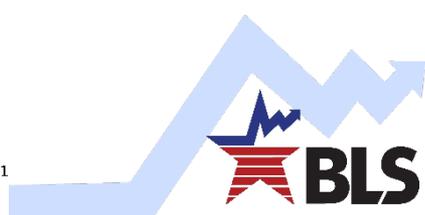


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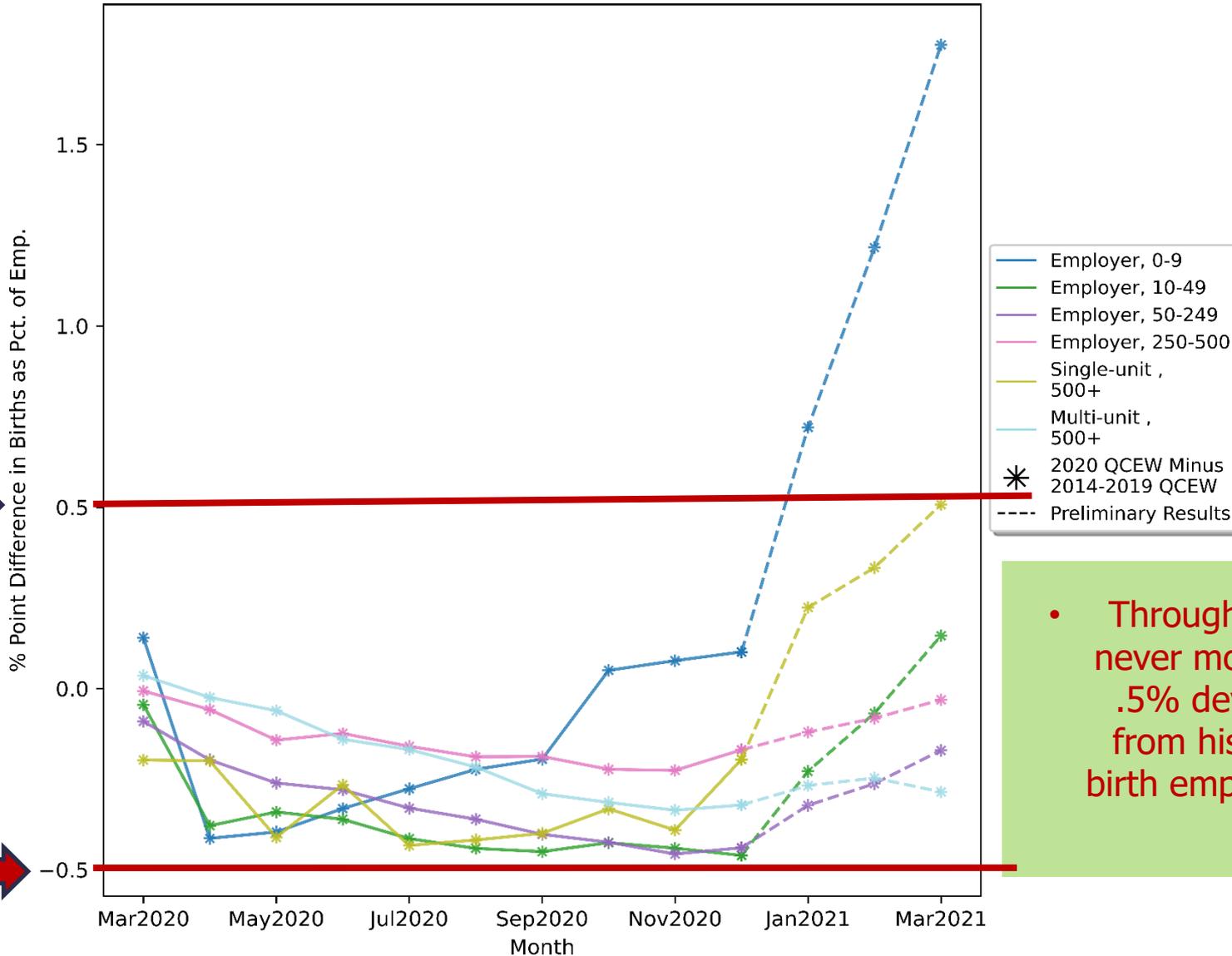
For smallest size class, underestimate of closures and births approximately cancel out



Has employment due to births been unusual?



Difference between 2020 QCEW and 2014-2019 QCEW Employment due to Births by Detailed Size Class in 2019 by Multiunit Status

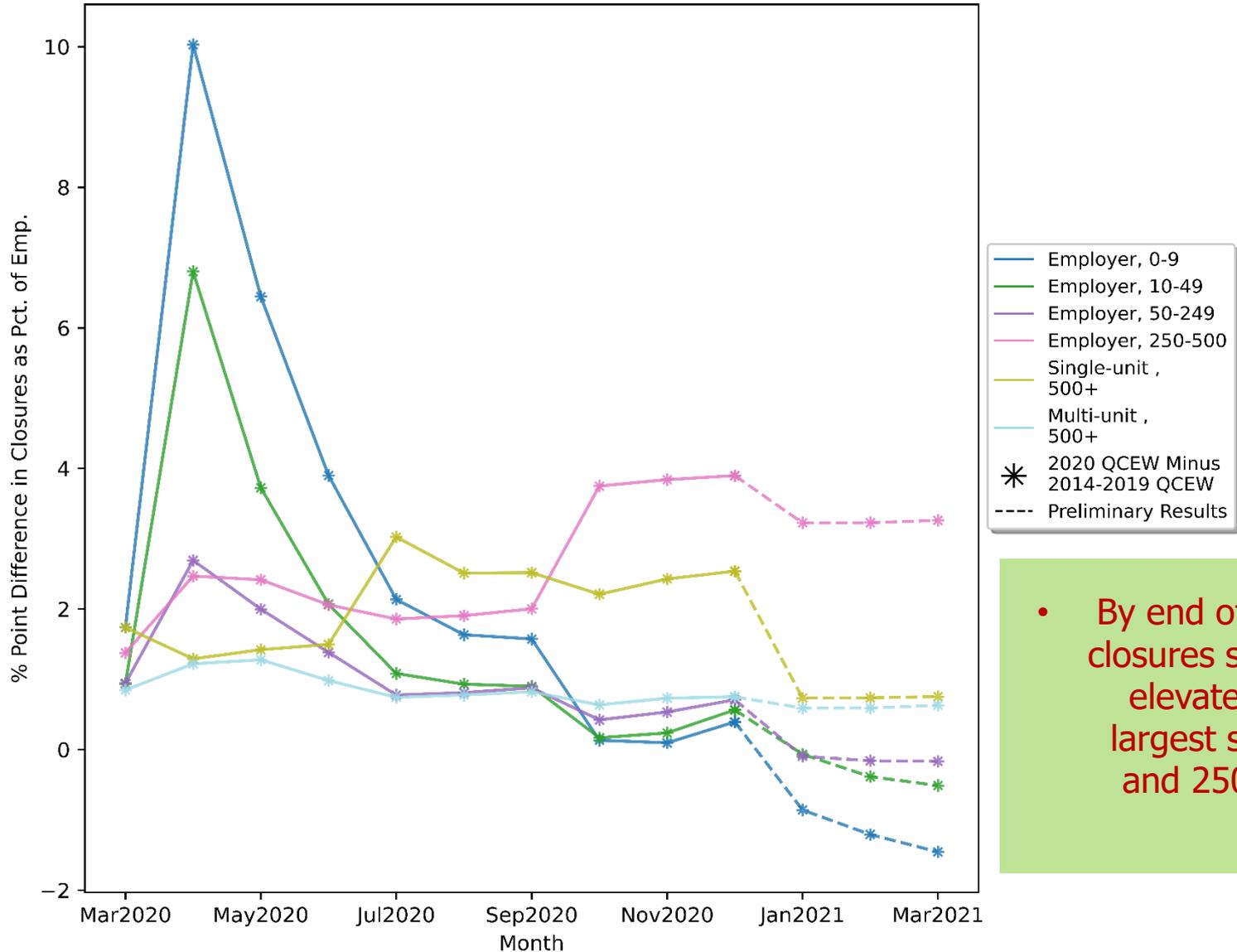


• Through 2020, never more than .5% deviation from historical birth employment

Comparison to Historical Employment Loss from Closures



Difference between 2020 QCEW and 2014-2019 QCEW Employment Loss from Closures by Detailed Size Class in 2019 by Multiunit Status



- By end of 2020, closures still very elevated for largest singles and 250-500

Comparing CES research and QCEW:

- CES research estimates missed employment in new establishments
 - ▶ 2.7% of all employment by December 2020
 - ▶ No more birth employment than in recent years



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 - ▶ Imputation based on closures of non-respondents in prior years underestimated actual closures in 2020

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- CES research estimates missed employment in new establishments
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- Missed a similar amount of employment loss from closures
 - ▶ Imputation based on closures of non-respondents in prior years underestimated actual closures in 2020
- CES research estimates did not fully capture all employment loss relative to QCEW
 - ▶ **But patterns across groups (wage, size) are consistent between sets of estimates**
 - ▶ Overall errors in research CES estimates (relative to QCEW) worst for...
 - higher-paying employers
 - large multi-establishment employers
 - employers of 250-499 people

Reasons for differences between CES research and QCEW

- *Obvious*: we ignored births
- Sampling error in CES
- Nonresponse bias in CES
 - ▶ Our approach to imputing values to non-respondents based on patterns for nonrespondents in prior years led to underestimating closures
- How does reference period including 12th of month in CES compare to QCEW monthly employment?

Thank you

- When our building re-opens, the confidential microdata of the CES and (for states that permit it) the QCEW will again be available for research by external researchers
- Please note that there was a backlog for QCEW access before the pandemic
- More information on the application process for access to these data is available at <https://www.bls.gov/rda/home.htm>



Contact Information

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Detailed Industry



What Industries Are Struggling Most?

Industries that...

Promoters of Performing Arts, Sports, and Similar Events					
Performing Arts Companies					
Travel Arrangement and Reservation Services					
Other Transit and Ground Passenger Transportation					
Facilities Support Services					
Scheduled Air Transportation					



What Industries Are Struggling Most?

Industries that...

- Have recovered less than half of overall employment loss in April 2020

	% Employment Change as of (CES)...				
	April 2020	June 2021			
Promoters of Performing Arts, Sports, and Similar Events	-35.1	-33.4			
Performing Arts Companies	-37.3	-27.9			
Travel Arrangement and Reservation Services	-23.2	-27.1			
Other Transit and Ground Passenger Transportation	-17.6	-13.4			
Facilities Support Services	-4.3	-12.1			
Scheduled Air Transportation	-7.6	-11.7			



What Industries Are Struggling Most?

Industries that...

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- Have recovered less than half of **closure** employment loss in April 2020

	% Employment Change as of (CES)...		% Employment Lost due to Closures (CES) as of...		
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Performing Arts Companies	-37.3	-27.9	-7.9	-6.1	
Travel Arrangement and Reservation Services	-23.2	-27.1	-12.1	-12.2	
Other Transit and Ground Passenger Transportation	-17.6	-13.4	-3.3	-1.8	
Facilities Support Services	-4.3	-12.1	-1.7	-7.1	
Scheduled Air Transportation	-7.6	-11.7	0.0	-2.2	



What Industries Are Struggling Most?

Industries that...

- Have recovered less than half of overall employment loss in April 2020
- Have recovered less than half of **closure** employment loss in April 2020
- Have more than 1% less employment due to births compared to historical average

	% Employment Change as of (CES)...		% Employment Lost due to Closures (CES) as of...		% Deviation from Historical Births (QCEW) as of...
	April 2020	June 2021	April 2020	June 2021	March 2021
Promoters of Performing Arts, Sports, and Similar Events	-35.1	-33.4	-6.1	-4.1	-1.9
Performing Arts Companies	-37.3	-27.9	-7.9	-6.1	-1.5
Travel Arrangement and Reservation Services	-23.2	-27.1	-12.1	-12.2	-1.4
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Facilities Support Services	-4.3	-12.1	-1.7	-7.1	-2.2
Scheduled Air Transportation	-7.6	-11.7	0.0	-2.2	-1.5

