

Business exit during the COVID-19 pandemic: Non-traditional measures in historical context

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Prepared for the UNSW CAER Workshop – October 29, 2021

The analysis and conclusions set forth here are those of the author and do not indicate concurrence by members of the Federal Reserve staff or the Board of Governors.

U.S. business exit (death) in COVID-19

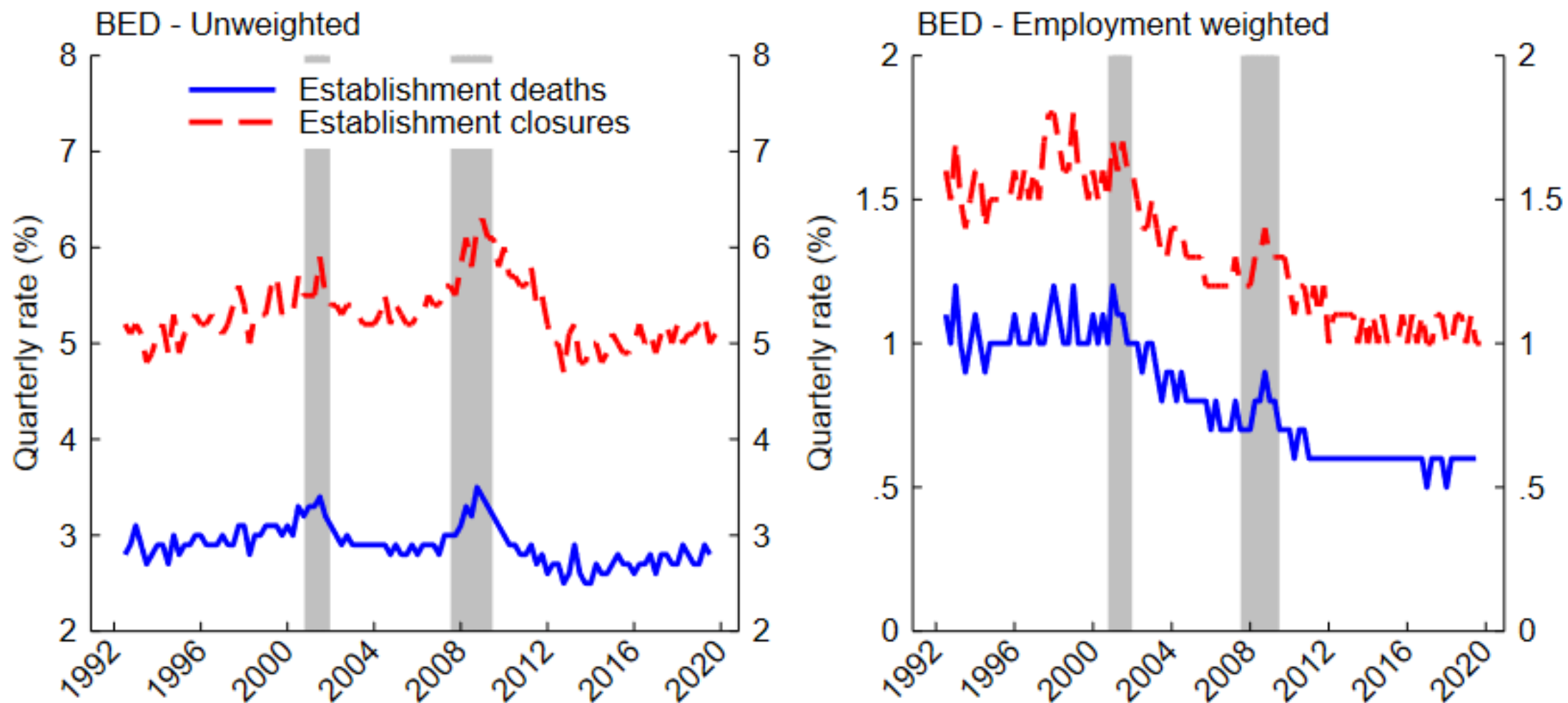
- COVID-19 brought questions about business survival to the forefront of policy and research discussions
 - Social distancing and restrictions led to large revenue declines in certain industries
 - What are survival prospects of affected businesses? What are macro implications?
- Business exit can be healthy but
 - Permanently destroys jobs (i.e., no recall option, see Fujita & Moscarini 2017)
 - Destroys proprietor wealth
 - Destroys intangible/firm-specific capital—and physical capital through reallocation frictions (Cooper & Haltiwanger 2007)
 - Alters the economic geography of local communities
 - Can affect aggregate productivity depending on exit selection
- High demand for real-time insights about business survival

Measuring business exits in official U.S. statistics

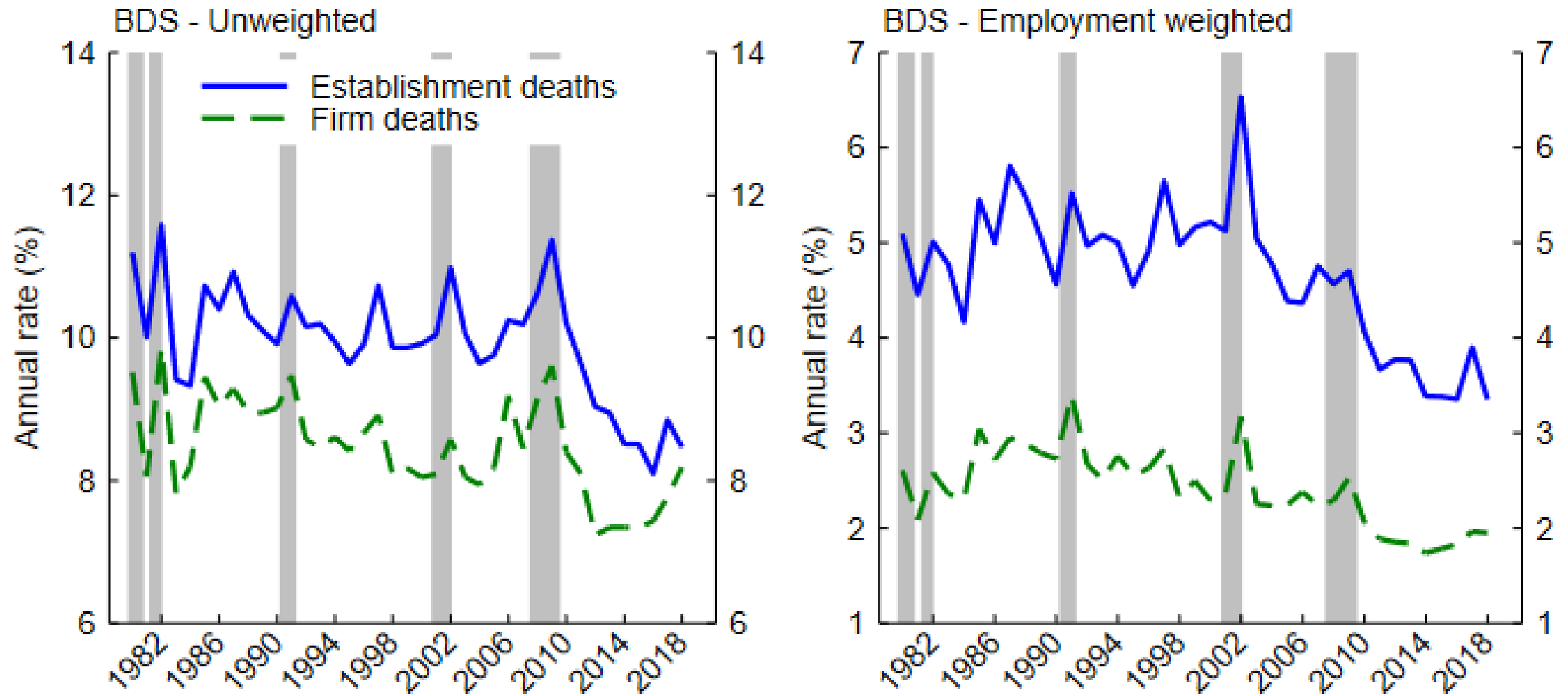
- **Bureau of Labor Statistics (BLS)**: quarterly Business Employment Dynamics (**BED**)
 - Based on unemployment insurance system data
 - *Establishment* closure and death
 - Coverage starts early 1990s
 - *Closure* data lag 2 quarters (currently through 2020q4); *death* 3 quarters later (Sadeghi 2008)
- **Census Bureau**: annual Business Dynamics Statistics (**BDS**)
 - Based on federal tax data
 - *Firm* and establishment death
 - Coverage starts late 1970s
 - *March* data lag 2.5 years (i.e., mid-2020 captured in the 2021 data, released in 2023)
- Measuring exit is difficult
 - Administrative data have a long pipeline
 - Exit takes extra time to observe
- Analysts have therefore turned to nontraditional/alternative data
 - Some nontraditional data produce nonsensical results
 - ...Making sense of nontraditional data requires context from official data

Stylized facts about business exit

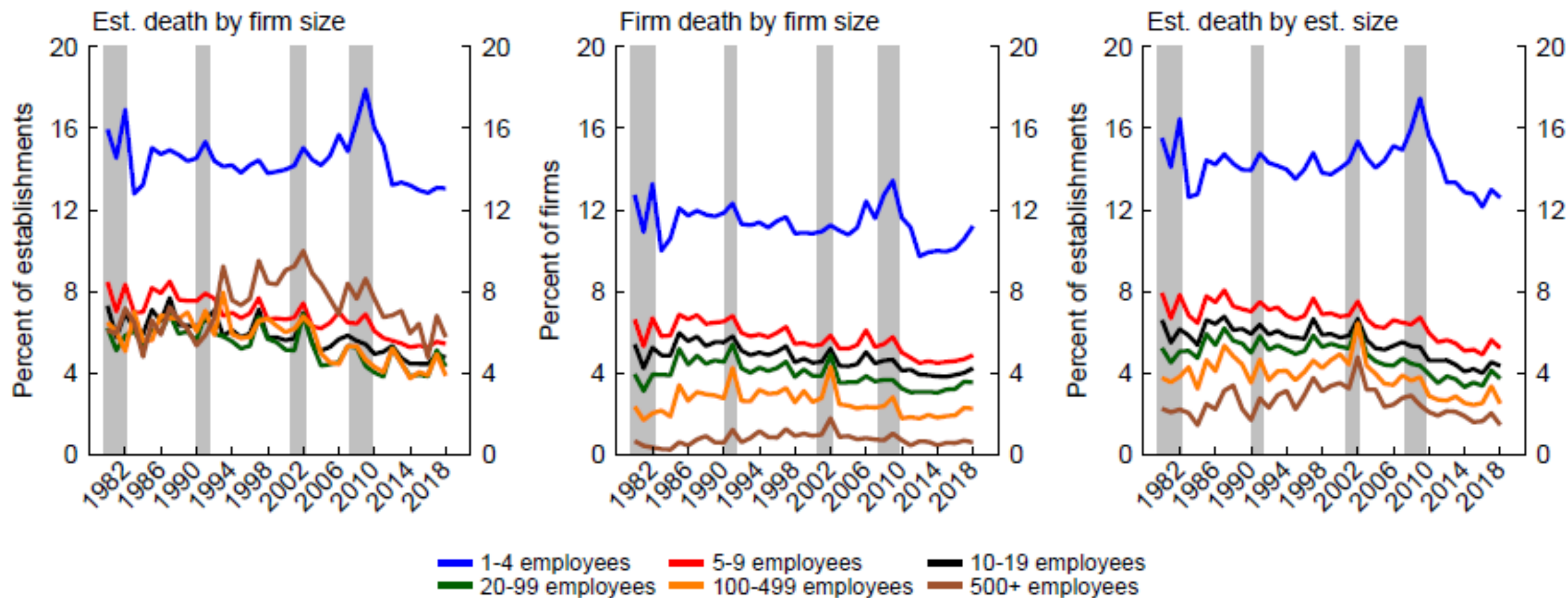
Historical exit/closure in BLS BED data



Historical exit in Census Bureau BDS data



Exit by firm & establishment size (BDS)



Note: Unweighted exit rates with DHS denominators. BDS data are noisy in Economic Census years (2's and 7's).
Source: Census Bureau Business Dynamics Statistics (BDS).

Business cycle correlations

Table 1: Business cycle correlations

	Unemployment		GDP	
	Unweighted	Weighted	Unweighted	Weighted
BED: Establishment closures (BLS)	.34	.23	-.40	-.13
BED: Establishment deaths (BLS)	.36	.31	-.44	-.21
BDS: Establishment deaths (Census)	.64	.37	-.46	-.16
BDS: Firm deaths (Census)	.41	.31	-.32	-.18

- Positive correlation with change in unemployment rate
- Negative correlation with GDP growth

Note: Exit rates detrended linearly. BED correlated with quarterly change in unemployment rate or change in log real GDP. BDS correlated with annual change in unemployment rate or change in log real GDP on BDS annual timing (April-March). BED data cover 1992q3-2019q1 (deaths) or 1992q3-2019q4 (closures). BDS data cover 1984-2018 (trends estimated on full 1978-2018 sample).

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State-level regressions

Table 2: Business cycle comovement: States

	Establishment death		Firm death	
	Unweighted	Weighted	Unweighted	Weighted
Change in unemp	0.56*** (0.03)	0.22*** (0.02)	0.37*** (0.02)	0.11*** (0.01)
Observations	816	816	816	816
State FE	Yes	Yes	Yes	Yes
Year FE	No	No	No	No

- Correlations significant within states
- Establishment death more cyclical than firm death

Note: Regression of annual exit rates on annual change in unemployment rates, 2003-2018. Unemployment rate changes timed to correspond with BDS annual timing (April-March). ***denotes statistical significance with $p < 0.01$.

Source: Author calculations from Business Dynamics Statistics and BLS unemployment data.

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Robustness

- Cyclical results are robust to:
 - Hamilton (2018) and H-P detrending
 - Exit levels (vs. rates)
 - Alternative (non-DHS) exit rate denominators
 - Economic Census years
 - 2002 Business Register redesign
 - Inclusion/exclusion of state fixed effects
 - Pre-2020 BDS vintage
 - Industrial Production as business cycle indicator

Stylized facts about business exit

- Annual *firm* exit rates (BDS, 2015-2018):
 - 7.5%
 - 400,000 firms
 - 2% of employment
- Annual *establishment* exit rates (BDS, 2015-2018):
 - 8.5%
 - 600,000 establishments
 - 3.5% of employment
- Exit is *countercyclical* vs. GDP, unemployment, IP (see also Tian 2018)
- Exit rate and countercyclicity *driven by tiny units*
- *Temporary* closure is common—2% of establishments per quarter (BED, 2015-2019)

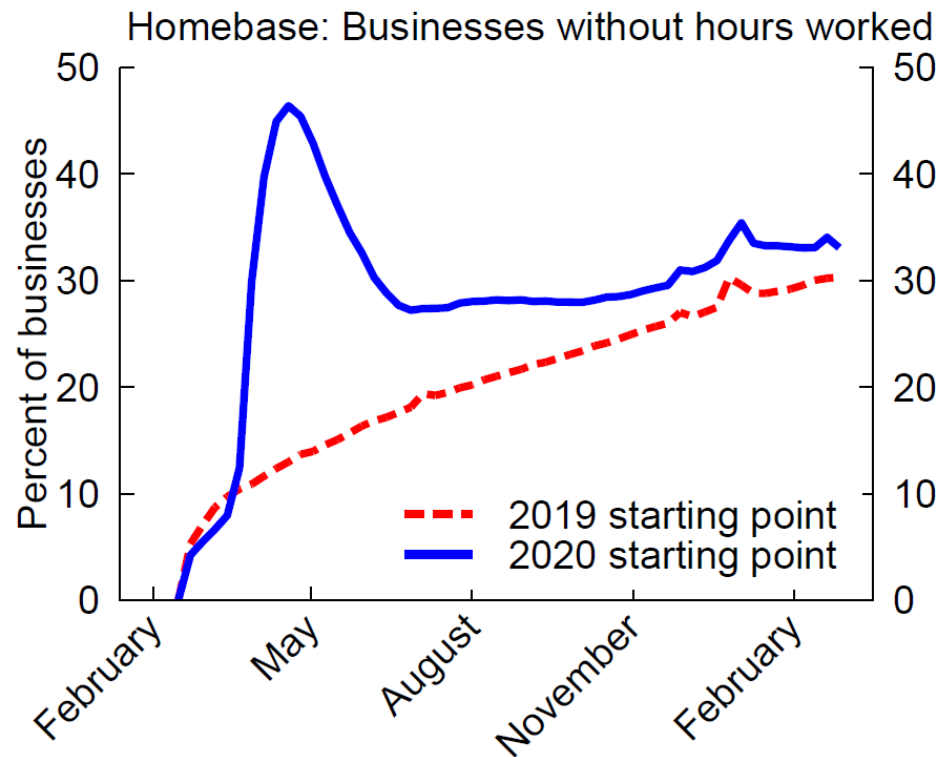
Measuring exit in nontraditional data

A taxonomy of nontraditional business exit data

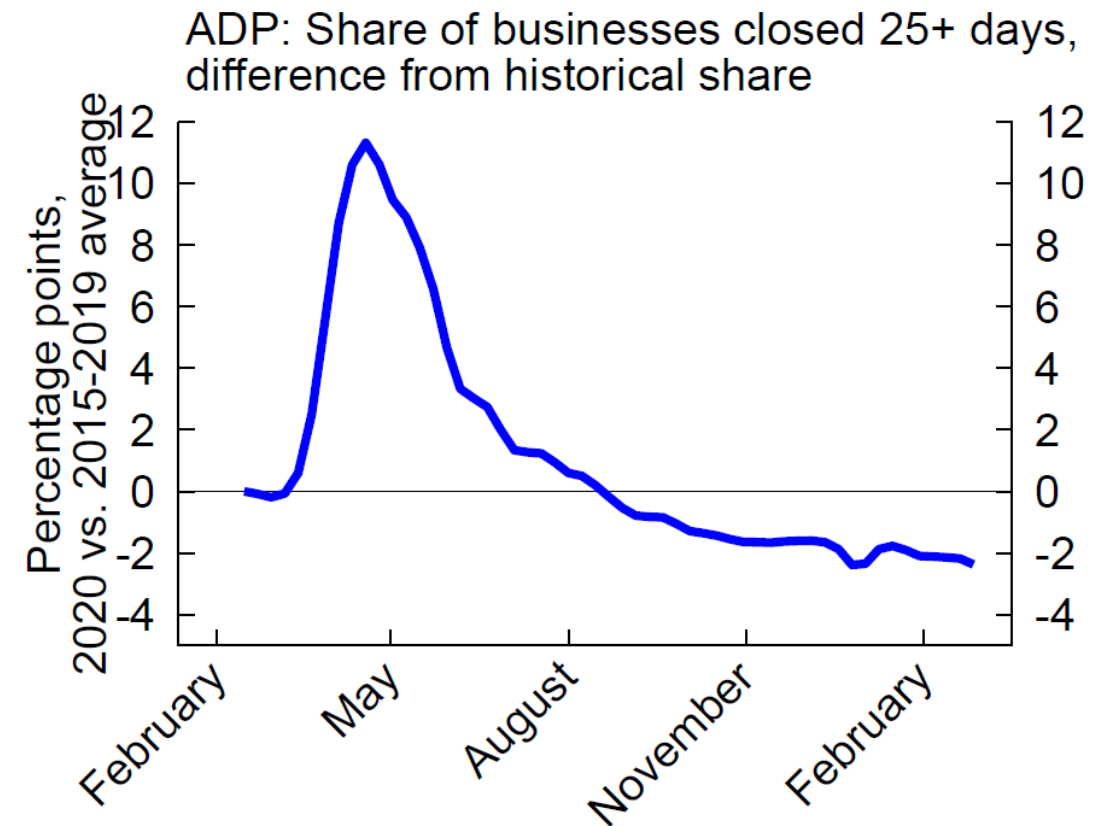
1. Business services client databases
2. Customer-tracking datasets
3. Ad hoc surveys by researchers or statistical agencies
4. Private sector census-, search-, or crowdsource-based business lists

1. Business services client databases

- Observe activity of client businesses
 - Paycheck issuance (ADP)
 - Hours worked (Homebase; also Kronos; Gusto)
 - Revenue transactions (Womply)



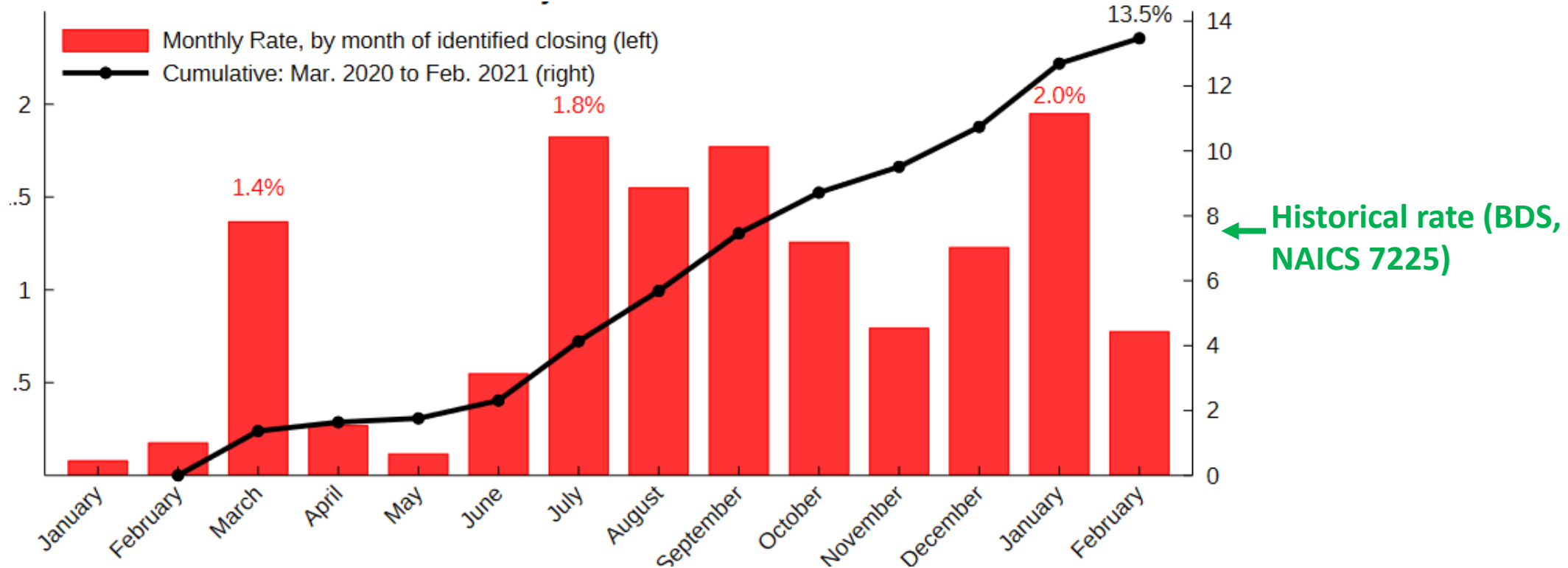
- Limitations: Cannot distinguish between client churn and business shutdown



2. Customer-tracking datasets

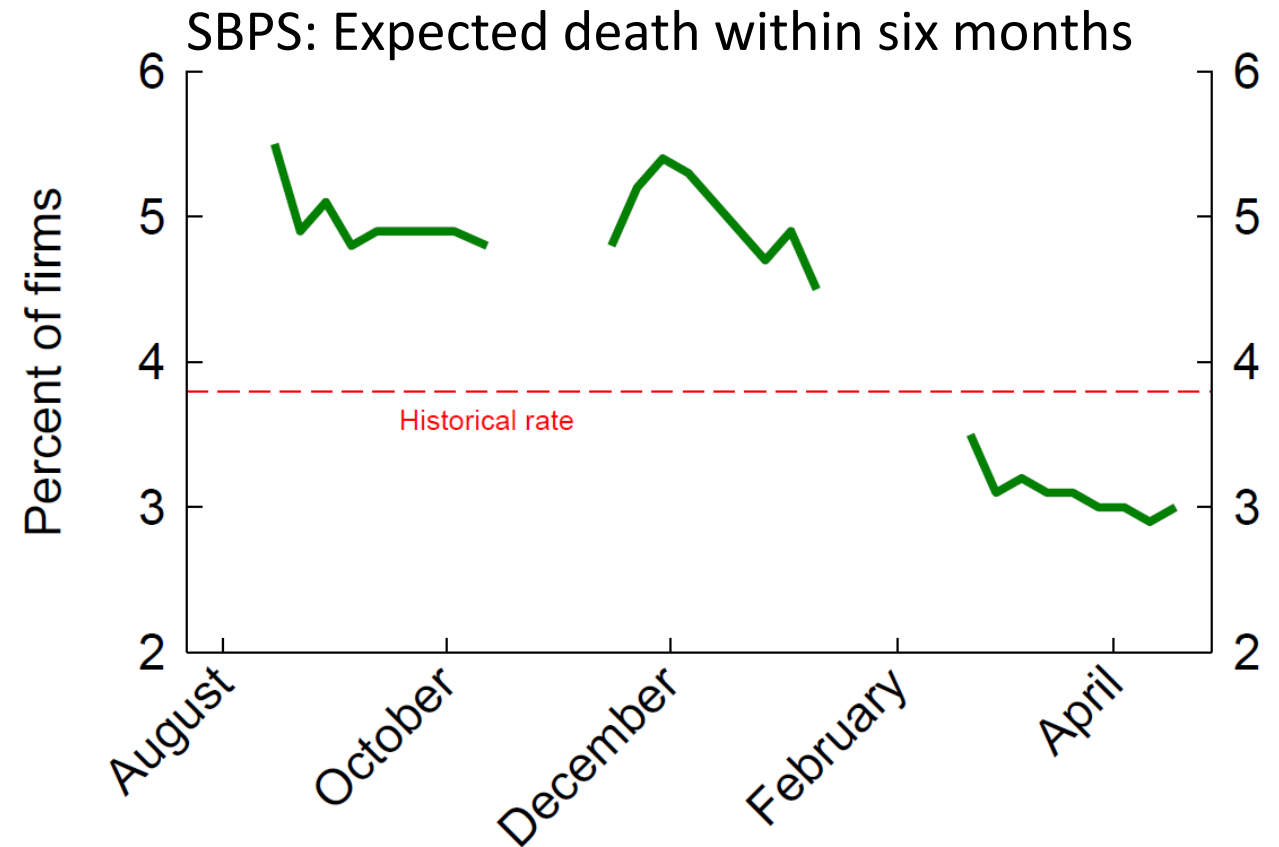
- Observe patterns of customer interactions with businesses
 - Phone tracking/customer visit: **SafeGraph**
 - Other possibility: Consumer credit cards?
- Identify establishments with large (65%) y-o-y drop in traffic
- Limitations: Inappropriate for some industries; short time series

SafeGraph: Percent of full-service restaurants permanently closed (NAICS 722511)



3. Ad hoc surveys by researchers or statistical agencies

- Surveys of businesses or business owners
 - Census Bureau Small Business Pulse/SBPS (Buffington, Dennis, Dinlersoz, Foster, Klimek 2020)
 - Bartik, Bertrand, Cullen, Glaeser, Luca, Stanton (2020)
 - CPS (households) (Fairlie 2020)
- Limitations: Nonresponse versus exit



Note: Six month expectations. Data correspond to end of survey week. Historical rate is 2015-2018 from Business Dynamics Statistics.

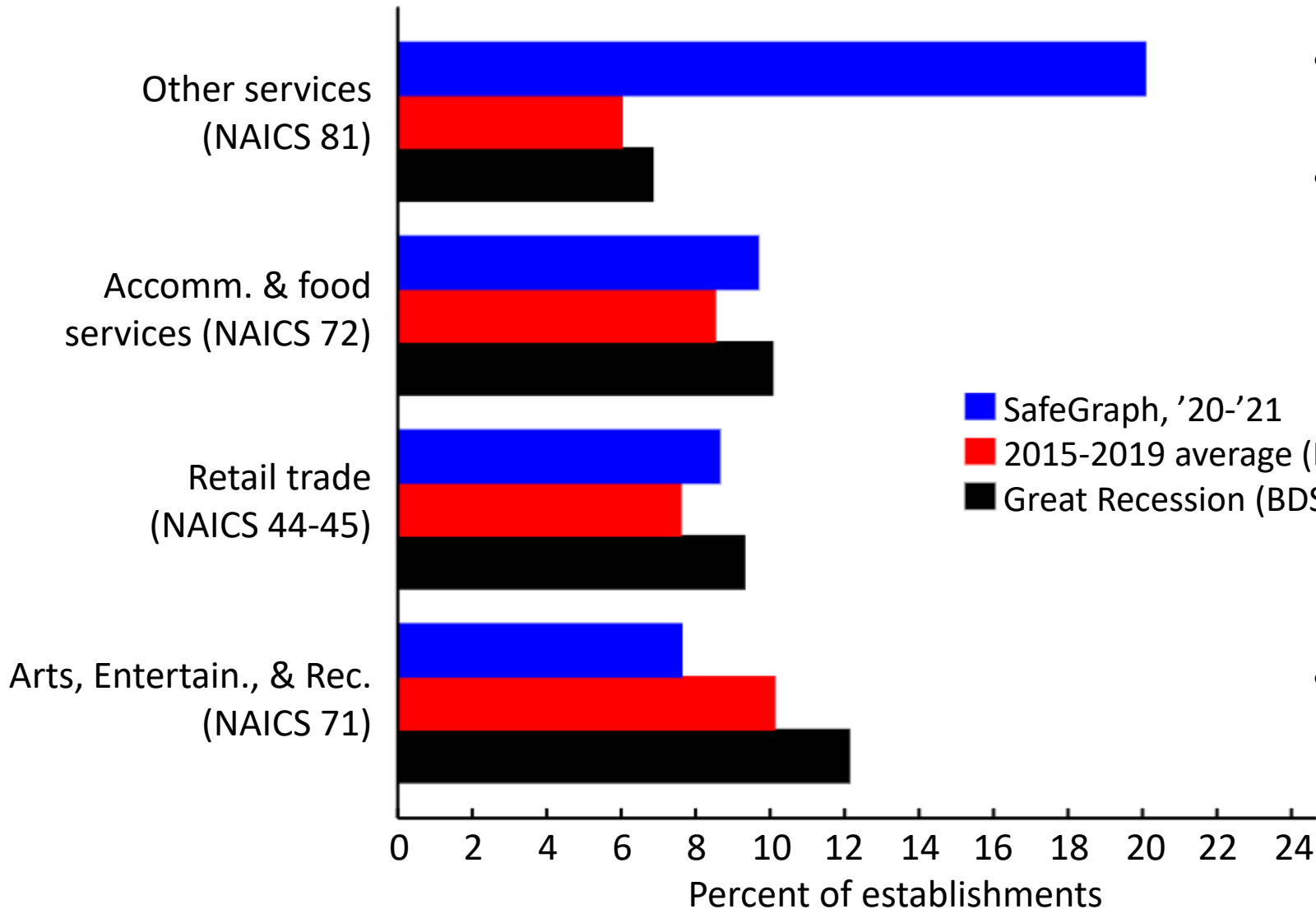
Source: Census Bureau Business Dynamics Statistics and Small Business Pulse Survey; data through April 12-18 2021.

4. Private sector census-, search-, or crowdsource-based business lists

- Private companies that make it their business to know all the businesses
 - Dun & Bradstreet/National Establishment Time Series (NETS)
 - Infogroup
 - Yelp
- Limitations: Measurement requires continual affirmative monitoring by the data provider—infeasible for millions of businesses
 - Crane & Decker (2020): D&B/NETS tracks business dynamics poorly

So, how many businesses exited? SafeGraph (cell tracking):

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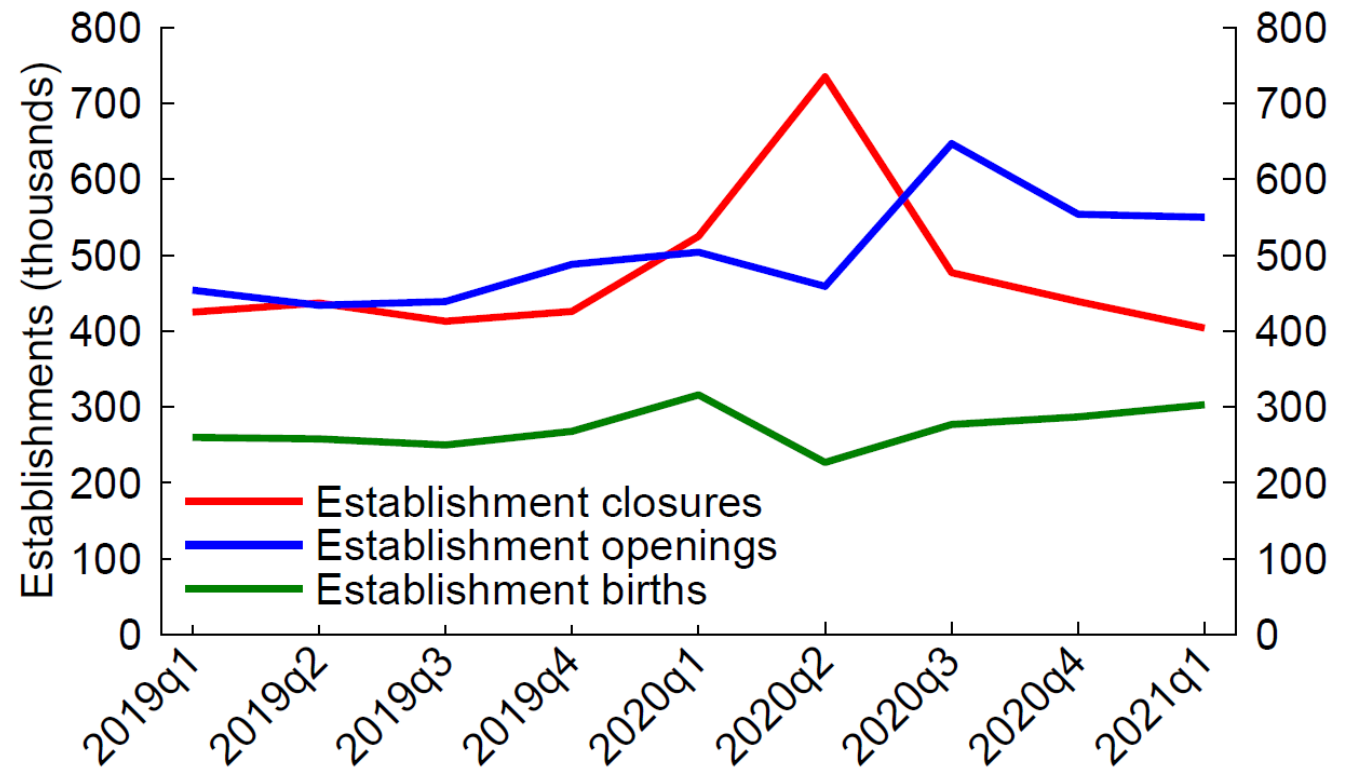


SafeGraph estimate is for the March 2020-February 2021 year

- Most *excess* exit is in “other services” (personal care, etc)
- Reasonable guesstimate: <200,000 excess establishment deaths
 - 1/4 to 1/3 above normal rates
- Probably small in employment terms (per ADP data and Dalton et al. 2020, 2021)
- Less than many feared in spring/summer 2020
 - e.g., Hamilton (2020) 400k deaths by July

Sensible estimate? BED data through 2020q4

- Surge in *closures* with peak in 2020q2
- Surge in *openings* starting in 2020q3
- Dip in *births* in 2020q2, rising thereafter
 - Death data only available through 2020q1
- Can we infer deaths from closures and openings?



Source: BLS Business Employment Dynamics. Seasonally adjusted.

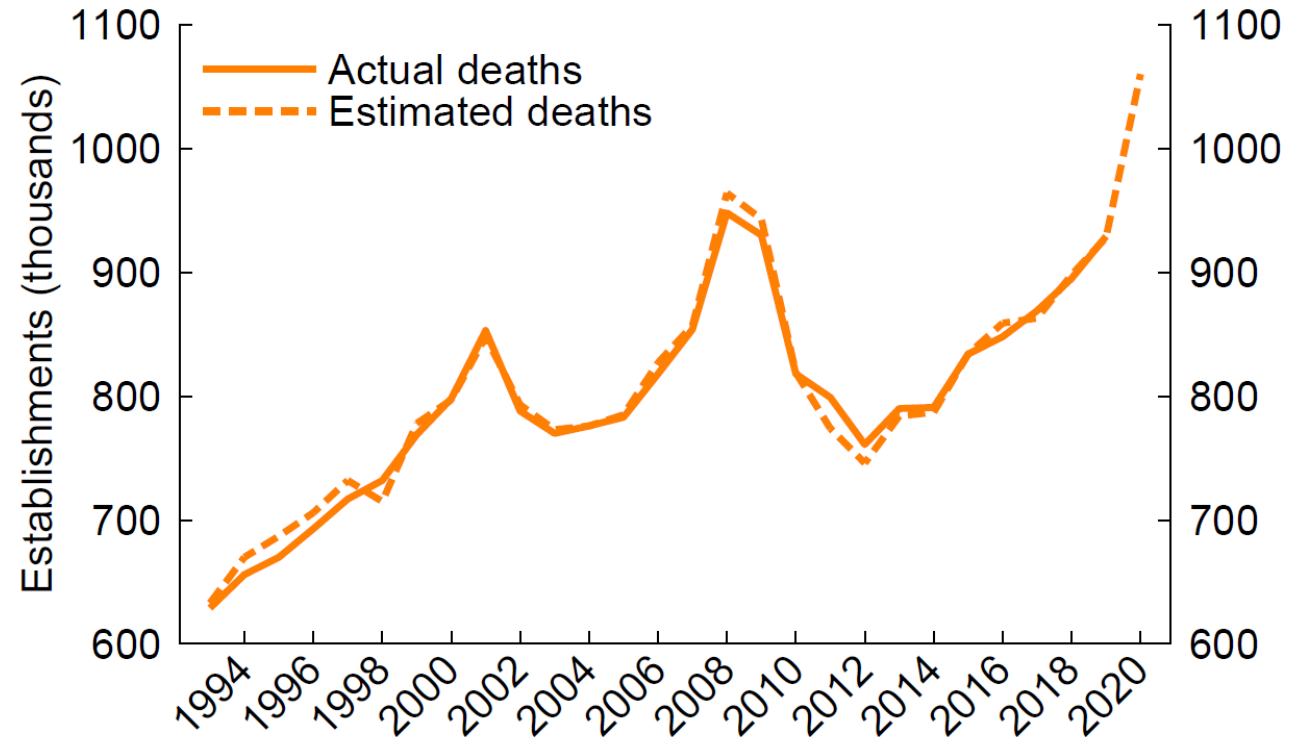
BED-based estimates

- Reopenings = openings – births
- Assume

$$\sum_{q=2020q1}^{2020q4} deaths_q = \sum_{q=2020q1}^{2020q4} closures_q - \sum_{q=2020q2}^{2021q1} reopenings_q$$

Evaluating BED-based estimates

- In 2019, estimated deaths are 928,000 versus 929,000 actual
- 1993-2019 RMSE = 10,000
- Implies 1.06 million deaths in 2020
 - **190,000 excess deaths** versus 2015-2019 average



Source: BLS Business Employment Dynamics, author estimates.

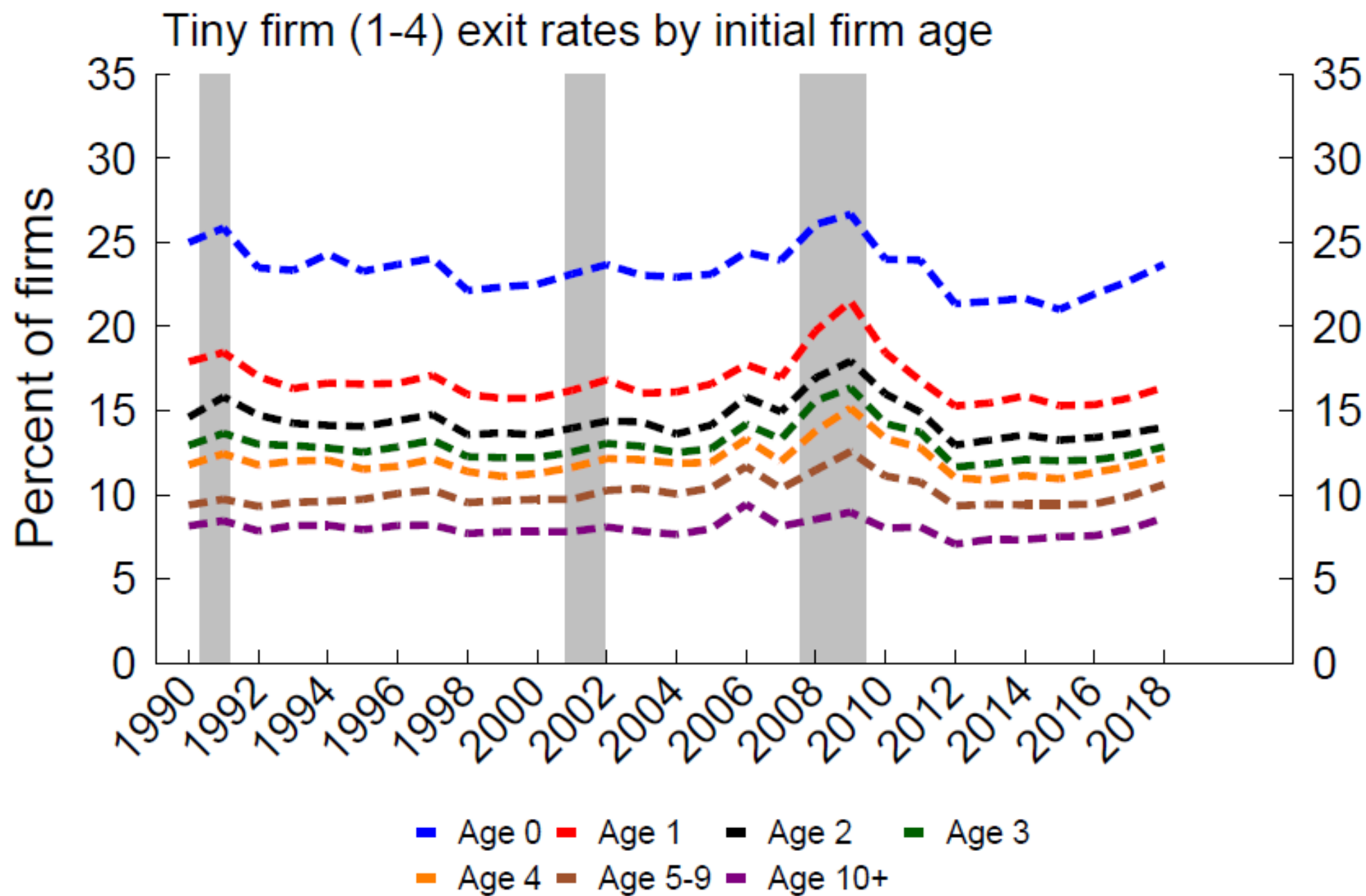
Wrapping up

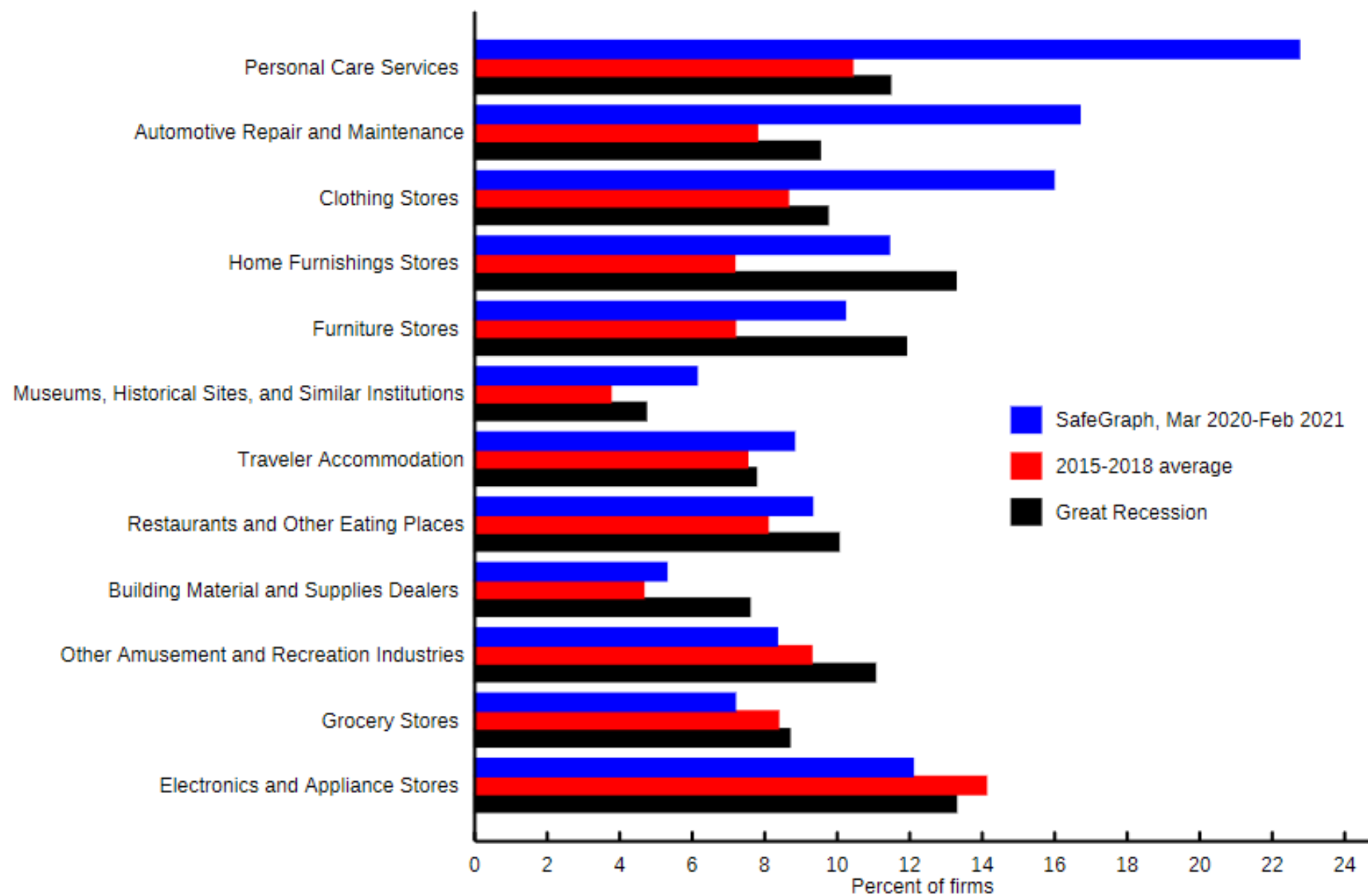
- Official data can be slow but
 - Have measurement and accuracy advantages over nontraditional sources
 - Provide critical context for assessing nontraditional data
- Exit is difficult to track even in nontraditional data, particularly in “business client services” datasets
 - Still suggestive
- Alternative: Track customers as in SafeGraph
- Other possibilities (see paper)
 - Delinquency/bankruptcy
 - Utilities accounts
 - Web searches

Wrapping up

- It seems that U.S. exit was not as elevated as feared
 - Early official data appear likely to confirm this
- If so, why?
 - Unprecedentedly broad business policy support (Decker, Kurtzman, Lutz, Nekarda 2021)
 - Excessive pessimism
 - Business owners' resourcefulness

Thanks





Q2 closures in BED data

