



Challenges for Hawaii's Post-COVID Workforce

a webinar presentation prepared for

Hawaii Workforce Development Council

by Paul H. Brewbaker, Ph.D., CBE
TZ Economics, Kailua, Hawaii
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TZ ECONOMICS

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Topical interests from the Workforce Development Council

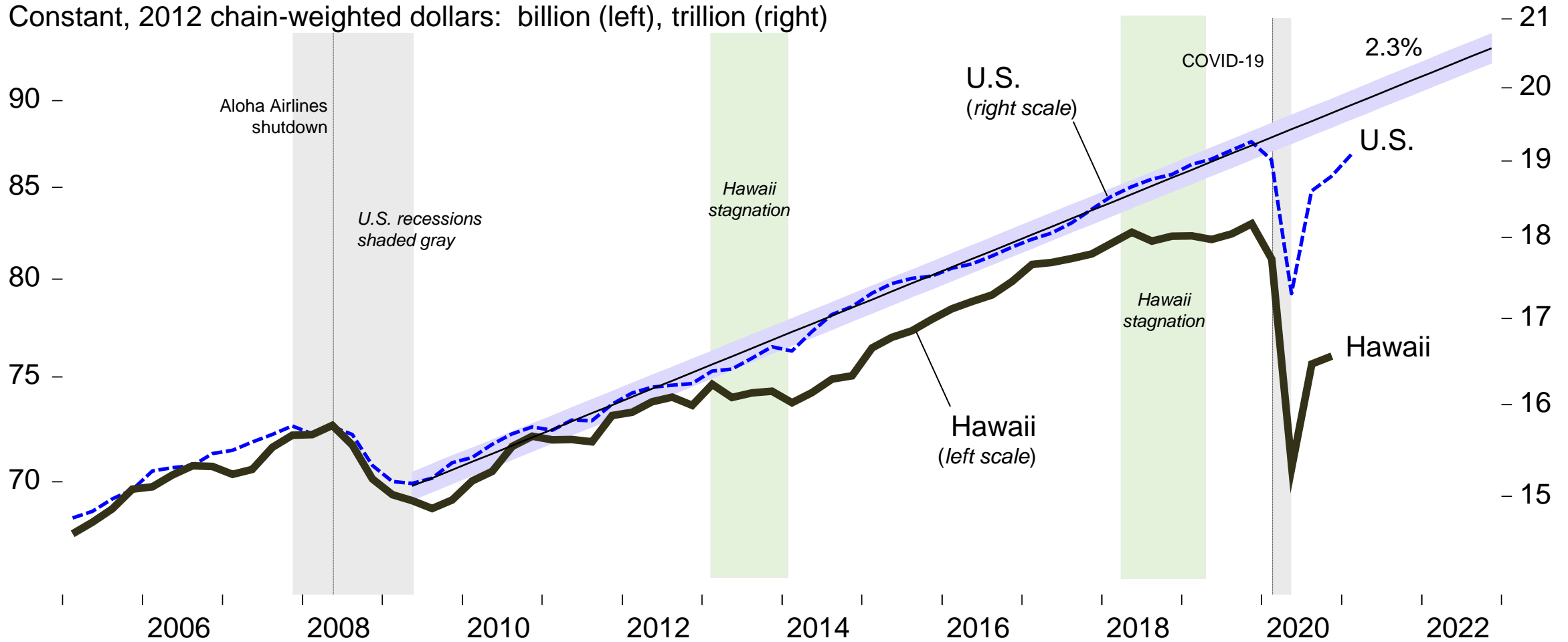
- Projection for Hawaii's economy and workforce for 2022 and beyond
 1. Workforce by industries
 2. Supply chain shortages (semi-conductors, wood, construction supplies, *etc.*)
 3. Digital impacts
 4. Labor force projections
- Long-run impact of COVID
- What employers should expect
- Alternative industries to hospitality [*pass*]
- Interest rates [*Appendix*]
- Recession (and other risks) [*latent throughout*]



Reality challenge: nobody remembers Hawaii's 2018-19 recession

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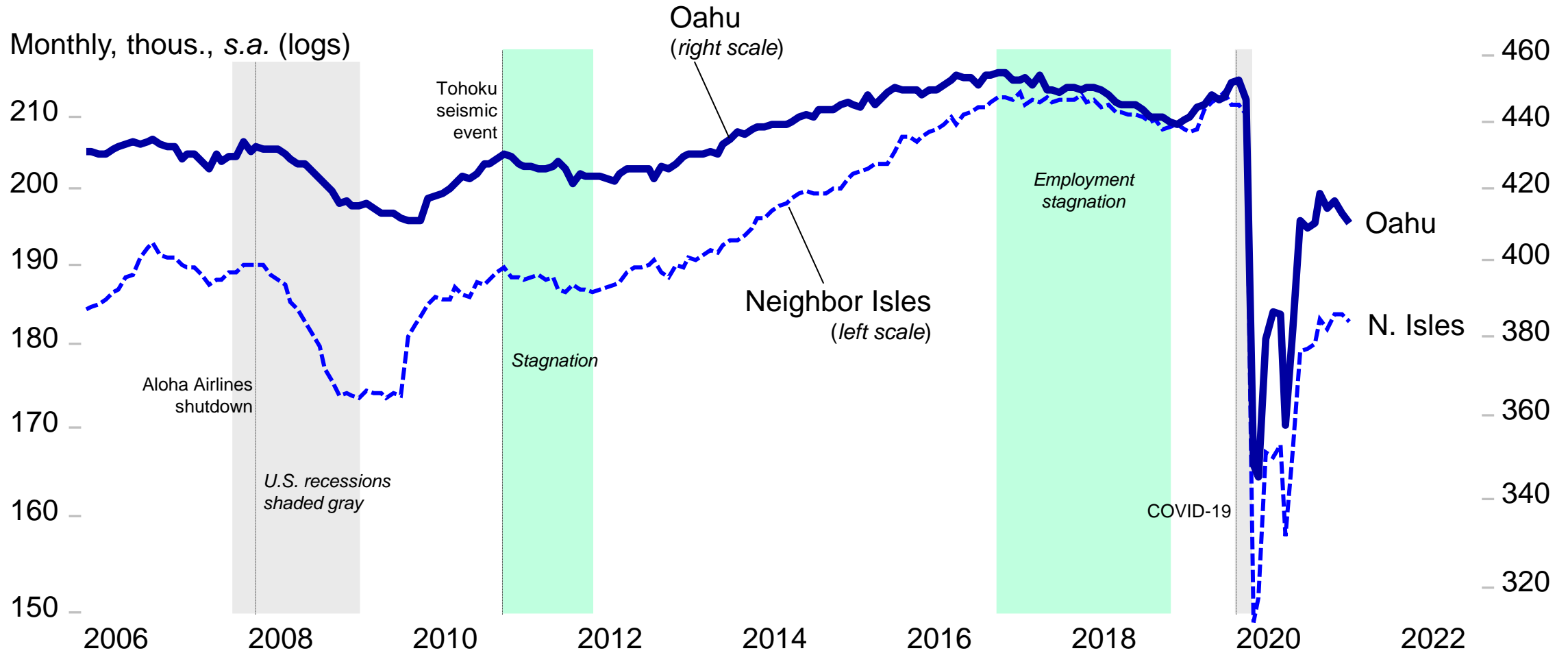
Sapped by US\$ appreciation in 2010s, Hawaii real GDP growth vanished 2018-2019, then was pounded by COVID-19; the plan now: *less tourism*



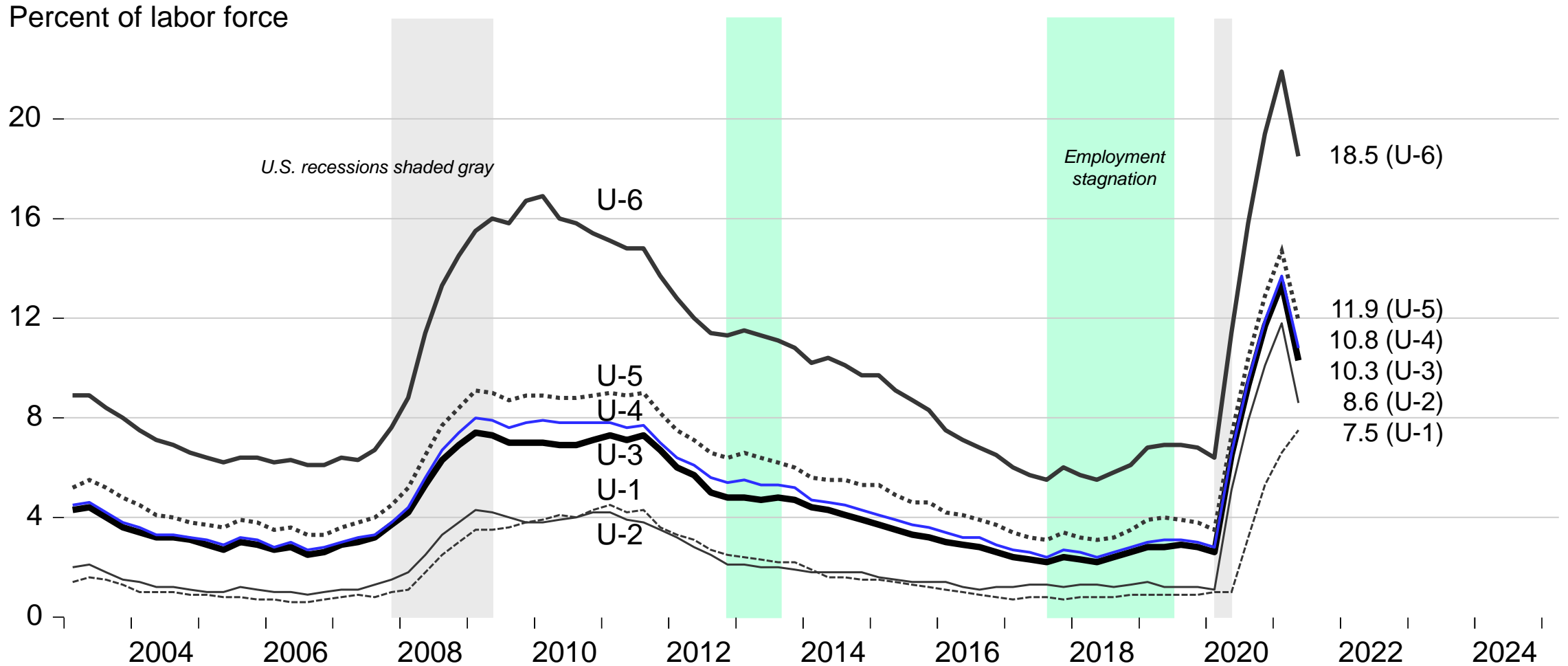
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Source: U.S. Bureau of Economic Analysis (https://apps.bea.gov/iTable/index_nipa.cfm and <https://www.bea.gov/data/gdp/gdp-state>); regression of natural log of U.S. real GDP 2009Q2-2019Q4 by TZ Economics depicted with 2 standard error bandwidth (99 percent confidence interval), $\ln(\text{real U.S. GDP}_t) = 1.246015 + 0.005716t$ where t is a time index in quarters; depicted U.S. time series is U.S. real GDP *minus* Hawaii real GDP.

Not just some esoteric “GDP theory:” Hawaii employment stagnated during these 2010s intervals (or, in 2011, a precursor): “Down is Up”



Alternative measures of Hawaii labor underutilization, 4-quarter trailing; COVID-19 impacts on unemployment and underemployment now easing

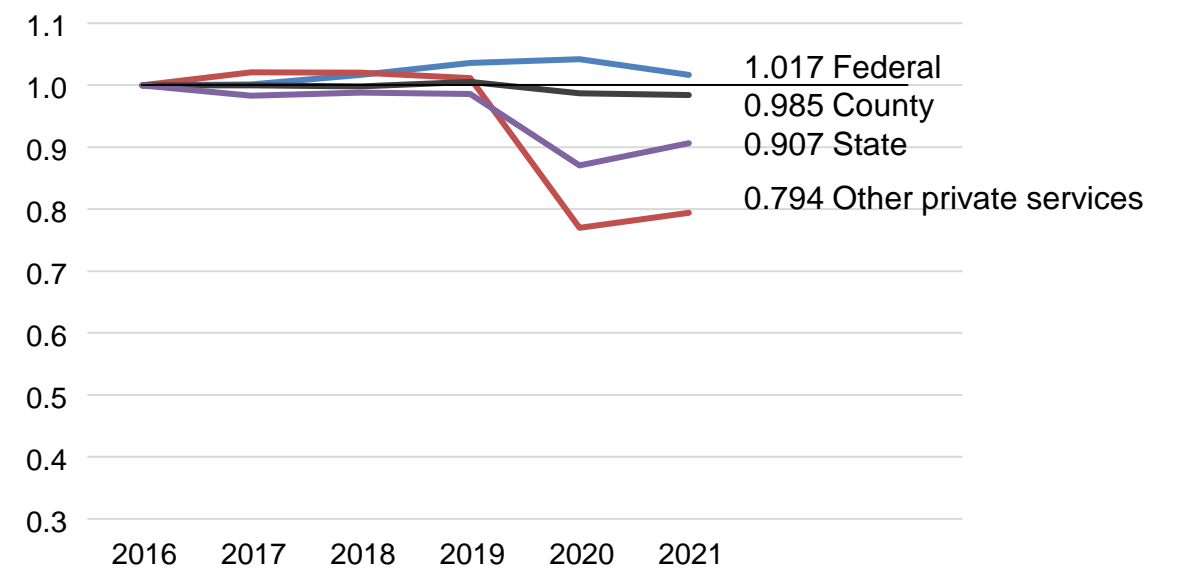
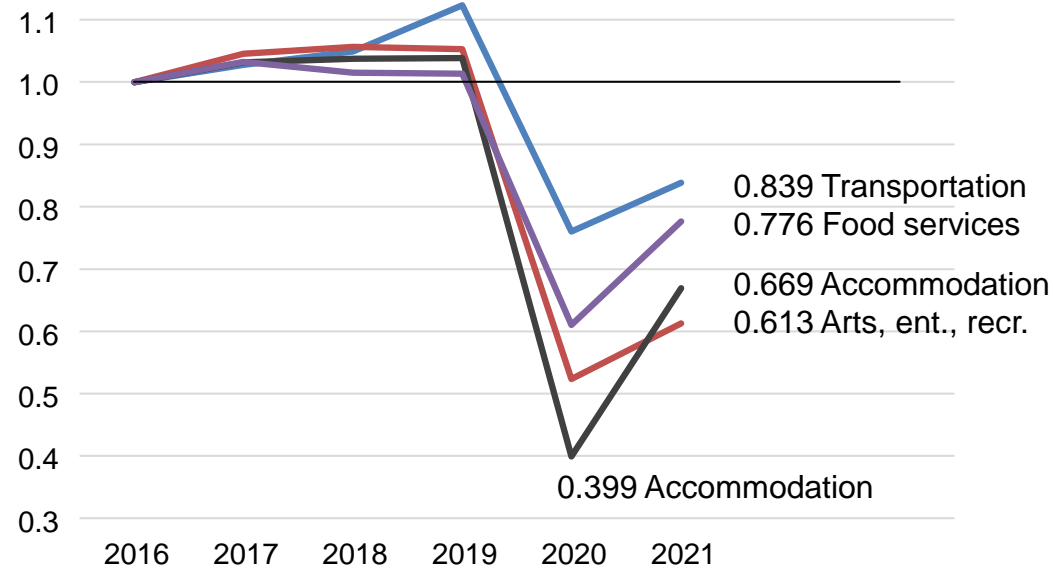
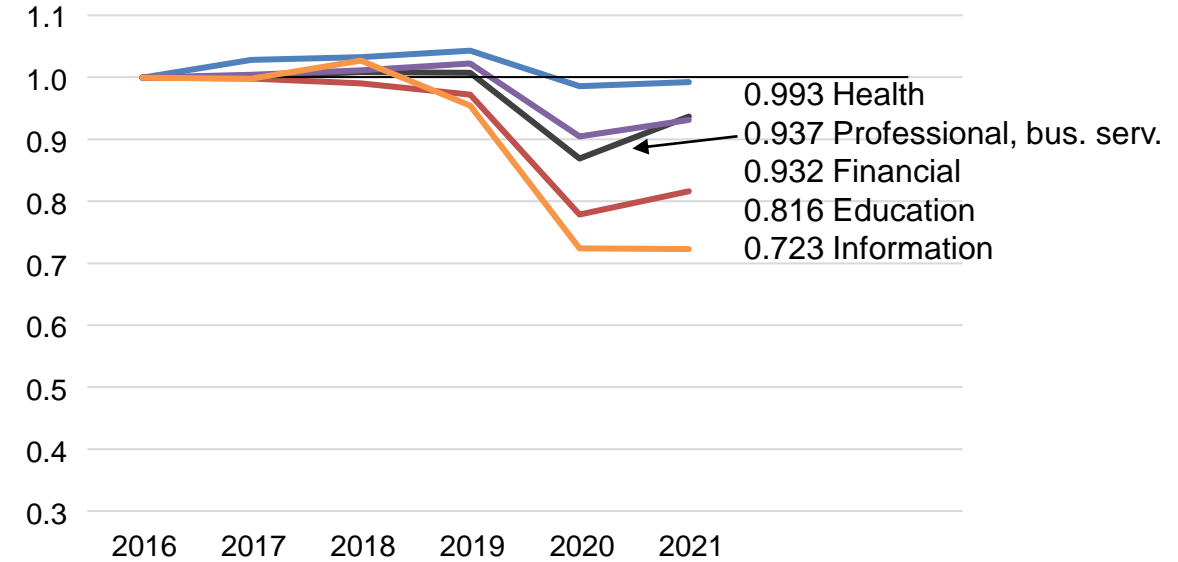
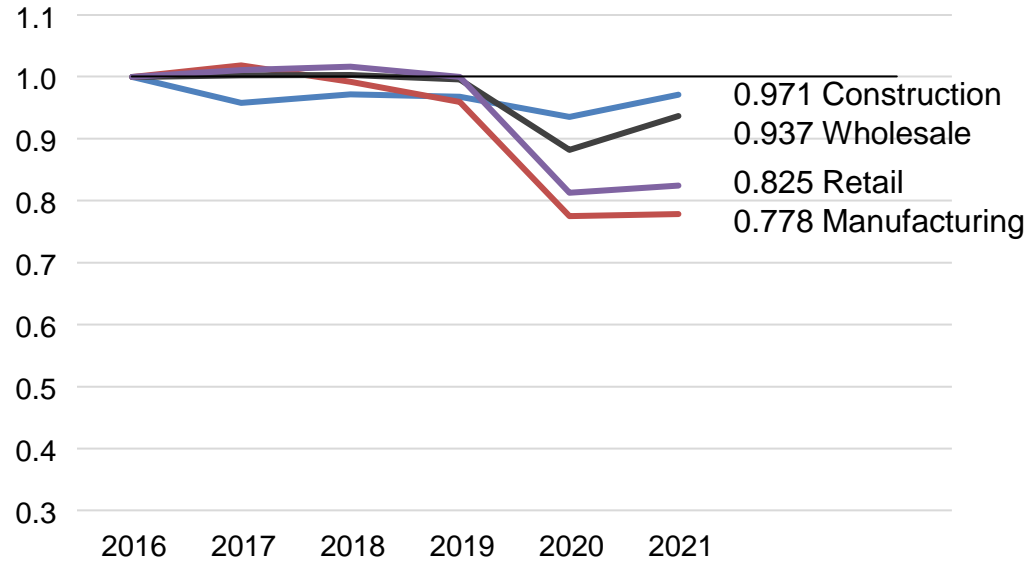




Alternative definitions of labor underutilization for Hawaii and the U.S.

- U-1, persons unemployed 15 weeks or longer, as a percent of the civilian labor force
- U-2, job losers and persons who completed temporary jobs, as a percent of the civilian labor force
- U-3, total unemployed, as a percent of the civilian labor force (this is the definition used for the headline unemployment rate)
- U-4, total unemployed plus discouraged workers, as a percent of the civilian labor force plus discouraged workers
- U-5, total unemployed, plus discouraged workers, plus all other marginally attached workers, as a percent of the civilian labor force plus all marginally attached workers
- U-6, total unemployed, plus all marginally attached workers, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers

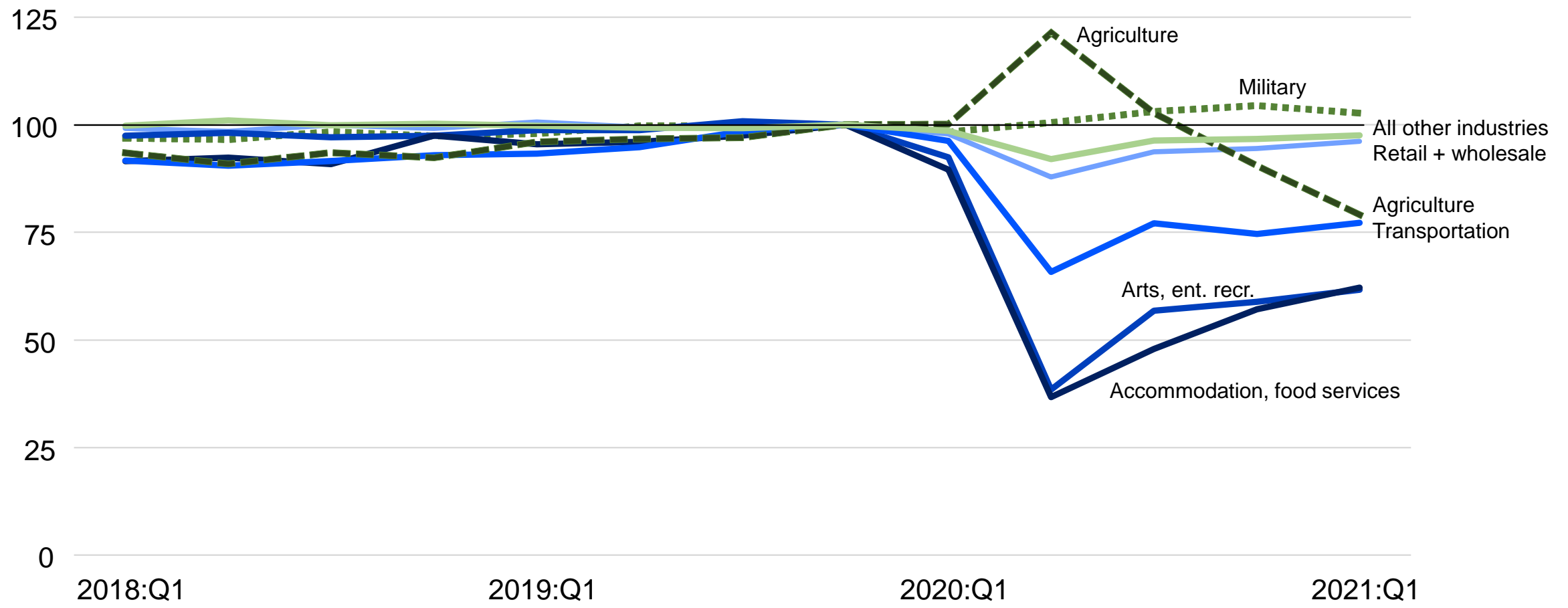
Hawaii payroll employment dynamics, April-March ending in 2016-2020, and April-June 2021 (2016 = 1.0)



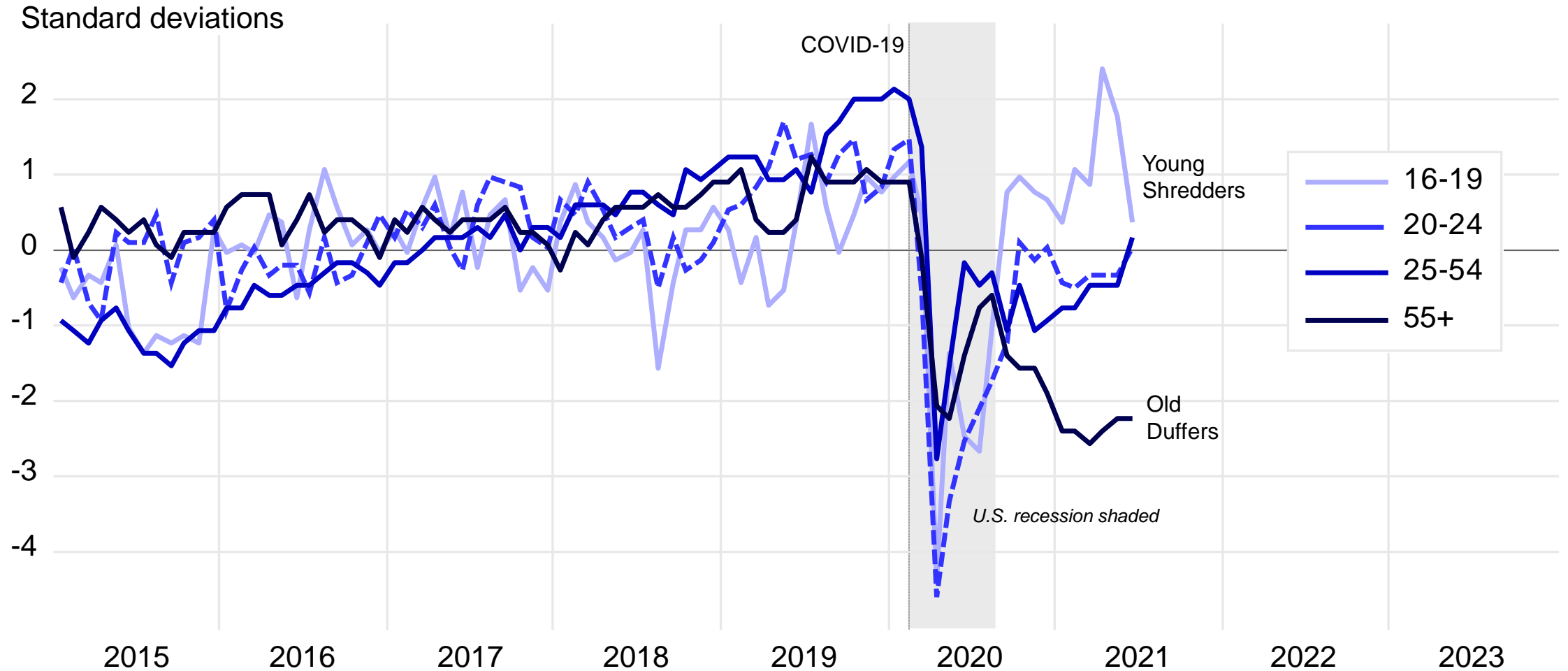
Sources: Hawaii DLIR, Hawaii DBEDT (<http://dbedt.hawaii.gov/economic/mei/>); Total jobs index: 1.000 (2016), 1.009 (2017), 1.013 (2018), 1.014 (2019) 0.814 (2020), 0.873 (2021)

Benchmarking real GDP to end-2019, drop in Hawaii value-added most extreme in travel, tourism, entertainment, and recreation—plus ag

Hawaii real GDP by industry indexes (2019Q4 = 100)

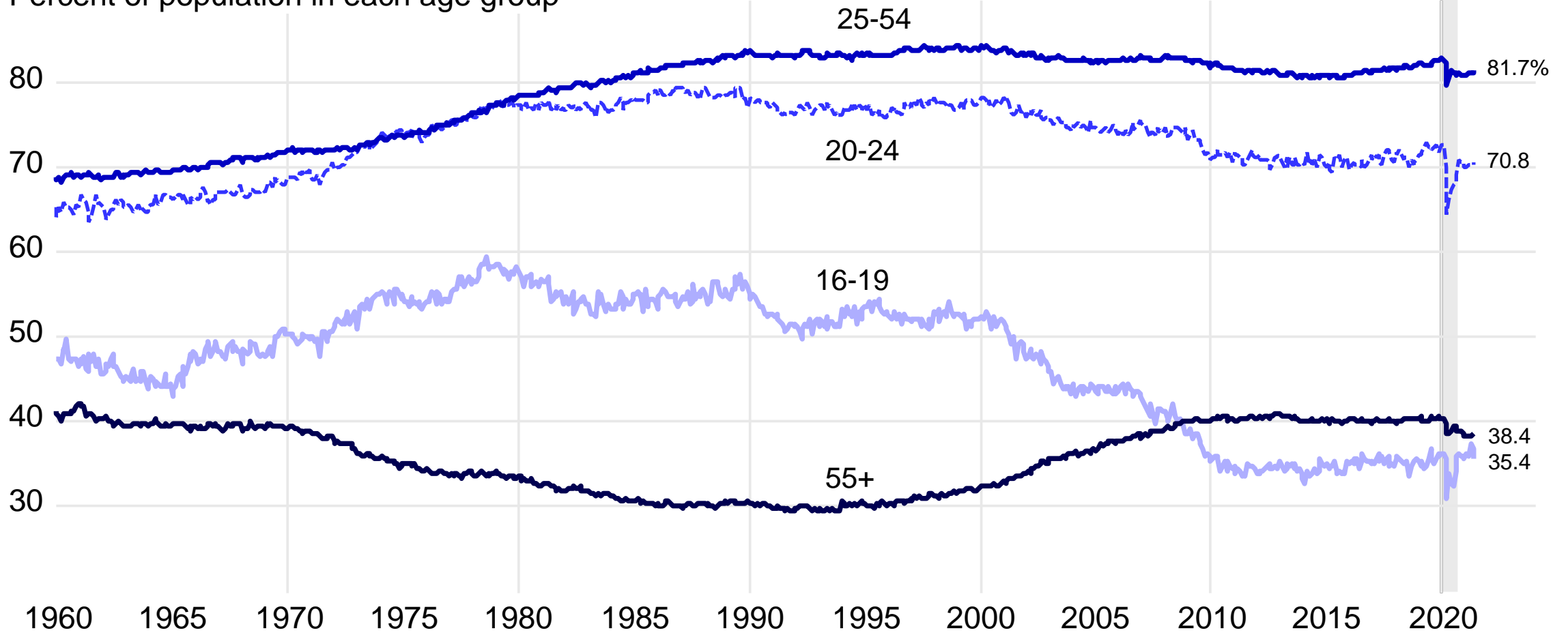


Normalized U.S. labor force participation rates by age: large post-Covid rebound in younger cohorts, persistently lower rates in older cohorts



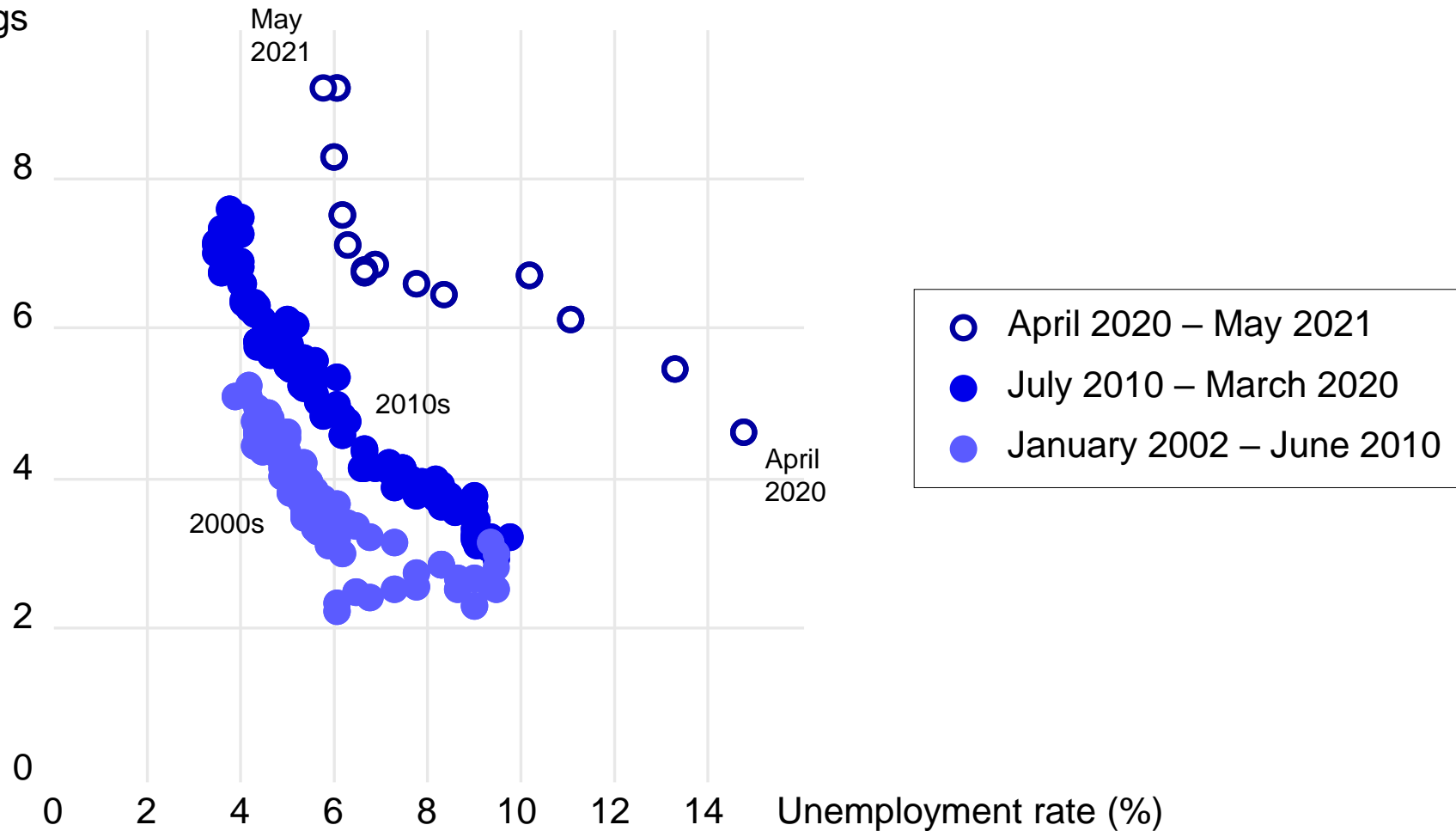
Younger workers since the 1980s face larger opportunity cost for *not* acquiring higher education than in past; workforce participation lower

Percent of population in each age group



U.S. Beveridge Curve: higher unemployment means fewer jobs open; post-pandemic mismatch \Rightarrow more openings for given unemployment

Million job openings





Inflation fear-mongering

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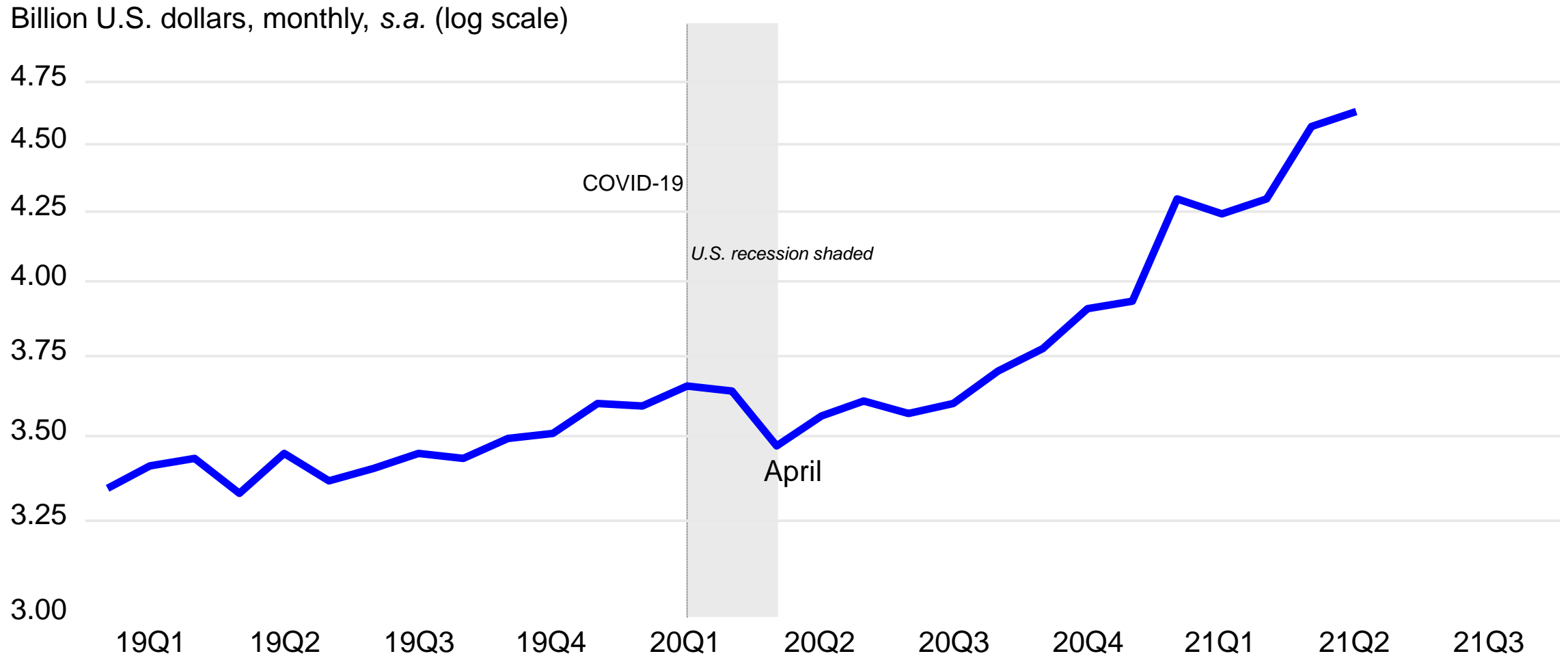
Supply chain disruptions in semiconductors and motor vehicles partly a result of idiosyncrasies in evolution of *both* industries

- Chip industry focus on design: about one-third of manufacturing brands have *no* in-house fabrication (“Fabless Integrated Circuit” sales), depend on “Fabs” for their production
- Foundry market concentration: Taiwan Foundry has over half of global foundry capacity; top 5 companies control $\frac{3}{4}$ of global capacity—more reliance on increasingly concentrated Fab market
- Large share of industry set up for \geq 16-28 nanometer production; cutting edge is now 5-7 nm
- More focus on propriety chip design, less on commodity business—lag in transition for autos; “dynamic where there’s been less focus on auto production technologies, more...on cutting edge.”
- Trump Trade War plus Chinese and EU mercantilism (industrial policy) supply constraints
- Pandemic raised demand for consumer technologies (laptops), restaurants moving to Cloud, *etc.*, pushing auto sector further out in the queue at low period for their sales; plus: transport costs

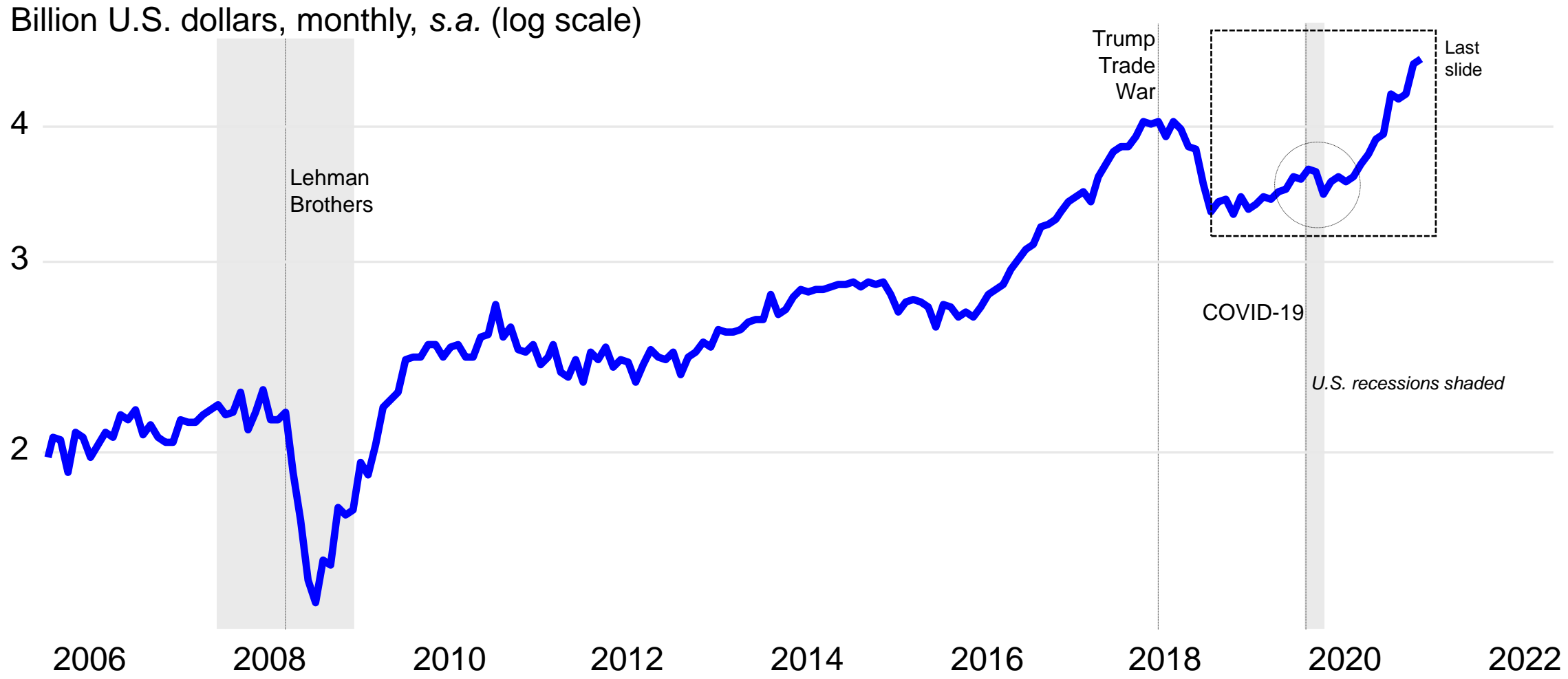
Also: pre-Covid U.S. auto and light truck sales had declined in late-2010s (see slide 21):

- ▶ 17.9 million in December 2016
- ▶ 16.9 million in December 2019

Worldwide semiconductor sales experienced Sudden Stop like rest of global economy in March-April 2020 before mounting recovery



Expansion of Trump Administration steel and aluminum tariffs, etc. precipitated pre-Covid contraction in worldwide semiconductor sales



Shuttered then rebooted factories, supply chain disruptions, factor constraints, strong recovery, raised producer prices, building costs

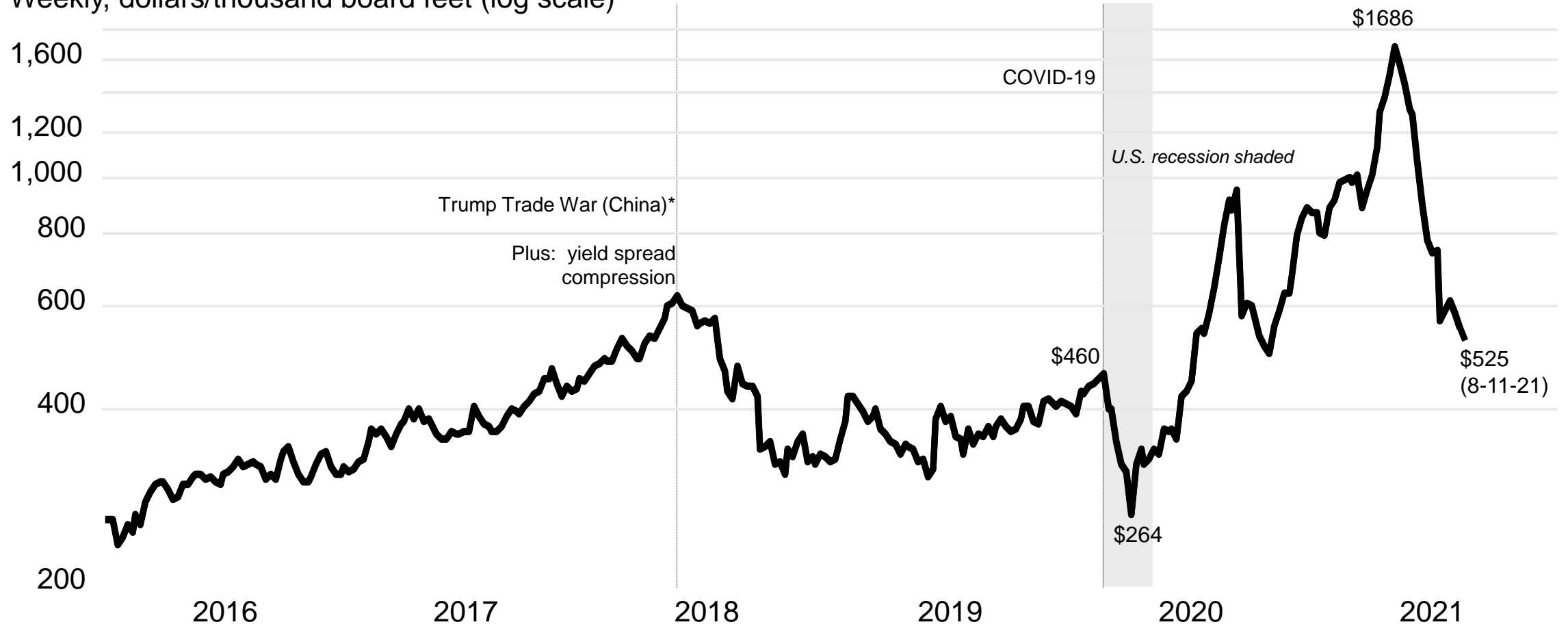
Index, monthly, s.a. (1982 = 100) (log scale)



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Lumber futures contracts prices fell $\frac{2}{3}$ in last 3 months as Covid supply chain disruptions began to be resolved: *transitory* inflation factor

Weekly, dollars/thousand board feet (log scale)



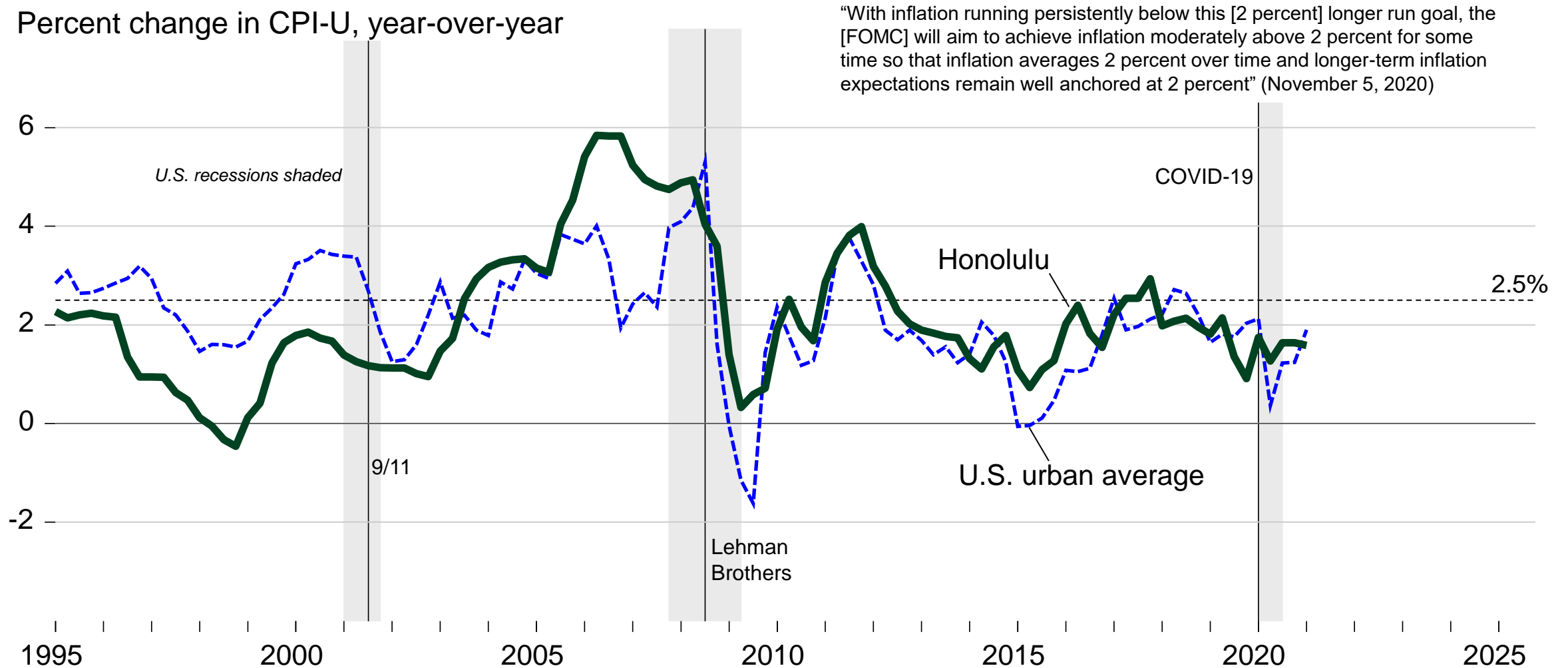
*White House releases a statement that it would impose tariffs on \$50 billion of goods from China shortly after announcing the final list of covered imports on June 15, 2018; Peterson Institute for International Economics (<https://www.piie.com/blogs/trade-investment-policy-watch/trump-trade-war-china-date-guide>).

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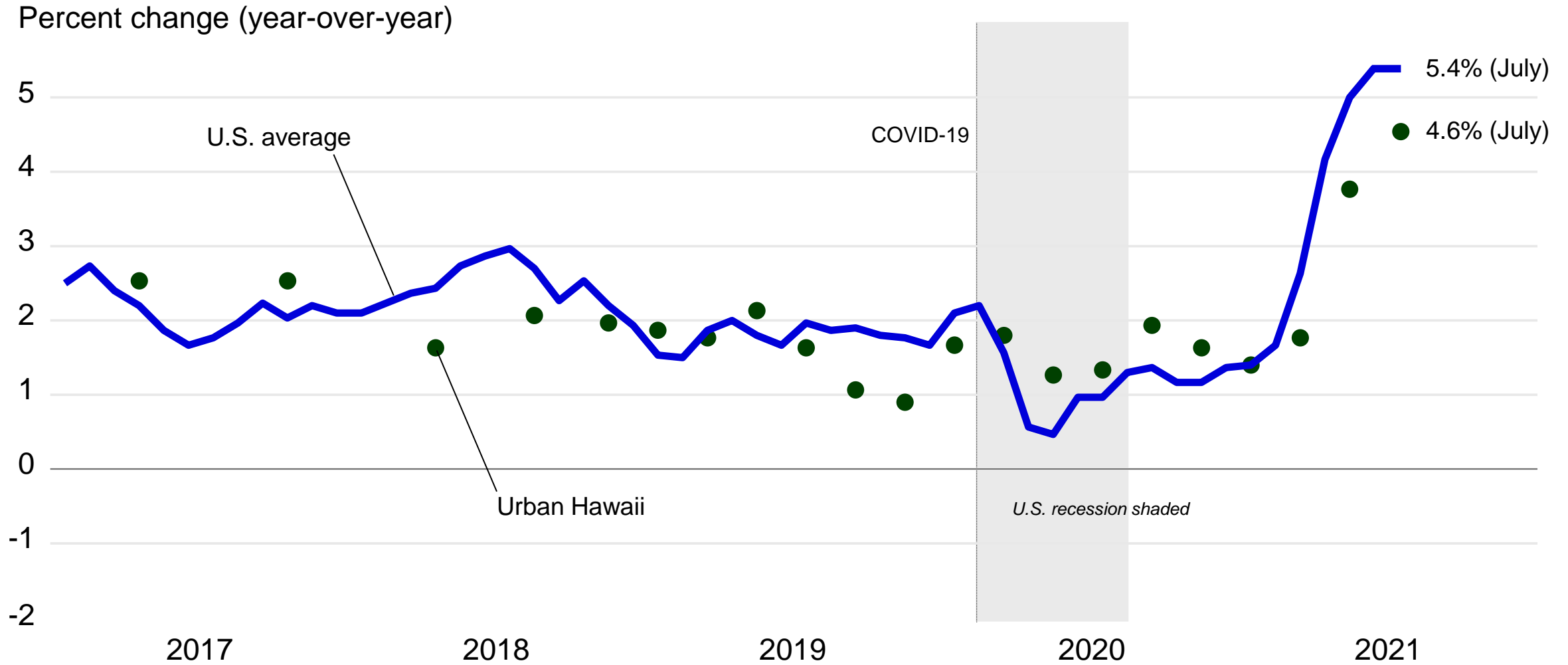
Source: Chicago Mercantile Exchange, Random Length Lumber Futures, via Yahoo Finance (<https://finance.yahoo.com/quote/LBS%3DF/history?p=LBS%3DF>), weekly closing prices through August 6, 2021 and daily quote August 11, 2021

U.S., Hawaii inflation through 2020: FOMC committed to PCE inflation averaging 2 percent, implies headline CPI inflation ≥ 2.5 percent

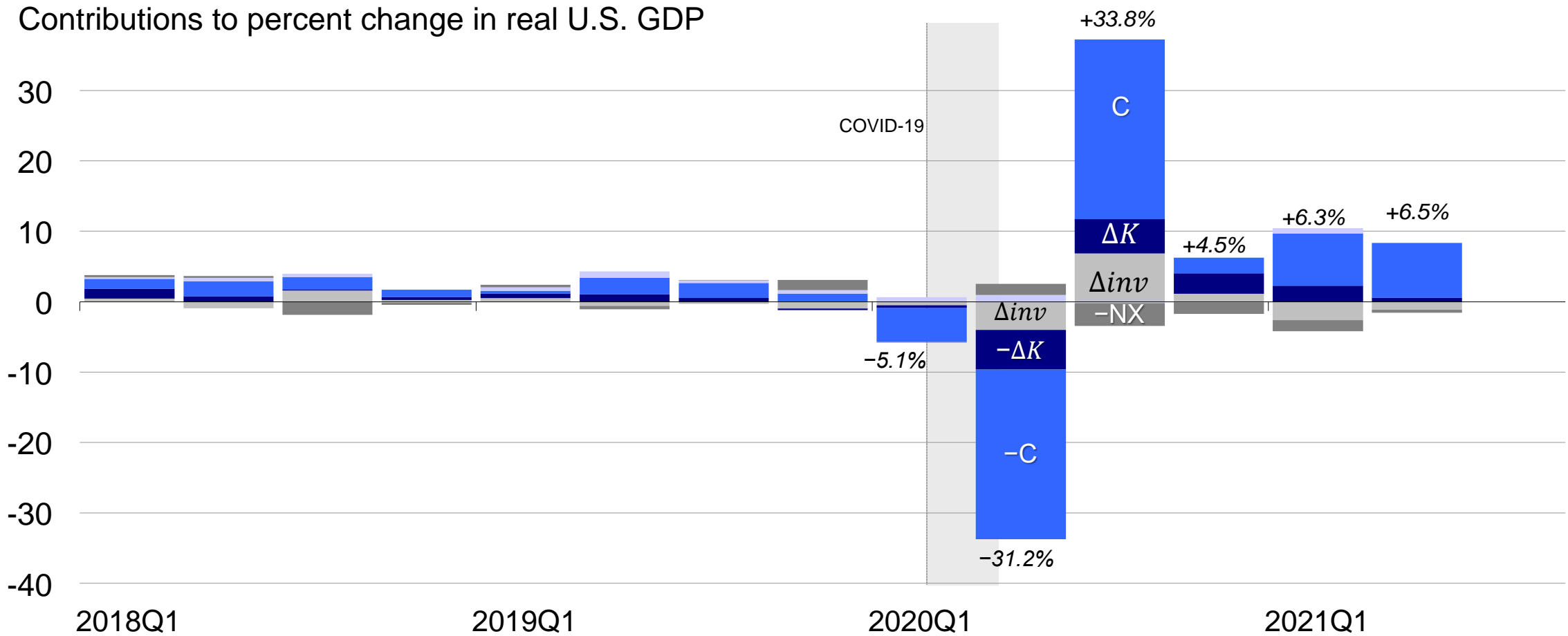
Percent change in CPI-U, year-over-year



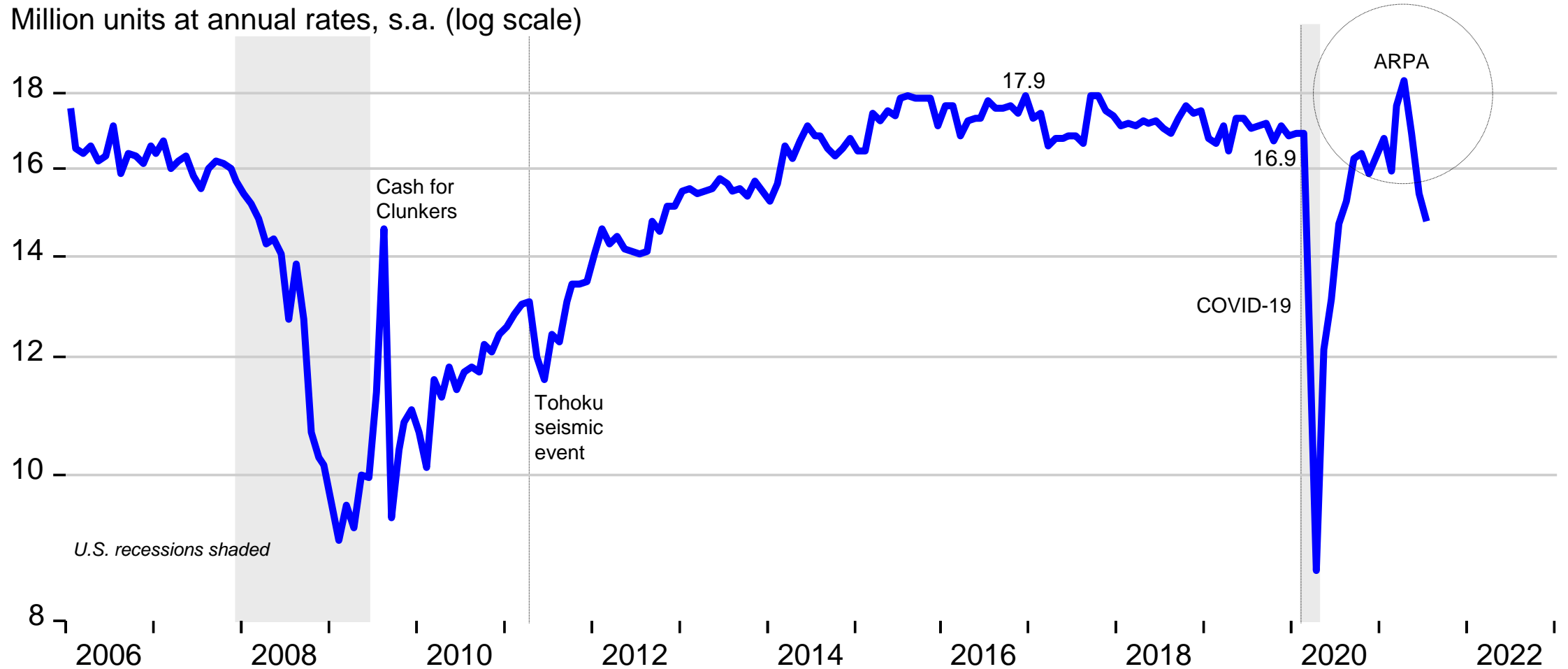
Inflation sharply reflected binding supply chain constraints in 2021Q2, disruptions from pandemic and recent recovery: transitory inflation



Contributions to U.S. real GDP growth: consumption-led recession, reversal 2020Q3, ARPA consumption growth of 7-8% p.a. 2021Q1-Q2

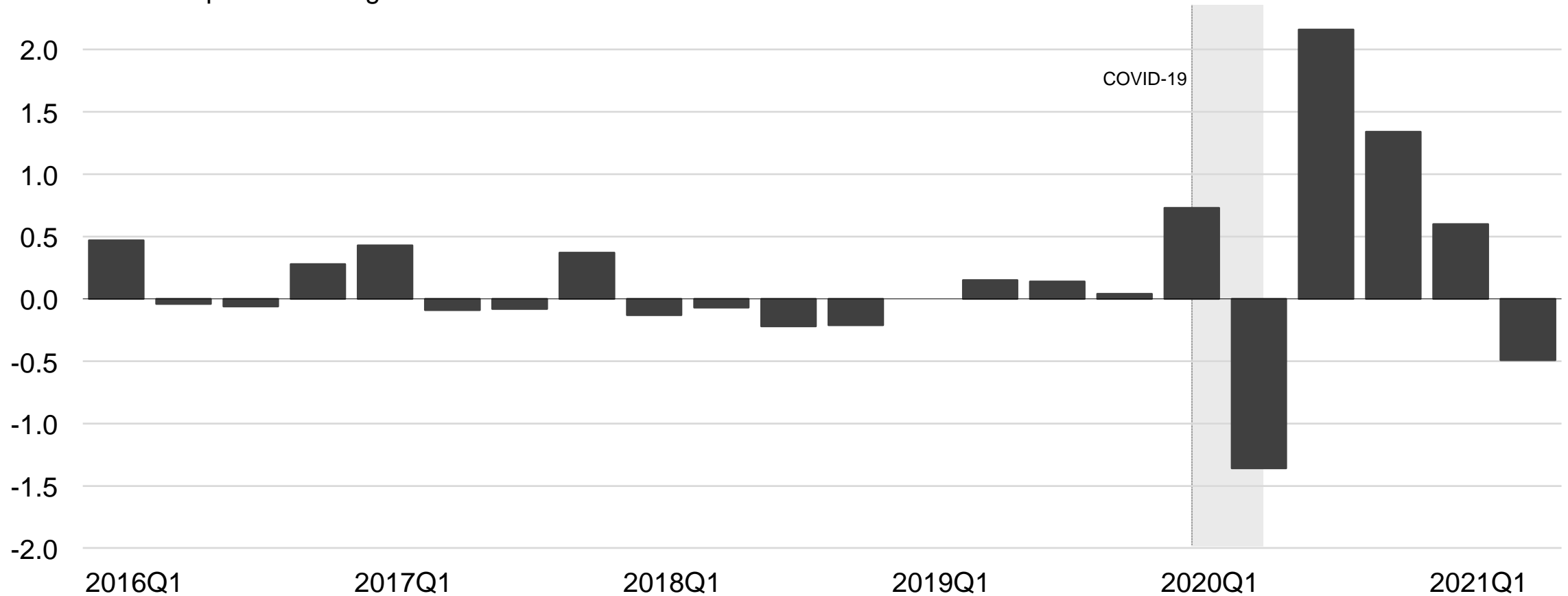


Both demand and supply factors disrupted auto and light truck sales: deep Covid sales drop, production hiatus, relief package sales spike



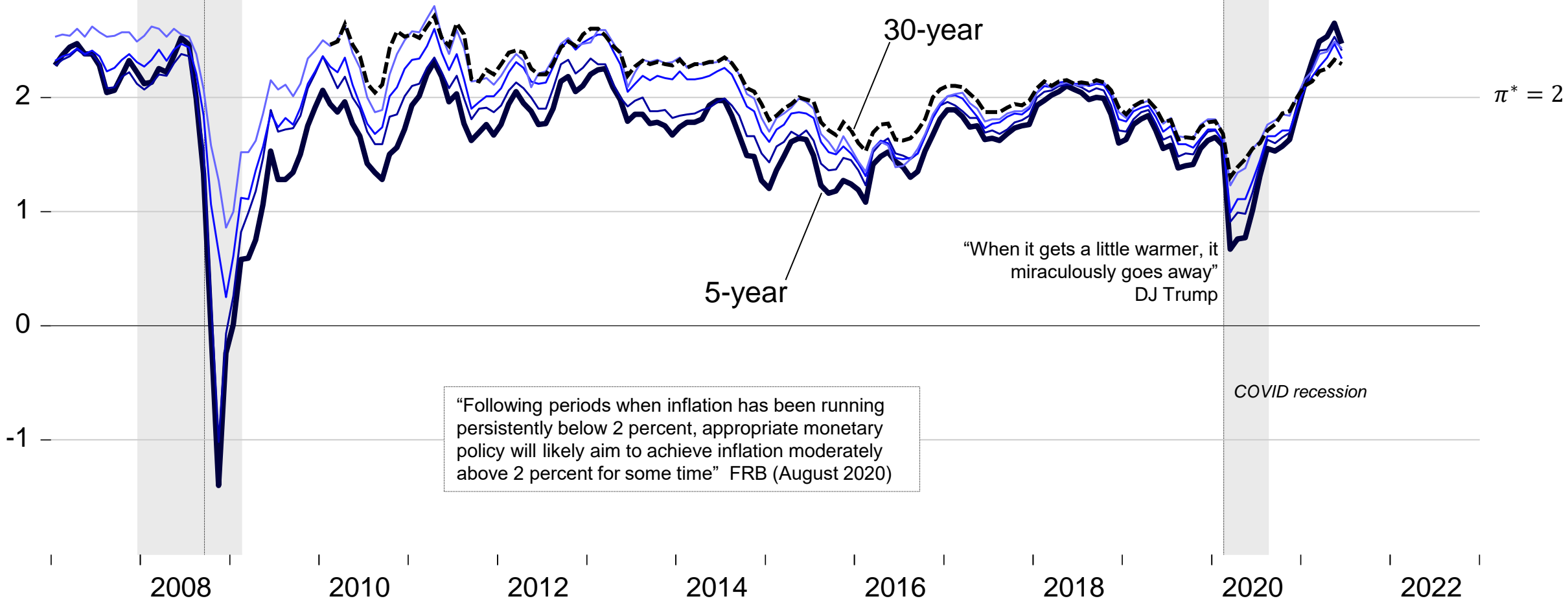
One surprise after the initial Covid shock: surge in U.S. real GDP growth from *residential* investment, homebuilding increase (plus renovations)

Contribution to percent change in real U.S. Gross Domestic Product



Implicit inflation expectations: difference (nominal – real) Treas. yields: LR inflation expectations $\pi^e \leq 2\%$ leave room for symmetric reflation

Term structure of inflation expectations (percent)*




*Nominal U.S. Treasury yields minus TIPS yields at same maturities

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U.S. economic forecasts (and monetary union) provide insight into likely price inflation scenarios this year and next, even for Hawaii

<i>percent changes</i>	Median forecast		2021		2022		<i>n</i>
	2021	2022	Lowest 5	Highest 5	Lowest 5	Highest 5	
<i>Q4/Q4</i>							
Core PCE deflator	2.2	2.1	1.6	3.2	1.7	2.6	45
PCE deflator	2.6	2.2	2.2	3.6	1.7	3.3	43
GDP implicit price deflator	2.7	2.3	2.1	3.3	1.7	3.0	45
CPI-U	2.8	2.3	1.7	3.7	1.6	3.2	45
Real U.S. GDP	6.7	2.8	4.1	8.1	2.2	4.8	46
<i>Annual average</i>							
Real U.S. GDP	6.5	4.4	5.0	7.3	2.9	5.6	49

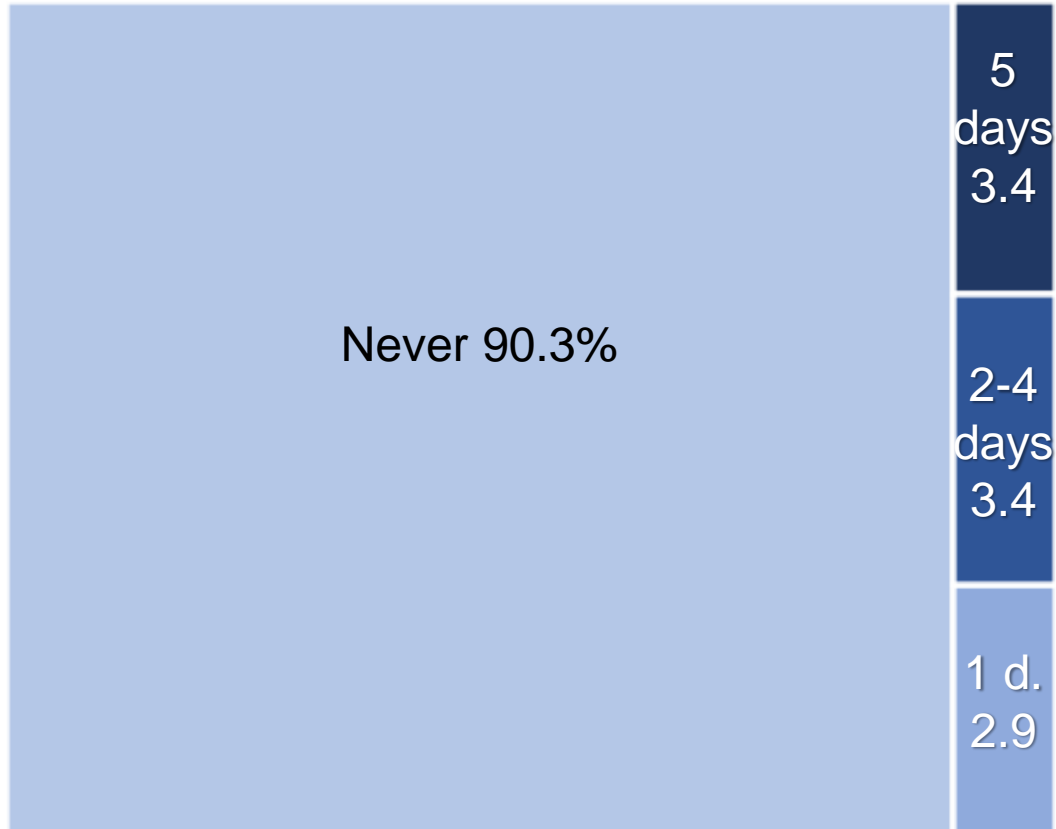


Work-From-Home (WFH) and labor force changes

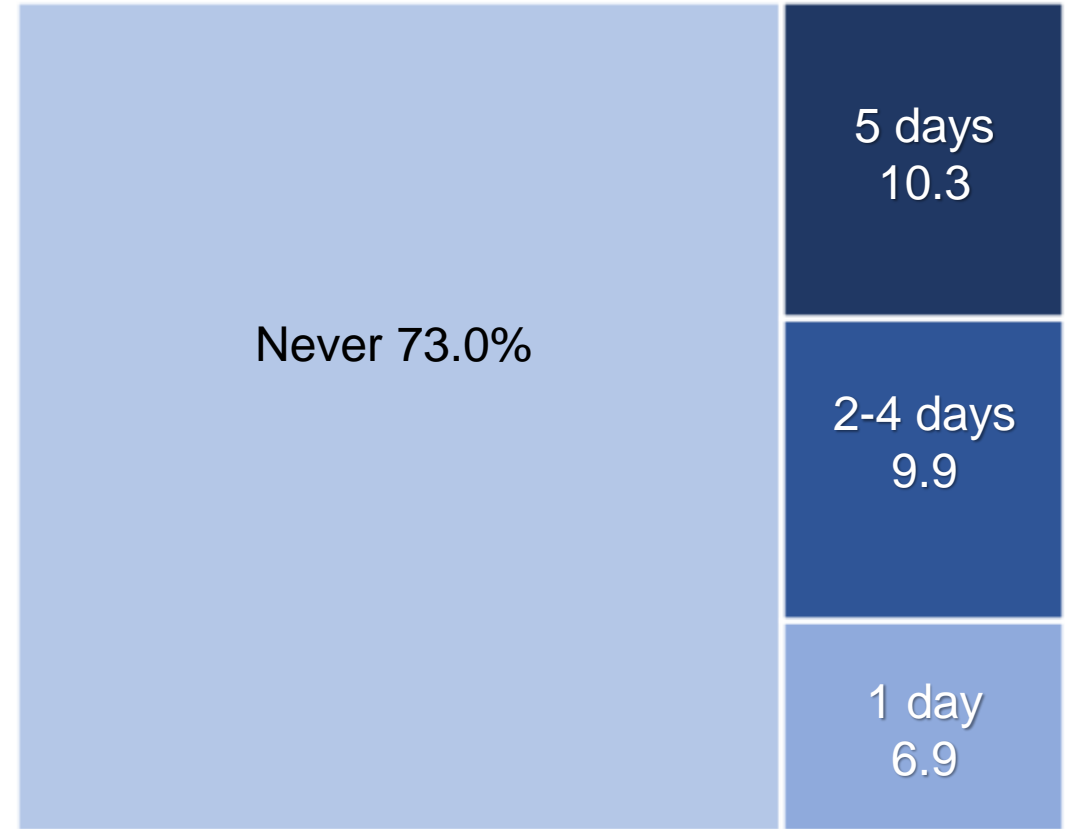
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FRB Atlanta (May 2020) survey results: “the share of working days spent at home is expected to triple after the COVID-19 crisis ends”

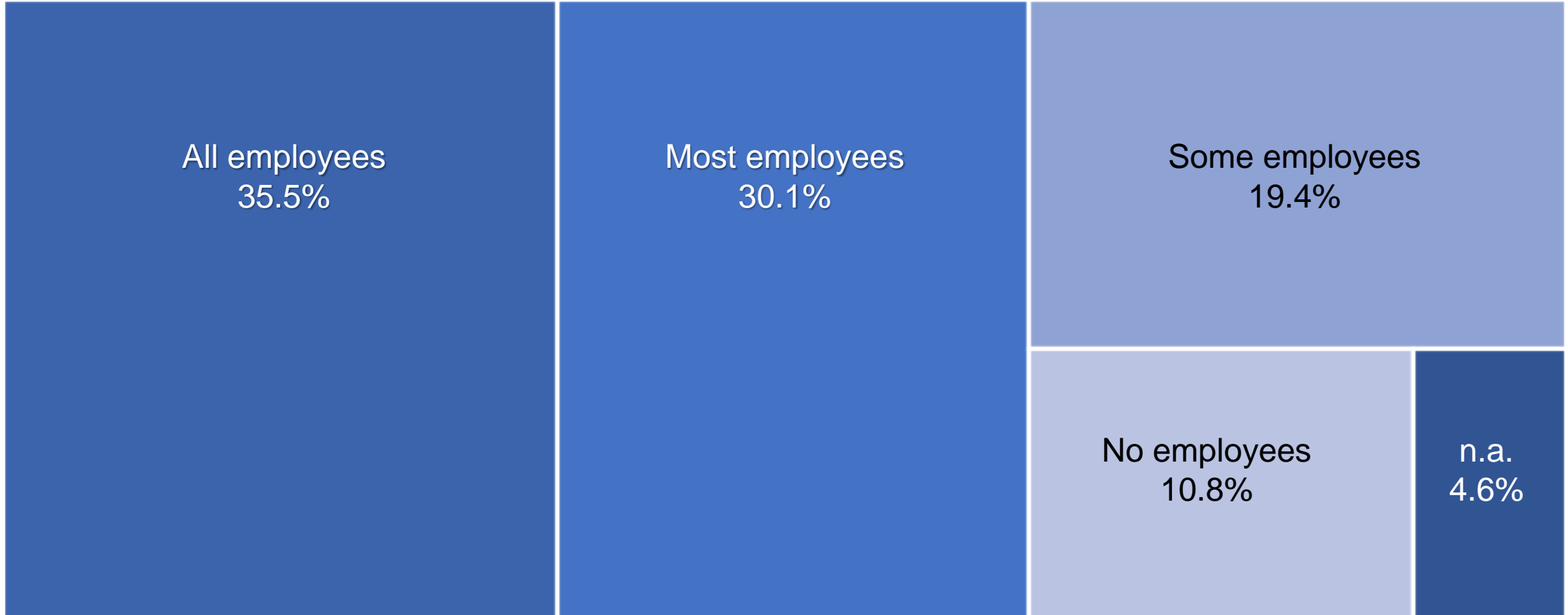
Pre-Crisis Work From Home



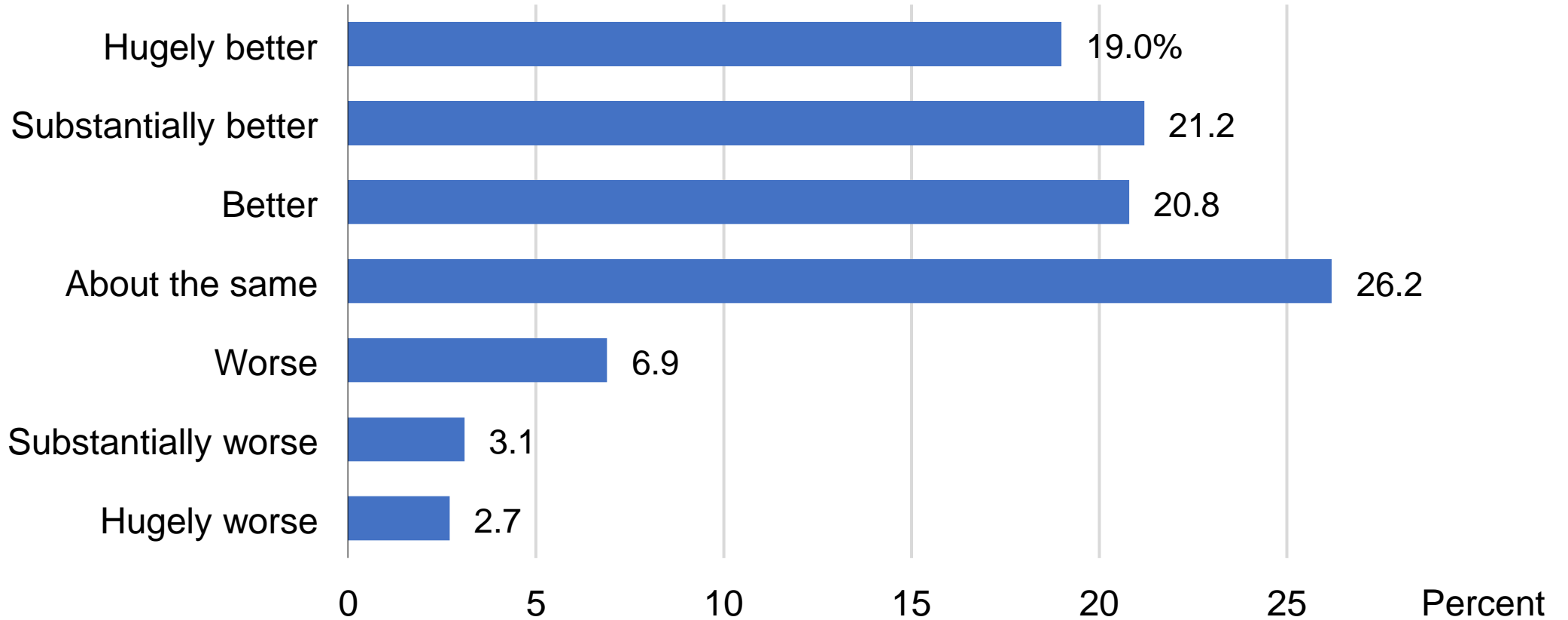
Post-Crisis Work From Home



January 2021 NABE member survey of firms: Did your company implement new work from home policies due to the health crisis?



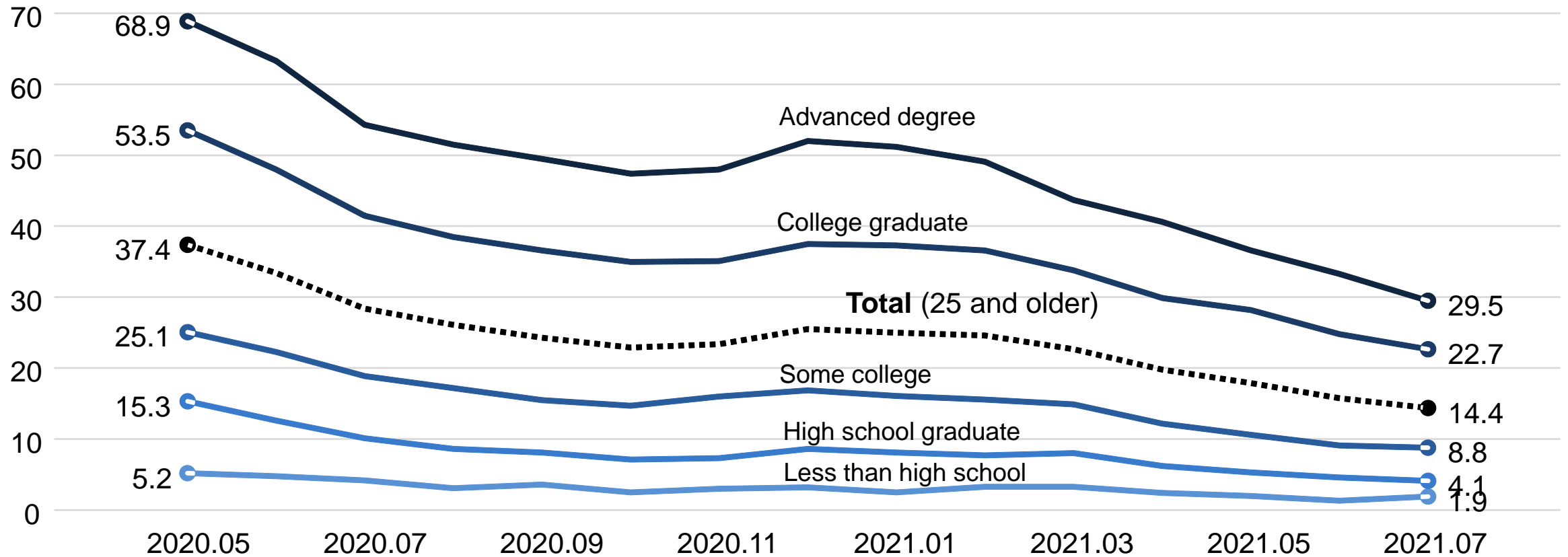
Survey of firms: “Compared to expectations before Covid (in 2019) how has working from home turned out?” (Four survey waves, 2020)



n = 2,500 (May, July, September/October 2020), 5,000 (August)

U.S. workers who teleworked or worked at home for pay specifically because of COVID-19, excluding those who did pre-pandemic*

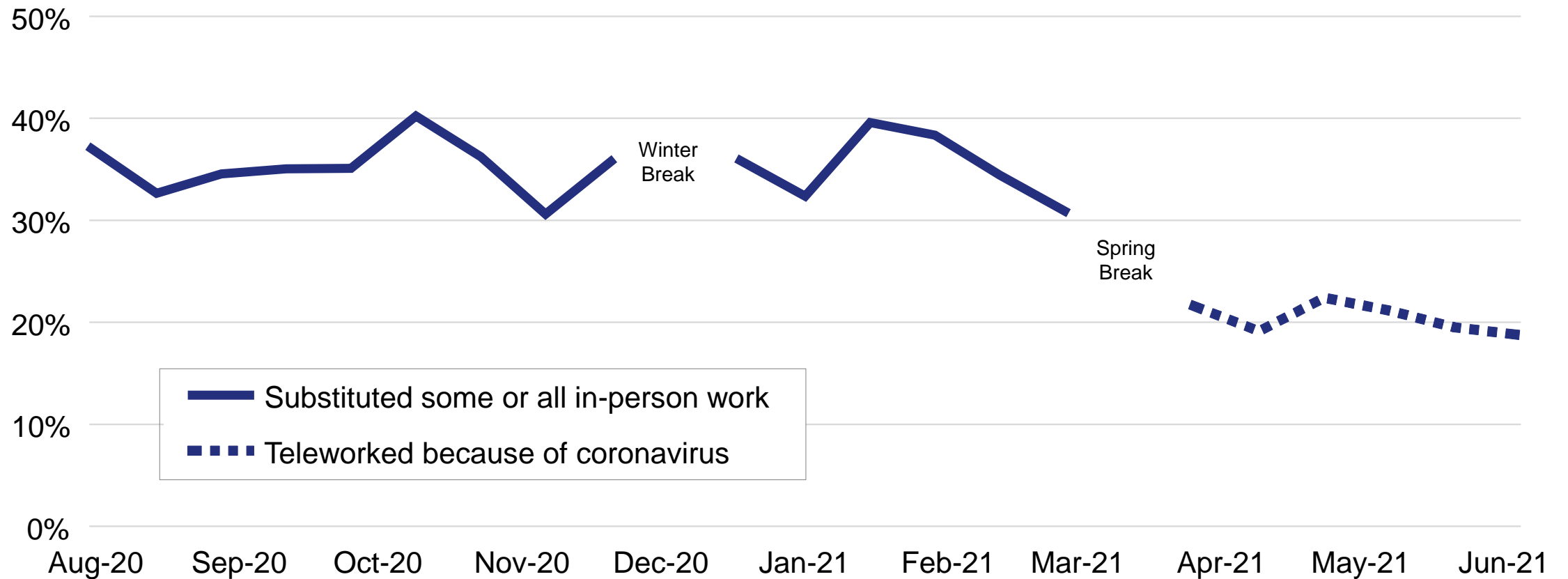
Percent of workers by educational attainment



*Or those whose telework was unrelated to the pandemic.

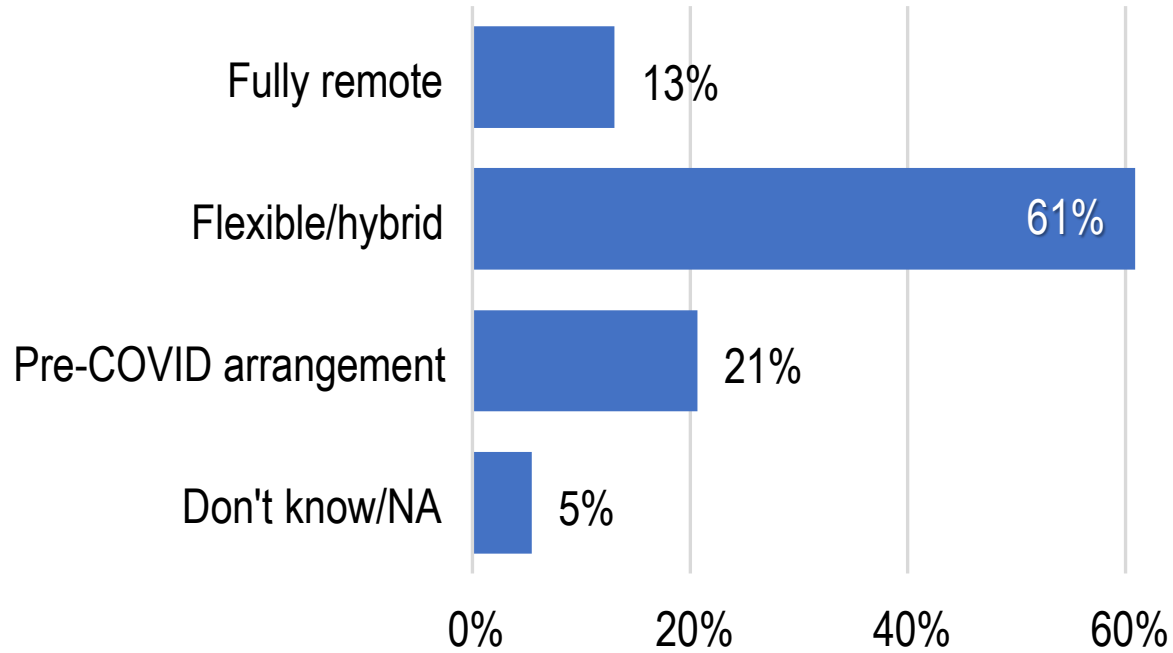
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Census household pulse data* show 1/5 of respondents live in Hawaii households in which at least one adult teleworked because of Covid



*Surveys before April 2021 define "Percentage of adults living in households where at least one adult has substituted some or all of their typical in-person work for telework because of the coronavirus pandemic," thereafter "Percentage of adults living in households where at least one adult has teleworked because of the coronavirus pandemic in the last 7 days"

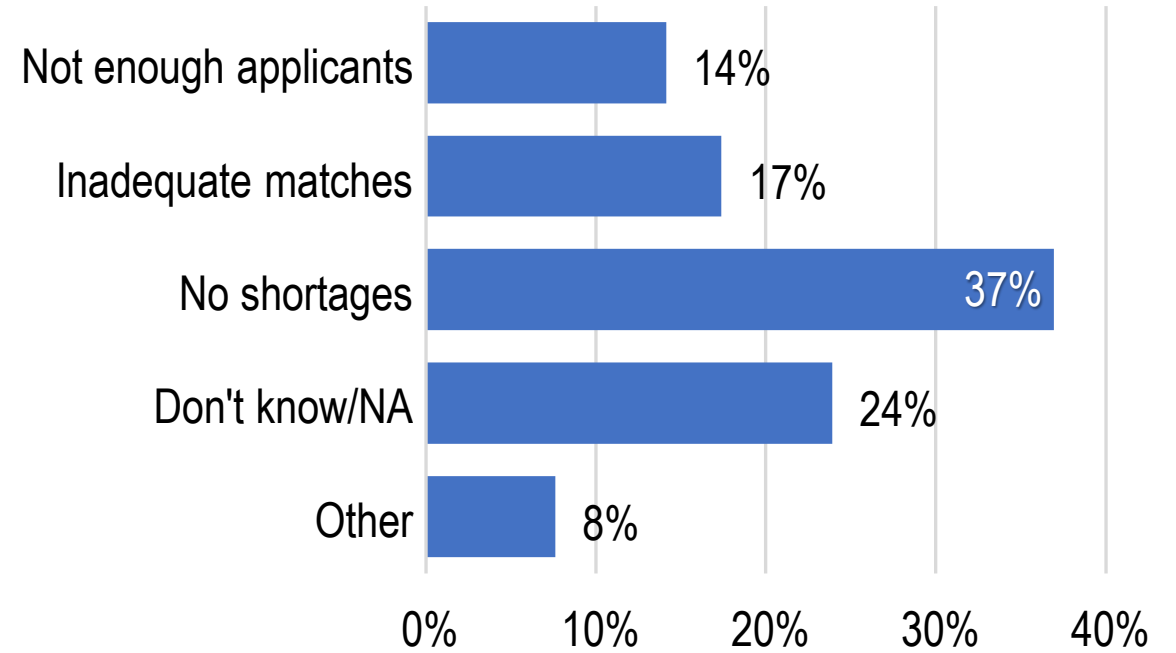
July 2021 NABE® Business Conditions survey (firms): 66% higher sales, 3% lower sales; 53% < 100 employees, 35% > 1,000 employees



Post-Covid Work From Home?

Q. Are work-from-home policies in your company going to remain in place after COVID? If so to what degree?

n = 92



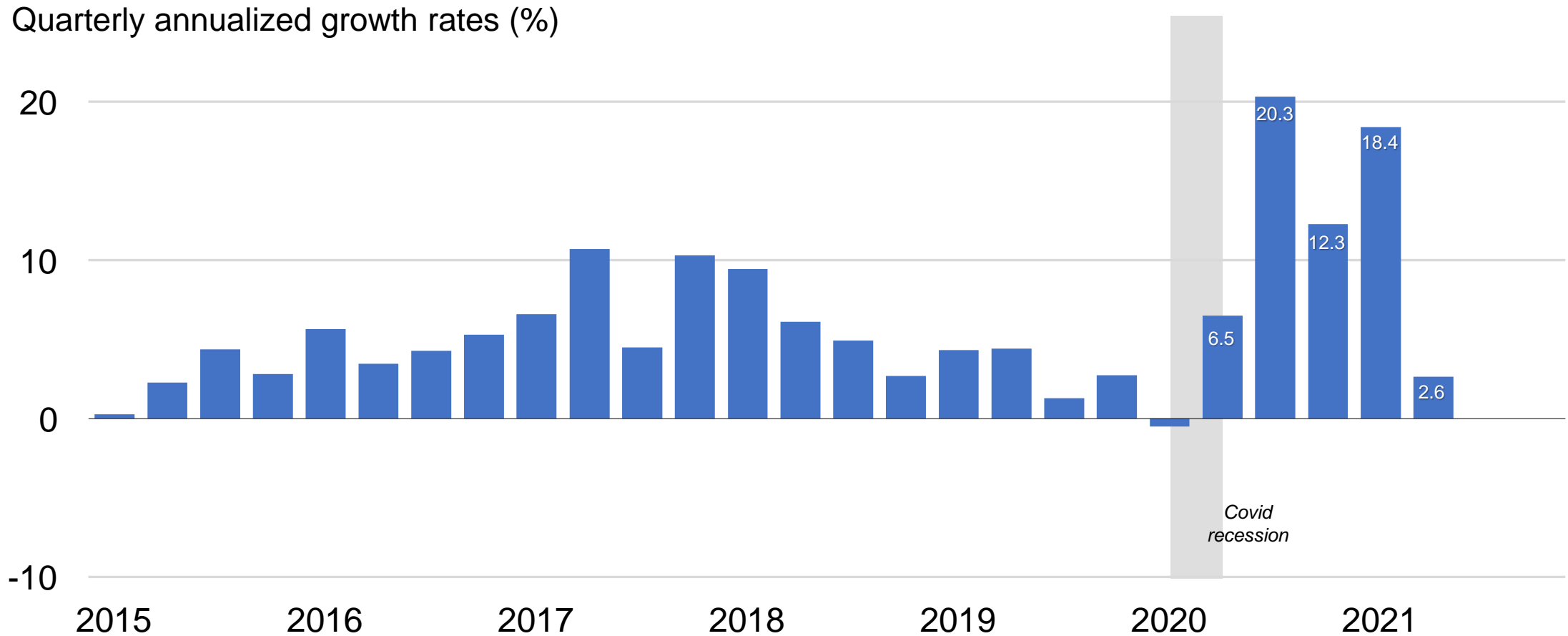
Worker shortages?

Q. Is your company experiencing shortages of workers? If so, what are the reasons?

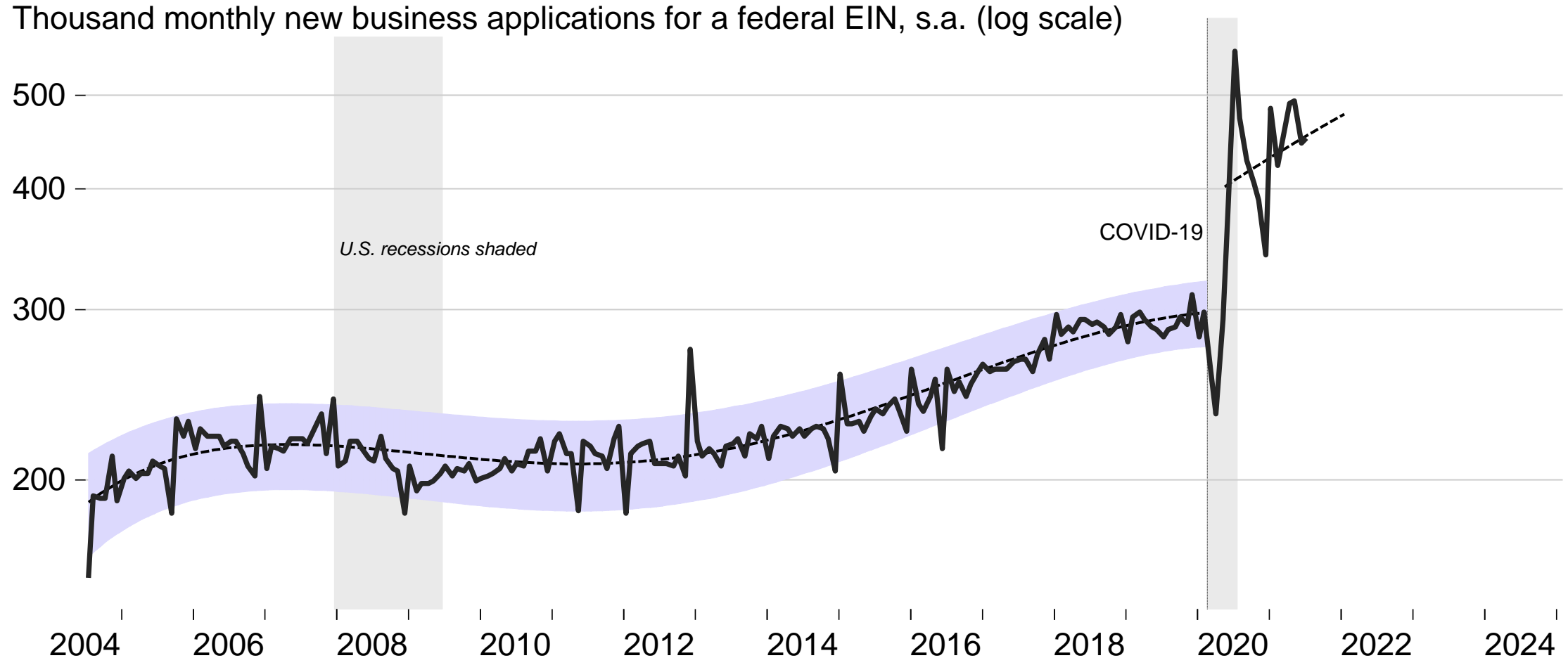
n = 92

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Related WFH impacts of Covid: increased investment in IT equipment and software; remote work, fiscal stimuli, private savings/investment



Monthly U.S. private non-ag business applications for federal EIN: post-Covid entrepreneurship impulse: “Take this job and shove it”

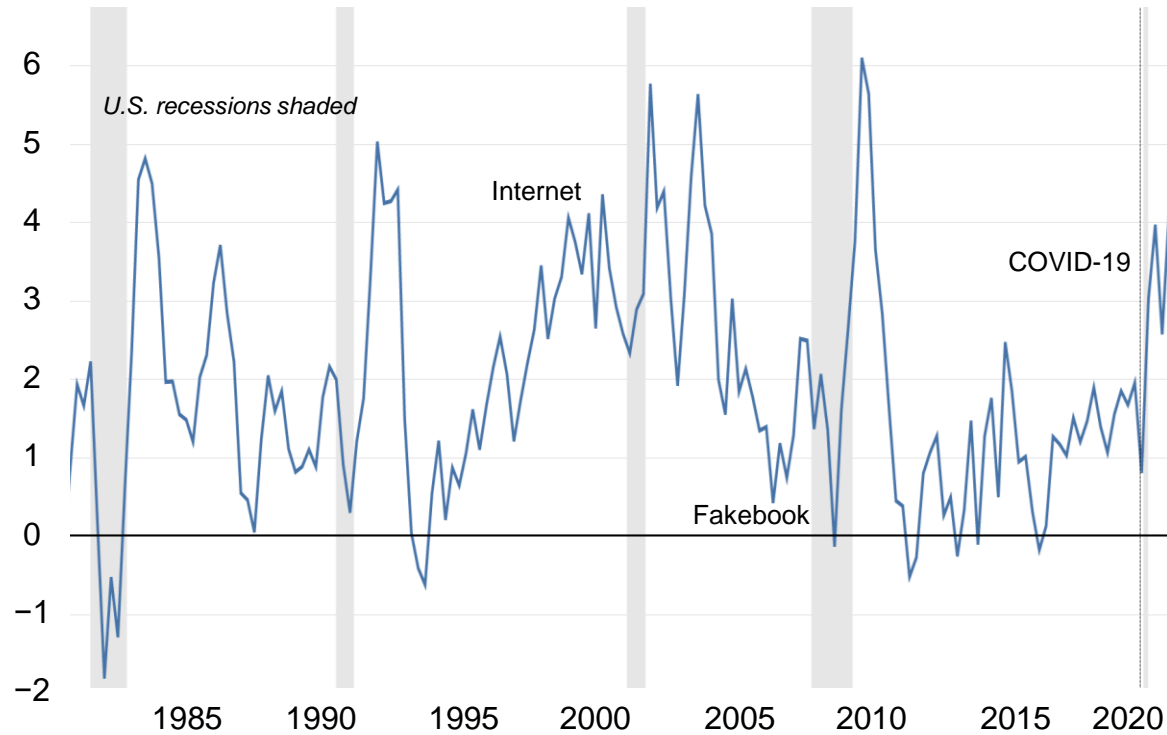


*Applications for an Employer Identification Number (EIN), except for applications for tax liens, estates, trusts, certain financial filings, applications outside of the 50 states and DC or with no state-county geocodes, applications with certain NAICS codes in sector 11 (agriculture, forestry, fishing and hunting) or 92 (public administration) that have low transition rates, and applications in certain industries (e.g. private households, civic and social organizations).

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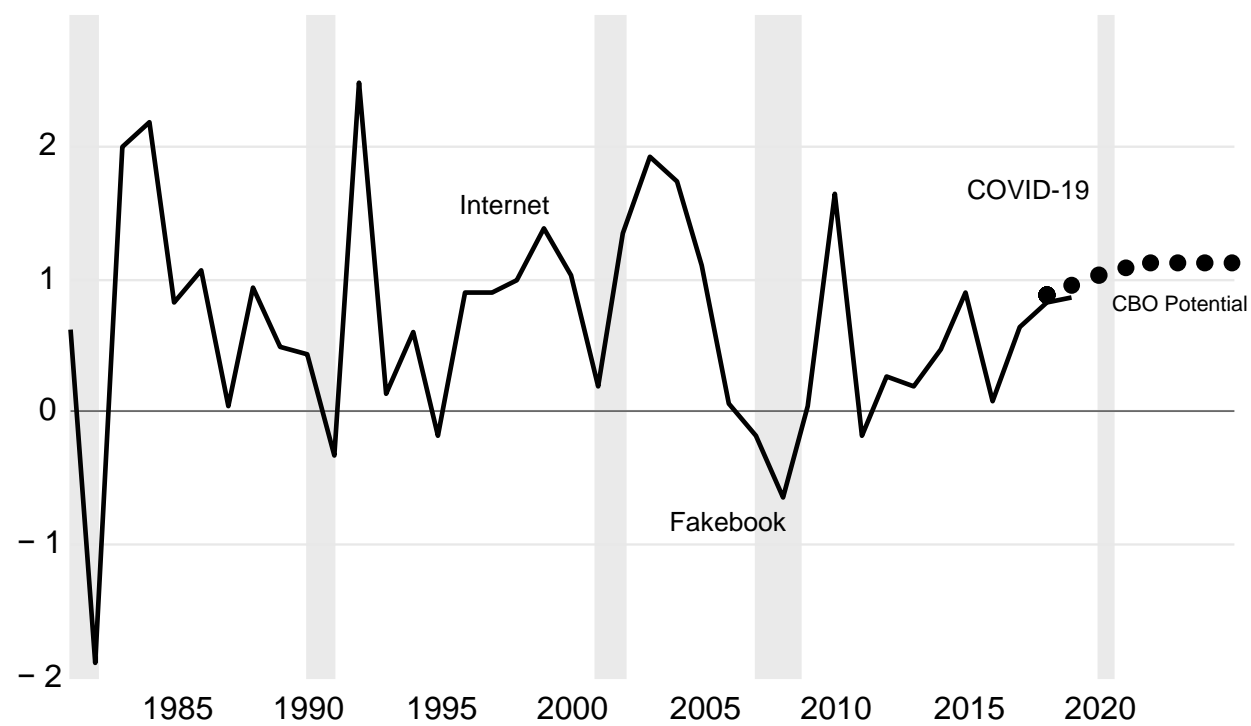
Jump in output/hour of workers in nonfarm business sector (labor productivity) *during* recession vs. afterwards unique to Covid event

Quarterly percent change from one year earlier



Labor output per hour

Annual percent change



Total factor productivity

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Comments of BLS Commissioner William Beach on which of new data sets “drove a lot of interest and traffic; what really seemed to take off?”

- I’m beginning to think that this pandemic...has accelerated structural change in the economy. ...You can sense it in the distributed platform as a way of working—telework. Automation, global value chains had already...wreaked havoc with the workplace but I think the workplace is changing faster today than at any time since the industrial revolution.
- The questions we put out had two sides to them. One side measure the pandemic. ...The other side of that was to take a look at the way that the workplace itself was restructuring. So, we’ve gone from 36 percent at telework in the payroll employment to about 14 percent and it’s leveling off. Well, if it stays at 14 percent that’s a very serious, high percentage.
- We did surveys on workplace safety, on sick leave, all of that’s changing too as the workplace changes. So, I think the research question coming out of this at least for the Labor Department will be to say:
 - How has the structure of the workplace changed?
 - How has the structure of labor relations changed?because of the pandemic.
- We’re not going to go back to normal because the changes already are noticeably permanent in certain areas. That’s what our surveys...are beginning to shed light on this, I don’t what to call it, maybe it’s The New Economy. And on this point 86 percent now of payroll employment is in the services-providing sector...and that really accelerated in the last five years. So, that’s another indication that we’ve got some permanent changes going on.



Summary: patterns of Hawaii macroeconomic dynamics in 2010s

- 2010s U.S. economic expansion @ $10\frac{2}{3}$ years its longest ever (June 2009 – February 2020) (<https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions>).
- In real GDP (<https://www.bea.gov/data/gdp/gdp-state>), Hawaii had *four* recessions, 2007-2020, or two intervals of idiosyncratic macroeconomic stagnation between the two U.S. recessions, December 2007 – June 2009 (Great Recession) and February 2020 – April 2020 (Covid).
 1. Annualized U.S. real GDP growth 2009-2019: 2.3 percent *p.a.*
 2. Annualized Hawaii real GDP growth 2009-2019: 1.8 percent *p.a.*
- Adjusted for Regional Price Parity (<https://www.bea.gov/data/income-saving/real-personal-income-states-and-metropolitan-areas>), relative Hawaii real per capita personal income declined:
 1. 90 percent of the U.S. average (2009) (trough of Great Recession)
 2. 85 percent of the U.S. average (2019) (pre-Covid peak of U.S. expansion)
- Challenge facing Hawaii: The Roaring 20s or The Boring 20s? (both an improvement?)

Challenge to 2020s workforce development strategy: Less Is Not More

- Covid Recession slammed weakened, stumbling, lagging Hawaii economy
 - *Four* intervals of Hawaii employment, real GDP loss, not two, 2007-2021
 - Covid *economic* transmission channel: travel & tourism (*health* channel: returning residents)*
 - Structure of small open economy specializing in export
- Demographic change, post-pandemic *hysteresis* (temporary changes turn out to be permanent)
 - Boomer retirement accelerating—labor force participation ratcheting downward
 - Remote work quantum leap: new rules of the game?
 - Mismatches in post-Covid recovery (e.g. Retail or last mile fulfillment? Menu or QR code?)
 - Absolute Hawaii population decline from net resident out-migration (Appendix)
- Official HTA policy of less tourism implies lower exports, lower output, less employment, reduced household income (Appendix)

*Hawaii Department of Health *COVID-19 Disease Clusters in Hawaii* (<https://health.hawaii.gov/coronavirusdisease2019/covid-19-disease-clusters-in-hawaii/>) “Weekly COVID-19 Cluster Report” (August 5, 2021) (https://health.hawaii.gov/coronavirusdisease2019/files/2021/08/Hawaii_COVID-19_BiWeekly_Cluster_Report_5-August-2021_FINAL.pdf).

Pau

