Challenges for Hawaii's Post-COVID Workforce

Webinar appendixes for

Hawaii Workforce Development Council

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TZ ECONOMICS

Appendix 1: Hawaii's official tourism strategy, Less Is More

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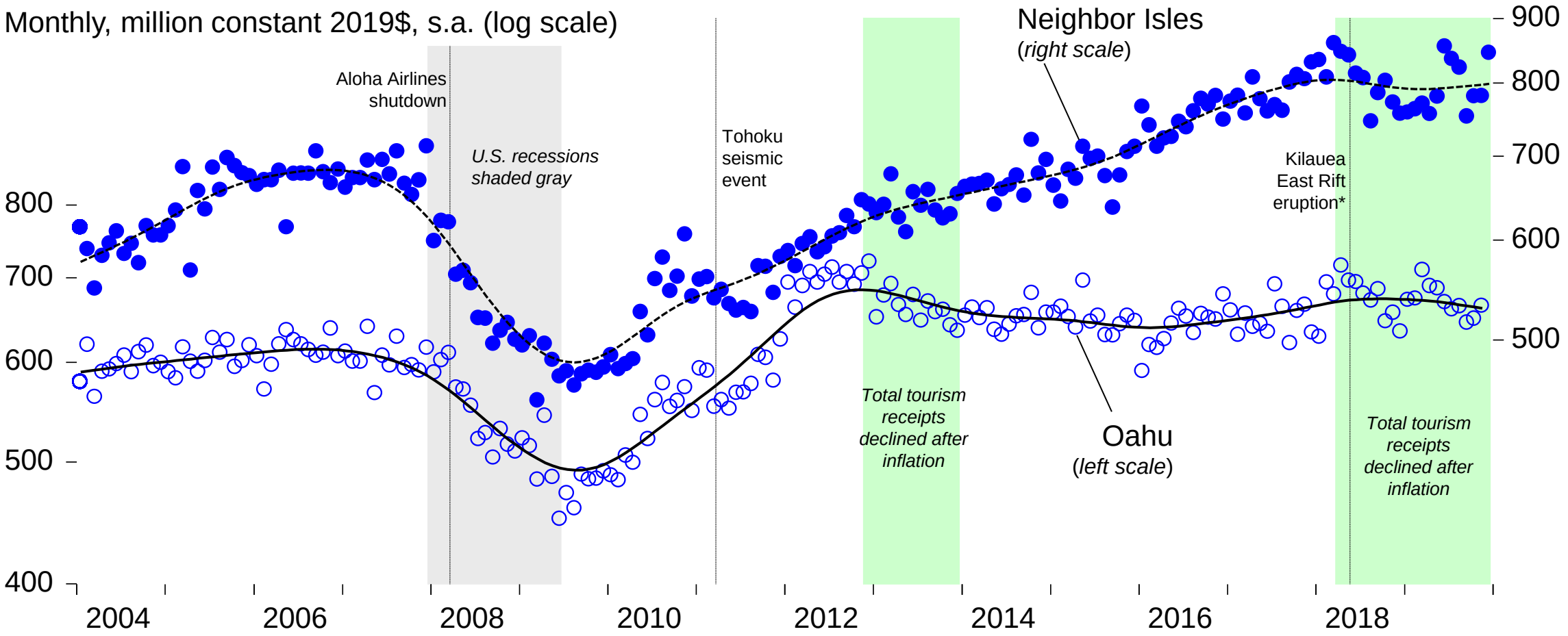
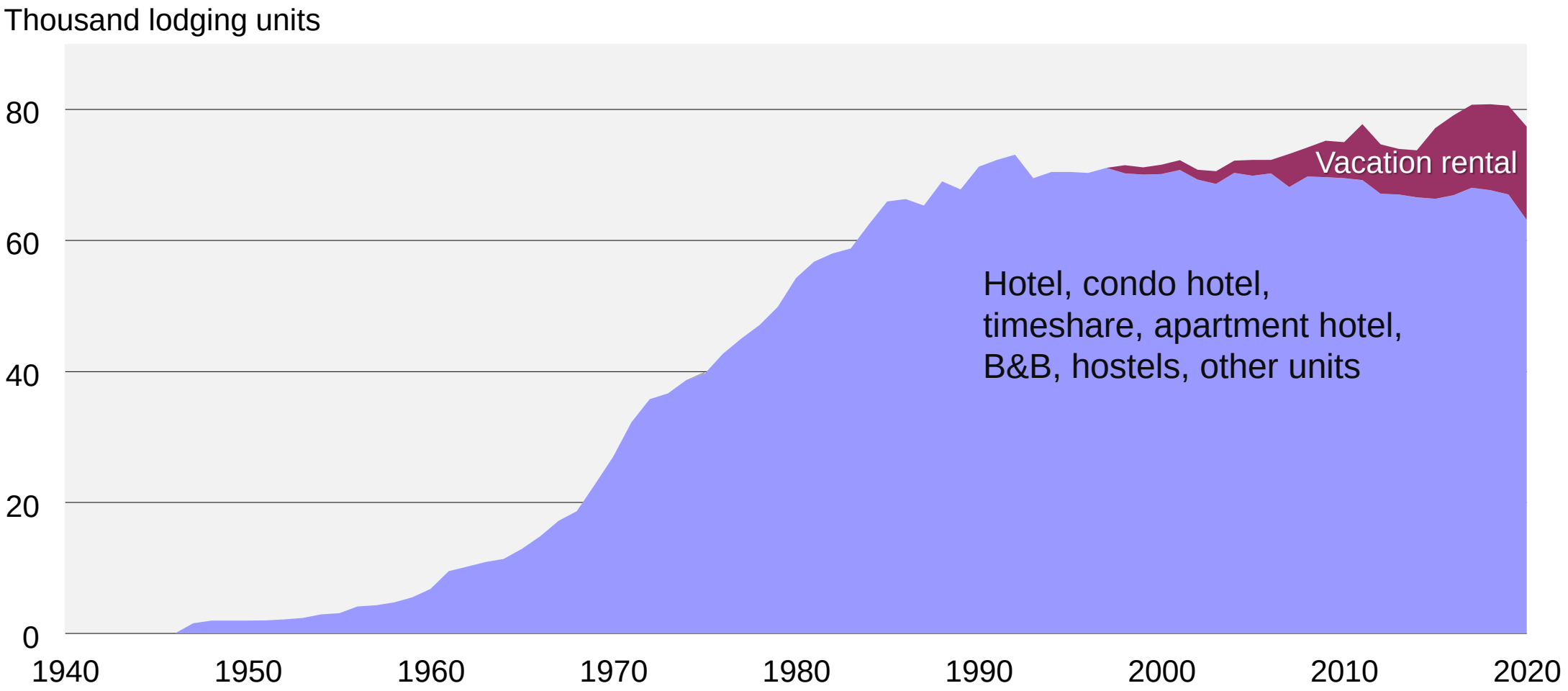
Challenges for the 2020s: real tourism receipts didn't grow on Oahu after 2012, stumble after natural disasters; HTA policy of *less* tourism



*May-August 2018 eruption on Kilauea volcano's East Rift (flows to Kapoho) (https://www.nps.gov/havo/learn/nature/2018-eruption.htm), preceded by Kauai flooding (https://www.ncdc.noaa.gov/extremes/ncec/records and https://www.weather.gov/hfo/RecordKauaiandOahuRainfallAndFlooding-April2018).

Sources: Hawaii Tourism Authority plan: "Reduce visitor impacts by…decreasing the level of visitors" (https://hawaiitourismauthority.org/media/7150/oahu-dmap-sc-draft-actions.pdf), U.S. BLS CPI-U retrieved from FRED, FRB St. Louis (https://fred.stlouisfed.org/series/CPIAUCSL), visitor expenditure from Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/); seasonal adjustment using Census X-13 ARIMA filter by TZE.

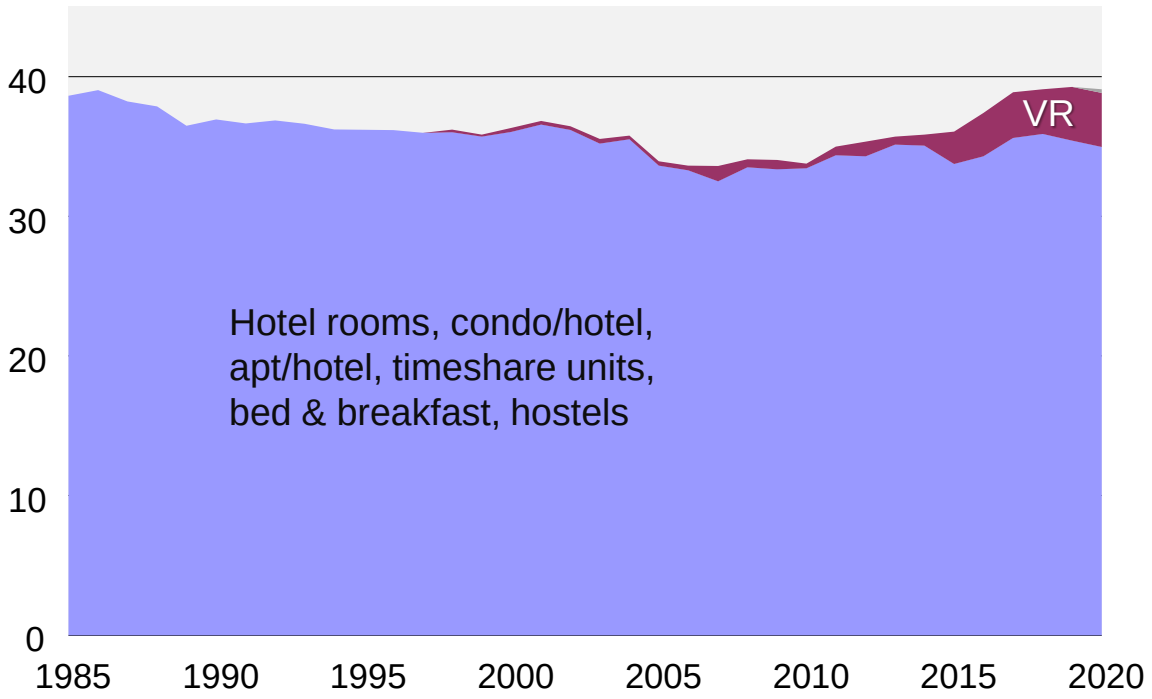
Entire *net* increase in Hawaii's visitor plant inventory for last 30 years comprised vacation rentals—strategic decision: constrain capacity



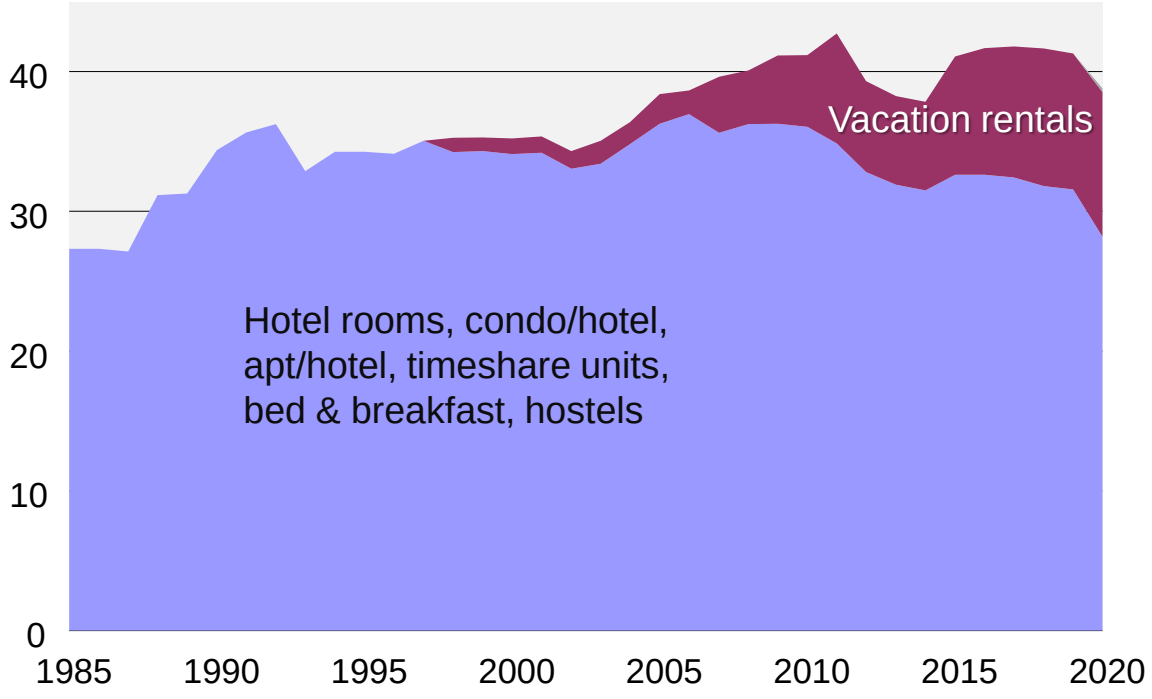
Sources: Hawaii DBEDT, *2020 Visitor Plant Inventory* (https://files.hawaii.gov/dbedt/visitor/visitor-plant/2020VPI.pdf) and prior issues

Hosting apps lower search + matching cost (demand), entry barriers (supply), relieve *de facto* capacity constraint; ergo, "*constrain VRs*"

Thousand lodging units



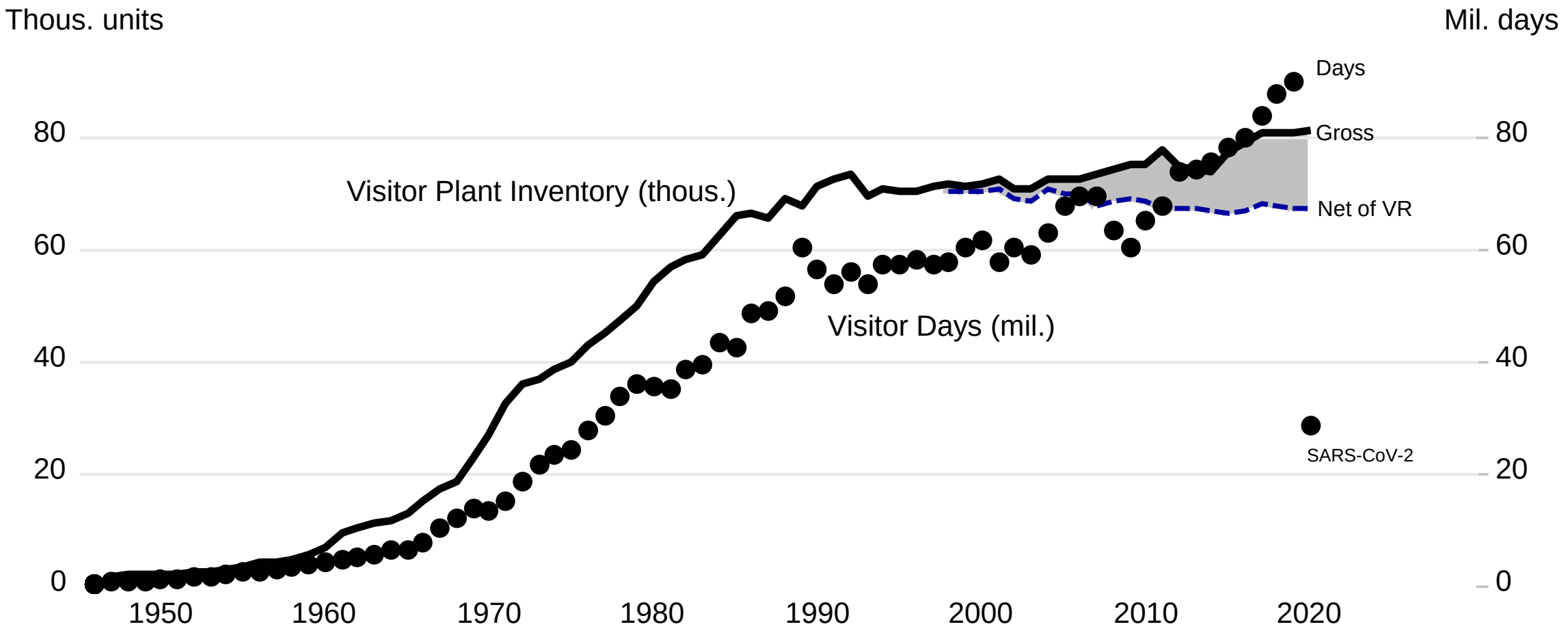
Oahu



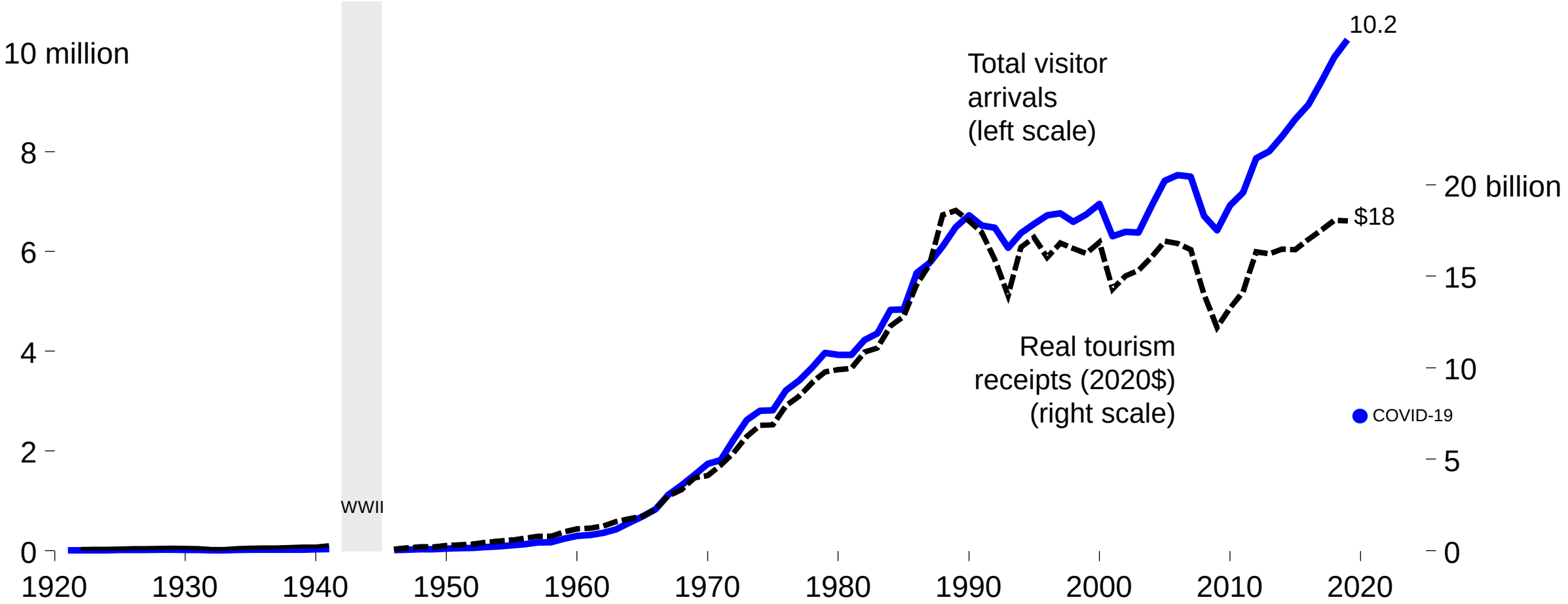
Neighbor Islands combined

Sources: Hawaii DBEDT, *2020 Visitor Plant Inventory* (https://files.hawaii.gov/dbedt/visitor/visitor-plant/2020VPI.pdf) and prior issues

Net of vacation rentals, Hawaii's lodging capacity has declined for 30 years; visitor day growth enabled by VRs, yield management models

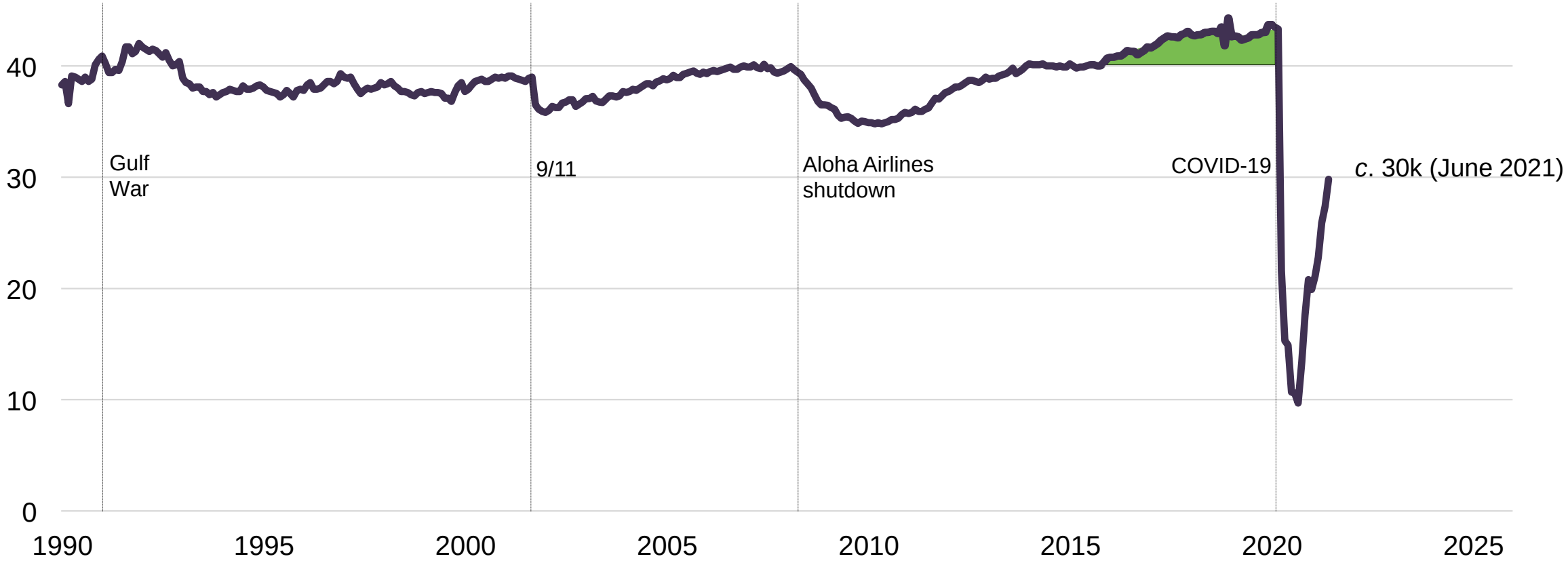


Hawaii's turn of the 21st century conundrum: "more visitors, not more dollars"—velocity is increasing, but inflow of export receipts is not



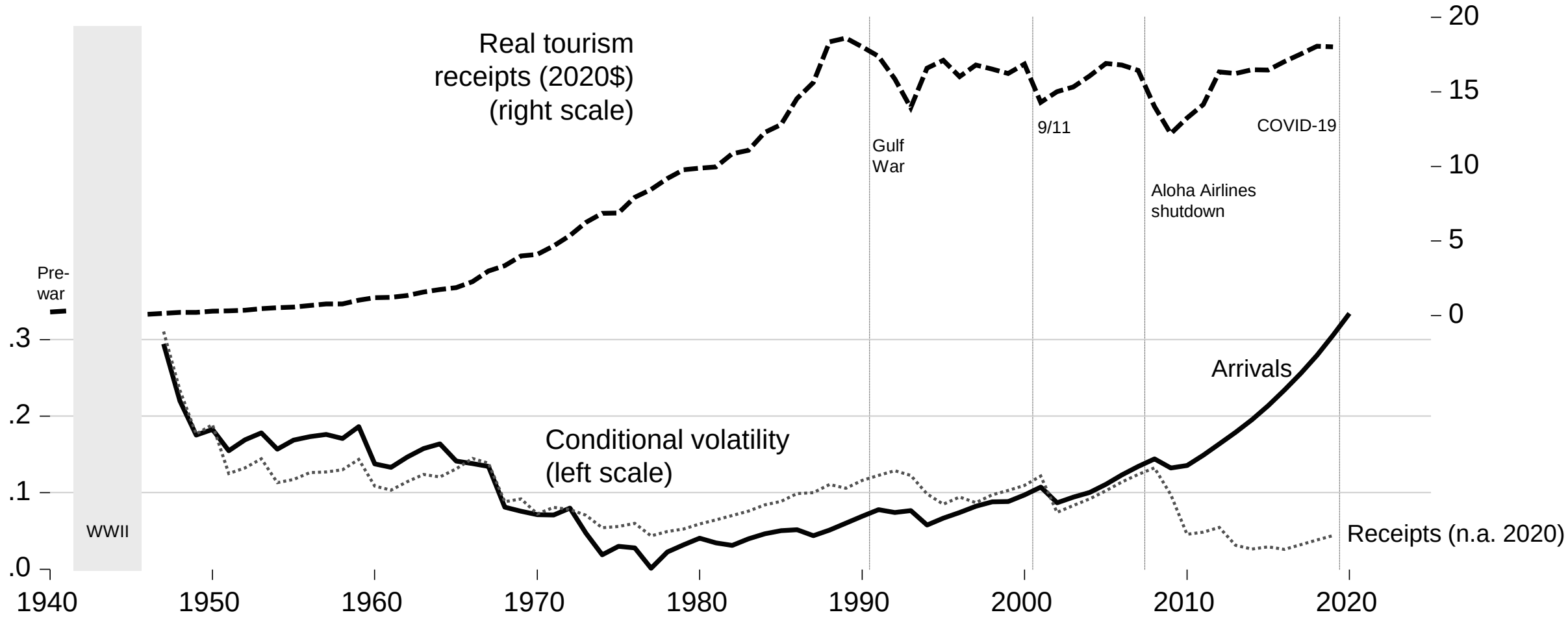
Monthly payroll employment in the accommodation industry didn't change materially for 25 years; pre-Covid rise could have been VRs

Thousand occupied jobs, *n.s.a.*

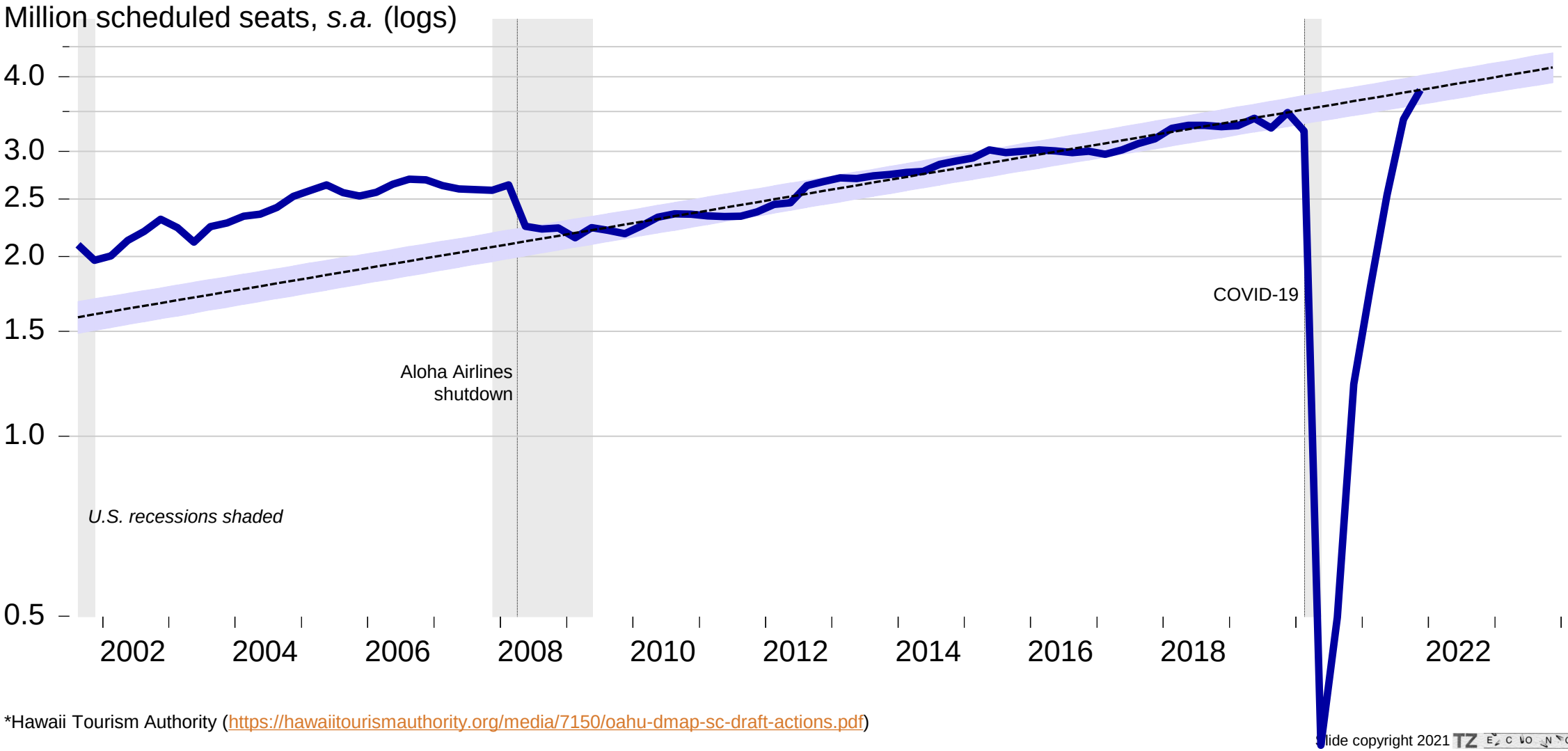


Sources: Hawaii DLIR, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/); seasonal adjustment using Census X-13 filter by TZE.

Real tourism receipts flat since 1989, conditional volatility rising: *risk-adjusted return decreasing* (sitting duck for Black Swans)



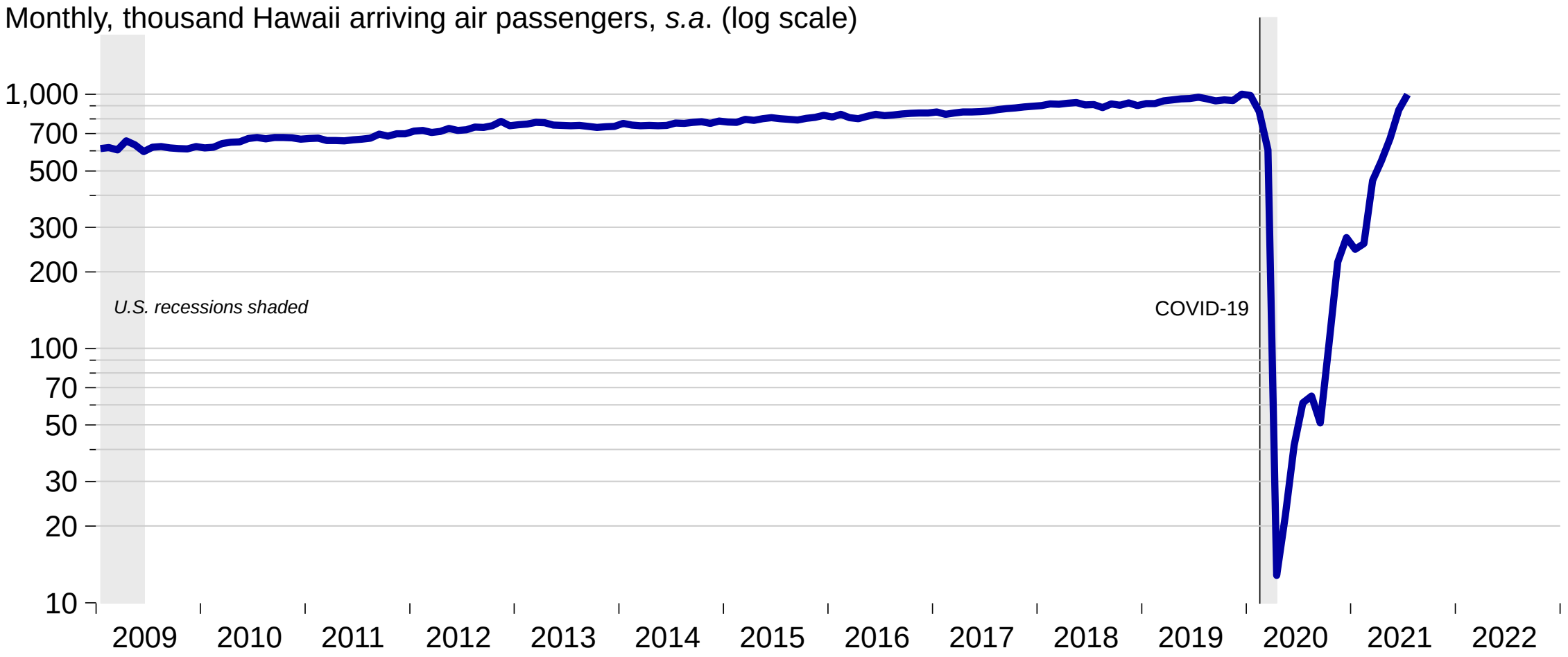
Scheduled air seats to return to post-Aloha Airlines trend, but HTA* now proposes “decreasing the level of visitors” and [hotspot] “capacity limits”



*Hawaii Tourism Authority (https://hawaiitourismauthority.org/media/7150/oahu-dmap-sc-draft-actions.pdf)

Sources: Hawaii Tourism Authority (https://www.hawaiitourismauthority.org/research/infrastructure-research/#air-seats), Hawaii DBEDT (http://dbedt.hawaii.gov/visitor/air-seats/).

Just to be clear about the first action proposed in the HTA Oahu Destination Management Plan*: passenger arrivals should *decrease*



*Hawaii Tourism Authority first action priority is to "Reduce visitor impacts by improving infrastructure, actively managing sites, and *decreasing the level of visitors* [emphasis added]." (https://hawaiitourismauthority.org/media/7150/oahu-dmap-sc-draft-actions.pdf)

Sources: Airports Division, Hawaii DOT, Hawaii DBEDT (http://dbedt.hawaii.gov/visitor/daily-passenger-counts/ and http://files.hawaii.gov/dbedt/economic/data_reports/special/daily-pax-update.xls), monthly totals of daily data through July 31, 2021, seasonally-adjusted by TZE using Census X-13 filter through December 2019, remaining monthly data not seasonally-adjusted through July 2021 .

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

Policy of less tourism* implies lower exports, lower output, less employment, income reduction

- No growth tourism 1989-2019 did *not* mitigate risk (denominator of risk-adjusted returns)
- Negative growth is *negative* (numerator of risk-adjusted returns)
- Negative externalities remain unattended: congestion, resource degradation, cultural erosion
- De-industrialization policy posture (HTA) mixes messages
- Alternative industries—biotech since 1967 (maize genetics), astronomy since 1965 (TMT)—were not previously pre-empted by growth of tourism, why are they all being cancelled now?
- One answer, dominant coalition: Politics of NIMBY, eco-pious denialism, global lodging brands (protectionism), latent bigotry and xenophobia ("it changes the character of the neighborhood")

*Hawaii Tourism Authority draft Oahu Destination Management Plan, first bullet point on its list of priority action items: "Reduce visitor impacts by…decreasing the level of visitors" (https://hawaiitourismauthority.org/media/7150/oahu-dmap-sc-draft-actions.pdf).

Appendix 2: demographic trends

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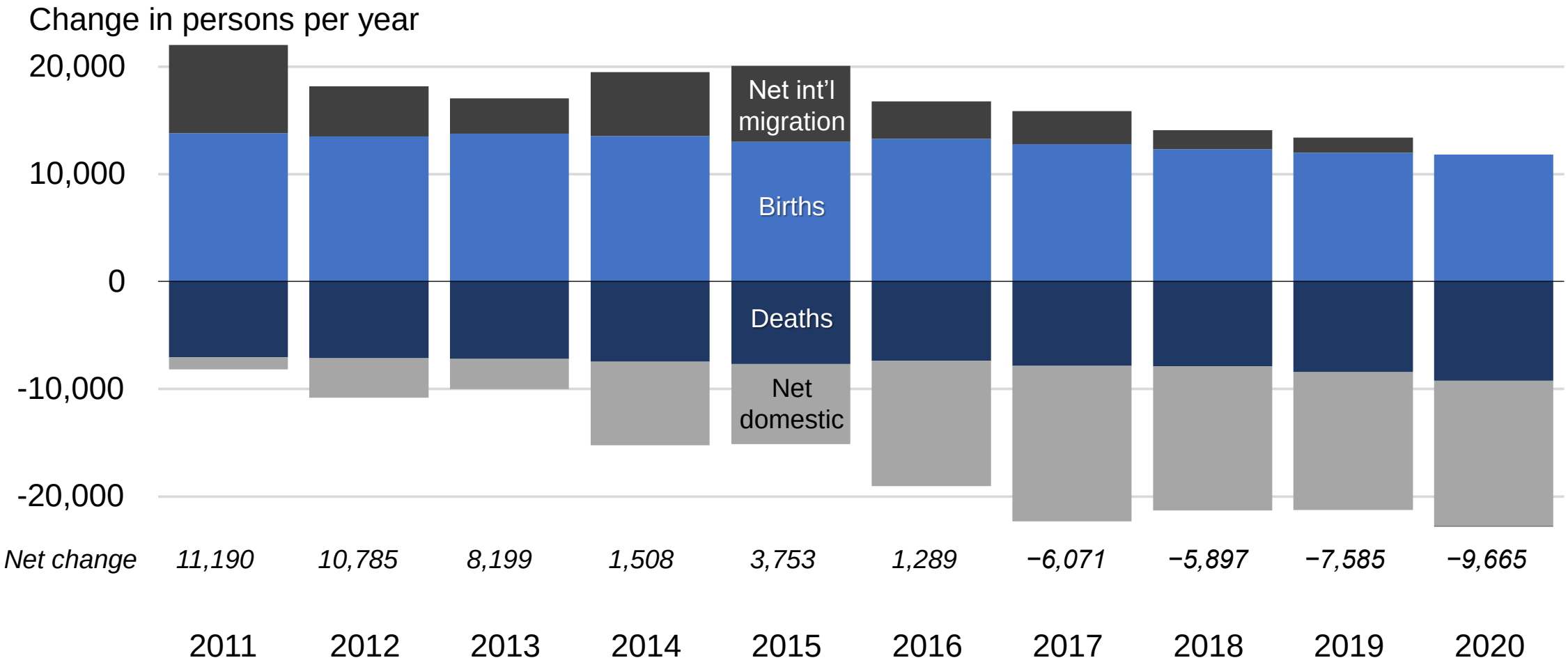
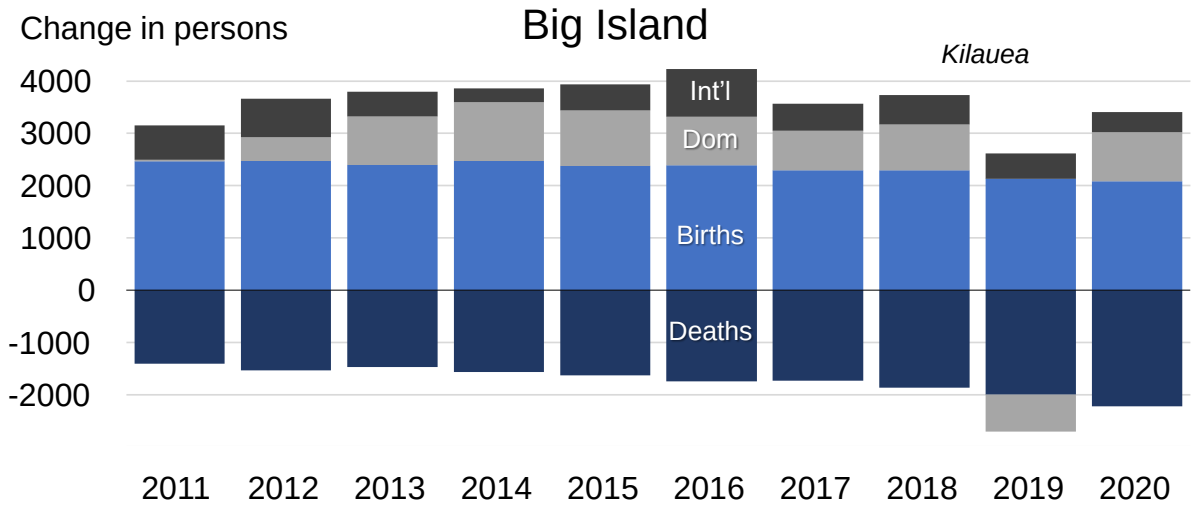
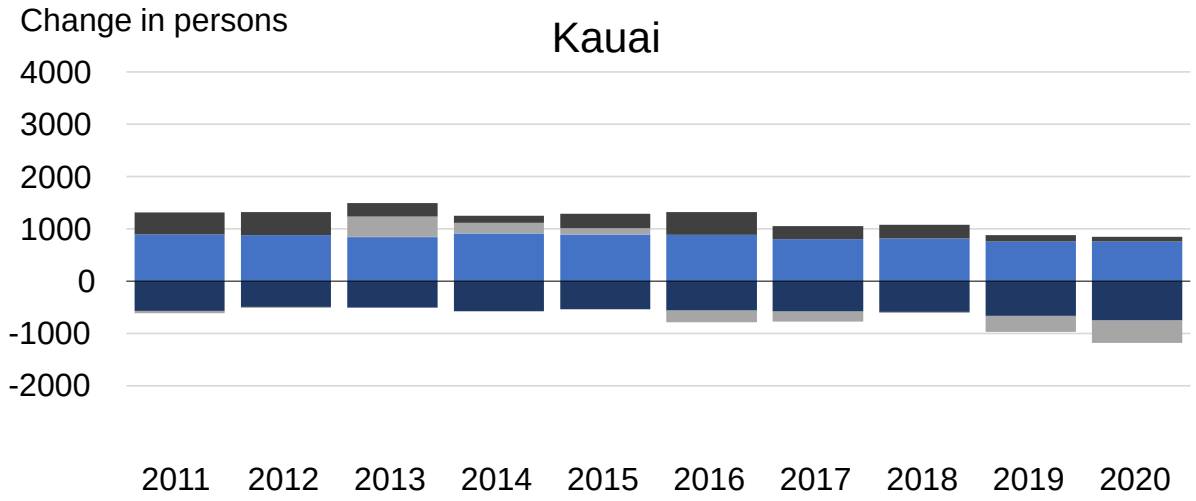
Oahu net domestic migration has been *negative* for decades: more residents leaving from than moving to Oahu; "voting with their feet"

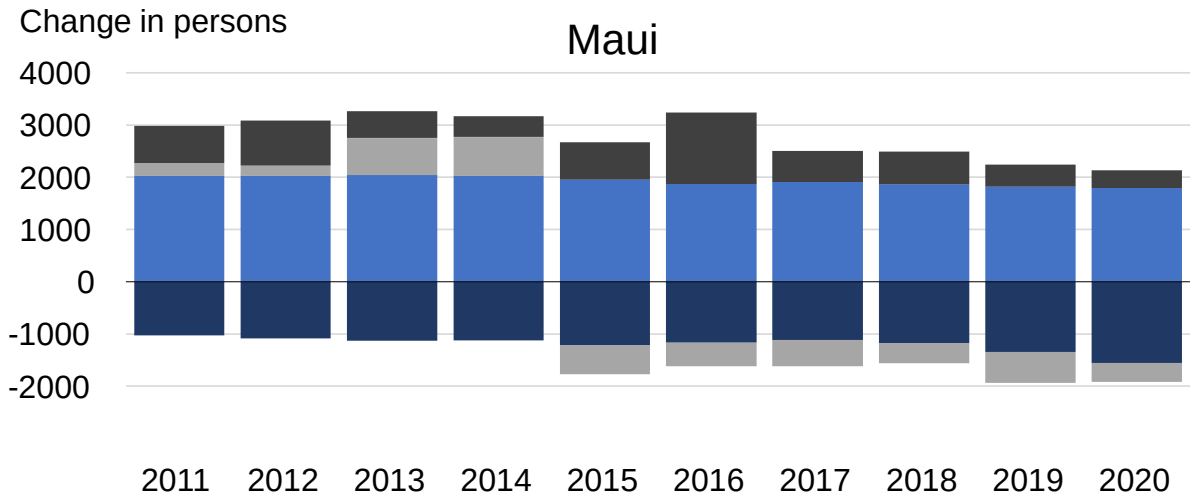


Sources: U.S. Bureau of the Census, Hawaii DBEDT (May 2021) *Annual Resident Population Estimates and Estimated Components of Resident Population Change for Metropolitan and Micropolitan Statistical Areas and Their Geographic Components: April 1, 2010 to July 1, 2020* (https://census.hawaii.gov/wp-content/uploads/2021/05/cbsa-est2020-alldata.xlsx).

Neighbor Island 2010s population change: more net out-migration, save on Big Island, lower fertility, aging; slow to no population growth



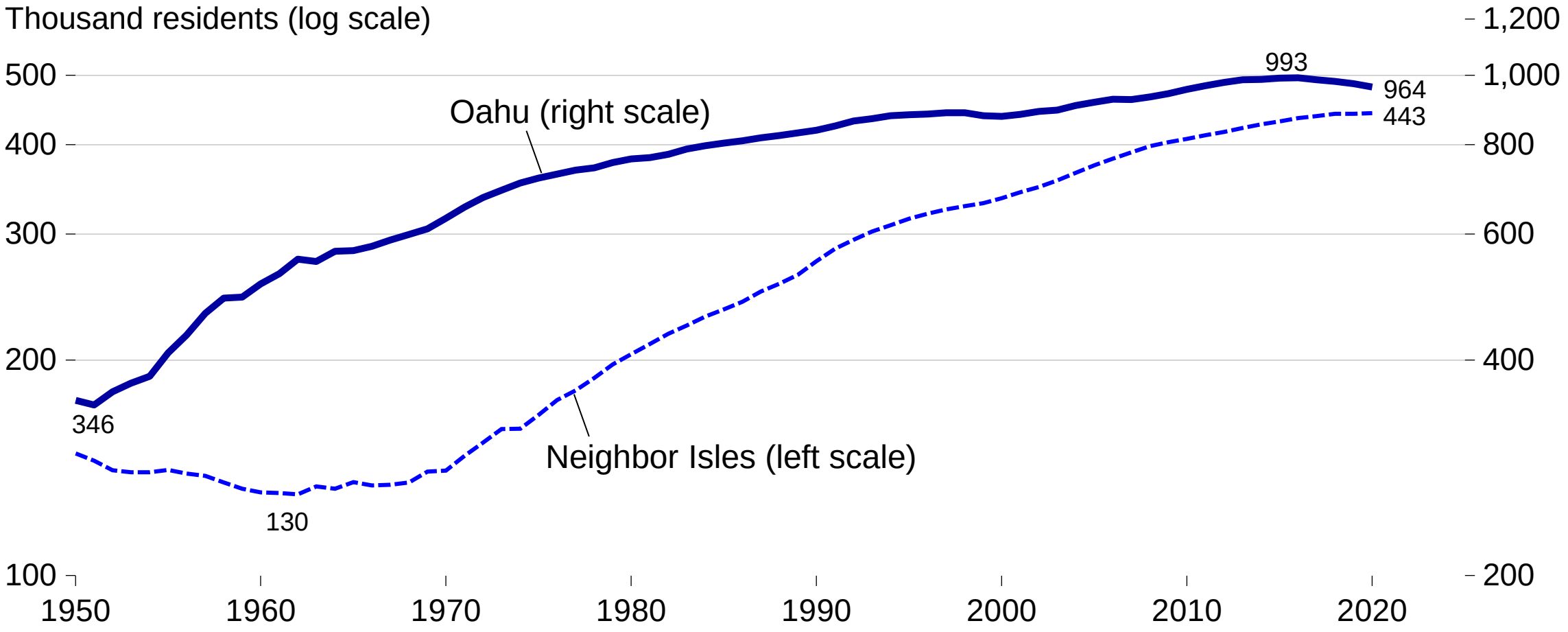




- Net domestic migration negative on Maui for since 2015; Kauai in 2019-2020; on Big Island after volcanic eruption
- Kauai population decline in 2019 and 2020 (−440)
- July 2010 – July 2020 cumulative percent changes:
  - 9.7% Big Island (17,979 persons)
  - 4.6% Kauai (4,643 persons)
  - 8.3% Maui (12,877 persons)

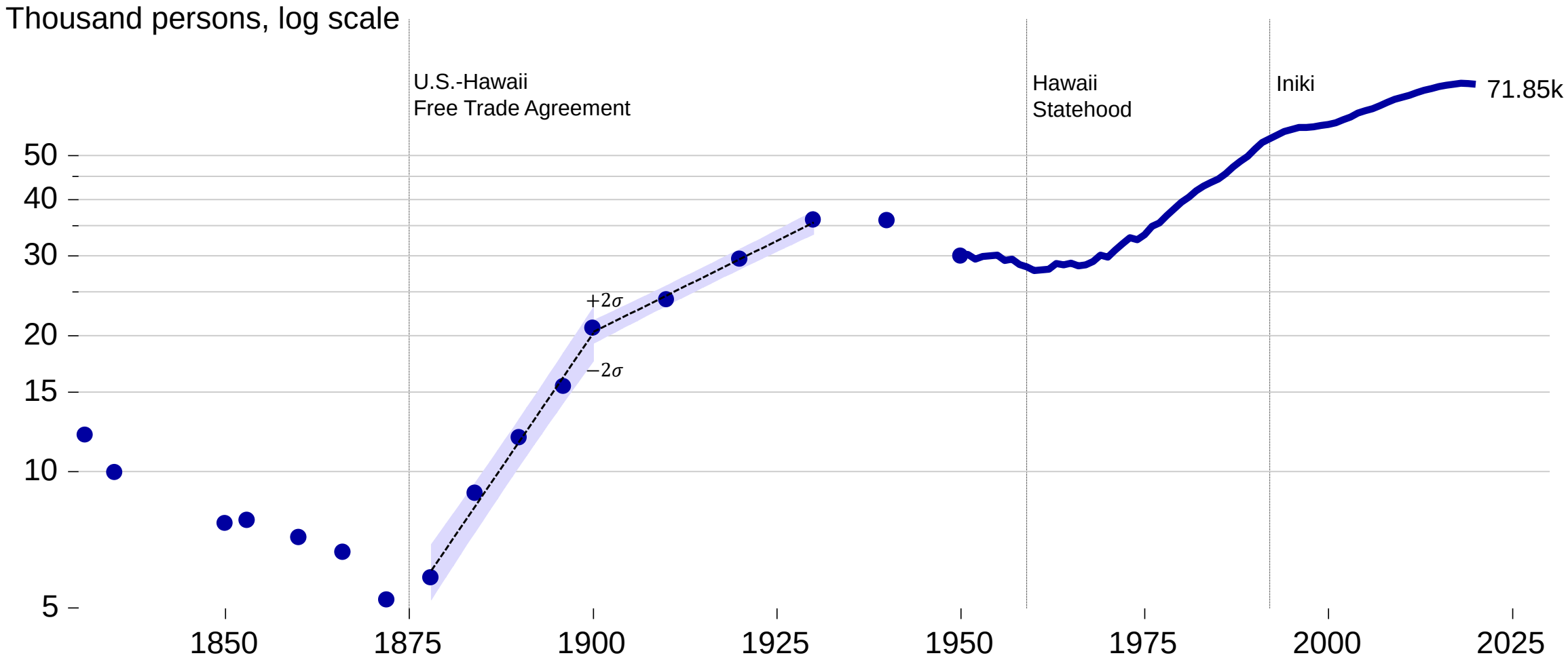
Sources: U.S. Bureau of the Census, Hawaii DBEDT (May 2021) *Annual Resident Population Estimates and Estimated Components of Resident Population Change for Metropolitan and Micropolitan Statistical Areas and Their Geographic Components: April 1, 2010 to July 1, 2020* (https://census.hawaii.gov/wp-content/uploads/2021/05/cbsa-est2020-alldata.xlsx).

Oahu's population has declined by almost 30,000 2016-2020, N. Isle population flat since 2018; fluke or future? 10,000 surplus houses?



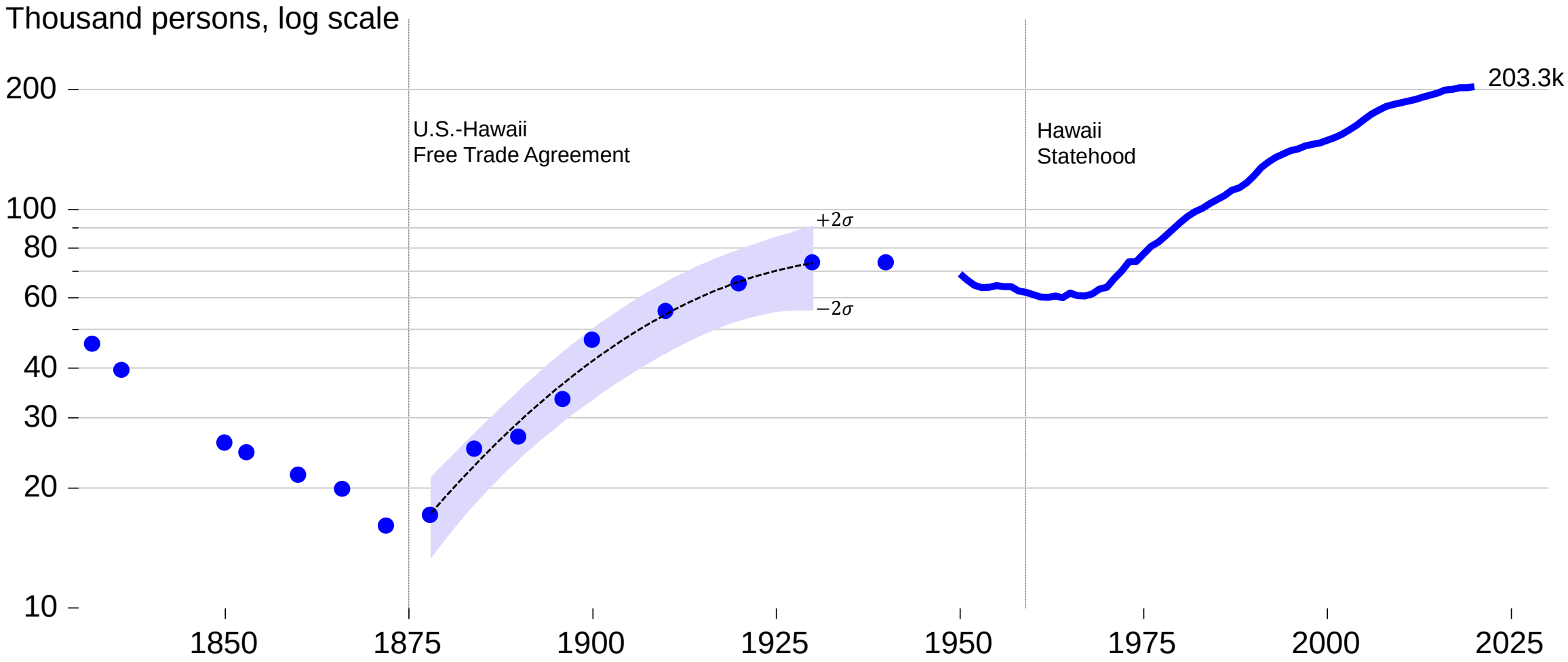
Sources: U.S. Bureau of the Census (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx), Hawaii DBEDT (http://census.hawaii.gov/home/population-estimate).

Those who forget the past are condemned to retweet it: pre-Covid Kauai population decline suggests possible repeat of mid-20th century



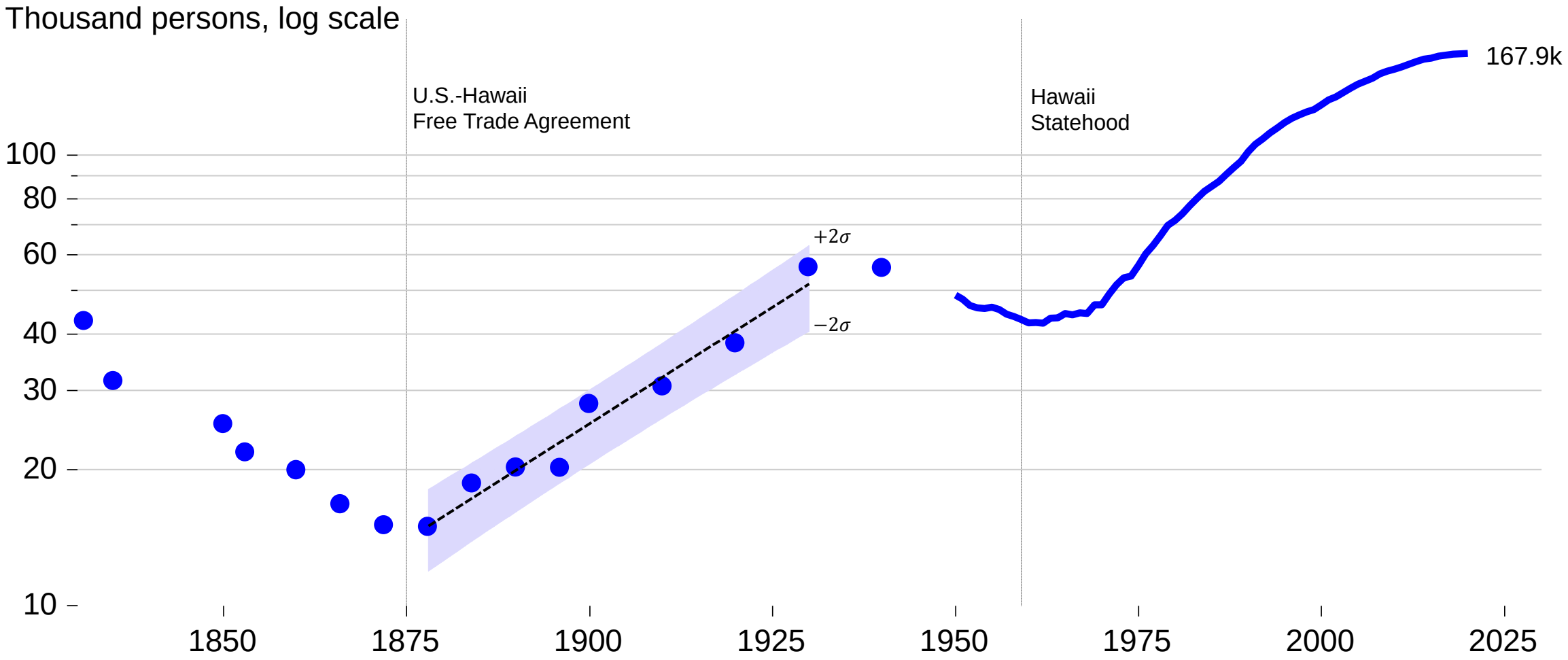
Sources: U.S. Bureau of the Census (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx), Hawaii DBEDT (http://census.hawaii.gov/home/population-estimate).

Big Island population stagnation after 1930 (mechanization, Honolulu urbanization) is a reminder that room to grow is not the determinant



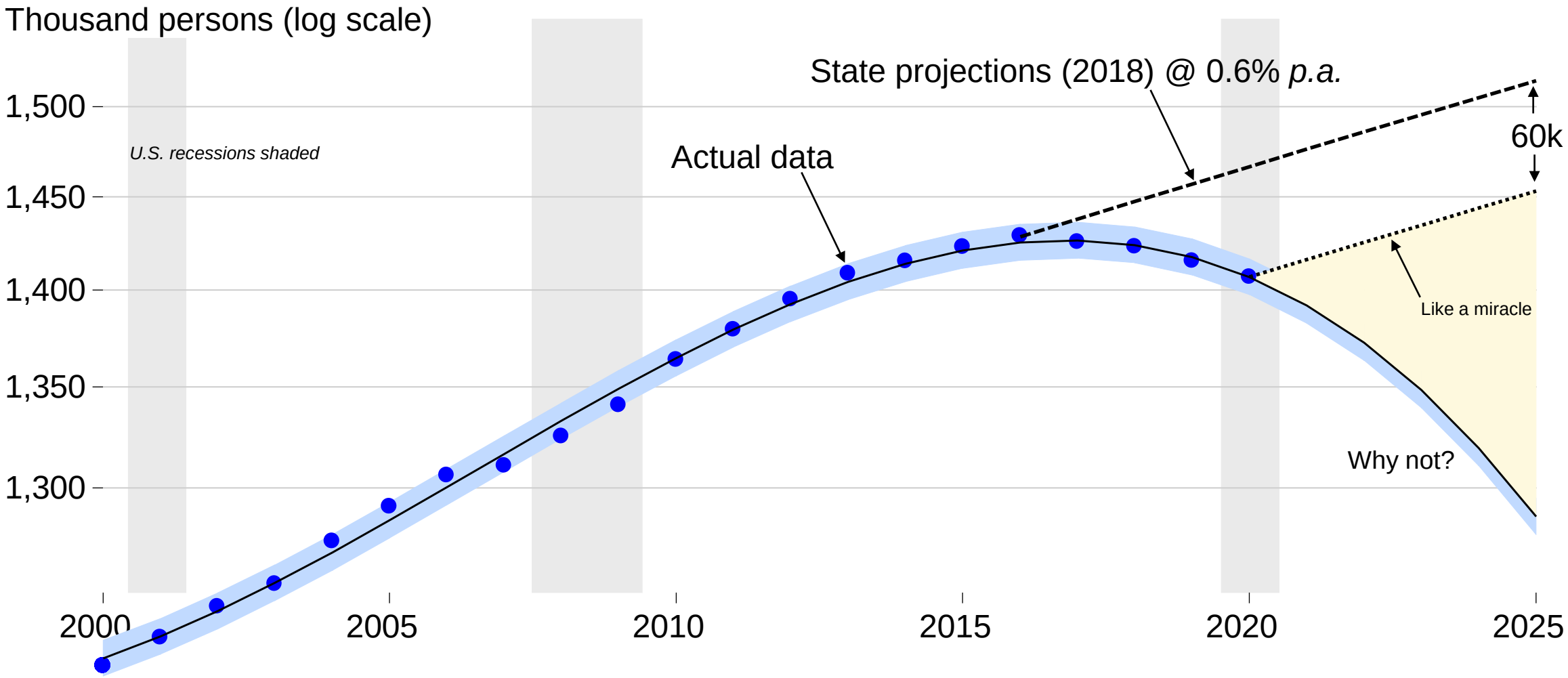
Sources: U.S. Bureau of the Census (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx), Hawaii DBEDT (http://census.hawaii.gov/home/population-estimate).

Maui's population grew steadily with sugarcane, pineapple after reciprocity, Statehood after mechanization, stagnated in late-2010s



Sources: U.S. Bureau of the Census (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx), Hawaii DBEDT (http://census.hawaii.gov/home/population-estimate).

Hawaii statewide population estimates including 2020 and official State projection (2018): 20,000 surplus housing units? more remote workers?



Sources: U.S. Bureau of the Census (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx): Hawaii DBEDT *Population and Economic Projections for the State of Hawaii to 2045* (June 2018) (http://files.hawaii.gov/dbedt/economic/data_reports/2045-long-range-forecast/2045-long-range-forecast-appendices.xlsx and http://census.hawaii.gov/home/population-estimate).

Population losers and gainers 2019→2020: no clear pattern (*e.g.* coal, petroleum states in mid-2010s), but remote work probably one factor

Population losers			Population gainers		
% changes		Persons	% changes		Persons
-0.6492	New York	-126,355	0.9469	North Carolina	99,439
-0.6275	Illinois	-79,487	0.9769	Montana	10,454
-0.6081	**Hawaii**	**-8,609**	1.0383	Delaware	10,141
-0.5835	West Virginia	-10,476	1.0453	Washington	79,588
-0.3842	Mississippi	-11,441	1.1225	Florida	241,256
-0.3333	Alaska	-2,445	1.1699	South Carolina	60,338
-0.2784	Louisiana	-12,967	1.2901	Texas	373,965
-0.2528	Connecticut	-9,016	1.4515	Utah	46,496
-0.1827	Michigan	-18,240	1.5364	Nevada	47,488
-0.1763	California	-69,532	1.7768	Arizona	129,558
-0.1221	Pennsylvania	-15,629	2.1158	Idaho	37,853
-0.1120	Vermont	-699			
-0.1000	New Jersey	-8,887			
-0.0976	Rhode Island	-1,033			
-0.0281	Ohio	-3,290			
-0.0190	Massachusetts	-1,309			

Sources: U.S. Bureau of the Census *July 1, 2020 Estimates of Population and Housing Units* (December 29, 2020) (https://www.census.gov/newsroom/press-releases/2020/estimates-population-housing-units.html) and accompanying data (https://www2.census.gov/programs-surveys/popest/tables/2010-2020/state/totals/nst-est2020.xlsx).

Appendix 3: Post-Covid monetary policy

- Monetary policy builds on Bernanke quantitative easing
  1. Stabilize financial markets immediately with liquidity injection (confidence = liquidity)
  2. Forward guidance so nobody can fake like they didn't know the plan
  3. Treasury yields confirm that recovery began last fall, front-run to interim term structure
- Inflation Mansplaining
  1. Inversion of term structure of implied inflation expectations implies that it is transitory
  2. Evolution of inflation targeting
     a) Mishkin, Bernanke *et al* publish textbook *Inflation Targeting* (1999)
     b) Ned Gramlich (in Honolulu): "you'd have to be living in a cave not to know…" (2005)
     c) FRBSF Prez Janet Yellen (at BOH luncheon): "our non-target target for inflation" (2007)
     d) Fed Chair Bernanke publishes a target target: 2 percent PCE deflator (Jan 2012)
     e) Fed Chair Powell's AIT elaboration: 2 percent *on average over time* (Aug 2020)

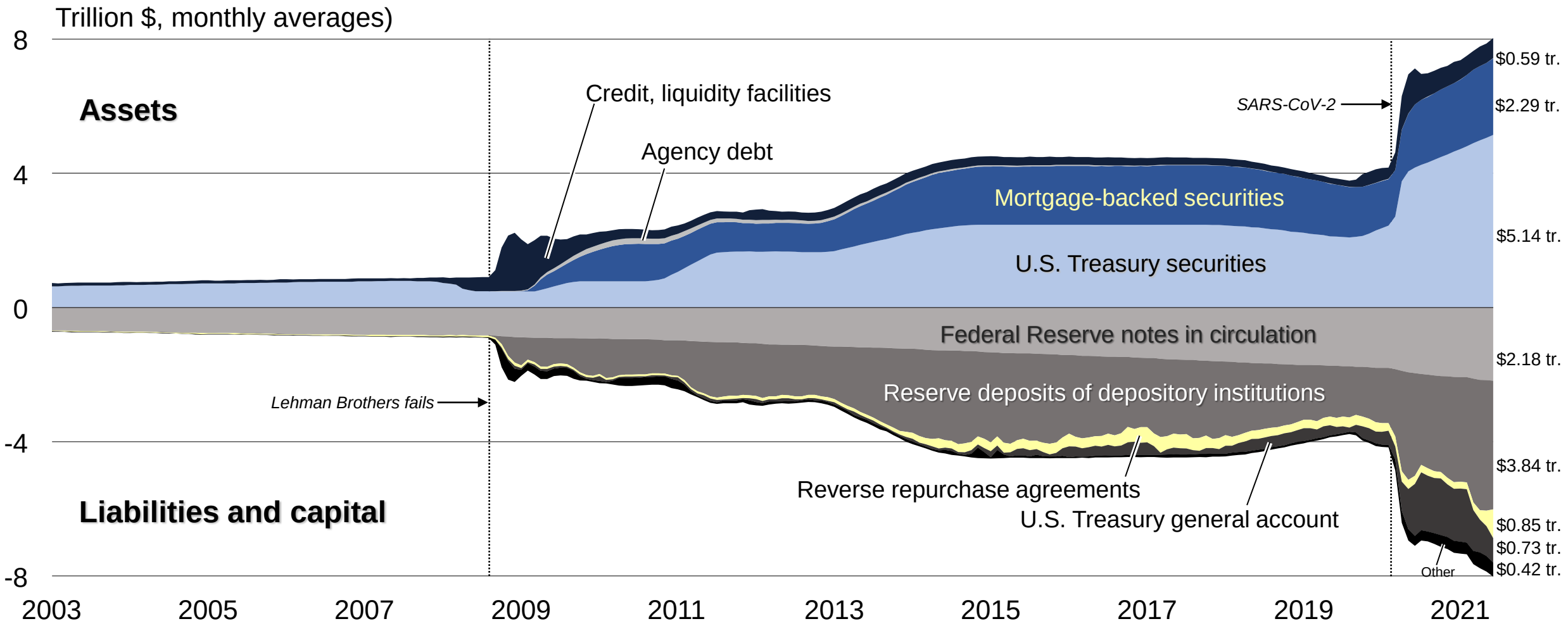
The FOMC forecast for inflation this year increased by 1 percentage point between March and June 2021, but is expected to revert to 2%

Percent

Variable	Median[1]				Central Tendency[2]				Range[3]			
	2021	2022	2023	Longer run	2021	2022	2023	Longer run	2021	2022	2023	Longer run
Change in real GDP	7.0	3.3	2.4	1.8	6.8–7.3	2.8–3.8	2.0–2.5	1.8–2.0	6.3–7.8	2.6–4.2	1.7–2.7	1.6–2.2
March projection	6.5	3.3	2.2	1.8	5.8–6.6	3.0–3.8	2.0–2.5	1.8–2.0	5.0–7.3	2.5–4.4	1.7–2.6	1.6–2.2
Unemployment rate	4.5	3.8	3.5	4.0	4.4–4.8	3.5–4.0	3.2–3.8	3.8–4.3	4.2–5.0	3.2–4.2	3.0–3.9	3.5–4.5
March projection	4.5	3.9	3.5	4.0	4.2–4.7	3.6–4.0	3.2–3.8	3.8–4.3	4.0–5.5	3.2–4.2	3.0–4.0	3.5–4.5
PCE inflation	3.4	2.1	2.2	2.0	3.1–3.5	1.9–2.3	2.0–2.2	2.0	3.0–3.9	1.6–2.5	1.9–2.3	2.0
March projection	2.4	2.0	2.1	2.0	2.2–2.4	1.8–2.1	2.0–2.2	2.0	2.1–2.6	1.8–2.3	1.9–2.3	2.0
Core PCE inflation[4]	3.0	2.1	2.1		2.9–3.1	1.9–2.3	2.0–2.2		2.7–3.3	1.7–2.5	2.0–2.3	
March projection	2.2	2.0	2.1		2.0–2.3	1.9–2.1	2.0–2.2		1.9–2.5	1.8–2.3	1.9–2.3	
Memo: Projected appropriate policy path												
Federal funds rate	0.1	0.1	0.6	2.5	0.1	0.1–0.4	0.1–1.1	2.3–2.5	0.1	0.1–0.6	0.1–1.6	2.0–3.0
March projection	0.1	0.1	0.1	2.5	0.1	0.1–0.4	0.1–0.9	2.3–2.5	0.1	0.1–0.6	0.1–1.1	2.0–3.0

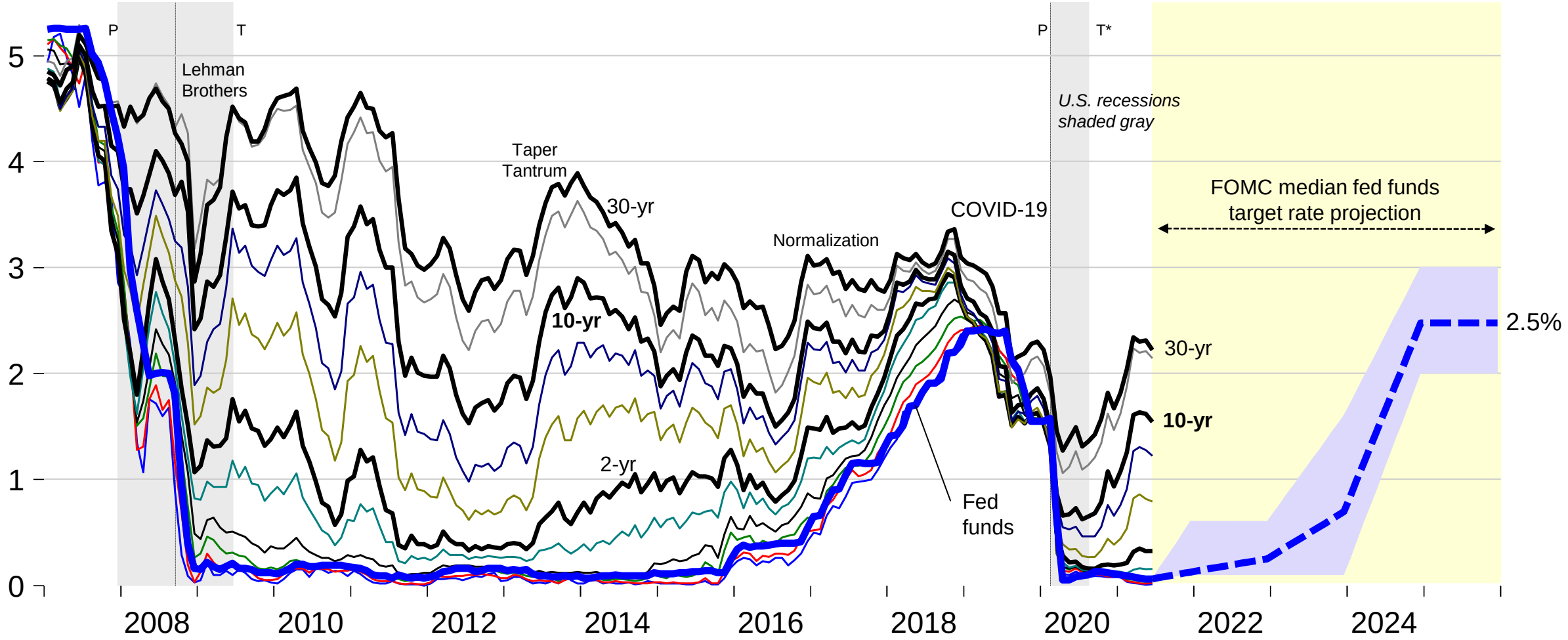
Source: Federal Open Market Committee, Federal Reserve Board (June 16, 2021) *Summary of Economic Projections* (https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20210616.pdf)

Monetary stabilization, accommodation of liquidity preference, fiscal stimuli expanded Federal Reserve asset purchases, balance sheet



Sources: Monthly averages of weekly averages, Federal Reserve Board (Statistical Release H.4.1), compiled through week of June 30, 2021 (https://www.federalreserve.gov/releases/H41/default.htm)

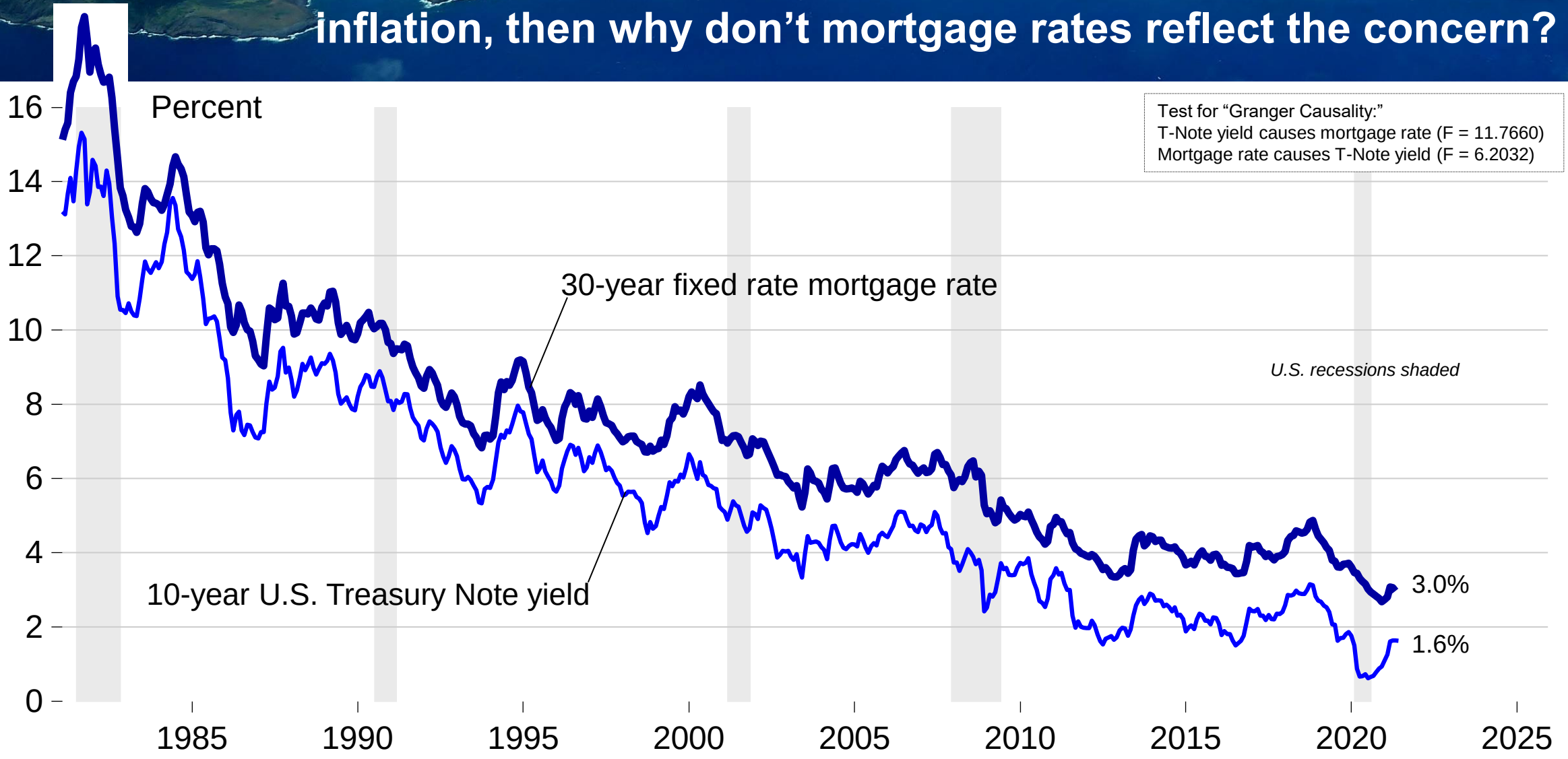
Nominal U.S. Treasury yields: overnight rates at zero lower bound, as of June 16, 2021 FOMC projected low, inching upward through 2023



*Unofficial (https://www.nber.org/research/data/us-business-cycle-expansions-and-contractions)

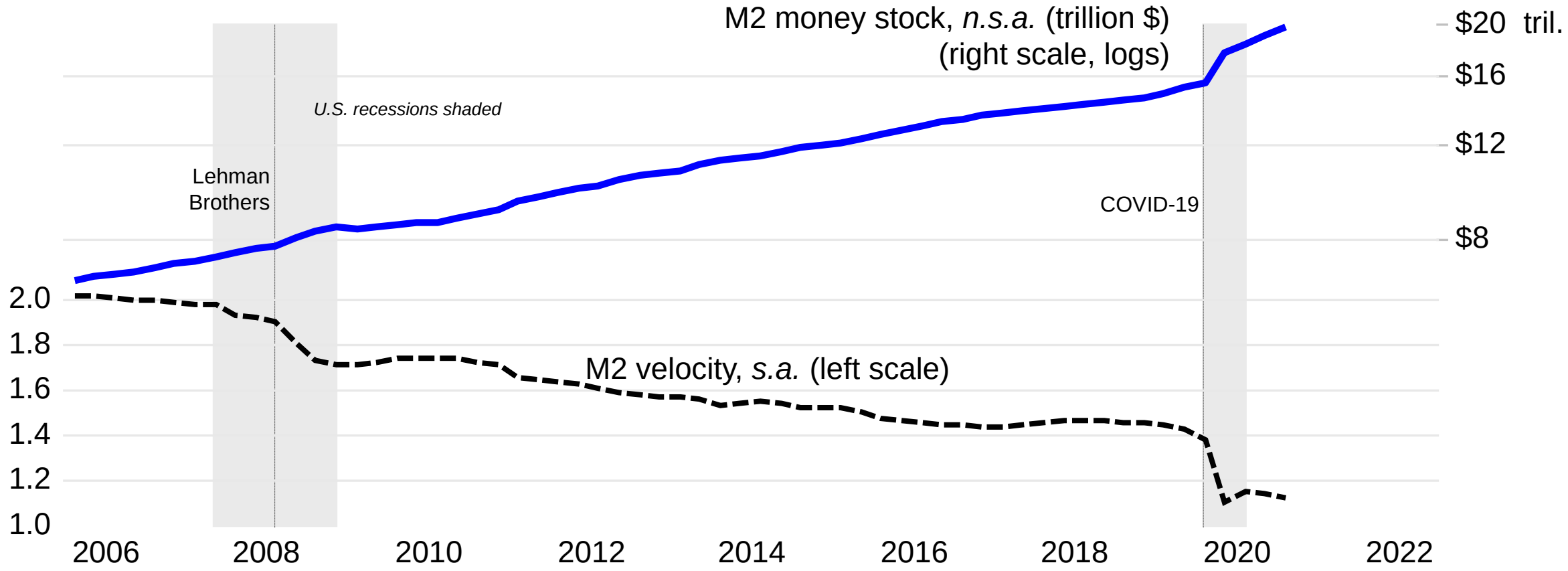
Sources: Board of Governors of the Federal Reserve System (https://www.federalreserve.gov/datadownload/), Federal Open Market Committee (FOMC) (June 16, 2022) (https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20210616.htm).

Talk is cheap? If "everybody" is concerned about reviving 1980s inflation, then why don't mortgage rates reflect the concern?



Sources: Federal Reserve Board (data download https://www.federalreserve.gov/releases/h15/), Freddie Mac, 30-Year Fixed Rate Mortgage Average in the United States, retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/MORTGAGE30US).

Confidence is liquidity: Covid raised precautionary demand. Q: Why was boosting M2 money stock not inflationary? A: Velocity collapsed



Beginning May 2020, M2 consists of M1 plus: (1) small-denomination time deposits (time deposits in amounts of less than $100,000) less IRA and Keogh balances at depository institutions; and (2) balances in retail MMFs less IRA and Keogh balances at MMFs. Seasonally adjusted M2 is constructed by summing savings deposits (before May 2020), small-denomination time deposits, and retail MMFs, each seasonally adjusted separately, and adding this result to seasonally adjusted M1.

Sources: Federal Reserve Board Board of Governors of the Federal Reserve System (US), M2 Money Stock [WM2NS], Federal Reserve Bank of St. Louis, Velocity of M2 Money Stock [M2V], both retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/M2V, https://fred.stlouisfed.org/series/WM2NS), July 5, 2021.

Appendix 4: whatchumean you not vaccinated, you bucks-for-lolo?

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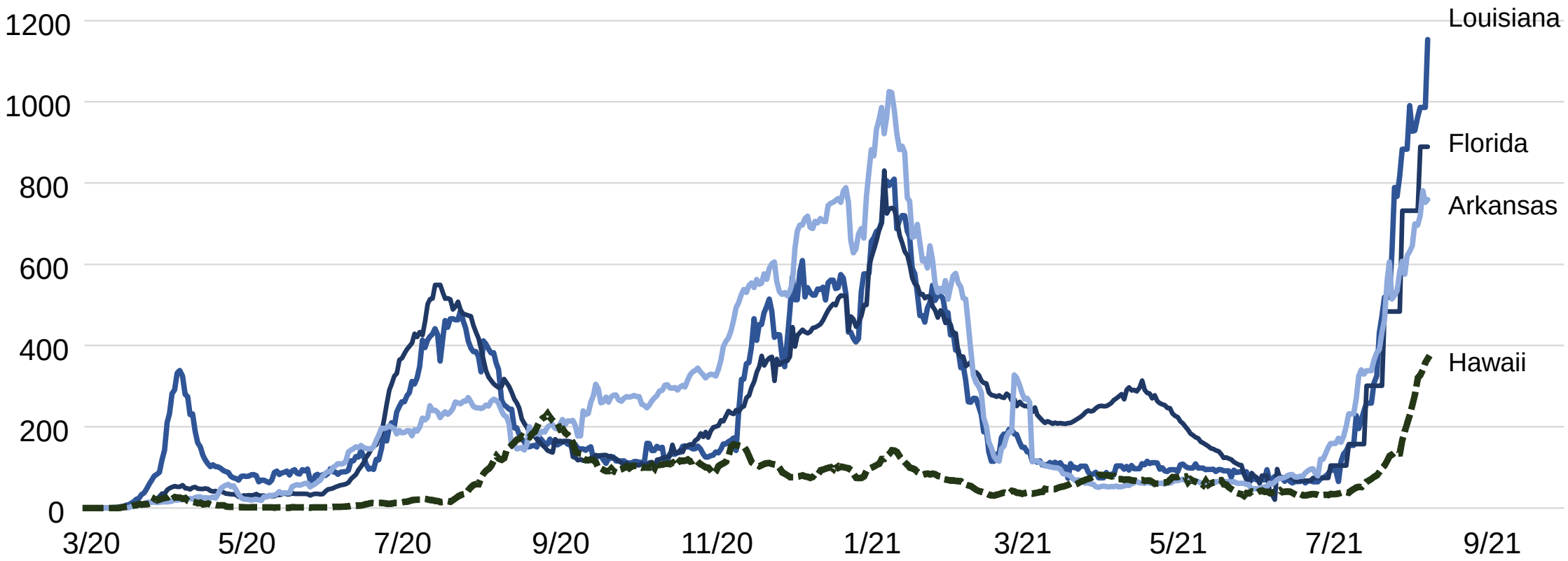
Daily incidence would make Louisiana the worst country worldwide for COVID*; Florida only reports weekly to obscure rising morbidity

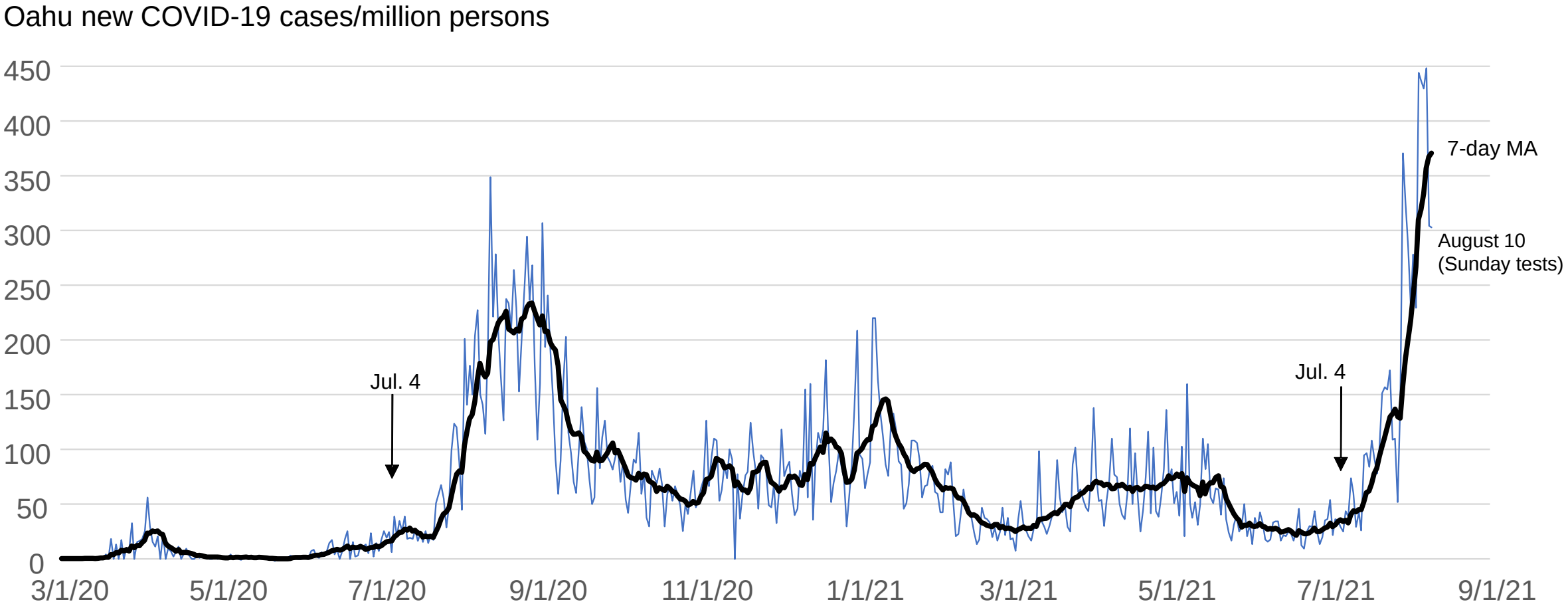
New daily COVID-19 cases per million persons (7-day moving averages)



*Highest incidence Aug. 9: (*1*) Louisiana (US) (1,153); (*2*) Georgia (EU) (1,009); (*3*) Botswana (950), (*4*) Florida (US) (889, last Friday); (*5*) Cuba (797); (*6*) Mississippi (795); (*7*) Arkansas (758)

Source: Johns Hopkins University (https://raw.githubusercontent.com/CSSEGISandData/COVID-19/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_confirmed_US.csv), daily data through August 9, 2021.

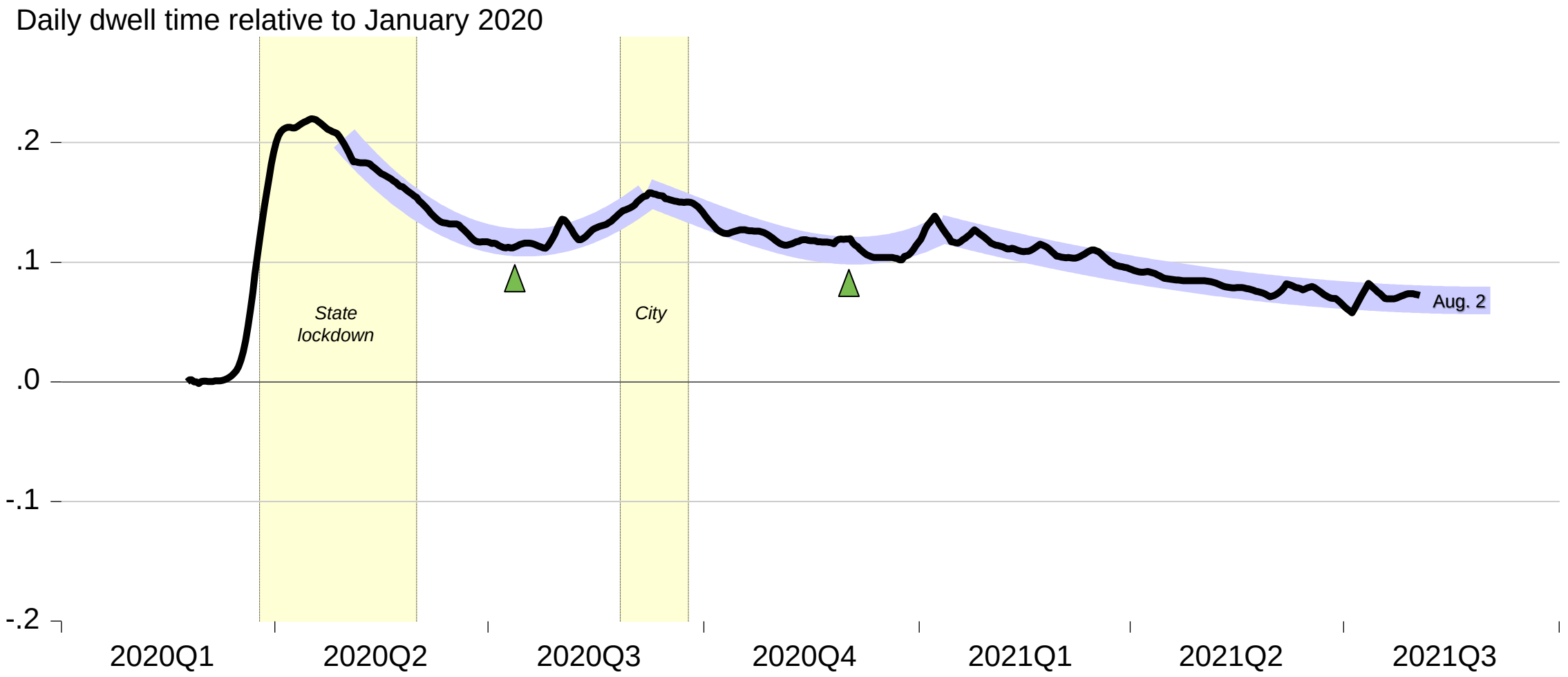
Now the State is doing something about the Delta variant?* Only about one month too late, eh? (MIA: City & County of Honolulu)



*State of Hawaii Office of the Governor (August 10, 2021) EXECUTIVE ORDER NO. 21-05 (Statewide Limits for Social Gatherings, Restaurants, Bars, and Social Establishments) (https://governor.hawaii.gov/wp-content/uploads/2021/08/2108048-ATG_Executive-Order-No.-21-05-distribution-signed.pdf)

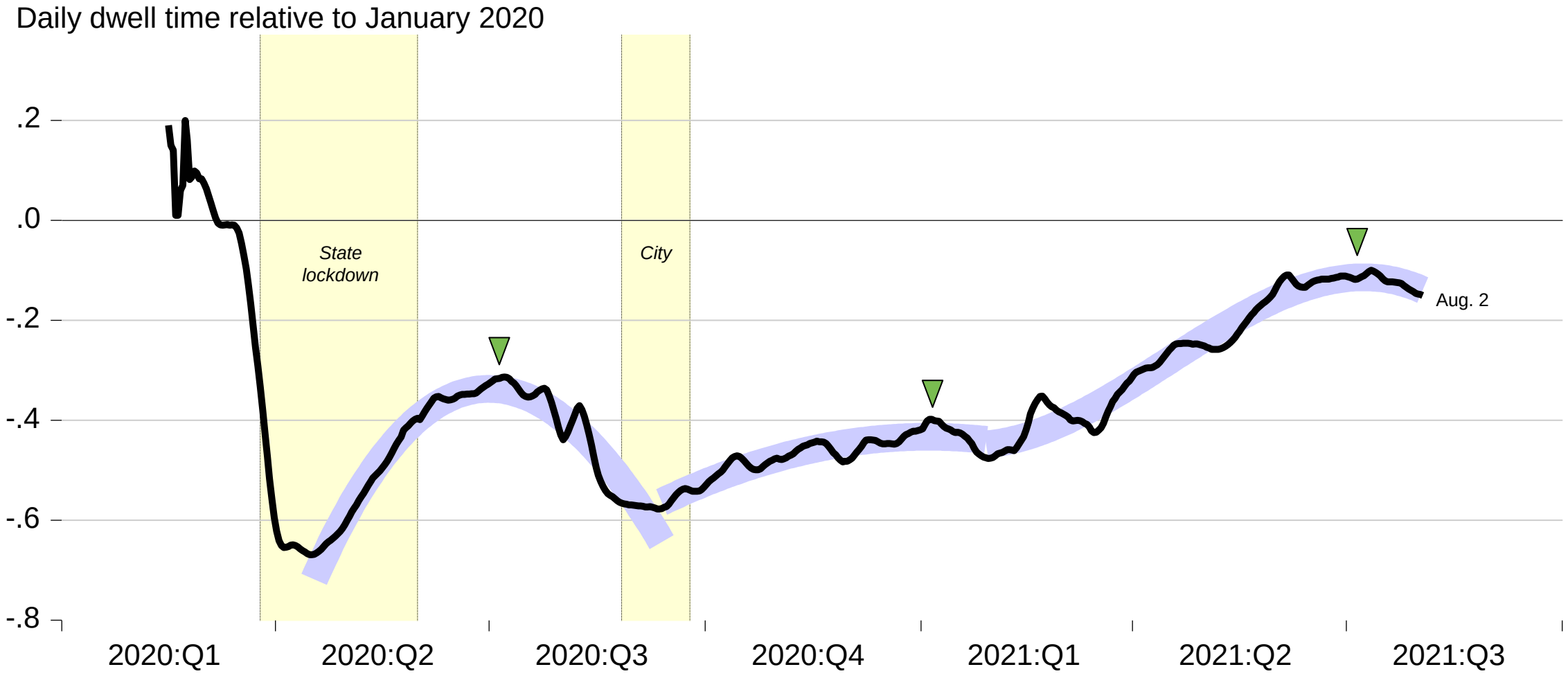
Sources: Hawaii DOH (https://health.hawaii.gov/coronavirusdisease2019/), Hawaii DBEDT (https://census.hawaii.gov/wp-content/uploads/2021/05/co-est2020-alldata.xlsx); all calculations by TZE

Google GPS mobility data for Hawaii (residents)—time spent at home relative to pre-Covid: remote work plus people act *before* government



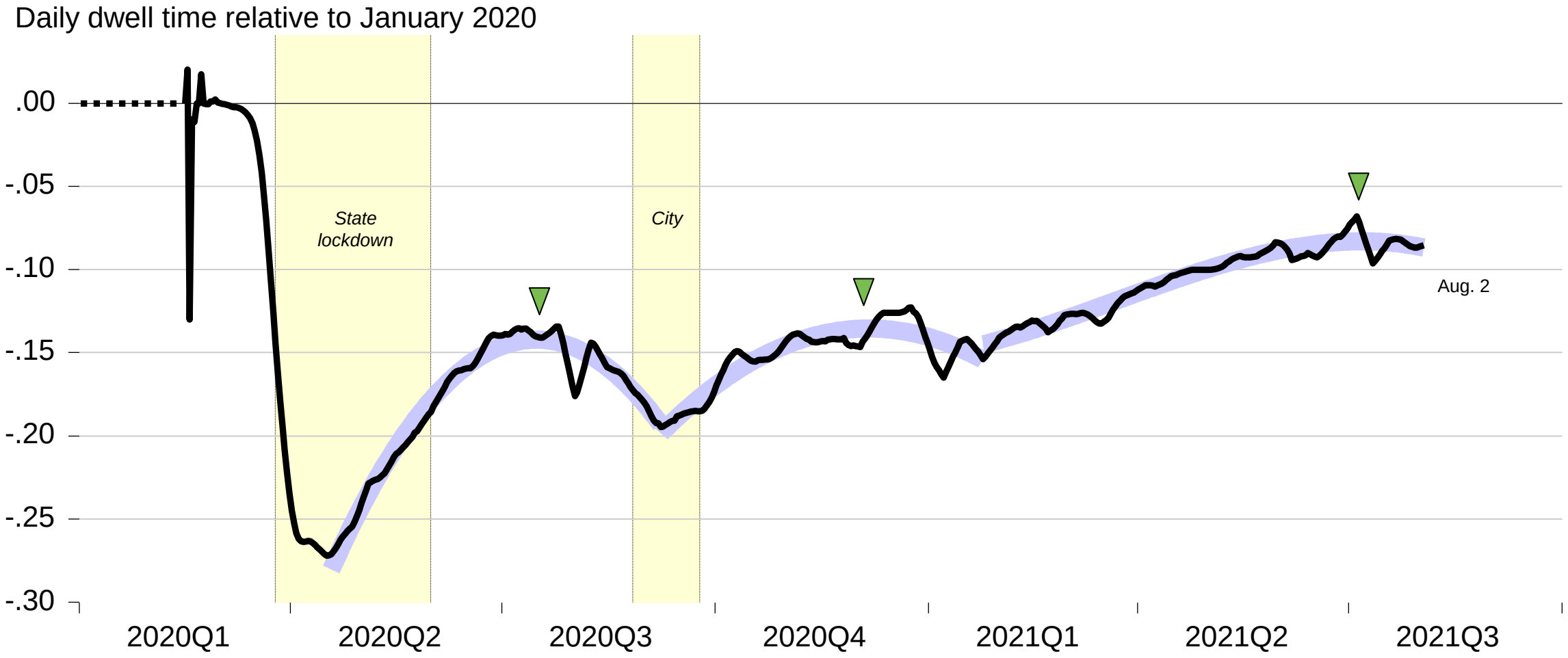
Sources: Raj Chetty, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team (November 2020) "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data" (https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf, data at https://raw.githubusercontent.com/OpportunityInsights/EconomicTracker/main/data/Google%20Mobility%20-%20State%20-%20Daily.csv)

Google GPS mobility data for Hawaii (residents)—"park use": public behavior turning points *lead* non-pharmaceutical interventions (NPIs)



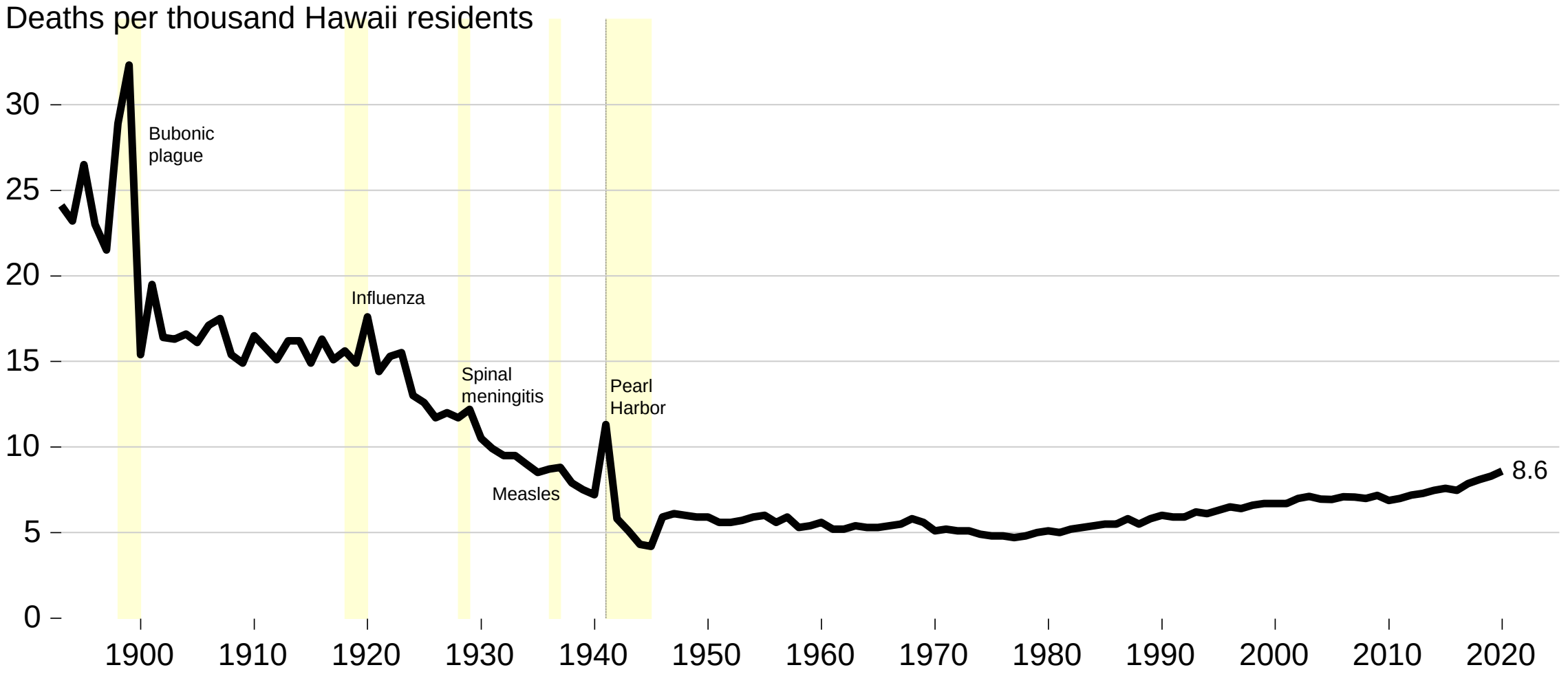
Sources: Raj Chetty, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team (November 2020) "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data" (https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf, data at https://raw.githubusercontent.com/OpportunityInsights/EconomicTracker/main/data/Google%20Mobility%20-%20State%20-%20Daily.csv)

Google GPS mobility data for Hawaii (residents)—"time spent away from home" (workplace, shopping, recreation, *etc*.) getting Delta-ed



Sources: Raj Chetty, John N. Friedman, Nathaniel Hendren, Michael Stepner, and the Opportunity Insights Team (November 2020) "The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data" (https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf, data at https://raw.githubusercontent.com/OpportunityInsights/EconomicTracker/main/data/Google%20Mobility%20-%20State%20-%20Daily.csv)

Those who forget history are condemned to retweet it: Hawaii's worst year during the 1918-1919 influenza pandemic was *1920*; death rates



Sources: Robert C. Schmitt (1977) *Historical Statistics of Hawaii*, University of Hawaii Press, DBEDT (various) *State of Hawaii Data Book* (http://dbedt.hawaii.gov/economic/databook/).

Pau