Shocks, stocks, and underperformance

prepared for the

Pacific-Asia Travel Association and
Travel & Tourism Research Association

Prince Hotel Waikiki

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

February 7, 2019

TZ ECONOMICS

Source:U.S. Geological Survey [public domain] (https://www.usgs.gov/media/images/k-lauea-volcano-fissure-8-aerial)

Themes for the 2019 PATA/TTRA panel

- Briefly revisit overtourism: revenues, not arrivals; management and governance
- Review/update past years' PATA/TTRA observations on lodging, seats, currencies
- Natural disasters and risk-adjusted returns
- Macroeconomic wrap-up

HAWAI'I TOURISM AUTHORITY

Hawai'i Convention Center
1801 Kalākaua Avenue, Honolulu, Hawai'i 96815
kelepona tel 808 973 2255
kelepa'i fax 808 973 2253
kahua pa'a web hawaiitourismauthority.org

David Y. Ige
Governor

Chris Tatum
President and Chief Executive Officer

For Immediate Release: January 31, 2019
HTA Release (19-01)

Hawai'i Visitor Statistics Released for 2018

HONOLULU – Visitors to the Hawaiian Islands spent $17.82 billion[1] in 2018, an increase of 6.8 percent compared to 2017, according to preliminary year-end statistics released today by the Hawai'i Tourism Authority. Spending by visitors generated $2.08 billion in state tax revenue in 2018, an increase of $133.1 million (+6.8%) from 2017.

Additionally, 217,000 jobs[2] statewide were supported by Hawai'i's tourism industry in 2018, up 6.8 percent from 2017.

In 2018, visitor spending increased from the U.S. West (+9.1% to $6.64 billion), U.S. East (+8.1% to $4.57 billion), Japan (+2.1% to $2.31 billion), Canada (+5.6% to $1.10 billion) and All Other International Markets (+4.5% to $3.17 billion) compared to 2017.

On a statewide level, average daily visitor spending was up (+1.4% to $201 per person) in 2018 versus 2017. Visitors from Canada (+4.0%), Japan (+3.0%), U.S. East (+1.5%), U.S. West (+1.2%) and All Other International Markets (+1.1%) spent more per day in 2018 versus 2017.

A total of 9,954,548 visitors came to Hawai'i in 2018, an increase of 5.9 percent from the 9,404,346 visitors in 2017. Total visitor days[3] rose 5.3 percent in 2018. On average, there were 242,629 visitors in the Hawaiian Islands on any given day in 2018, up 5.3 percent from 2017.

Mahalos Sistah:
Charlene Chan
Director of Communications
Hawaii Tourism Authority
808-973-2272 (o)
Charlene@gohta.net

Source:
https://www.hawaiitourismauthority.org/media/2974/december-2018-visitor-statistics-press-release-final.pdf

Helpful footnotes don't really improve economics communication: deflation immaterial absent comparison over time; jobs maxed out

[1] Total visitor spending of $17.82billion was in nominal dollar [*sic*] (not adjusted for inflation) and did not include supplemental business expenditures.

In 2018, 2018 dollars were just "dollars;" there was no year-to-year comparison to deflate.

"Visitor spending in 2018 was $17.82 billion in 2018 dollars." (clunky)

"…217,000 jobs[2] statewide were supported by Hawai'i's tourism industry [*sic*] in 2018, up 6.8 percent from 2017."

[2] The number of jobs supported (direct, indirect and induced)

No doubt tourism supported its customary share of economy-wide jobs but, at full employment without net in-migration (Hawaii's was *negative* in 2018), jobs could not have risen 6.8 percent: at full employment, *by definition*, everybody already has a job. (In *general* equilibrium, wages relative to rental rates on capital change, changing factor intensities through factor migration.)

Once and for all: calculating the *real* change in visitor expenditure

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Top Picks

OTHER SURVEYS | SHARE ON:

Data for (AK-AZ-CA-GU-HI-ID-NV-OR-WA)
(Select from list below)

- [ ] (CPI-U) U.S. City Average, All items 1982-84=100 (Monthly) - CUUR0000SA0
- [ ] (CPI-W) U.S. City Average, All items 1982-84=100 (Monthly) - CWUR0000SA0
- [ ] (CPI-U) West Region, All items 1982-84=100 (Monthly) - CUUR0400SA0
- [ ] (CPI-W) West Region, All items 1982-84=100 (Monthly) - CWUR0400SA0
- [ ] (CPI-U) Los Angeles-Long Beach-Anaheim, CA, All items 1982-84=100 (Monthly) - CUURS49ASA0
- [ ] (CPI-W) Los Angeles-Long Beach-Anaheim, CA, All items 1982-84=100 (Monthly) - CWURS49ASA0
- [ ] (CPI-U) San Francisco-Oakland-Hayward, CA, All items 1982-84=100 (Bi-monthy) - CUURS49BSA0
- [ ] (CPI-W) San Francisco-Oakland-Hayward, CA, All items 1982-84=100 (Bi-monthy) - CWURS49BSA0
- [ ] (CPI-U) Riverside-San Bernardino-Ontario, CA, All items 1982-84=100 (Bi-monthy) - CUURS49CSA0
- [ ] (CPI-W) Riverside-San Bernardino-Ontario, CA, All items 1982-84=100 (Bi-monthy) - CWURS49CSA0
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- [ ] (CPI-W) Seattle-Tacoma-Bellevue, WA, All items 1982-84=100 (Bi-Monthly) - CWURS49DSA0
- [ ] (CPI-U) Urban Alaska, All items 1982-84=100 (Semiannual) - CUURS49GSA0
- [ ] (CPI-W) Urban Alaska, All items 1982-84=100 (Semiannual) - CWURS49GSA0
- [x] (CPI-U) Urban Hawaii, All items 1982-84=100 (Semiannual) - CUURS49FSA0
- [ ] (CPI-W) Urban Hawaii, All items 1982-84=100 (Semiannual) - CWURS49FSA0
- [ ] (CPI-U) San Diego-Carlsbad, CA, All items 1982-84=100 (Semiannual) - CUURS49ESA0
- [ ] (CPI-W) San Diego-Carlsbad, CA, All items 1982-84=100 (Semiannual) - CWURS49ESA0
- [ ] (CPI-U) U.S. City Average, All items 1967 (Monthly) - CUUR0000AA0
- [ ] (CPI-W) U.S. City Average, All items 1967 (Monthly) - CWUR0000AA0
- [ ] (CPI-U) West Region, All items 1967=100 (Monthly) - CUUR0400AA0
- [ ] (CPI-W) West Region, All items 1967=100 (Monthly) - CWUR0400AA0
- [ ] (CPI-U) Los Angeles-Long Beach-Anaheim, CA, All items 1967=100 (Monthly) - CUURS49AAA0
- [ ] (CPI-W) Los Angeles-Long Beach-Anaheim, CA, All items 1967=100 (Monthly) - CWURS49AAA0
- [ ] (CPI-U) San Francisco-Oakland-Hayward, CA, All items 1967=100 (Bi-Monthly) - CUURS49BAA0

Databases, Tables & Calculators by Subject

Change Output Options: From: 2008 To: 2018 GO

include graphs include annual averages

More Formatting Options

Data extracted on: February 6, 2019 (11:15:48 PM)

CPI-All Urban Consumers (Current Series)

```
Series Id:      CUURS49FSA0
Not Seasonally Adjusted
Series Title:   All items in Urban Hawaii, all urban consumers, not seasonally adjusted
Area:           Urban Hawaii
Item:           All items
Base Period:    1982-84=100
```

Download: xlsx

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	HALF1	HALF2
2008													228.861	227.334	230.387
2009													230.048	228.070	232.026
2010													234.869	233.822	235.916
2011													243.622	241.902	245.342
2012													249.474	248.646	250.303
2013													253.924	253.202	254.646
2014													257.589	255.989	259.190
2015													260.165	257.848	262.482
2016													265.283	264.038	266.528
2017											274.346		272.014	270.738	273.290
2018	273.909		275.408		276.359		277.389		279.113		279.700		277.078	275.196	278.960

Department of Business, Economic Development & Tourism

Visitor Statistics

VISITOR STATISTICS

- Monthly Visitor Statistics
- Quarterly Tourism Data
- Annual Visitor Research Report
- Oahu & Neighbor Island Highlights
- Visitor Arrivals by Markets
- Smaller Countries and MMAs Highlights
- Visitor Satisfaction & Activity Report
- Air Visitor Spending Pattern
- Visitor Plant Inventory
- Air Seats Capacity Outlook
- Historical Visitor Statistics

Interactive Tourism Data Visualization

Daily Passenger Counts

Tourism Forecast

Department of Business, Economic Development & Tourism

Visitor Statistics

MONTHLY VISITOR STATISTICS

Interactive Tourism Dashboard – Monthly - By Market

2018 – Preliminary			
December	Spreadsheet	View tables	News Release
November	Spreadsheet	View tables	News Release
October	Spreadsheet	View tables	News Release
September	Spreadsheet	View tables	News Release
August	Spreadsheet	View tables	News Release
July	Spreadsheet	View tables	News Release
June	Spreadsheet	View tables	News Release

Microsoft Excel - Dec18 [Read-Only]

File Edit View Insert Format Tools Data Window Help

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125% Arial 8 Draw AutoShapes

H1

DECEMBER 2018 ARRIVALS AT A GLANCE

TOTAL EXPENDITURES ($mil.)	2018P	2017	% change	2018P YTD	2017 YTD	% change
TOTAL EXPENDITURES ($mil.)	1,606.0	1,664.1	-3.5	17,824.8	16,684.2	6.8
Total by air	1,599.8	1,659.5	-3.6	17,778.6	16,637.8	6.9
U.S. West	629.2	613.5	2.6	6,636.8	6,080.7	9.1
U.S. East	431.5	433.4	-0.4	4,565.9	4,225.0	8.1
Japan	185.6	177.1	4.8	2,310.1	2,262.5	2.1
Canada	135.2	136.6	-1.0	1,095.9	1,037.7	5.6
All Others	218.3	298.9	-26.9	3,169.9	3,031.9	4.5
Visitor arrivals by cruise ships	6.2	4.6	36.7	46.2	46.4	-0.5
TOTAL VISITOR DAYS	8,457,866	8,308,373	1.8	88,559,739	84,065,784	5.3
Total by air	8,386,769	8,252,698	1.6	88,009,317	83,506,498	5.4
U.S. West	3,619,261	3,417,319	5.9	37,606,328	34,854,624	7.9
U.S. East	2,075,377	2,001,748	3.7	21,447,470	20,144,049	6.5
Japan	782,093	757,247	3.3	9,365,937	9,447,795	-0.9
Canada	871,673	899,968	-3.1	6,571,558	6,468,689	1.6
All Others	1,038,364	1,176,415	-11.7	13,018,024	12,591,341	3.4
Visitor arrivals by cruise ships	71,097	55,675	27.7	550,421	559,285	-1.6
VISITOR ARRIVALS	910,060	879,744	3.4	9,954,548	9,404,346	5.9
Total by air	893,369	868,100	2.9	9,827,132	9,277,613	5.9
U.S. West	389,994	360,991	8.0	4,212,058	3,843,780	9.6
U.S. East	200,505	192,358	4.2	2,156,793	1,998,788	7.9
Japan	131,009	125,091	4.7	1,571,298	1,587,781	-1.0
Canada	68,382	69,908	-2.2	533,879	520,062	2.7
All Others	103,479	119,752	-13.6	1,353,103	1,327,202	2.0
Visitor arrivals by cruise ships	16,691	11,644	43.3	127,415	126,733	0.5
AVERAGE LENGTH OF STAY	9.29	9.44	-1.6	8.90	8.94	-0.5
Total by air	9.39	9.51	-1.2	8.96	9.00	-0.5
U.S. West	9.28	9.47	-2.0	8.93	9.07	-1.5
U.S. East	10.35	10.41	-0.5	9.94	10.08	-1.3
Japan	5.97	6.05	-1.4	5.96	5.95	0.2

HL | US West | US East | Japan | Canada | Glance | Island | Cruise | Seats

Ready

NUM

It's just arithmetic, divide nominal expenditure by CPI, multiply by base period CPI: real Hawaii visitor expenditure grew 4.9% in 2018

$$\frac{17.825}{277.078} * 277.078 = 17.825$$ (2018 visitor expenditure in 2018$)

$$\frac{16.684}{272.014} * 277.078 = 16.995$$ (2017 visitor expenditure in 2018$)

Real growth rate: $$\left(\frac{17.825}{16.995} - 1\right) * 100 = 4.88\%$$ ("adjusted for inflation")

Hawaii inflation 1.9 percent (2018): $4.9\% + 1.9\% = 6.8\%$ (nominal growth)

Whatchumean 6.8% increase in “jobs supported by tourism industry [*sic*]?”

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Nominal visitor expenditure rose 6.8 percent (4.9 percent, in real terms); did "tourism industry [*ugh*]-supported" jobs rise 6.8 percent? Look it up!

Annual percent changes, 2017 to 2018

Retail Trade	−0.42%	Construction of Buildings	0.91
Clothing & Accessories	−2.65	Special Trade Contractors	−1.93
General Merchandise	−0.70	Financial Activities (FIRE)	3.51
Air Transportation	2.08	Employment Services	8.25
Accommodation	1.20	Ambulatory Health Care Services	4.86
Food Services & Drinking Places	5.77	Hospitals	3.05
Total private payroll employment	2.05	Total payroll employment	1.65
Total public payroll employment	0.08	(*One large labor dispute in Oct.-Nov.*)	

Sources: Hawaii Department of Labor and Industrial Relations (https://www.hiwi.org/admin/gsipub/htmlarea/uploads/LFR_CES_SADJ.xls) and Hawaii Tourism Authority (https://www.hawaiitourismauthority.org/media/2974/december-2018-visitor-statistics-press-release-final.pdf)

Placing the emPHAsis on the right syLLAble

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The Maile Room at the Kahala hotel served delicious food and was known for its lavash >> B4

911 REPORT >> B2
NEWSWATCH >> B2

VISITOR ARRIVALS DECEMBER STATISTICS

ARRIVALS

DECEMBER 2018	DECEMBER 2017	PERCENT CHANGE
910,060	879,744	3.4%

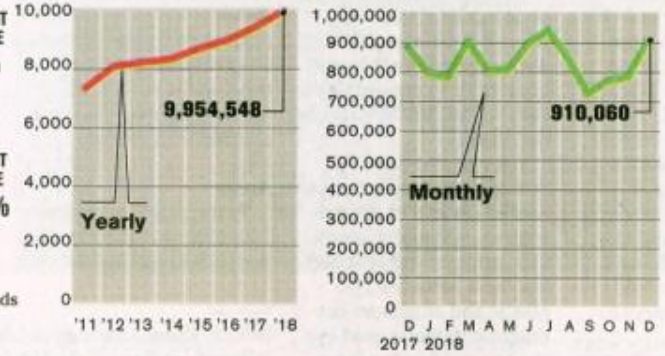
SPENDING*

DECEMBER 2018	DECEMBER 2017	PERCENT CHANGE
$189.90	$200.30	-5.2%

*Per person, per day
**Arrivals by ship not included
***Includes trips to multiple islands

Source: Hawaii Tourism Authority

NUMBER OF VISITORS



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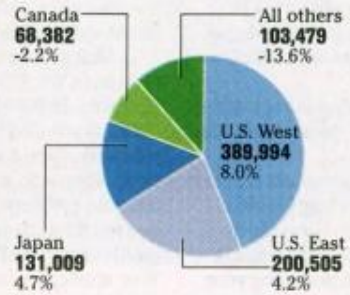

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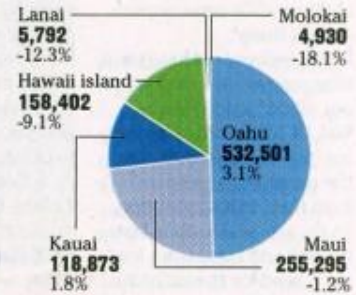

Percentage change from previous year

Isle tourism hit nearly 10M arrivals in 2018

But the industry shows signs of softening

By Allison Schaefers
aschaefers@staradvertiser.com

Hawaii welcomed a record 9.9 million tourists in 2018, just 45,452 visitors shy of a 10 million benchmark that had been anticipated before head winds emerged in the back half of last year.

Still, it was another year of record-setting arrivals for which has realized growth over the past seven years. While the total spending results were higher than last year, the Hawaii Tourism Authority does not adjust its spending to account for inflation or include supplemental business expenditures.

HTA released preliminary numbers Thursday showing that 2018 arrivals increased nearly 6 percent from the 2017 arrivals record of more than 9.4 million visitors. This gain got an assist from crease in trans-Pacific air seats, which rose to more than 13.2 million in 2018.

Total visitor days rose more than 5 percent in 2018 to bring the average to 242,629 tourists, on any given day, visiting the Hawaiian Islands.

Nominal, or not inflation-adjusted, visitor spending in 2018 increased nearly 7 percent to more than $17.8 billion, generating $2.08 billion in state tax revenue in 2018. Spending rose in all major markets, including the U.S. ada and the category called all other international markets, which includes all international markets outside of Japan and Canada. Japan was the only major tourism market to post a slight year-over-year decline in arrivals.

The year-end gains were achieved despite the roller-coaster-like highs and lows many visitor industry members experienced as the market responded to unplanned events. First there was a major flood on Kauai in April. That disaster was eruption at Kilauea Volcano, weather disasters in Hawaii and Japan, a 51-day hotel strike, stock market volatility and then a government shutdown.

Jack Richards, president and CEO of Pleasant Holidays, was among those forecasting early in the year that 2018 would break the 10 million arrivals benchmark, but downgraded his bullishness in the latter half of the year.

"Our Hawaii business was having a record year with month after month of May," Richards said. "Then we gave everything back and ended up flat. It was all the stuff that Hawaii was dealing with."

Some companies and some regions experienced greater softening. Oahu, Maui and Kauai all realized spending and arrivals increases in 2018. However, Hawaii island and its spewing lava made the mainland news cycle for months, causing flattening visitor spending and declining arrivals.

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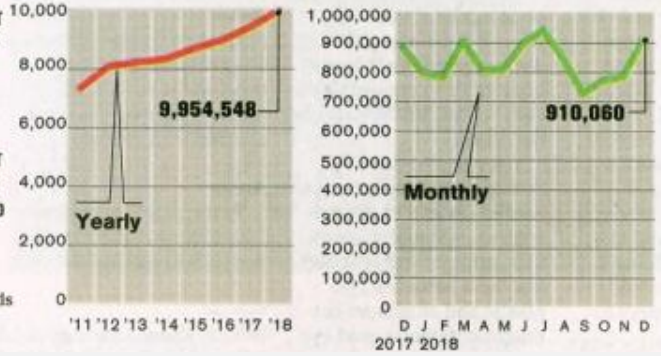

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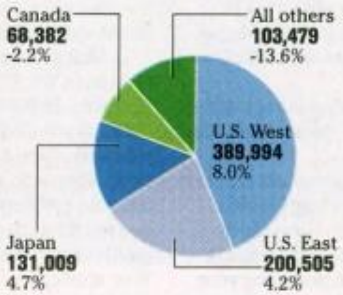

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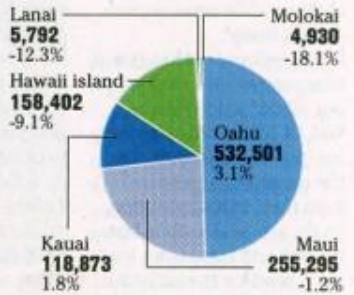

Percentage change from previous year

Nearly 10M arrivals (2018) = 6.5M (1989)

But the industry shows signs of softening

By Allison Schaefers
aschaefers@staradvertiser.com

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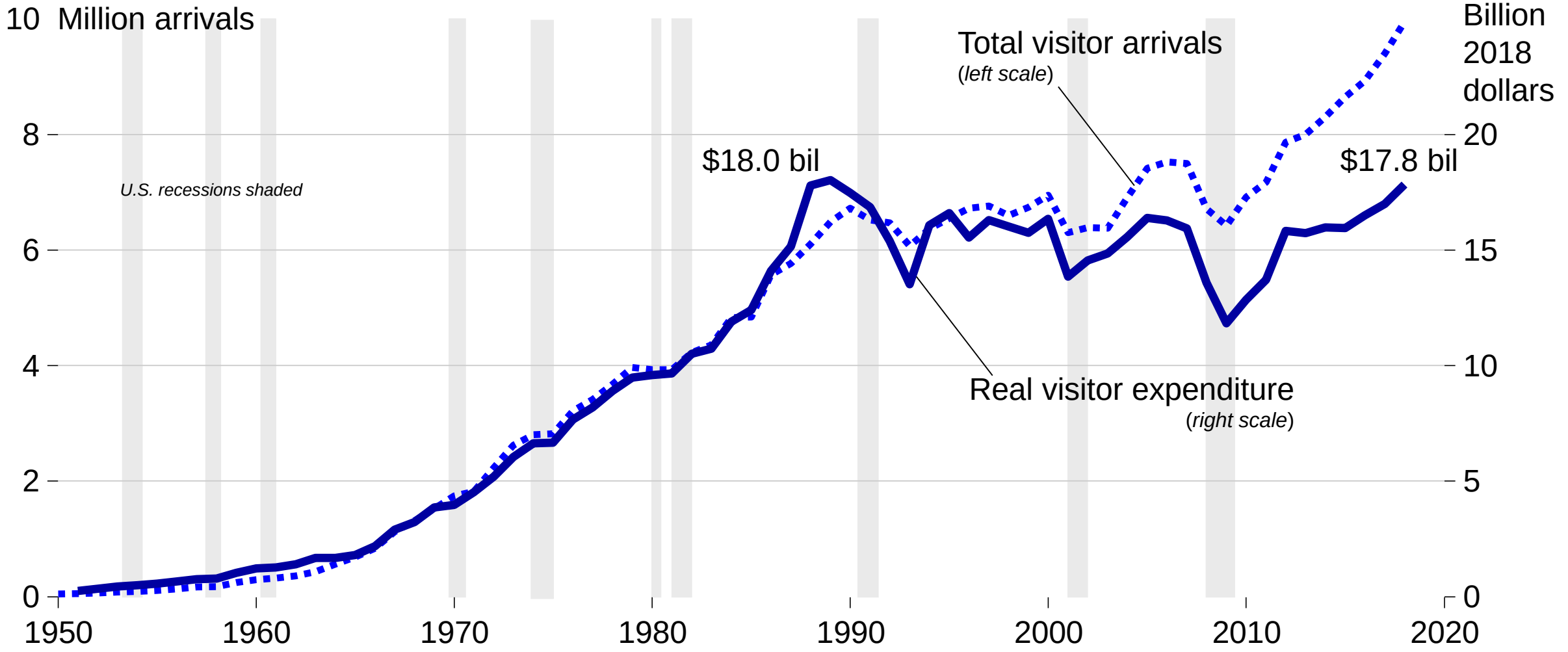
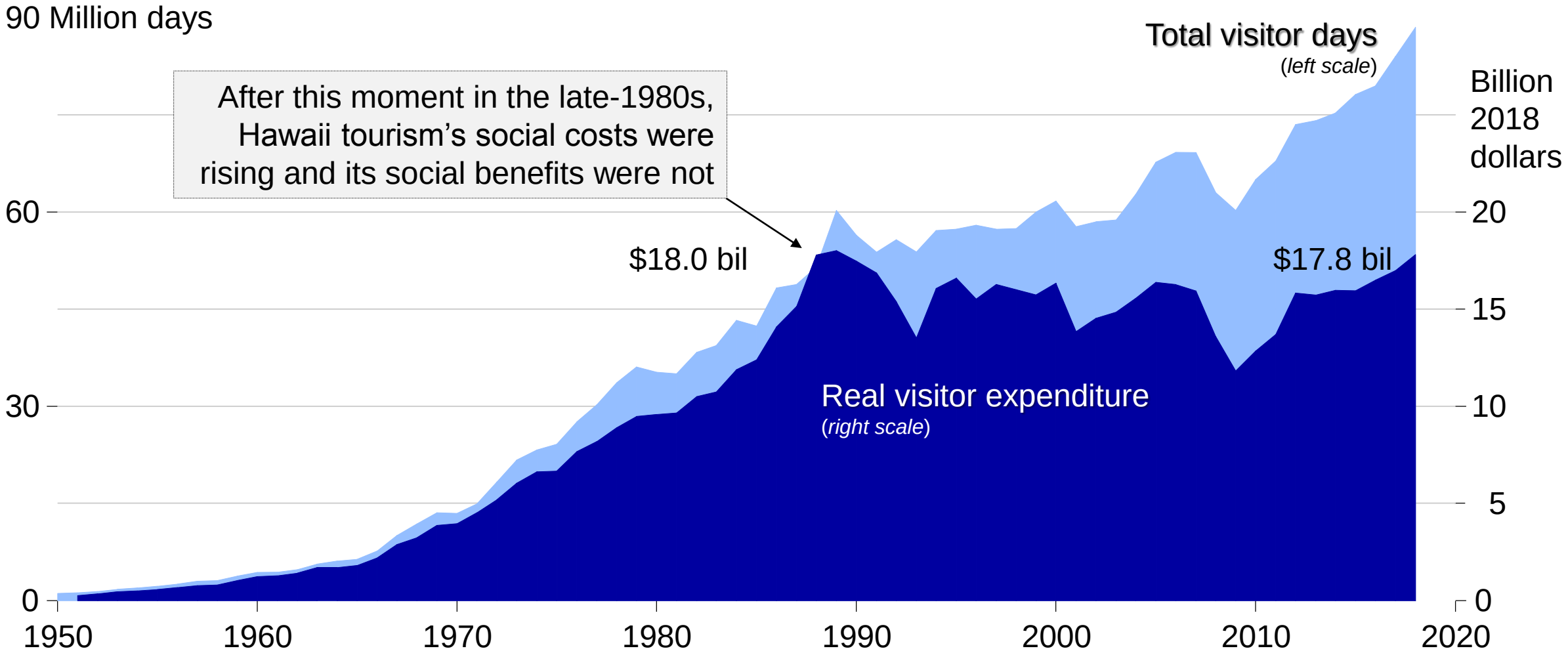
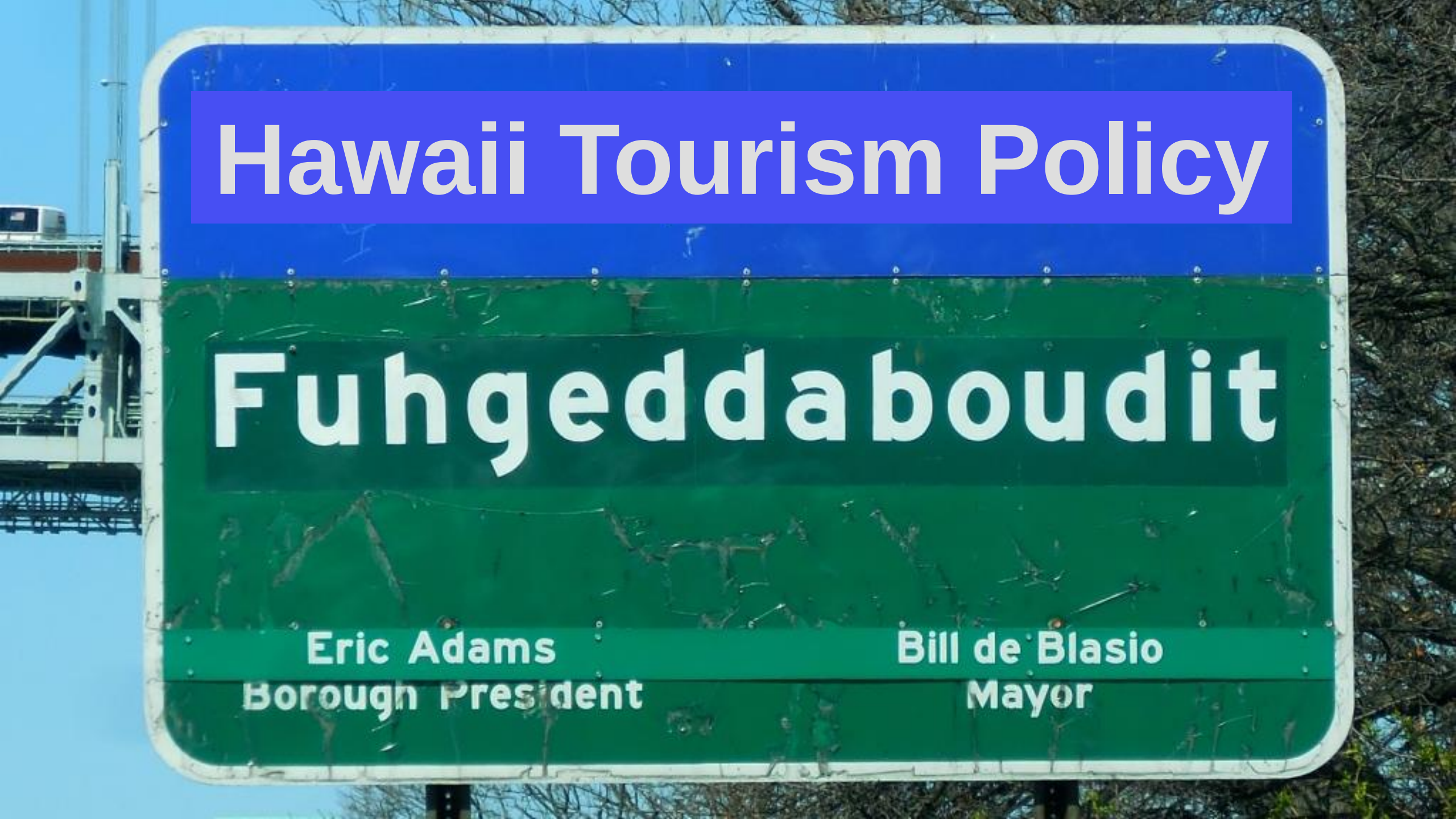
First noticeable in the 1970s, but especially since 1989, visitor arrivals have grown but revenues have not: "more visitors, *not more dollars*"



If Hawaii were Amazon and visitor days were site visits, rising while revenues were not, *for thirty years*, this would be a huge problem




Hawaii Tourism Policy
Fuhgeddaboudit
Eric Adams
Borough President
Bill de Blasio
Mayor

Forthcoming: "Rethinking Hawaii Tourism" UHERO blogpost with UH Professor Emeritus James Mak and Frank Haas; my personal take

1. Why export tourism: maximize social welfare (net benefits)—policy *in the public interest* (*e.g.* "visitor satisfaction" is a *means* to an end, which is *resident* satisfaction)
2. Tourism governance—overarching assignment of policy responsibility with "cabinet" authority—missing assignment (*e.g.* 1919 Territory had a Department of Agriculture)
3. Tourism management—not merely an agency assignment but a coordination goal (*i.e.* DOT airports, DLNR natural capital, DOH contagion; DBEDT "acronym compression")
4. Social benefits: risk-adjusted returns, real tourism export receipts (visitor expenditure)
5. Social costs: congestion, environmental degradation, cultural dilution
6. Economic principle: pricing to ration access still achieves difficult-to-measure objectives
7. Collective destination marketing: overcomes coordination failure across heterogeneous stakeholders
8. Leverage technology to virtually augment tourism exports; support tourism R&D in cash and in kind—public goods production; tax metadata (home-sharing, ride-sharing, etc.)

DLNR NEEDS ITS OWN APP? GOOGLE HAS MORE DATA

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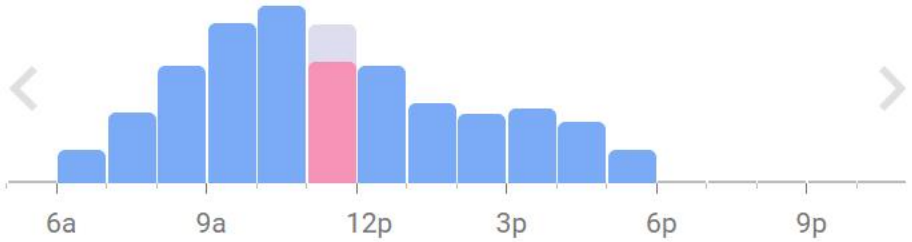
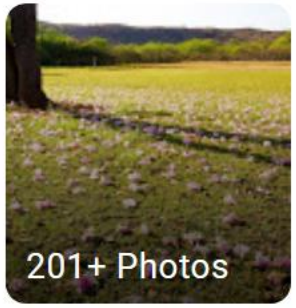
Diamond Head Crater Hike, Kapa

Popular times Fridays

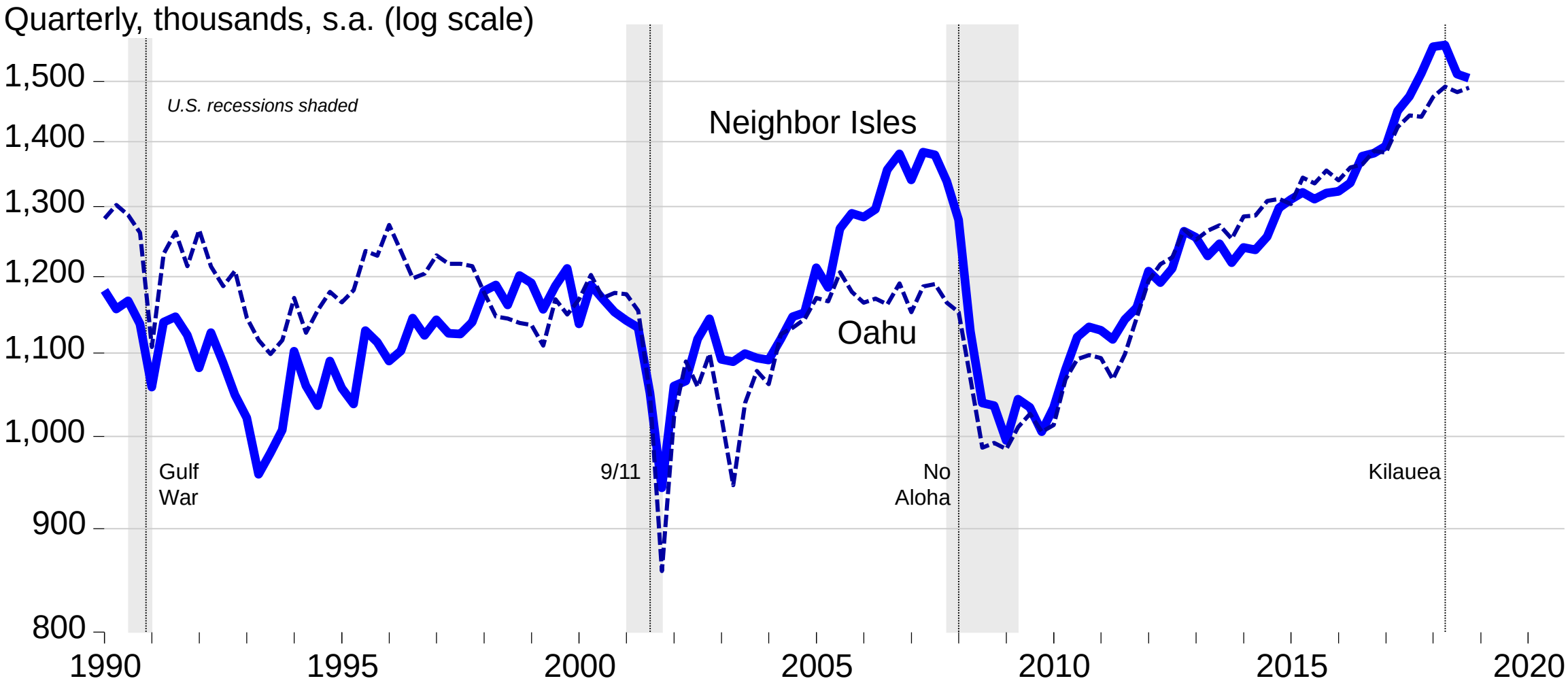
LIVE *A little busy*



Photos

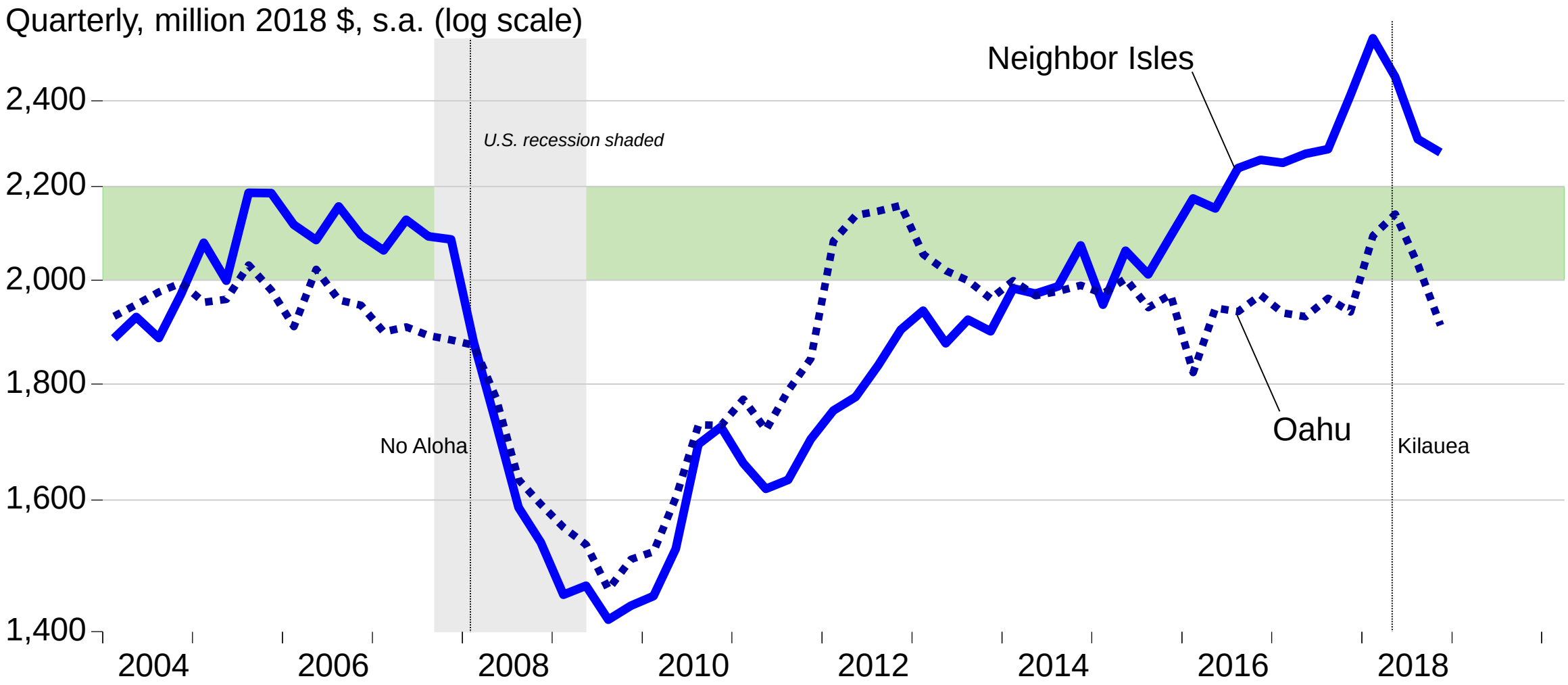


Hawaii visitor arrivals grew after 2008, best measure of exports is not widgets, pineapple cans, tons of sugar, or arrivals, but real revenues



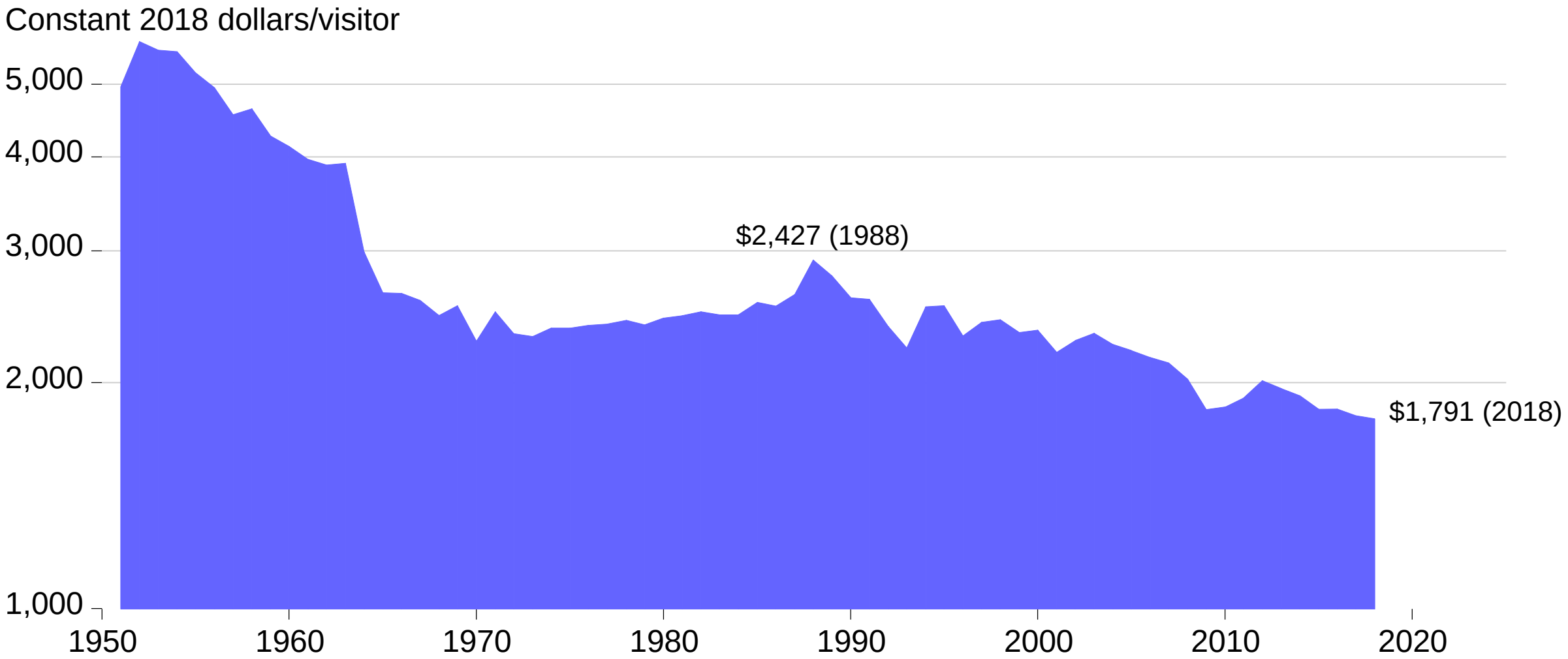
Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/mei/honolulu.xls, http://files.hawaii.gov/dbedt/visitor/tourism/2018/Dec18.xls); seasonal adjustment by TZE

Real visitor expenditures—tourism export receipts grew on the Neighbor Islands in the 2010s but did not on Oahu after 2012

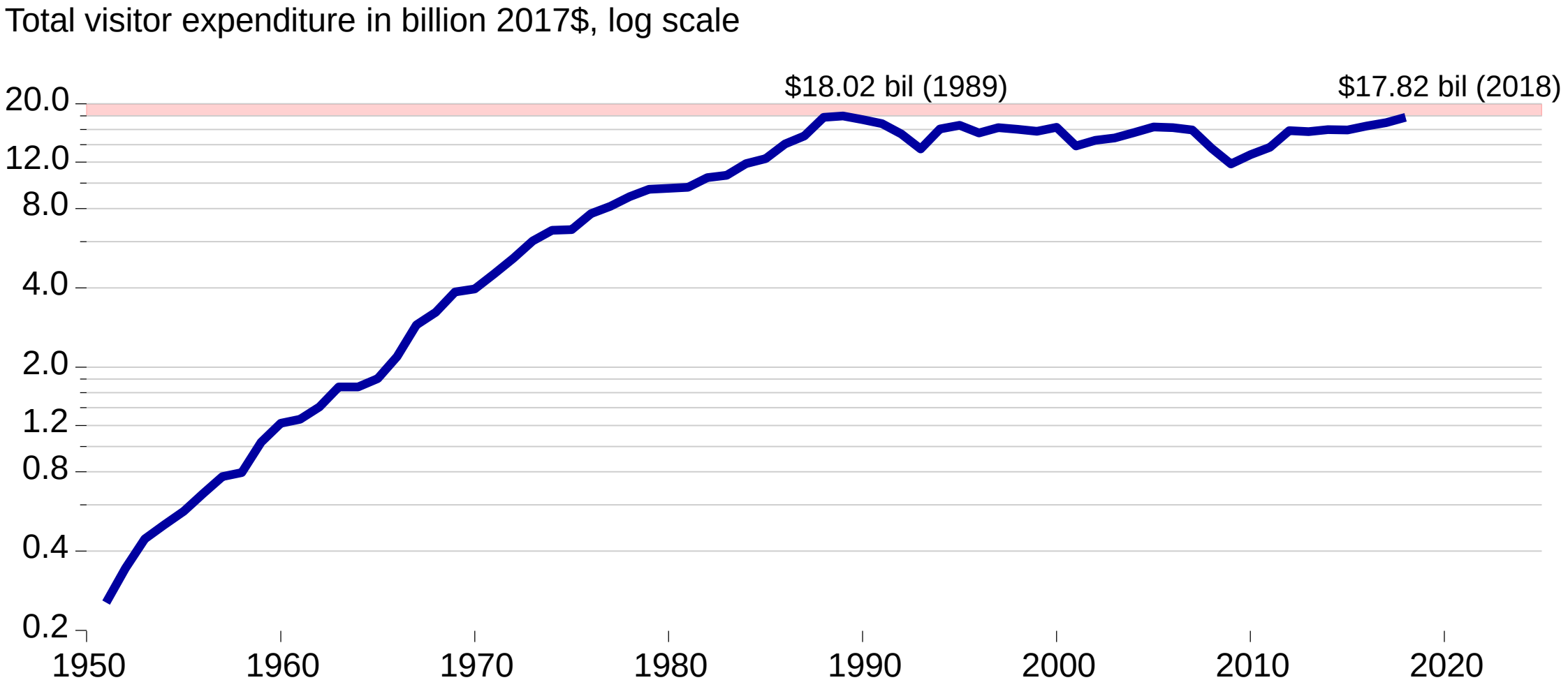


Sources: U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9), Hawaii Tourism Authority, Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/mei/honolulu.xls, http://files.hawaii.gov/dbedt/visitor/tourism/2018/Dec18.xls)

Three eras for real receipts/visitor: (1) pre-1970s "democratization;" (2) 1970s-80s "internationalization;" (3) three decades of "erosion"

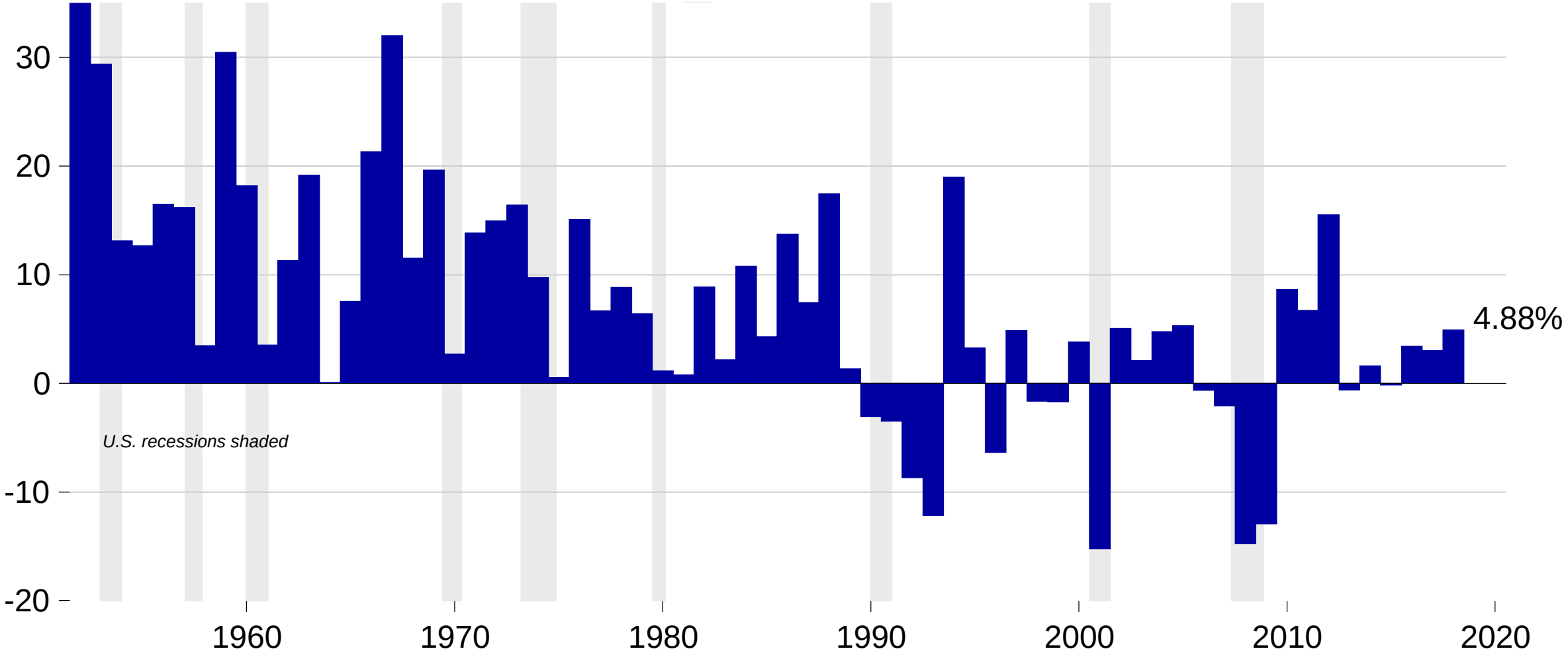


Thirty years of real tourism export revenue growth, followed by thirty years of zero net increase: which incrementally benefited Hawaii?



Sources: Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/databook/Data_Book_time_series/sec07update.xls Table 7.28, http://files.hawaii.gov/dbedt/visitor/tourism/2018/Dec18.xls), Bank of Hawaii (author's records), and U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9).

Annual growth of real (inflation-adjusted) Hawaii tourism receipts: deceleration as the destination matured; random walk since 1980s?



Revisiting lodging capacity constraints, lift, and exchange rates

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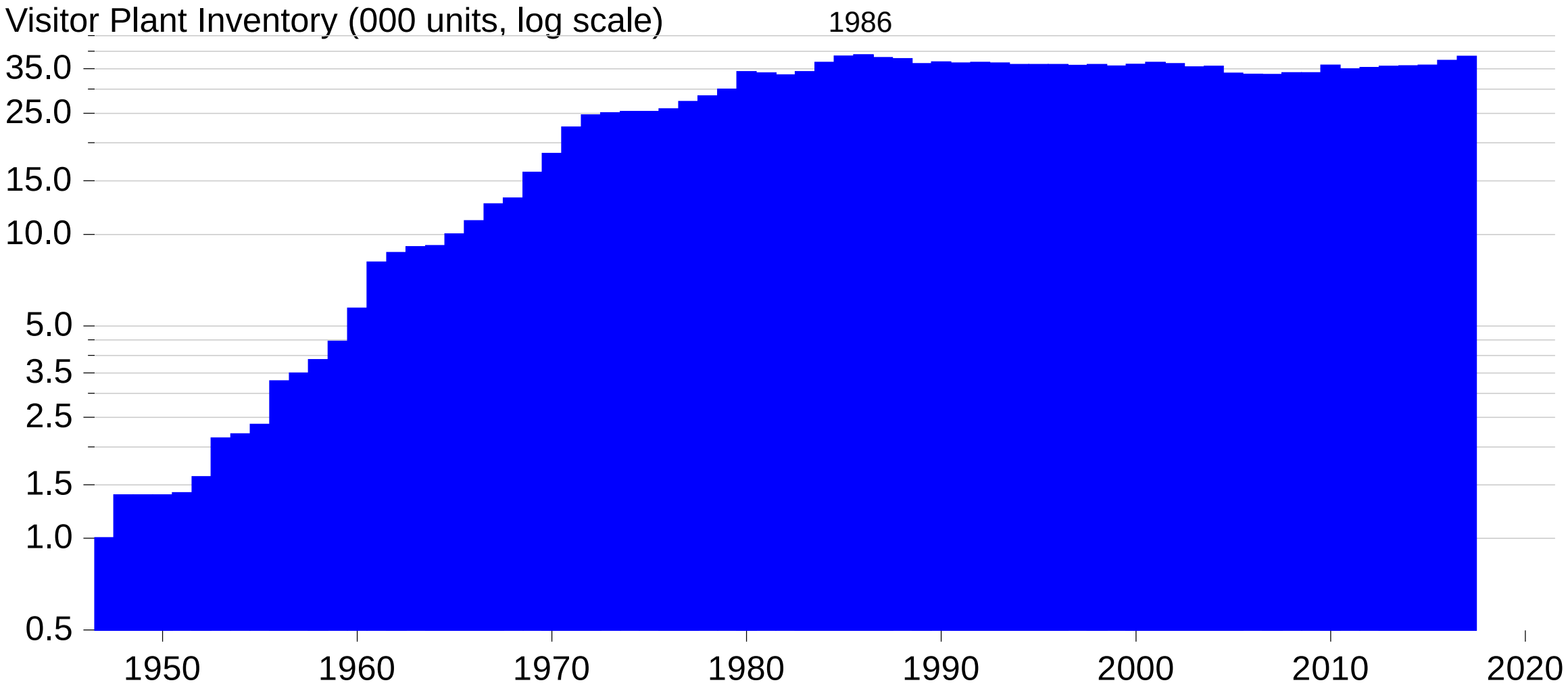
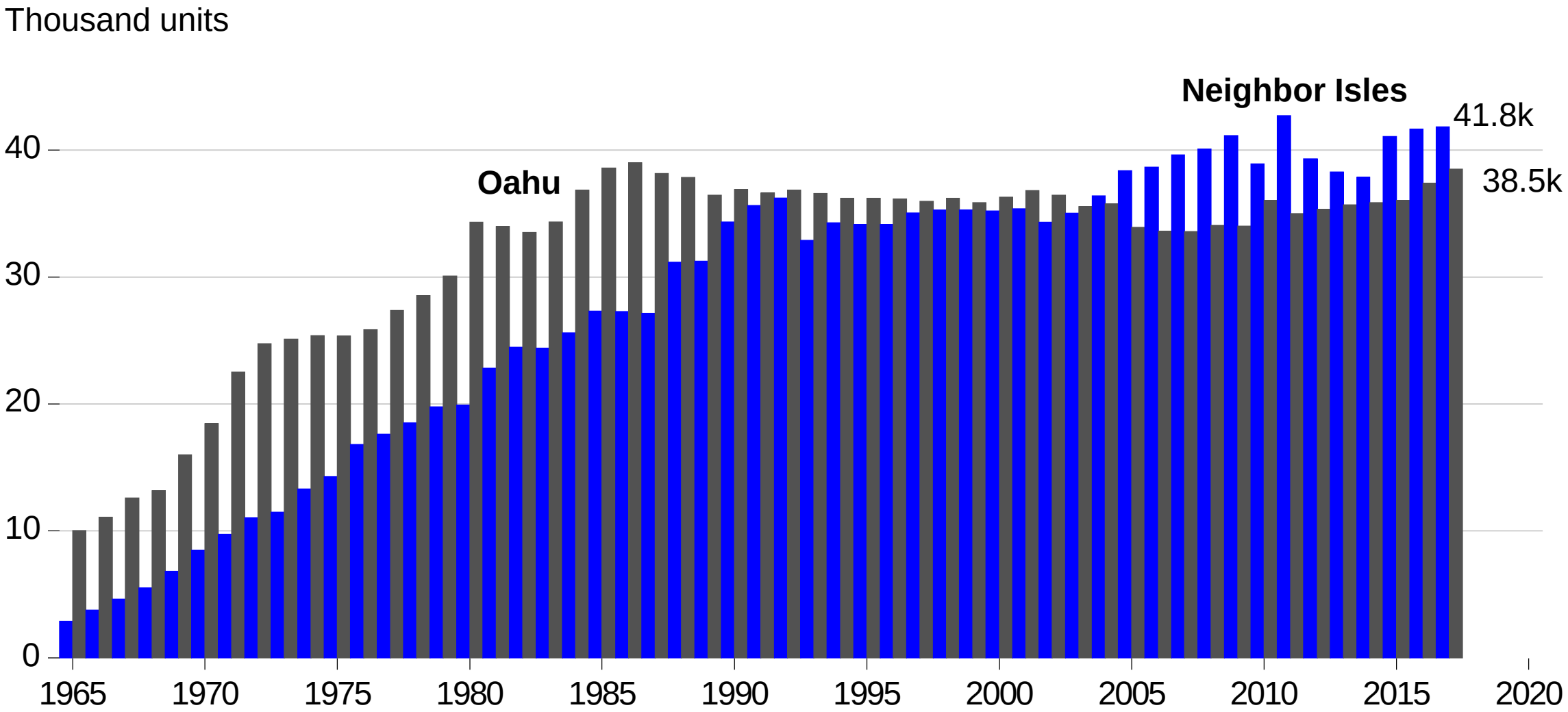
Four decades of Oahu lodging growth, four decades of stagnation: "more dollars, not more visitors" hubris? Or tourism policy SNAFU?



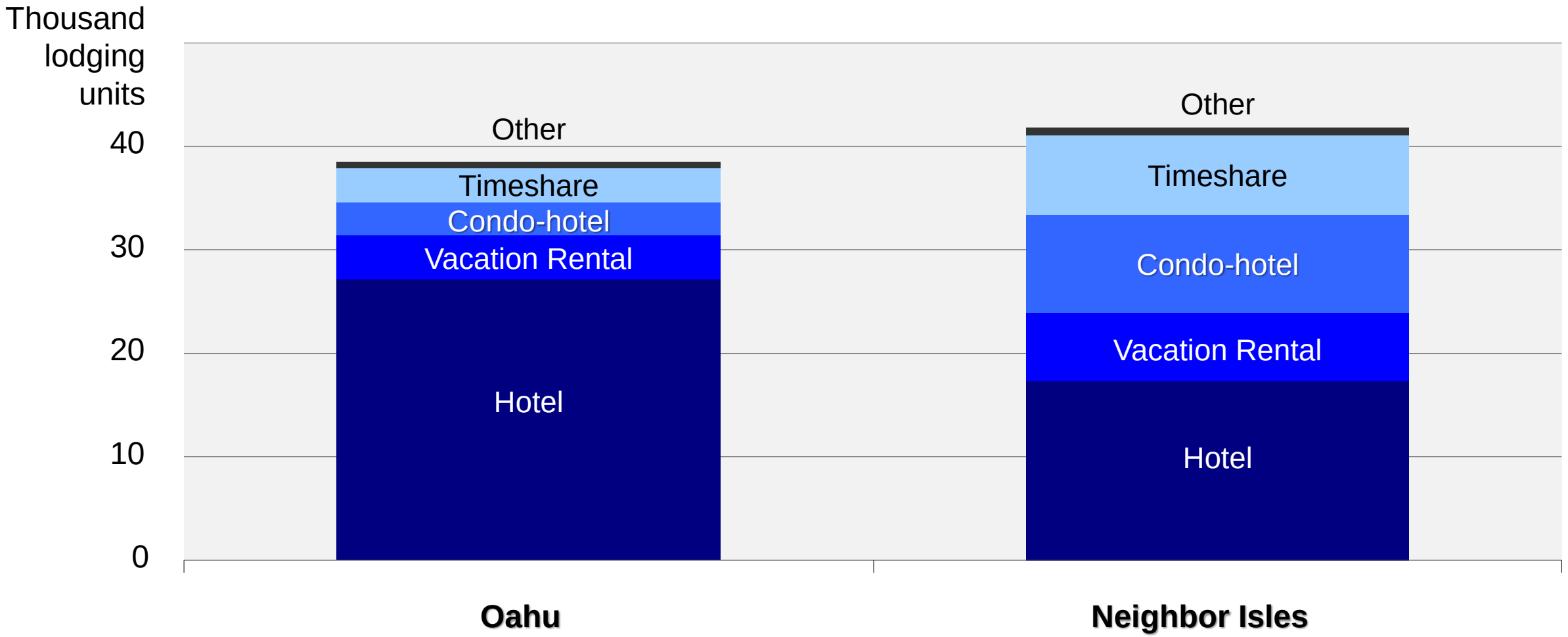
Sources: Robert C. Schmitt (1976), *Historical Statistics of Hawaii*, University of Hawaii Press, Hawaii Visitors Bureau, Hawaii DBEDT, Hawaii Tourism Authority (http://www.hawaiitourismauthority.org/research/reports/visitor-plant-inventory/)

Until 1980s, lodging capacity growth unconstrained; since 1980s, deny timeshare, deny Undocumented Vacation Rentals, infinity



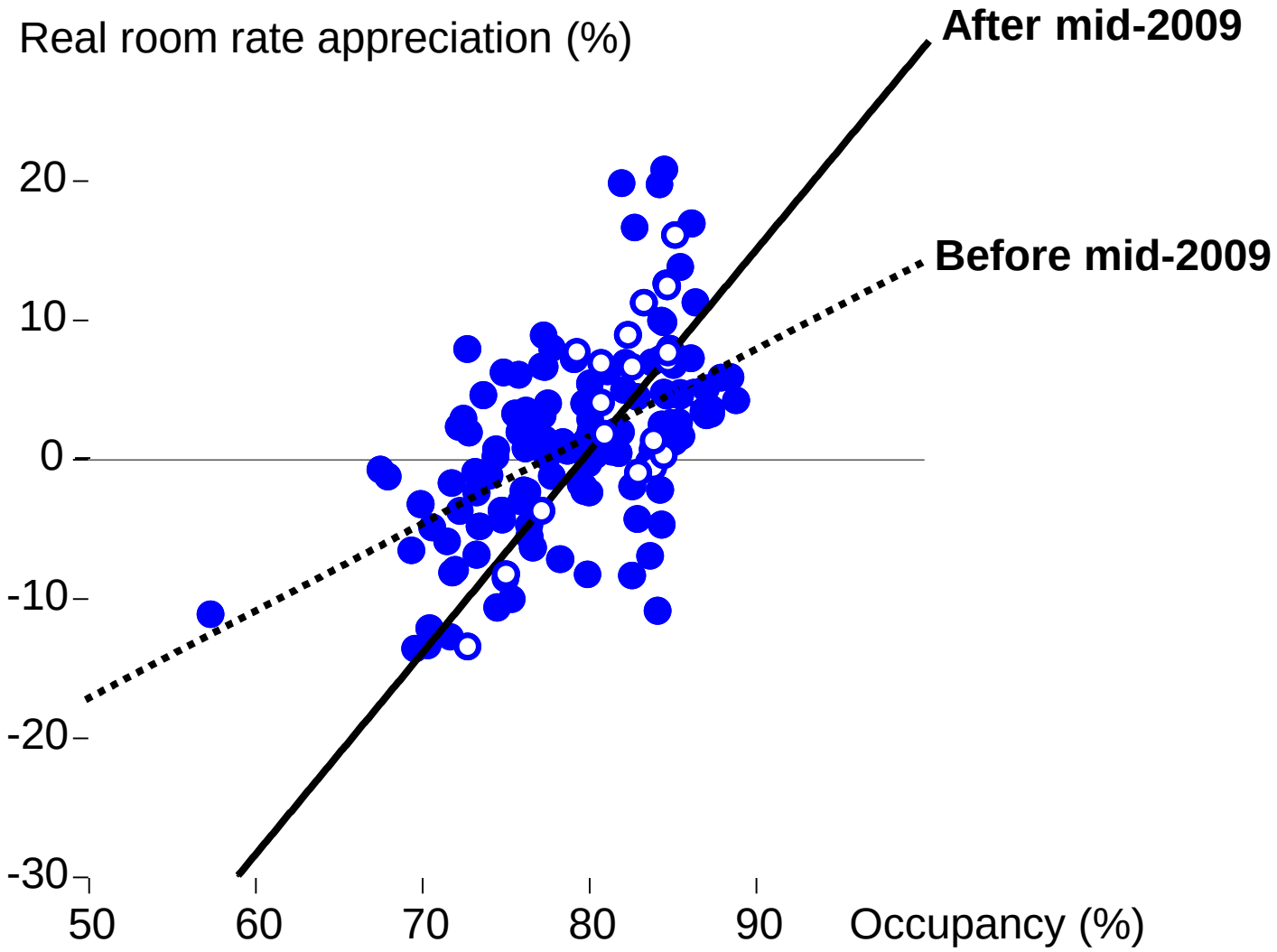
Sources: Hawaii Visitors Bureau, Hawaii DBEDT, Hawaii Tourism Authority (http://www.hawaiitourismauthority.org/research/reports/visitor-plant-inventory/)

Distinct markets: Oahu with urban agglomeration; Neighbor Isles with lodging heterogeneity but spatial dispersion of urbanized resort nodalities



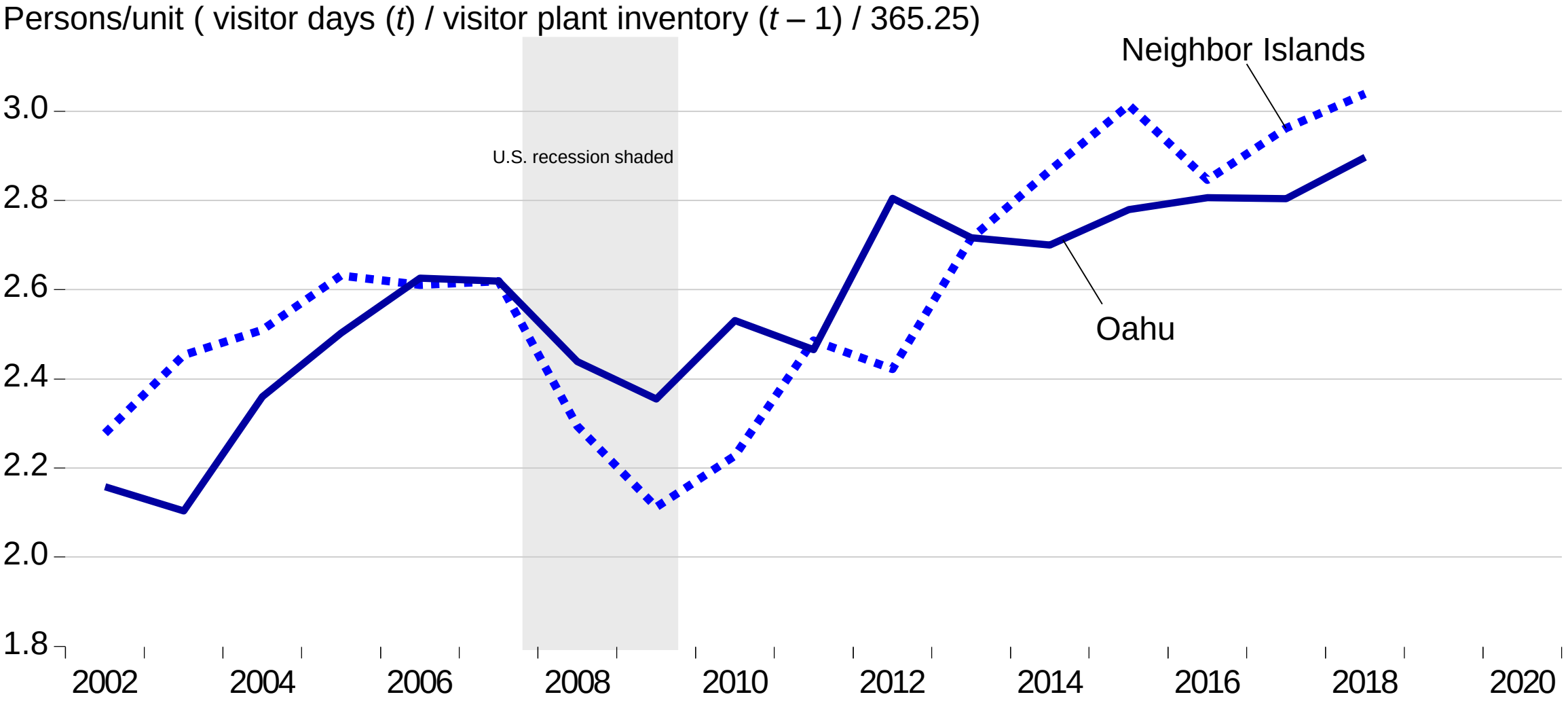
Sources: Hawaii Visitors Bureau, Hawaii DBEDT, Hawaii Tourism Authority (http://www.hawaiitourismauthority.org/research/reports/visitor-plant-inventory/)

Oahu quarterly real hotel room rates in 20-teens experienced much faster appreciation with rising hotel occupancy than in the past

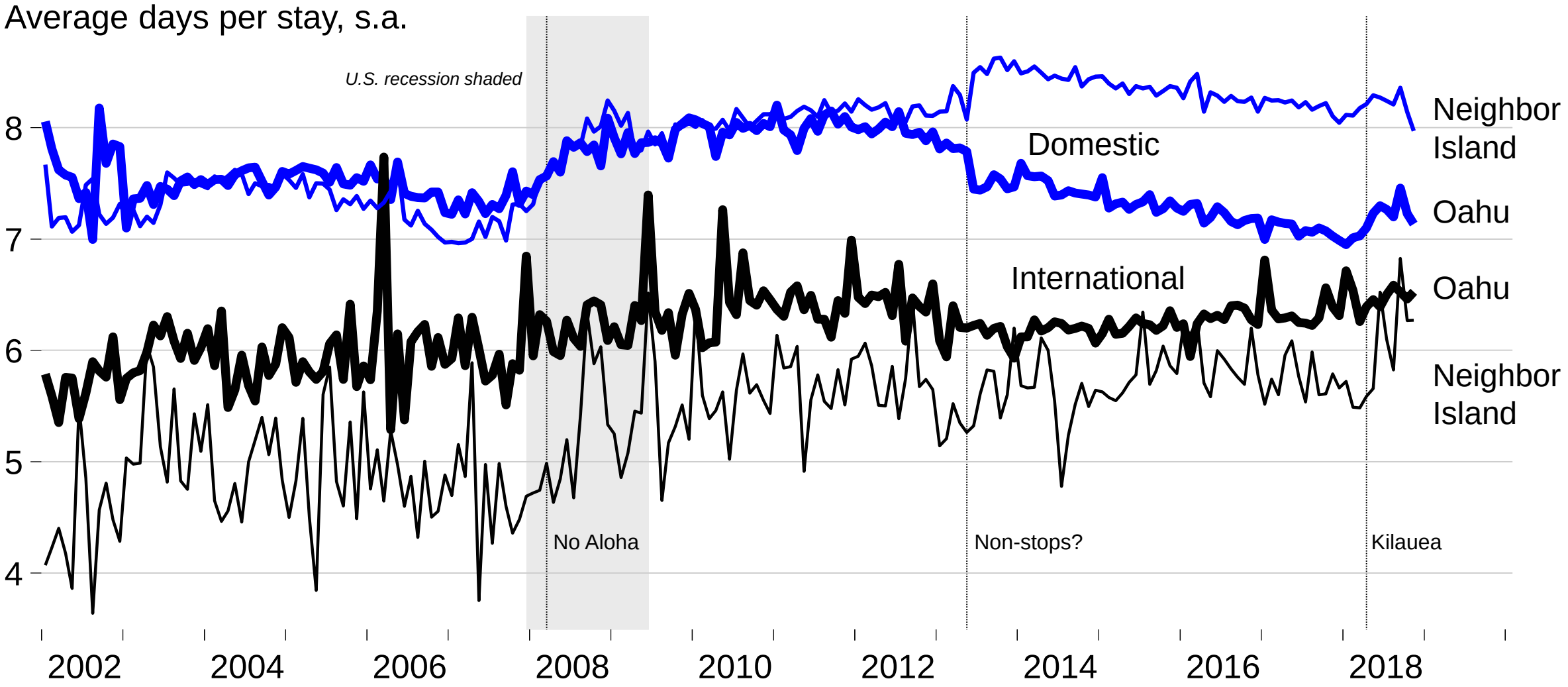


Sources: PKF Hawaii, Hospitality Advisors LLC, Hawaii DBEDT, Bureau of Labor Statistics; seasonal adjustment of quarterly data, 1979 through third quarter 2018, room rate deflation using Honolulu CPI-U (quarterly interpolation from semiannual data and bi-monthly data), year-over-year real appreciation rates, and interval regressions calculated by TZE

Neighbor Isles enjoying higher-intensity utilization of lodging capacity—"room to grow"—but spatial dispersion spreads congestion externalities

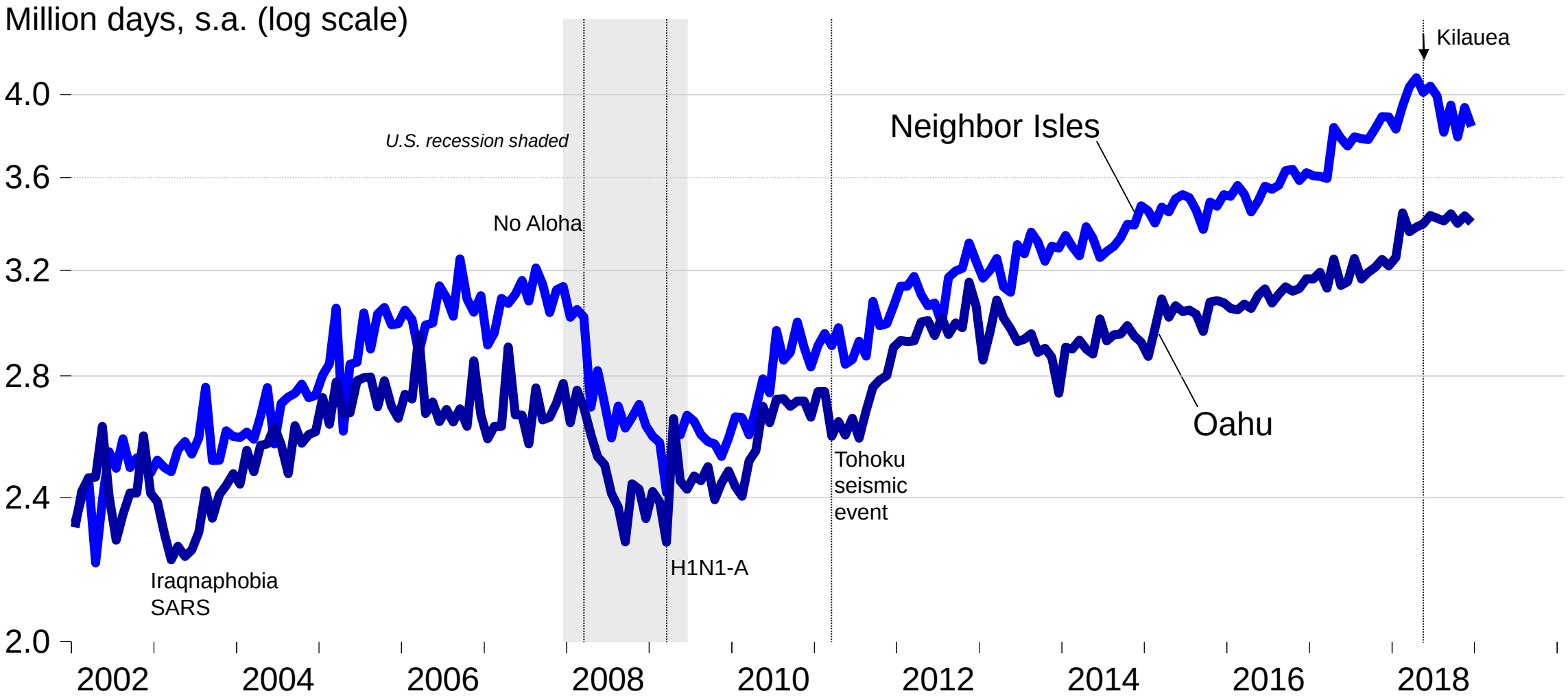


Average stay length shifts: no Aloha (2008)(+); non-stops to Neighbor Isles (2013) (+); Kilauea volcano (2018)(+); real REVPAR (2010s)(−)



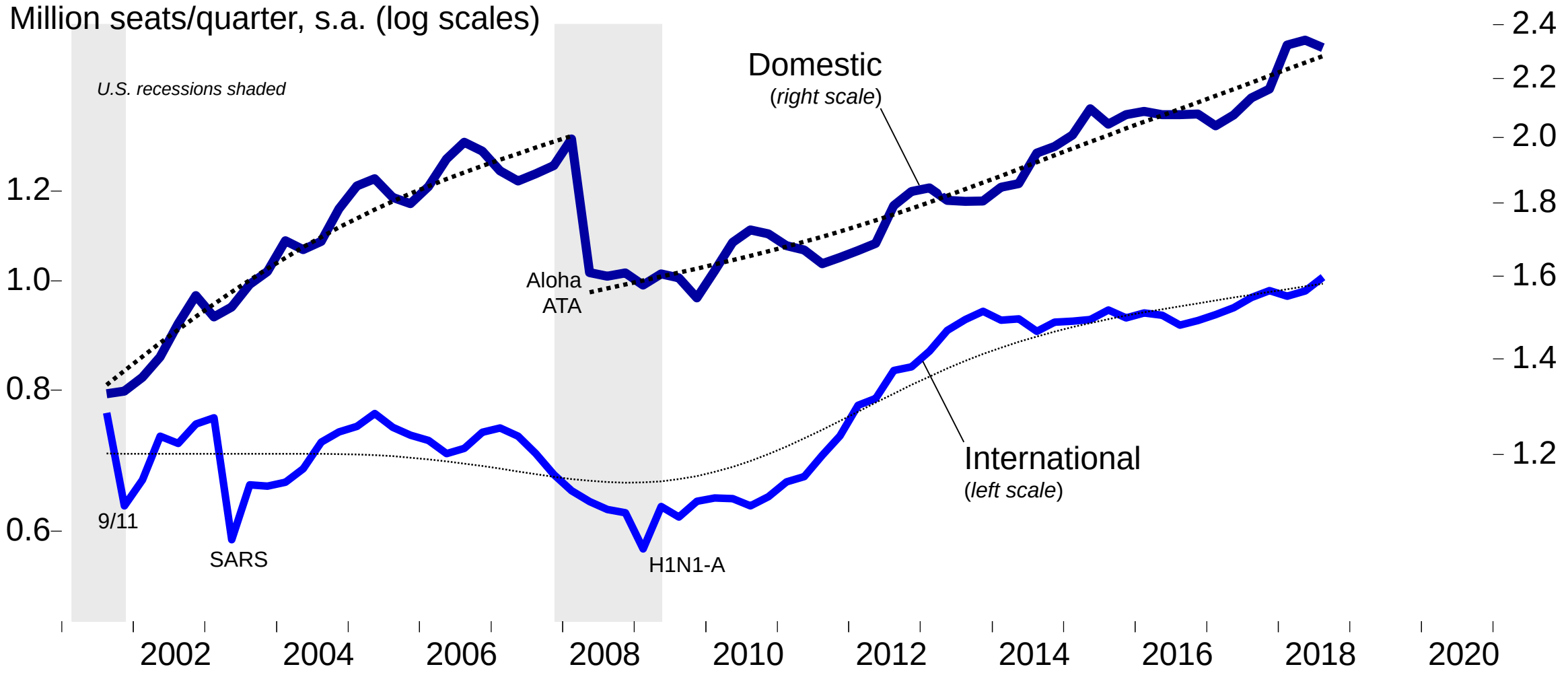
Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/mei/); seasonal adjustment by TZE

Monthly visitor days split apart after 2012, rapid Oahu room rate rise shortened stay length, strong dollar compounded lodging cost



Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/mei/); seasonal adjustment by TZE

The other stock constraint—less binding (moveable equipment)—scheduled air seats growing enough to sustain visitor arrivals growth



How currencies influenced the 2010s Hawaii tourism recovery

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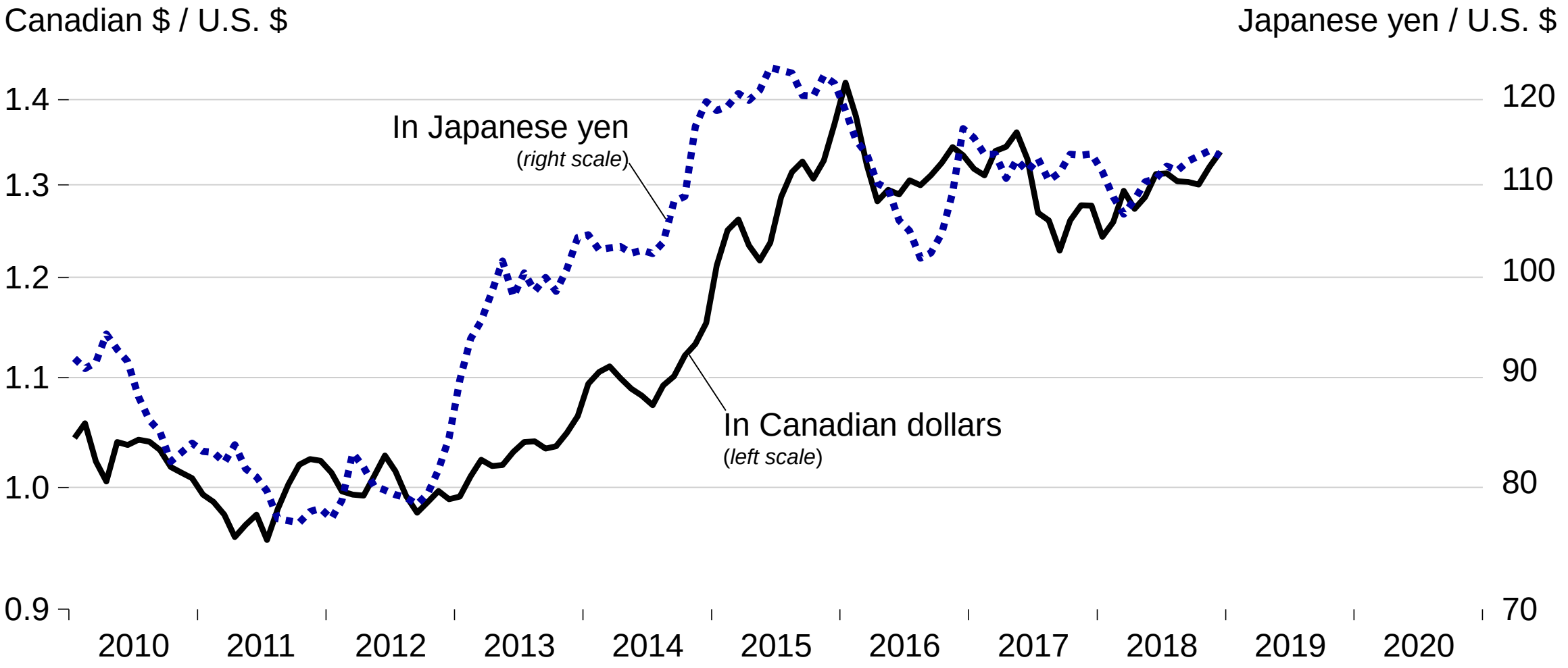
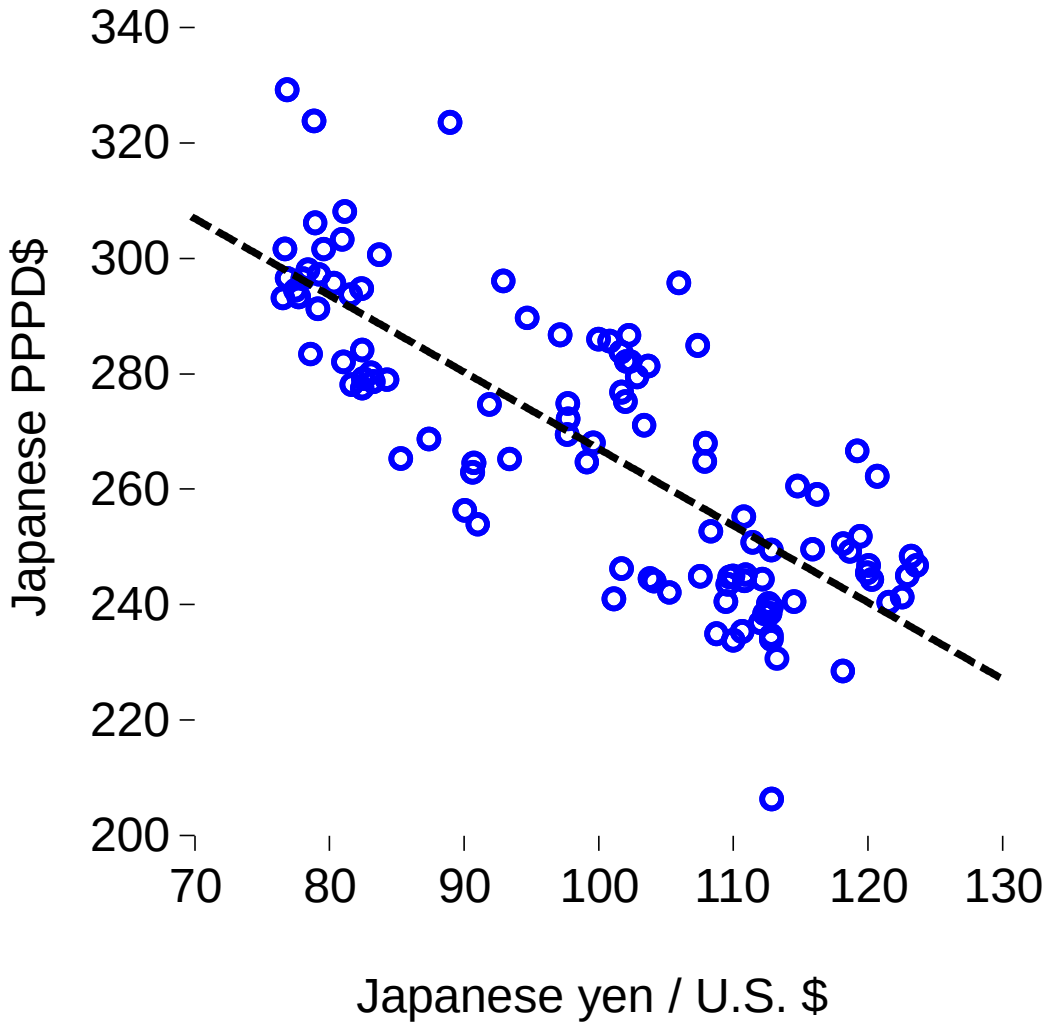
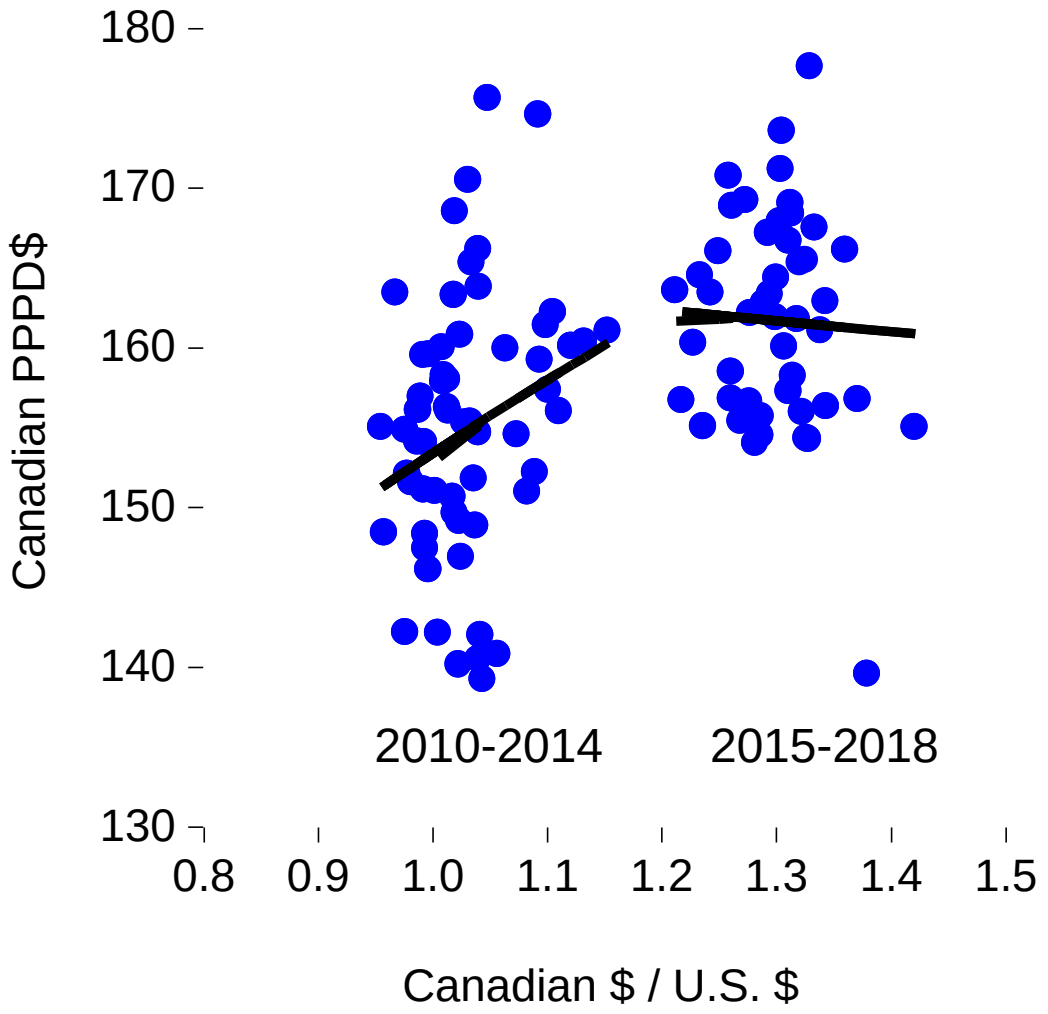
Rising value of the U.S. dollar in Japanese yen and Canadian dollars: QE (Japan, Sep. 2012) and global petroleum price drop (2014-2016)



Sources: Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/exjpus, https://fred.stlouisfed.org/series/excaus); seasonal adjustment by TZE

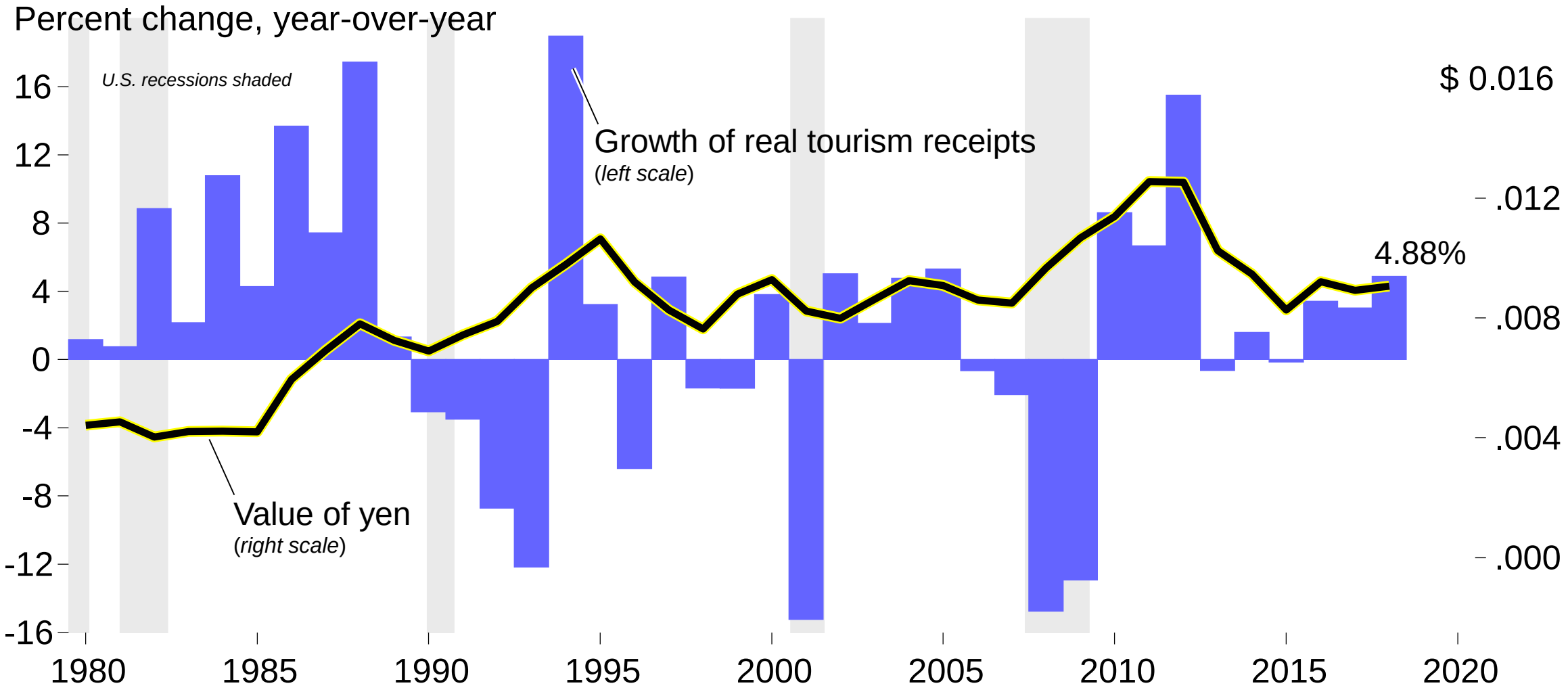
Two distinctive patterns of PPPD$ response to exchange rates: Japan linear, Canadian no strong relation (high *vs*. low oil prices)





Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/mei/honolulu.xls), Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/exjpus, https://fred.stlouisfed.org/series/excaus); seasonal adjustment by TZE

Annual growth of real (inflation-adjusted) Hawaii tourism receipts: yen appreciation boosts real export growth, depreciation drops it



Last year (2018): exogenous risk factors, asymmetric information

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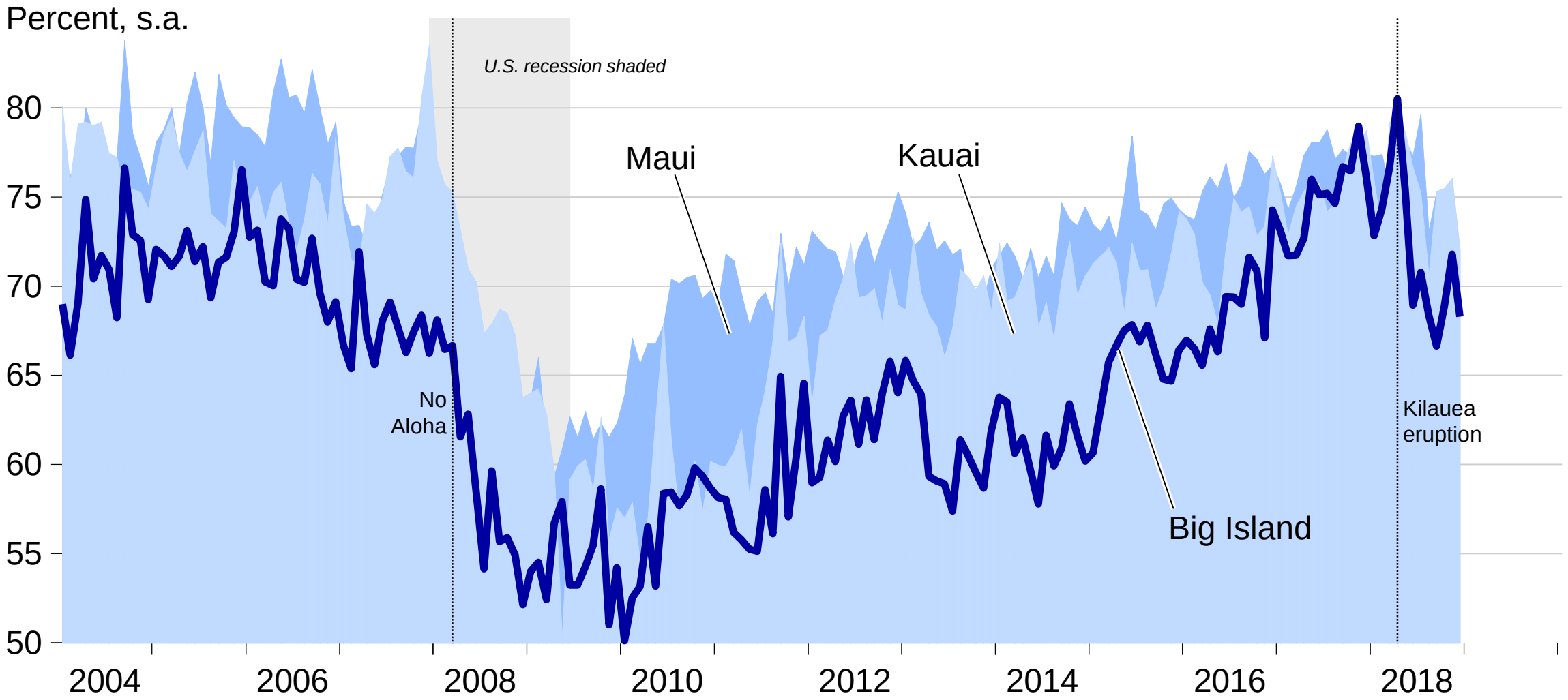
WHAT PEOPLE IMAGINE THE HAWAII LAVA FLOWS LOOK LIKE

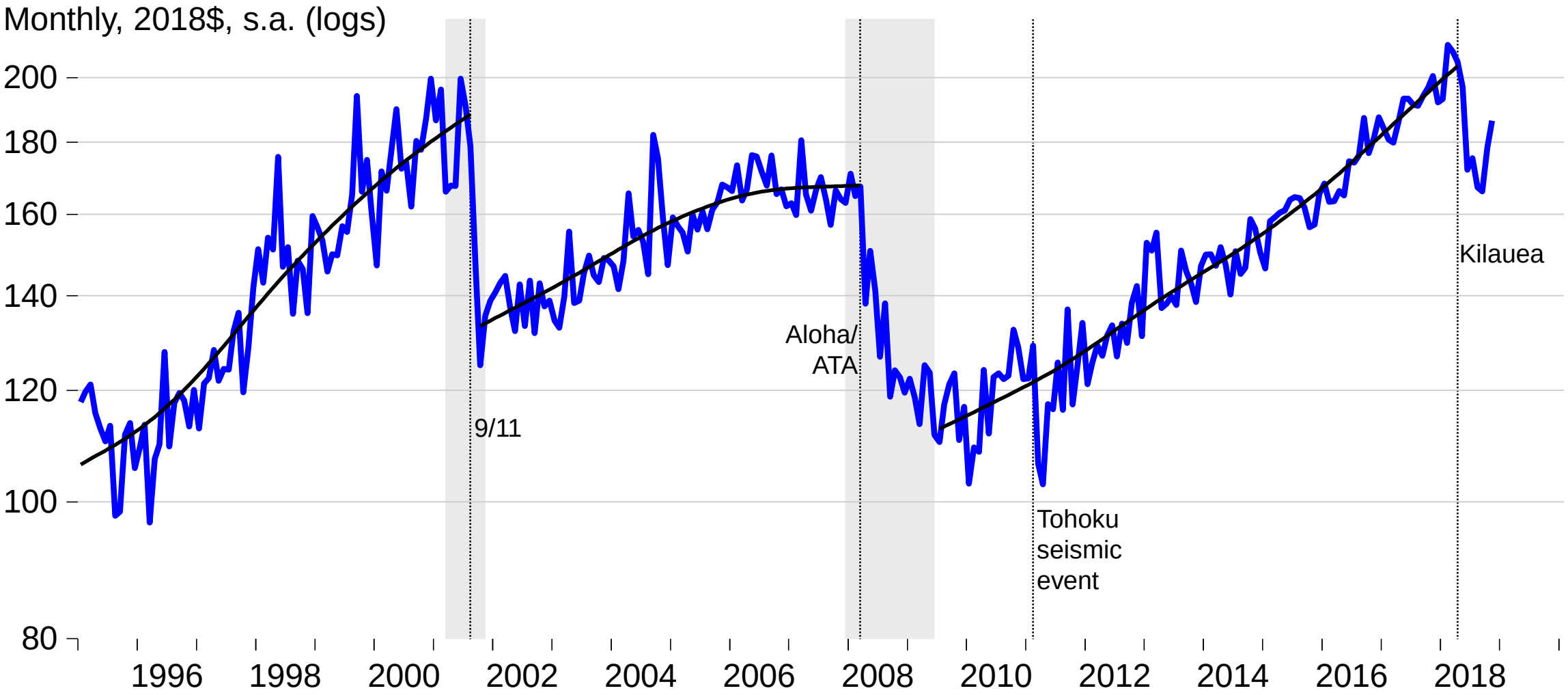
WHAT THE HAWAII LAVA FLOWS LOOK LIKE

Monthly Neighbor Island hotel occupancy rates (s.a.) were converging on 80 percent in early-2018 only to be blown up by Kilauea eruption



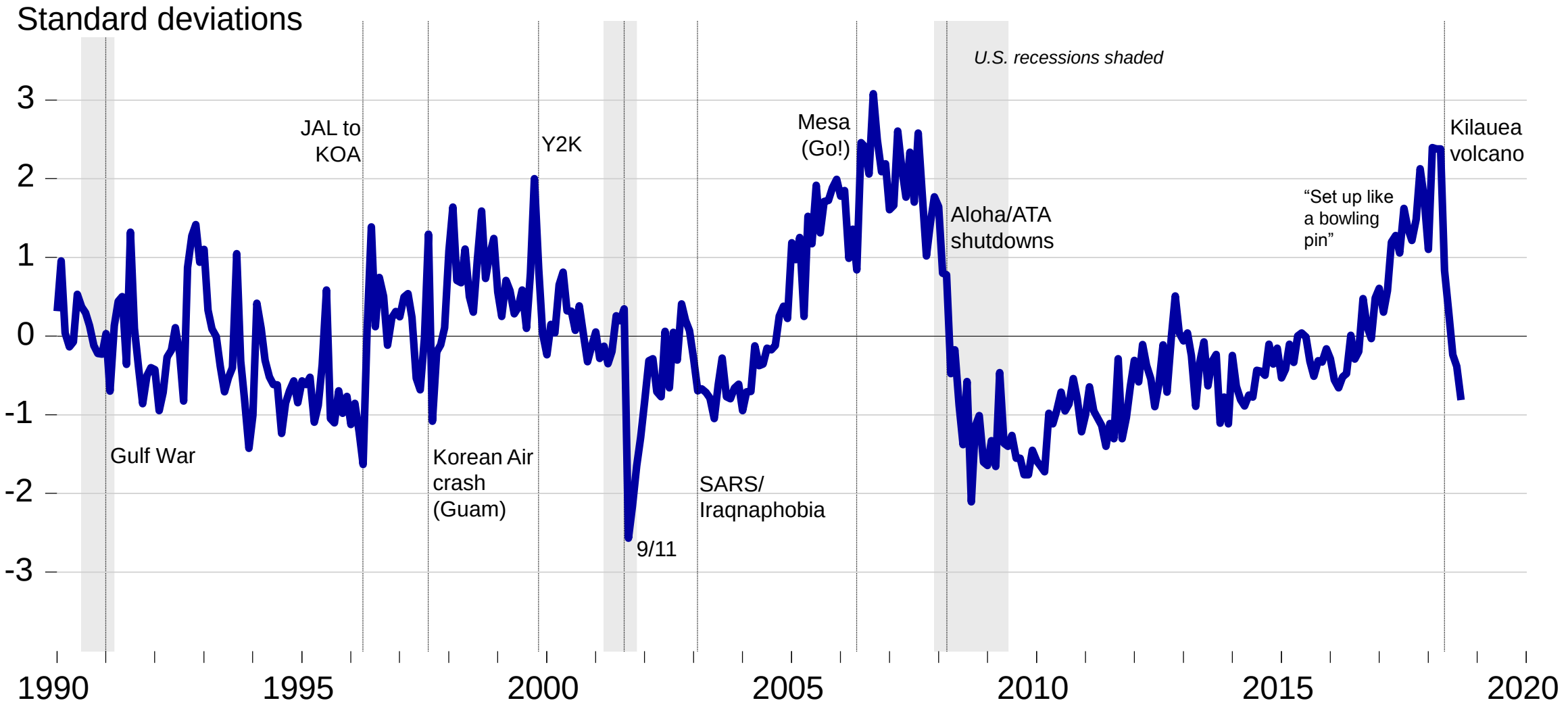
Sources: Hospitality Advisors LLC, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/datawarehouse/), Hawaii Tourism Authority (https://www.hawaiitourismauthority.org/research/infrastructure-research/)

Monthly Big Island real REVPAR: interval trend components isolate Sudden Stop impacts of exogenous, Black Swan shocks, Kilauea TBD



Sources: PKF Hawaii, Hospitality Advisors LLC, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/datawarehouse/), Hawaii Tourism Authority (https://www.hawaiitourismauthority.org/research/infrastructure-research/), U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); seasonal adjustment, deflation, and estimation of interval Hodrick-Prescott filter trends by TZ Economics

De-trended, seasonally-adjusted Big Island Island visitor arrivals got hit by the Lower Puna/East Rift Eruption like 9/11 and No Aloha (Airlines)



Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/); seasonal adjustment using Census X-13 ARIMA filter, estimation and residual extraction from second-order polynomial trend on natural log of monthly visitor arrivals by TZ Economics

Accounting for risk in tourism Hawaii performance measurement

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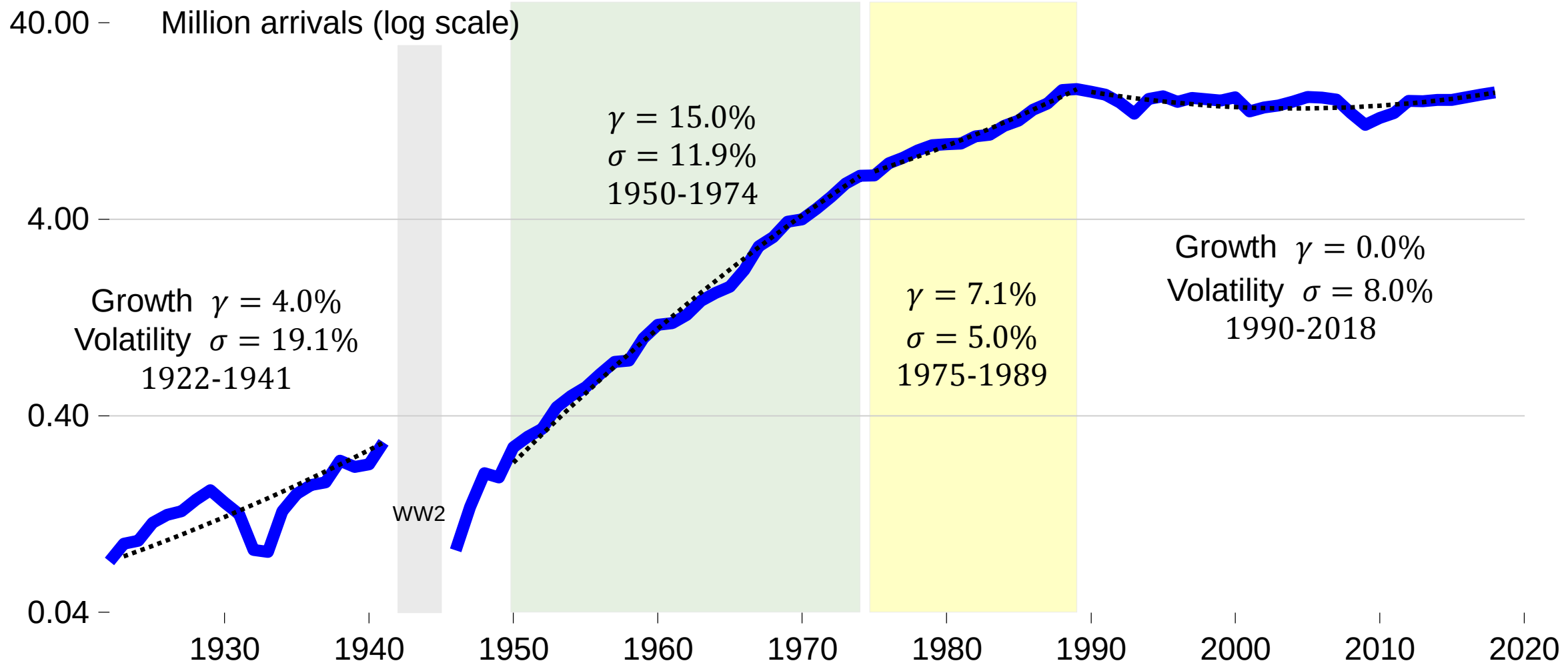
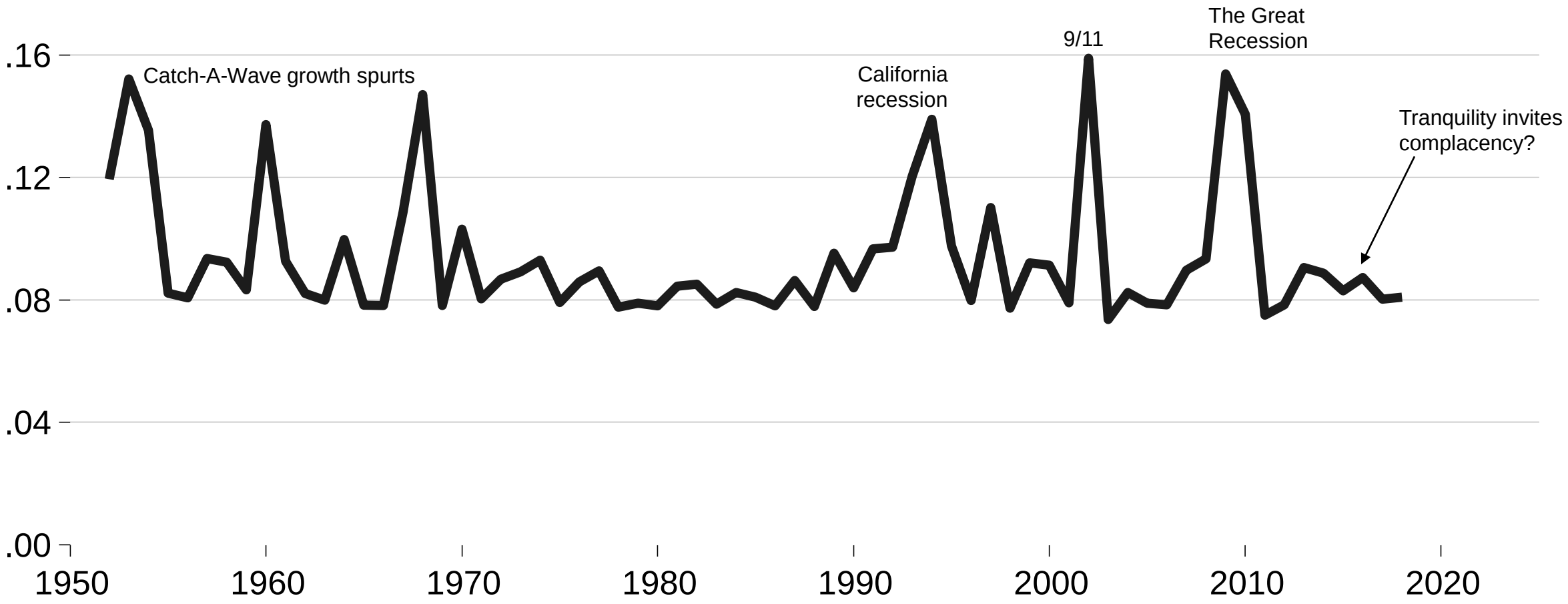
Annualized, interval standard deviations of Hawaii visitor arrivals' log changes, 1922-2018: overall, approximately 13% (like the S&P 500);



Sources: Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/databook/Data_Book_time_series/sec07update.xls Table 7.28, http://files.hawaii.gov/dbedt/visitor/visitor-research/2017-annual-visitor.xls Table 69), and U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); interval growth and volatility estimates (standard deviations of log changes) calculated by TZ Economics.

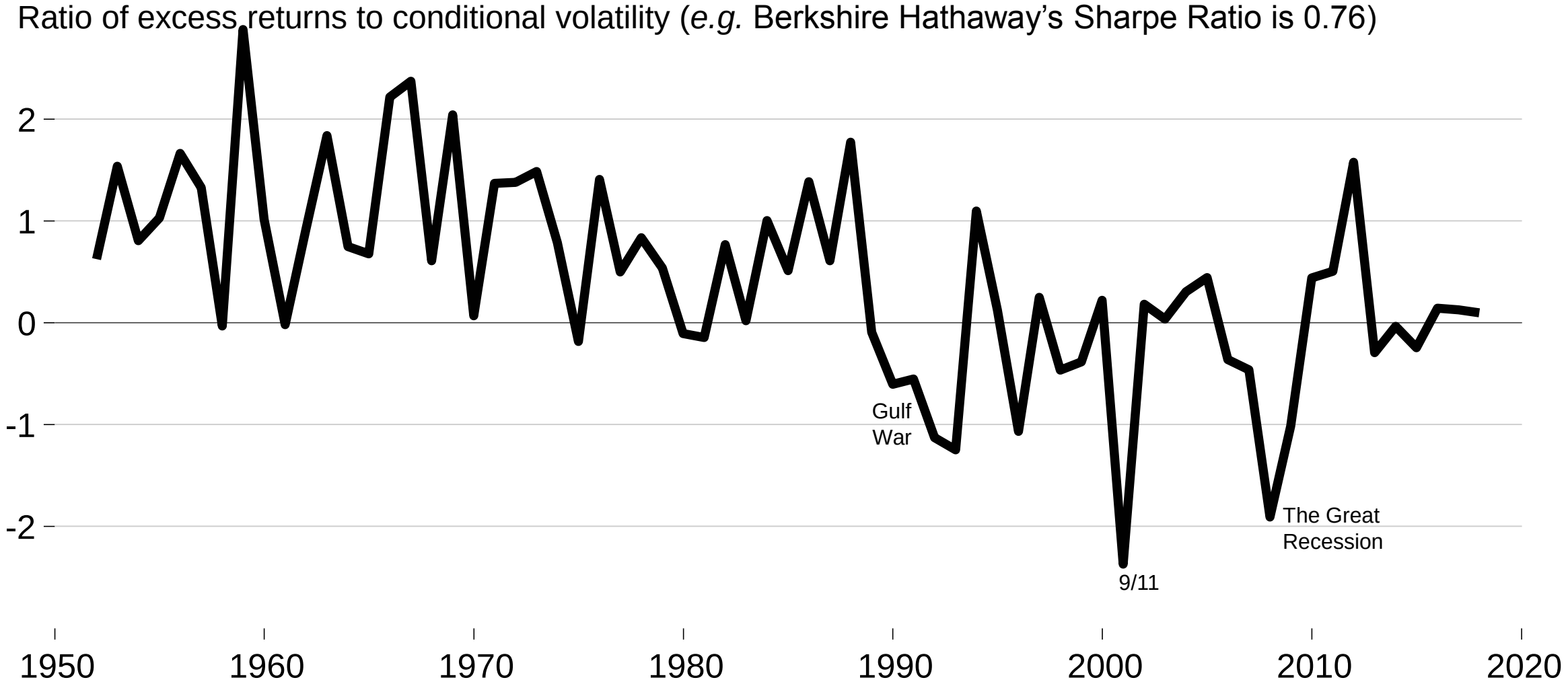
Conditional volatility of Hawaii constant-dollar total tourism receipts: bumpy rides make same speeds less comfortable than smooth rides

Conditional volatility (*e.g.* 0.08 is “8 percent”)



Sources: Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/databook/Data_Book_time_series/sec07update.xls Table 7.28, http://files.hawaii.gov/dbedt/visitor/visitor-research/2017-annual-visitor.xls Table 69), and U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); estimates of annualized generalized autoregressive conditional heteroskedasticity standard deviations by TZ Economics..

Suppose the real rate of return on capital was 2 percent, what was the real *risk-adjusted* return on Hawaii tourism? A tourism Sharpe Ratio



Note: Tourism Sharpe Ratio is calculated as the annual change in the natural logarithm of constant-dollar Hawaii tourism receipts, minus 0.0198026272961797 (excess returns @2%), all divided by the contemporaneous generalized autoregressive conditional heteroskedasticity (GARCH) standard deviation of real visitor expenditure: real yield in excess of a risk-free real return on capital, divided by conditional volatility.

Macroeconomic round-up: late stages of expansion risk-laden

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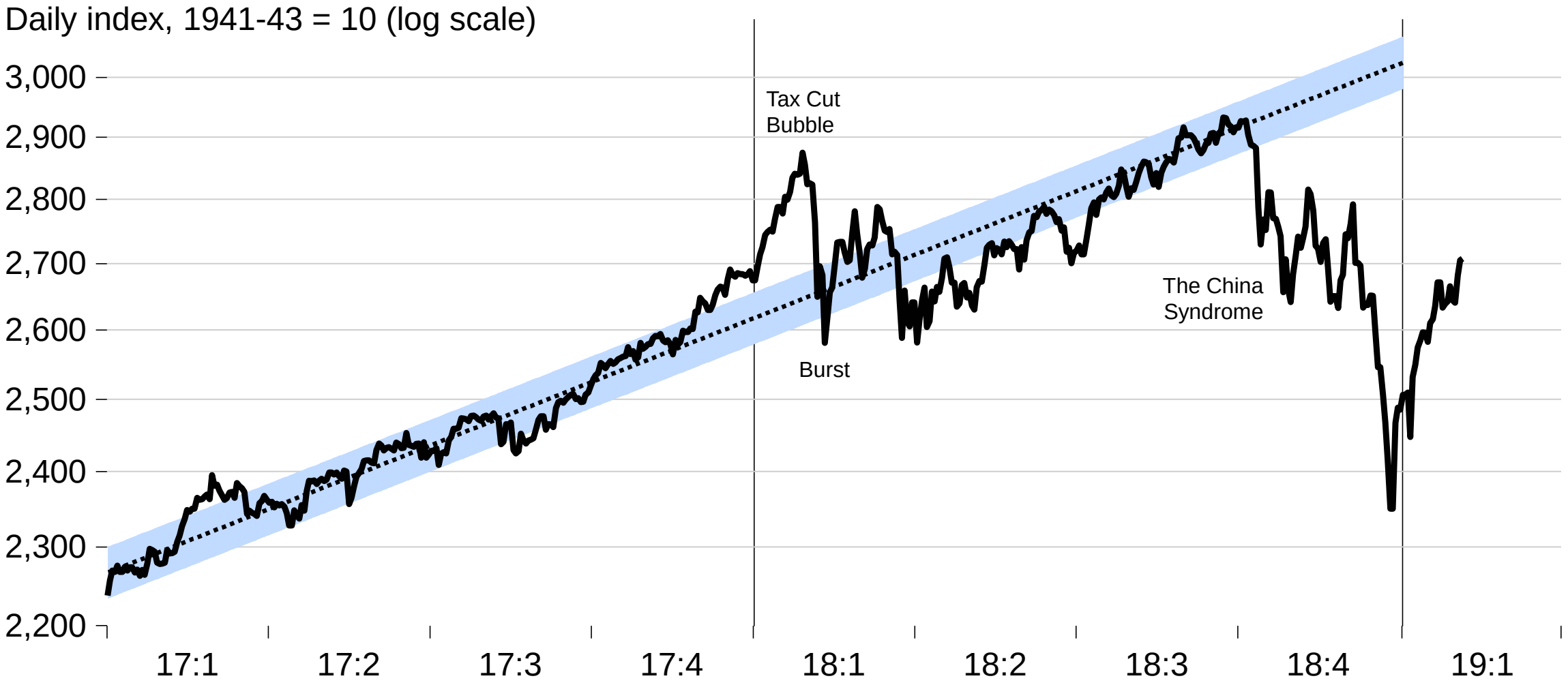
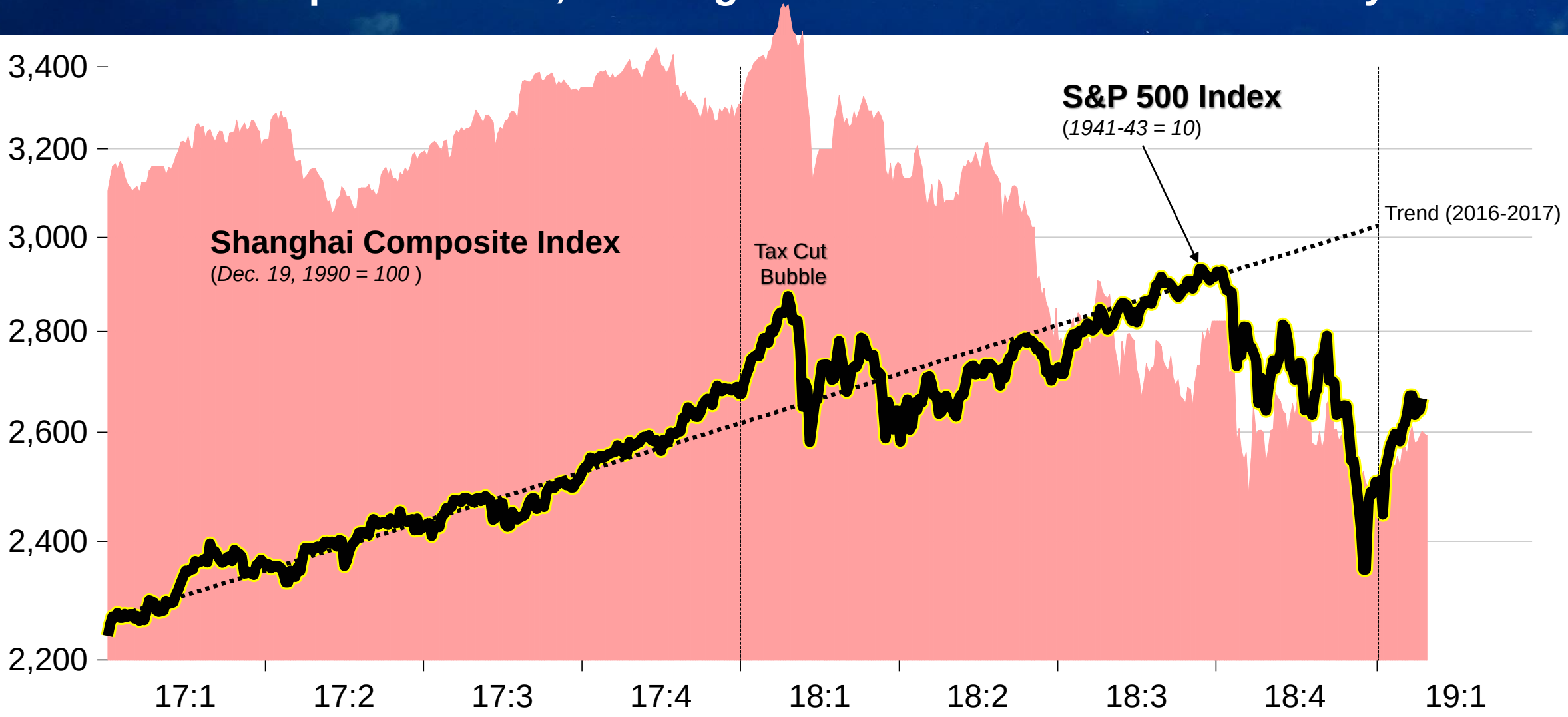
Daily S&P 500 Index closing values through January 2019: aside from minor bubbles were tracking recent trend until blown down, 2018Q4



Sources: S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/SP500), data through February 1, 2019; trend regression on stationary transform (log changes) of daily closing values and two standard-error bandwidth by TZ Economics, April 1, 2016 – November 27, 2017 projected forward through 2018.

Shanghai Composite Index unraveled early in 2018 under pressure of Trump Trade War, sucking the S&P 500 into the vortex at year-end



Sources: Yahoo Finance (https://finance.yahoo.com/quote/000001.SS?ltr=1), daily adjusted closing data through January 29, 2019, S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/SP500), retrieved January 28, 2019.

Statistically we cannot reject hypothesis of causality running *from* Shanghai Composite *to* S&P 500 (U.S. markets no longer "causal")

Pairwise Granger Causality Tests (on stationary transformations of daily data (log changes))
Date: 12/24/18 Time: 00:50
Sample: 1/02/2012 12/21/2018
Lags: 2

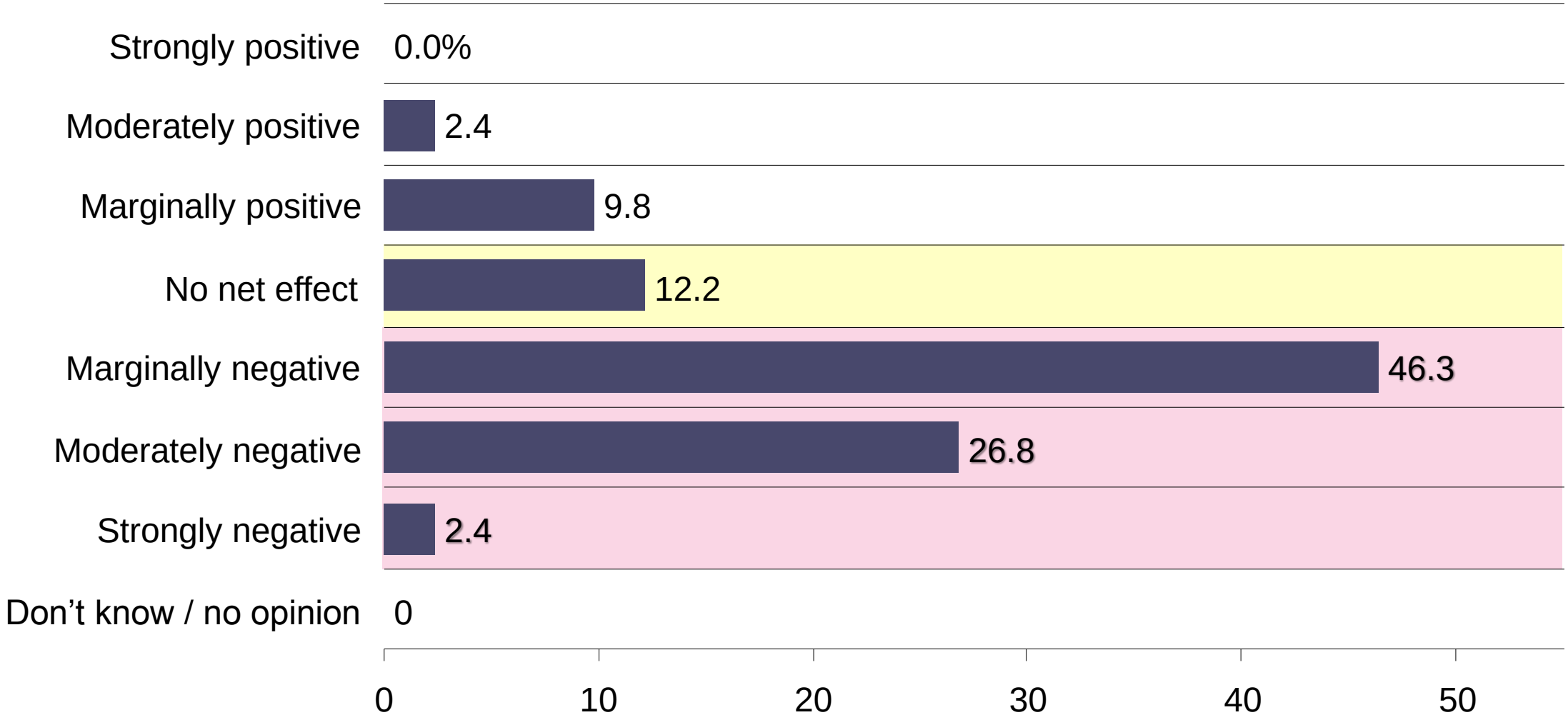
Null Hypothesis:	Obs	F-Statistic	Probability*
d(*ln*(SHCOMP)) does not Granger Cause d(*ln*(SPX))	1,811	0.39539	0.67350
d(*ln*(SPX)) does not Granger Cause d(*ln*(SHCOMP))		28.34940	0.00000

SHCOMP = Shanghai Composite Index
SPX = S&P 500 Index

*Probability that the hypothesis is *wrong*

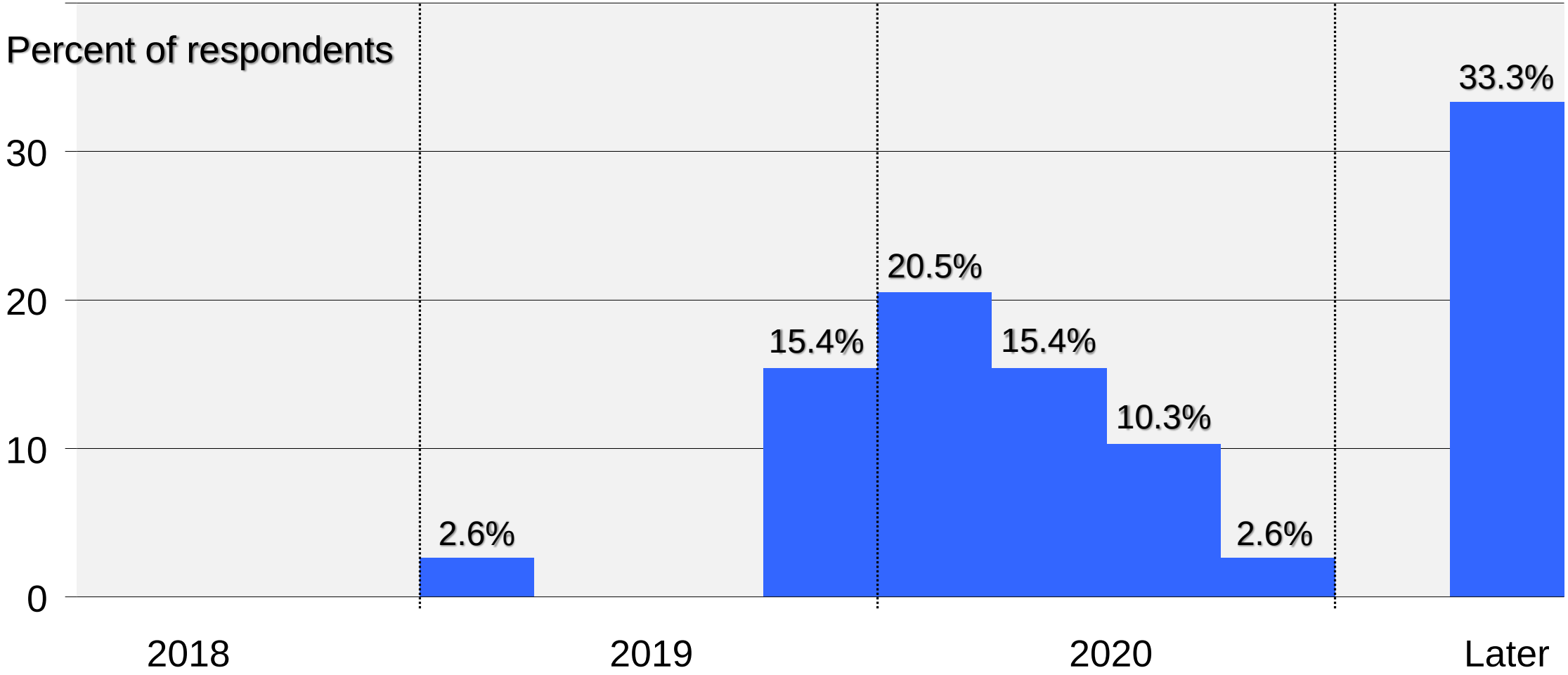
Sources: Yahoo Finance (https://finance.yahoo.com/quote/000001.SS?ltr=1), S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/SP500, December 24, 2018; calculations by TZ Economics.

June 2018 NABE Survey: "…net effect of trade policy on U.S. real GDP growth?" 75% negative, 12% positive (Aug 2018: 91% negative)



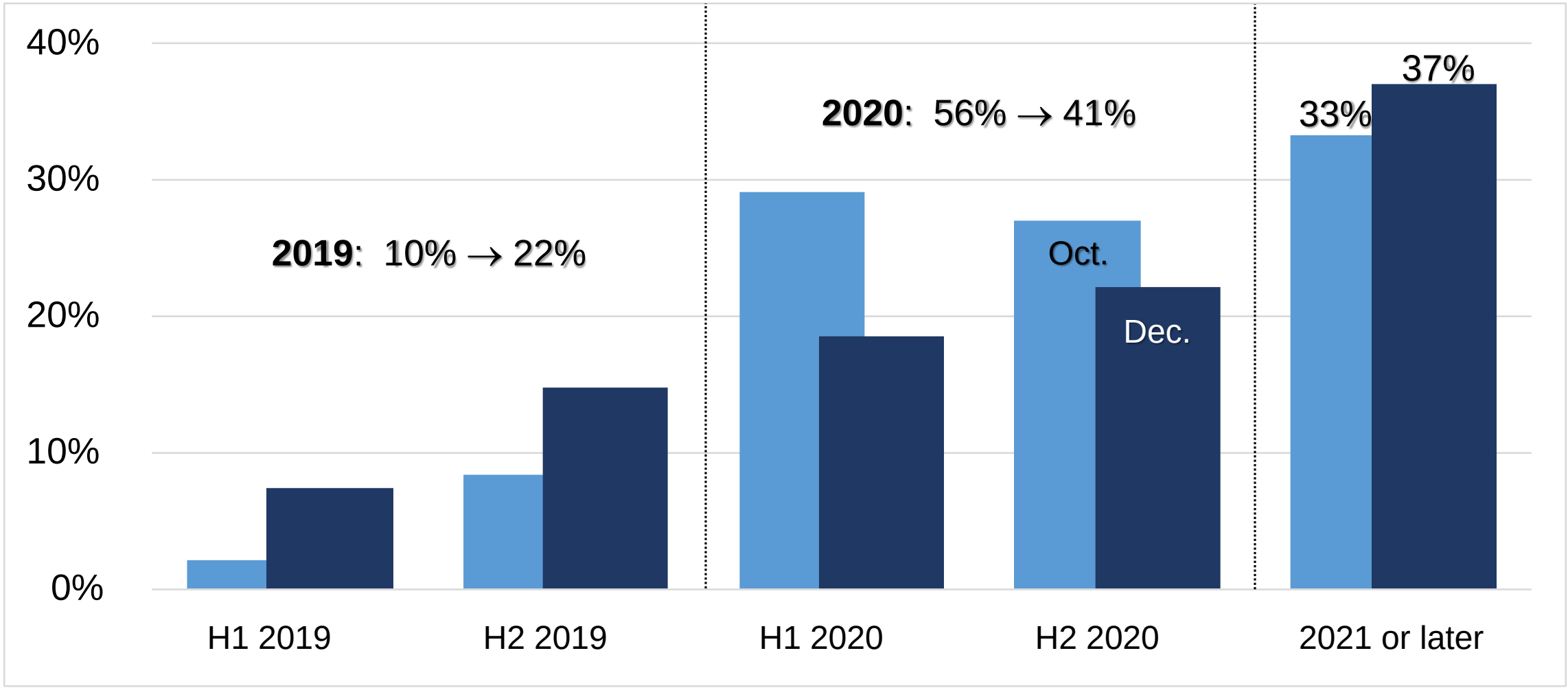
Source: National Association for Business Economics Economic Outlook Survey (June 2018) (http://nabe.com/NABE/Surveys/Outlook_Surveys/June_2018_Outlook_Survey_Summary_v2.aspx); Question: "What is your current forecast regarding the net effect of trade policy on U.S. GDP growth through the end of 2019?"

June 2018 NABE Survey: "…When do you expect the next recession?" one-third say not before 2021; two-thirds say most likely by early-2020



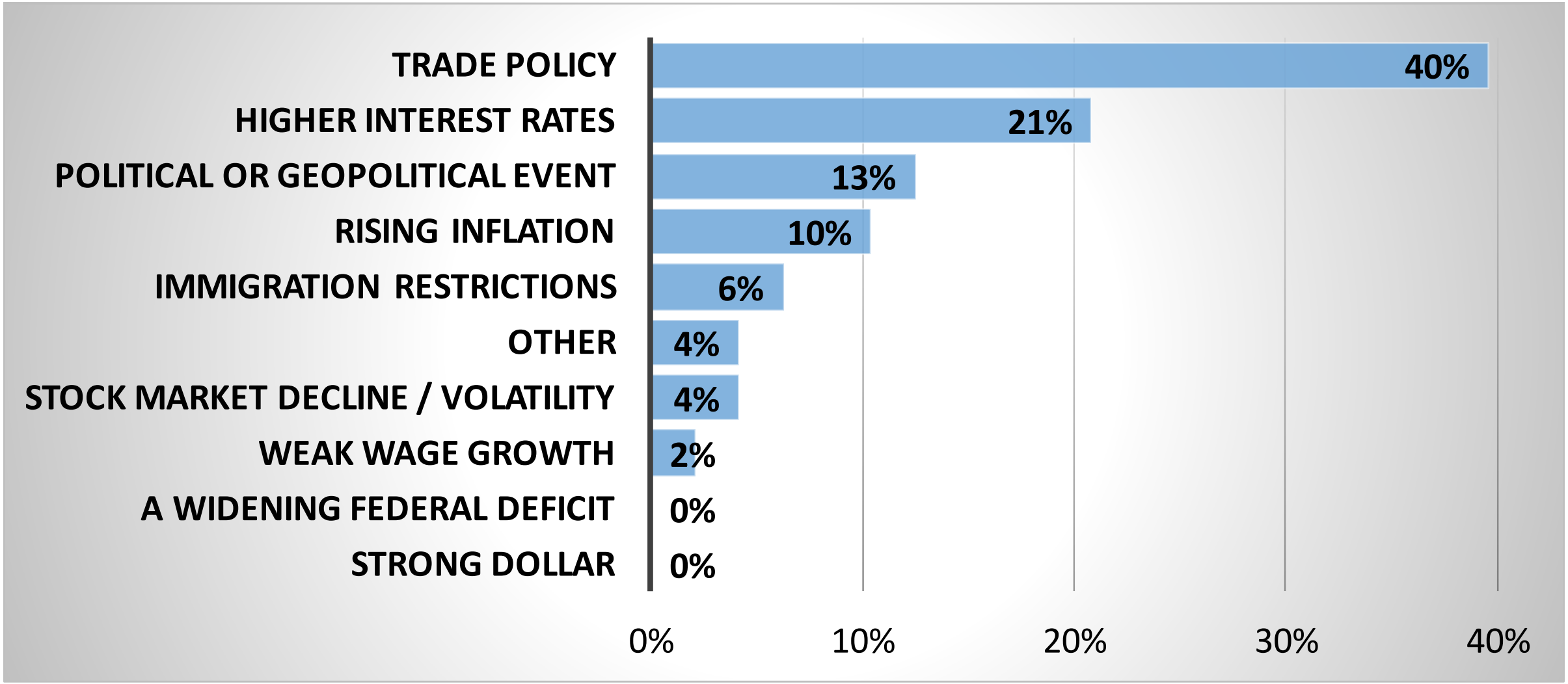
Source: National Association for Business Economics Economic Outlook Survey (June 2018) (http://nabe.com/NABE/Surveys/Outlook_Surveys/June_2018_Outlook_Survey_Summary_v2.aspx); Question: "When (in what year and quarter) do you expect the beginning of the next recession?"

October and December 2018 NABE Surveys: "When do you expect the next recession?" Respondents think it more probable sooner *and* later



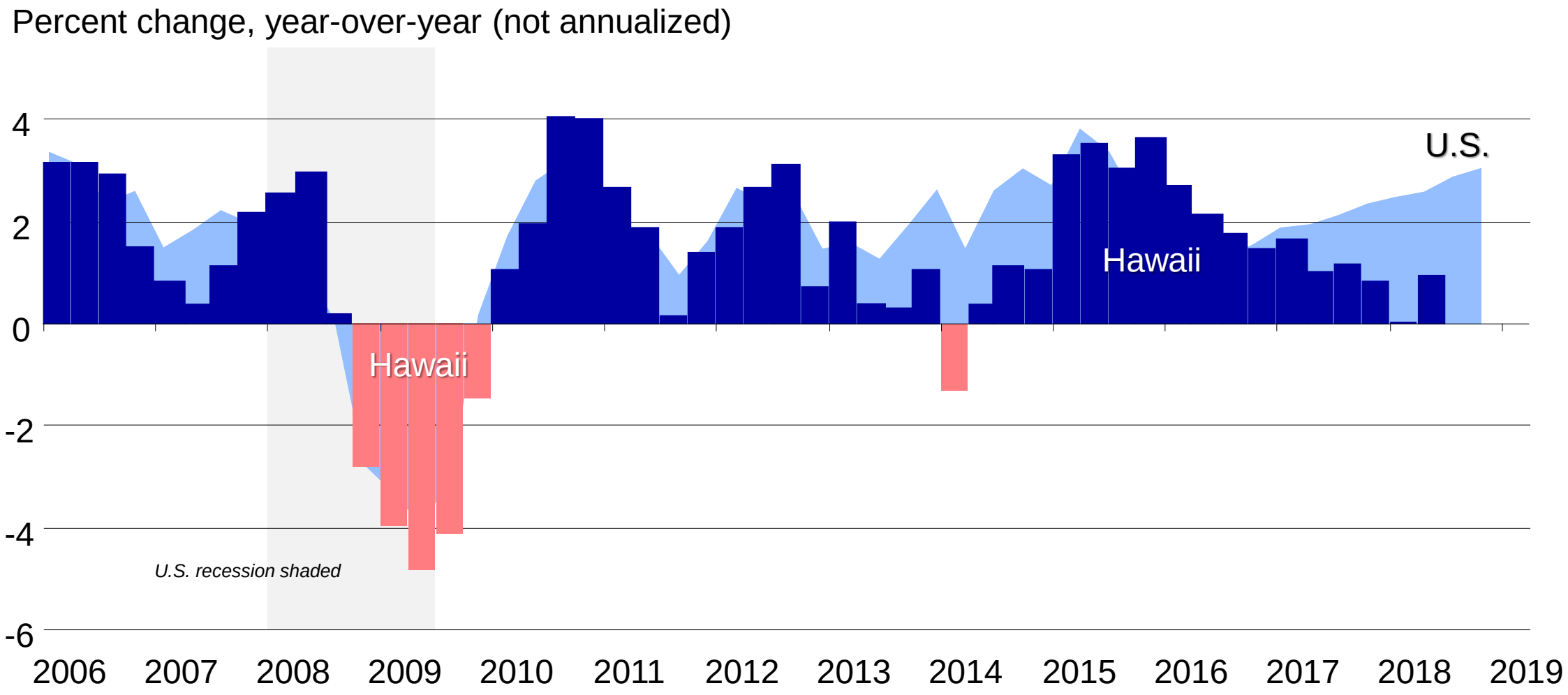
Source: National Association for Business Economics Economic Outlook Survey (October, December 2018) (https://www.nabe.com/nabe/NABE/Surveys/Surveys%20Members%20Only.aspx?WebsiteKey=91b9e16d-e6fe-4f31-a4af-02c194225c32); Questions: (October 2018) "In what half year do you expect the next recession?" (December 2018) "What are the odds of a recession starting in each [half]?"

Family Feud? Survey Says: Business economists think biggest risks facing the U.S. economy are trade policy, interest rates, political risk



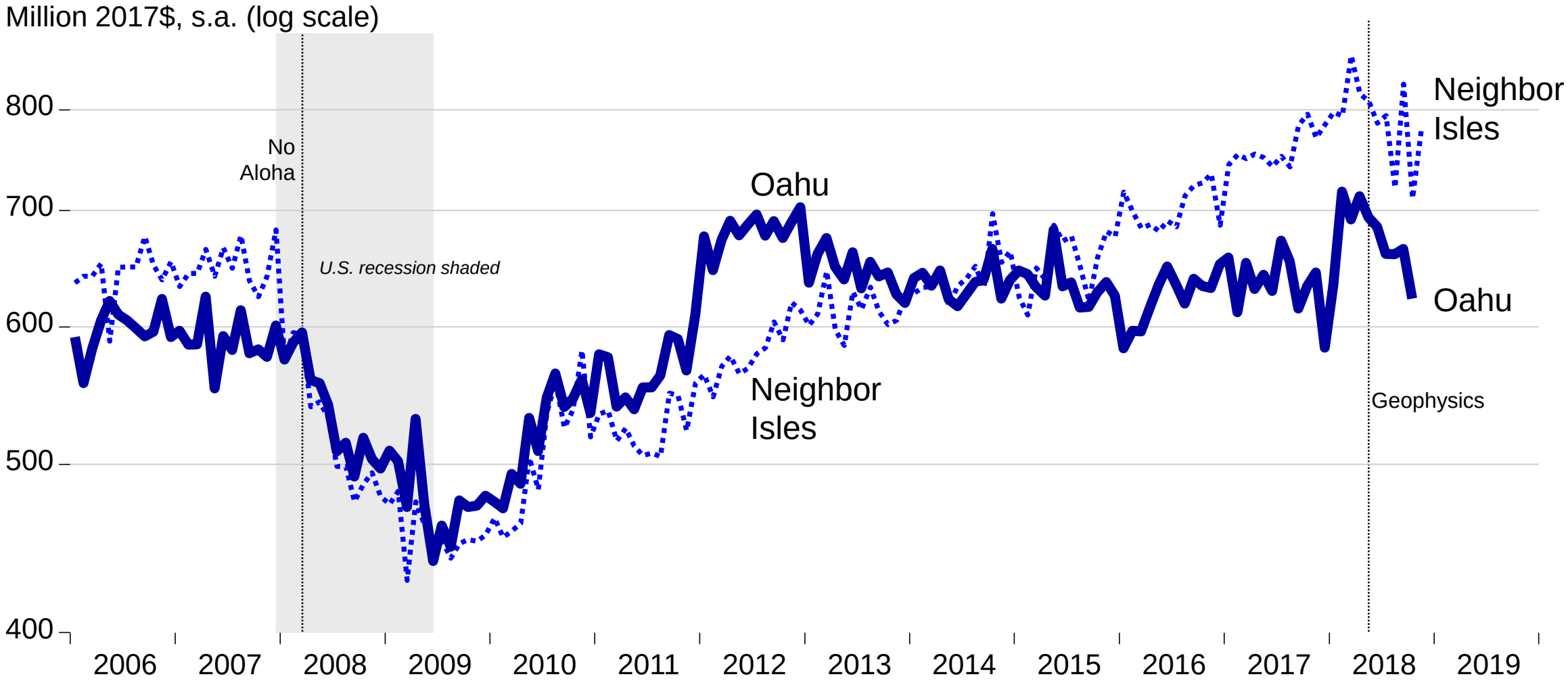
Source: NABE Outlook Survey (December 2018) (https://www.nabe.com/NABE/Surveys/Outlook_Surveys/December_2018_Outlook_Survey_Summary.aspx); Question: "What is the greatest downside risk to the U.S. economy through 2019, considering both probability of occurrence and potential impact?"

Hawaii quarterly real GDP growth: for the second time this decade, deceleration to near-standstill while U.S. continues to grow



Source: Bureau of Economic Analysis, U.S. Department of Commerce (https://www.bea.gov/data/gdp/gdp-state); growth calculations by TZE

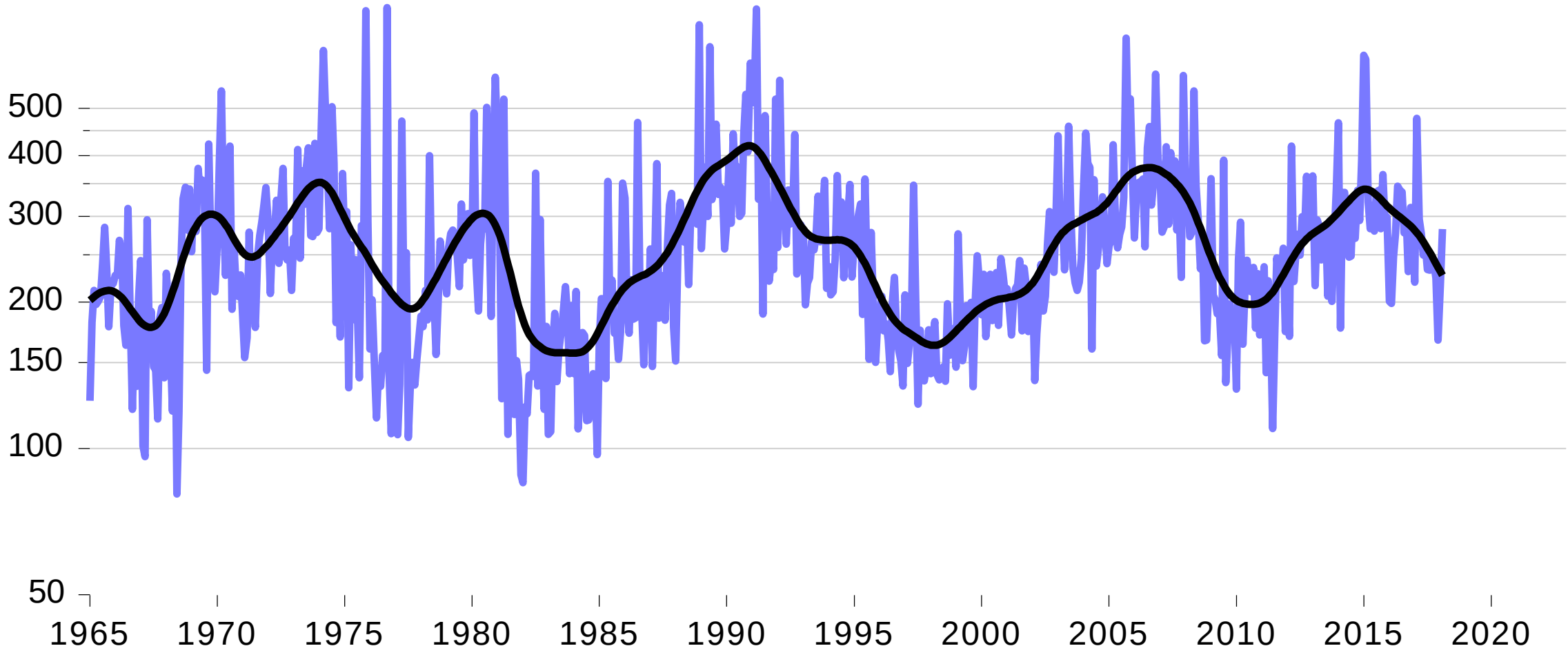
Constant-dollar real visitor expenditure has only grown on Neighbor Isles in the 2010s, Oahu real tourism receipts constant since 2012



Source: Hawaii Tourism Authority, Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/), U.S. Bureau of Labor Statistics, retrieved from FRED, Federal Reserve Bank of St. Louis; (https://fred.stlouisfed.org/series/CPIAUCSL), December 26, 2018; seasonal adjustment and deflation by TZ Economics

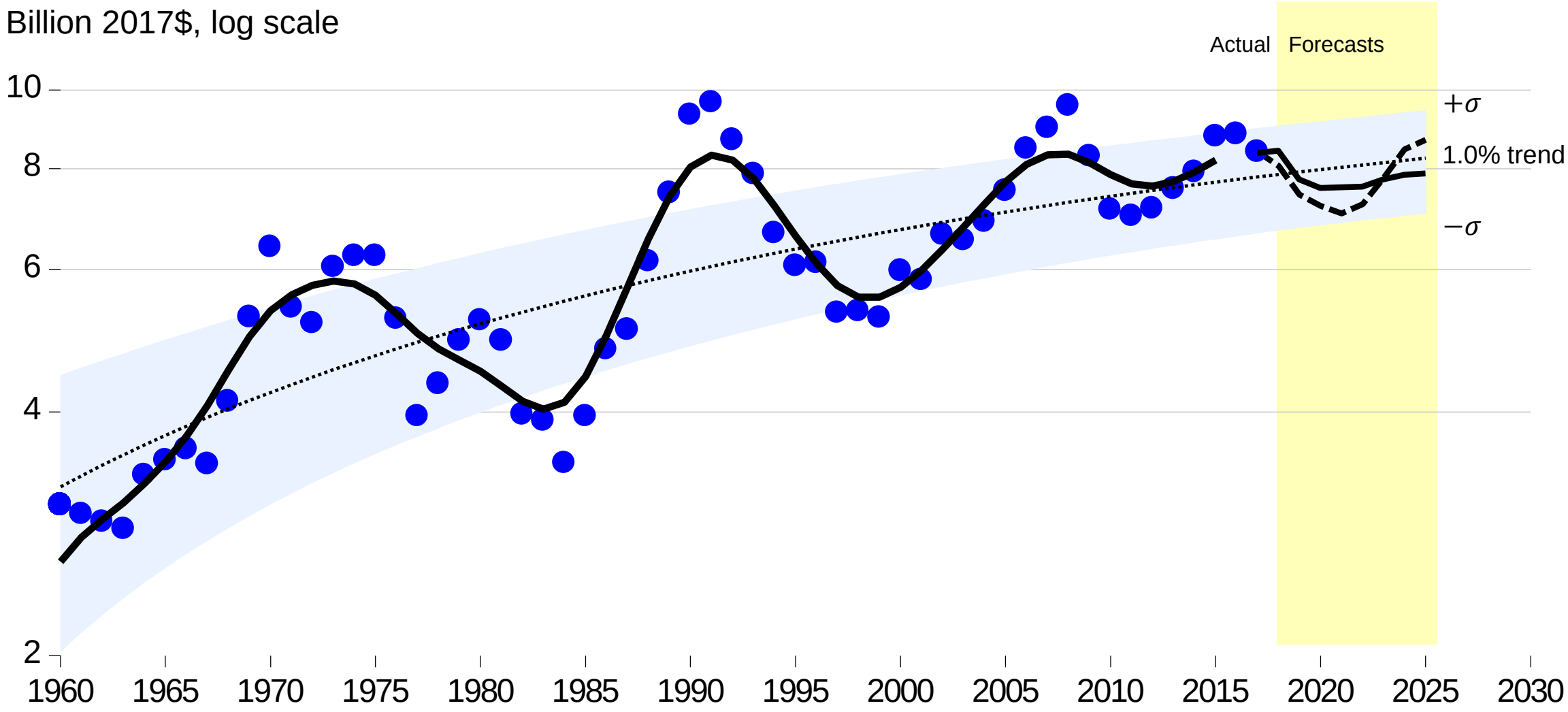
Monthly Hawaii real private building permit value cycling downward for several years since 2015 within narrowing historical bandwidth

Monthly, million 2017$, s.a. (log scale)



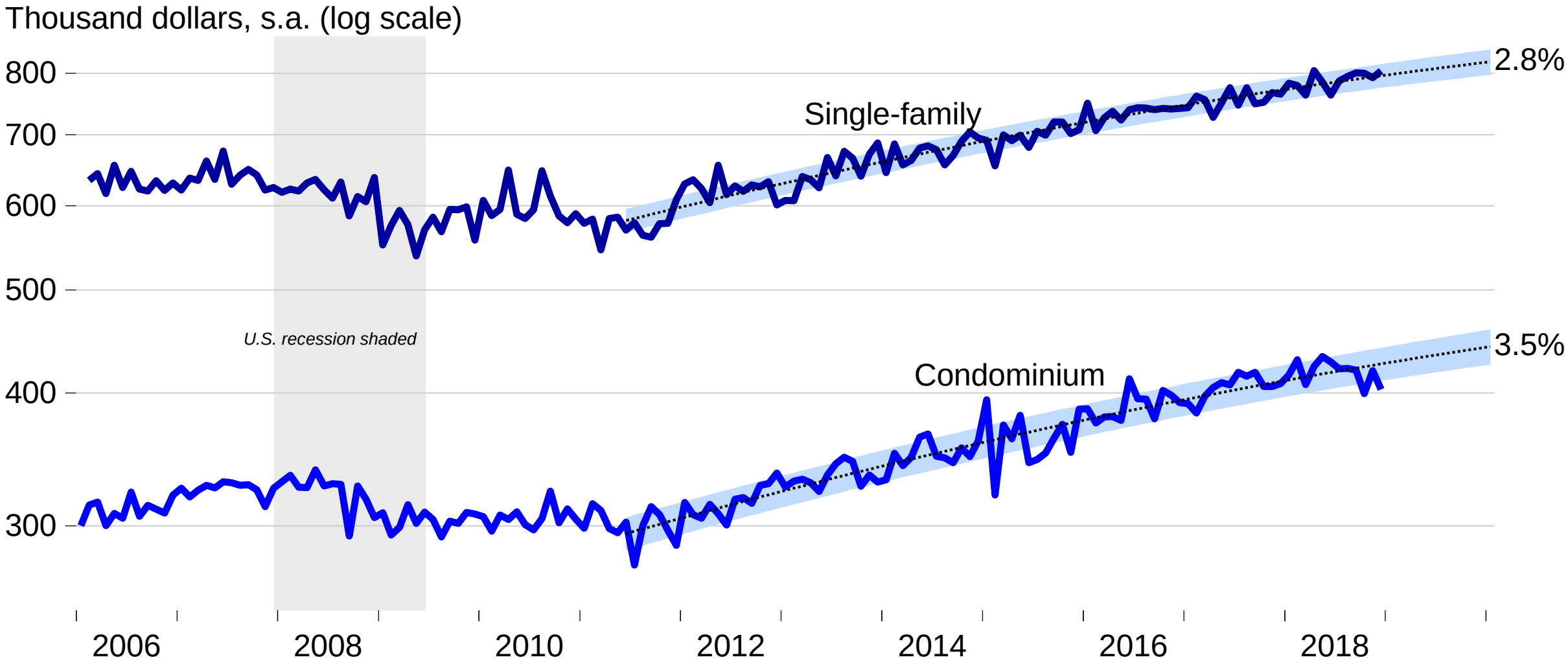
Sources: County planning and building departments (various), Hawaii DBEDT (https://dbedt.hawaii.gov/economic/mei/), U.S. Bureau of the Census (https://www.census.gov/construction/cpi/); seasonal adjustment, deflation, and trend extraction using Hodrick-Prescott filter by TZE

Real Hawaii contracting receipts forecast to slip to below trend, $8-9 billion to $7.0-7.5 billion, in shallow extension of narrowing cycle



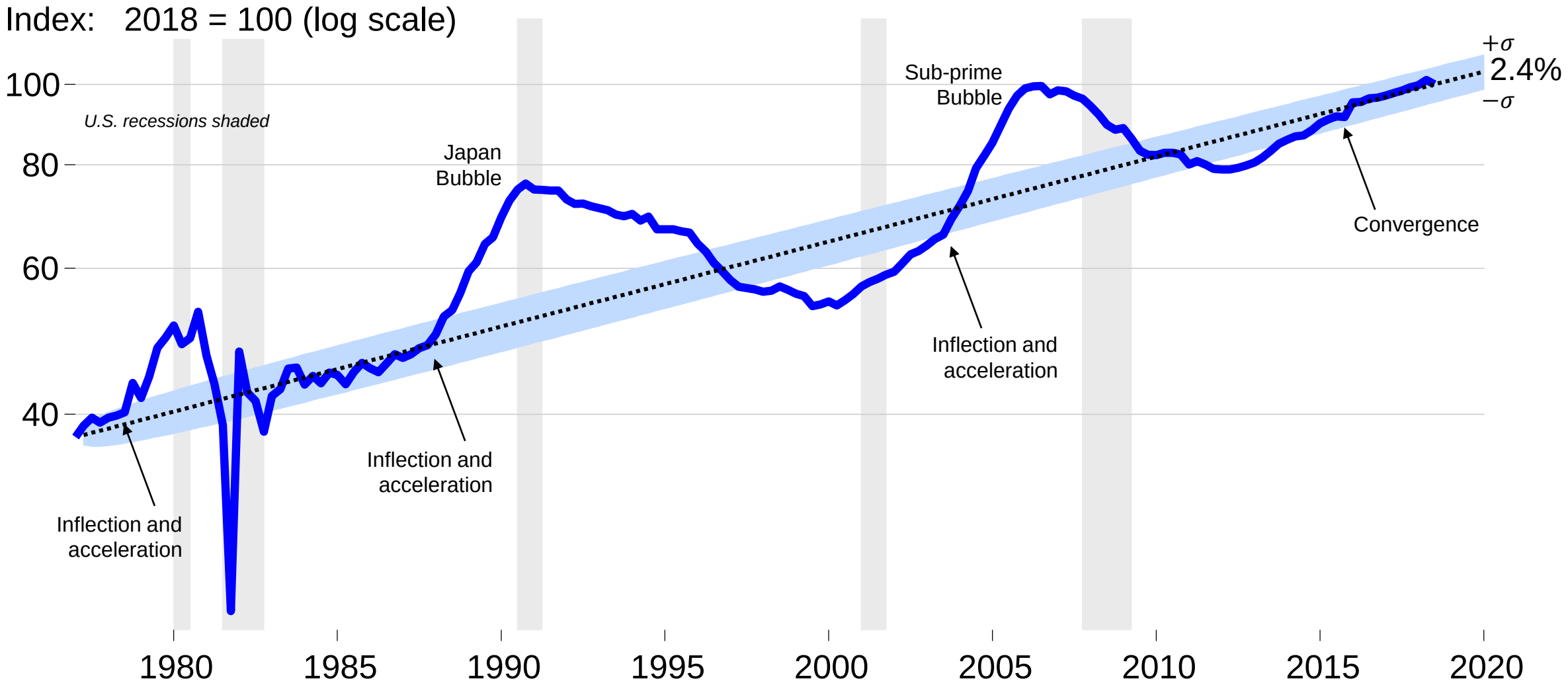
Sources: Hawaii Department of Taxation, U.S. Bureau of the Census, Bank of Hawaii (various) *Construction in Hawaii*; deflation, cycle extraction using Hodrick-Prescott filter, nonlinear trend regression, and November 2018 construction forecasts 2018-2021 for the Building Industry Association of Hawaii by TZ Economics

Monthly Oahu median existing home resale prices not bubblicious, but trend since mid-2011 shows signs of deceleration ("curvature")



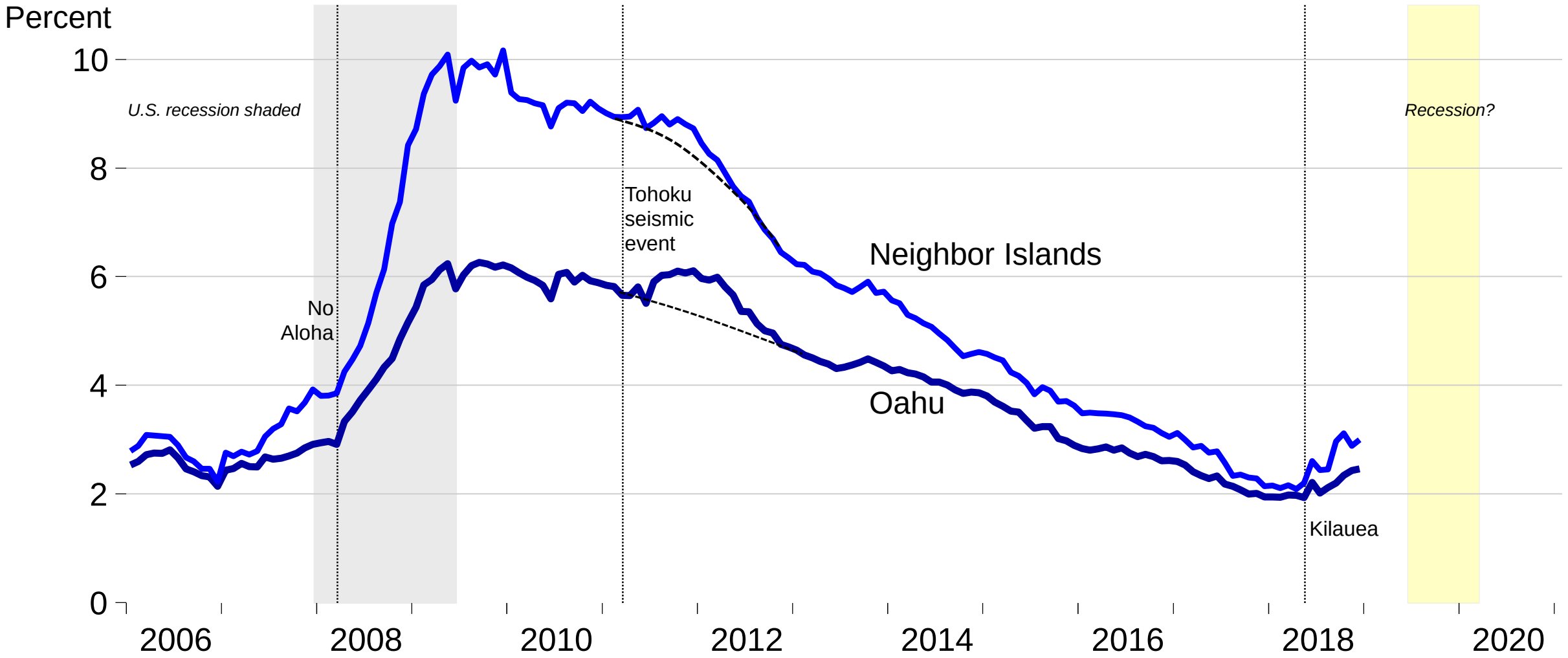
Source: Honolulu Board of Realtors *Monthly Housing Statistics* (various), monthly data through November 2018; seasonal adjustment, regression-based projections by TZ Economics (2nd-order polynomial trend regression on logs, June 2011 through December 2018)

Real—inflation-adjusted—Oahu quarterly house valuations (sales *and* mortgage collateral values) convergent to LR *real* appreciation rate



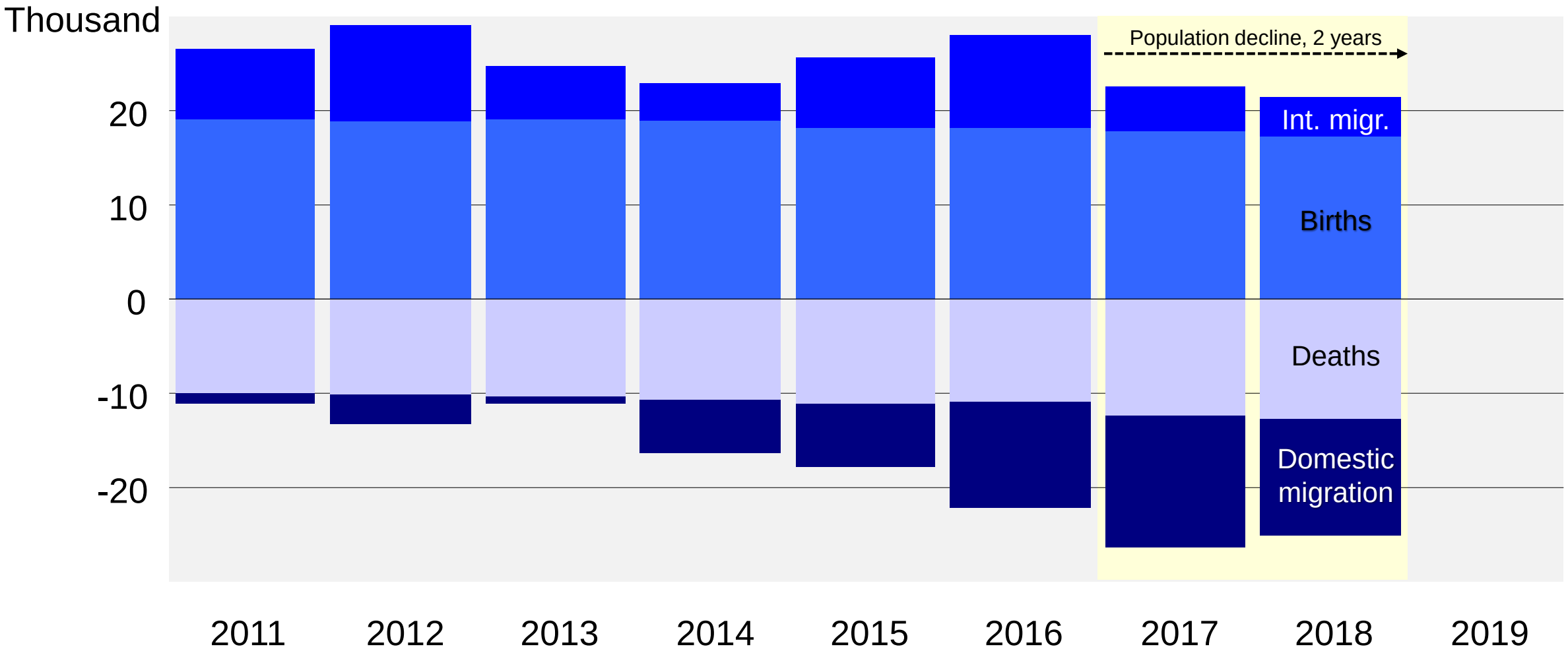
Sources: Federal Housing Financial Administration (https://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI_AT_metro.csv), U.S. Bureau of Labor Statistics (https://data.bls.gov/cgi-bin/surveymost?r9); seasonal adjustment, index re-basing, deflation using quarterly interpolated Honolulu CPI-U, regression of the stationary component (change in the natural log) of real FHFA valuations on time, 1977Q1-2018Q3 by TZE

Hawaii unemployment rates began rising in second quarter 2018 with a string of natural disasters, but kept rising after they were over



Sources: Hawaii DLIR (https://www.hiwi.org/admin/gsipub/htmlarea/uploads/LFR_LAUS_LF.xls); monthly data through December 2018, seasonal adjustment by TZE

Statewide components of population change: natural increase (births less deaths), net international migration, and net domestic migration



Sources: Hawaii DBEDT (http://files.hawaii.gov/dbedt/census/popestimate/2018_state_pop_hi/nst-est2018-01.xlsx and http://files.hawaii.gov/dbedt/census/popestimate/2018_state_pop_hi/nst-est2018-popchg2010_2018.xlsx)

Climate change?

Pau