Overoptimistic forecasts bailed out by oil prices

slides prepared for a presentation to a joint informational briefing of the

Senate Committee on Ways and Means

House Committee on Finance

Hawaii State Capitol Auditorium

by Paul H. Brewbaker, Ph.D.
TZ Economics, Kailua, Hawaii
January 21, 2015

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Petroleum: you had to know this would happen

- Every 20-25 years, real oil prices rise; eventual result:
  1. Exploration and discovery of new sources
  2. Energy efficiency-enhancing technological progress
  3. Substitution to alternative energy sources
  4. TV show *Dallas* is revived
- Initially, uncertainty + irreversibility *delay* response to prices, but not forever
- Recent collapse of oil prices: new sources of supply, OPEC disunity, demand decline from macroeconomic deterioration (Japan, European Community, China)
- Surely you did not believe "Clean Energy" propaganda, doomsday scenarios about prices rising forever (name an exhaustible resource that was exhausted)
- (Maybe you weren't alive in the 1970s-80s and missed that history class)

The Stone Age did not end because we ran out of stone

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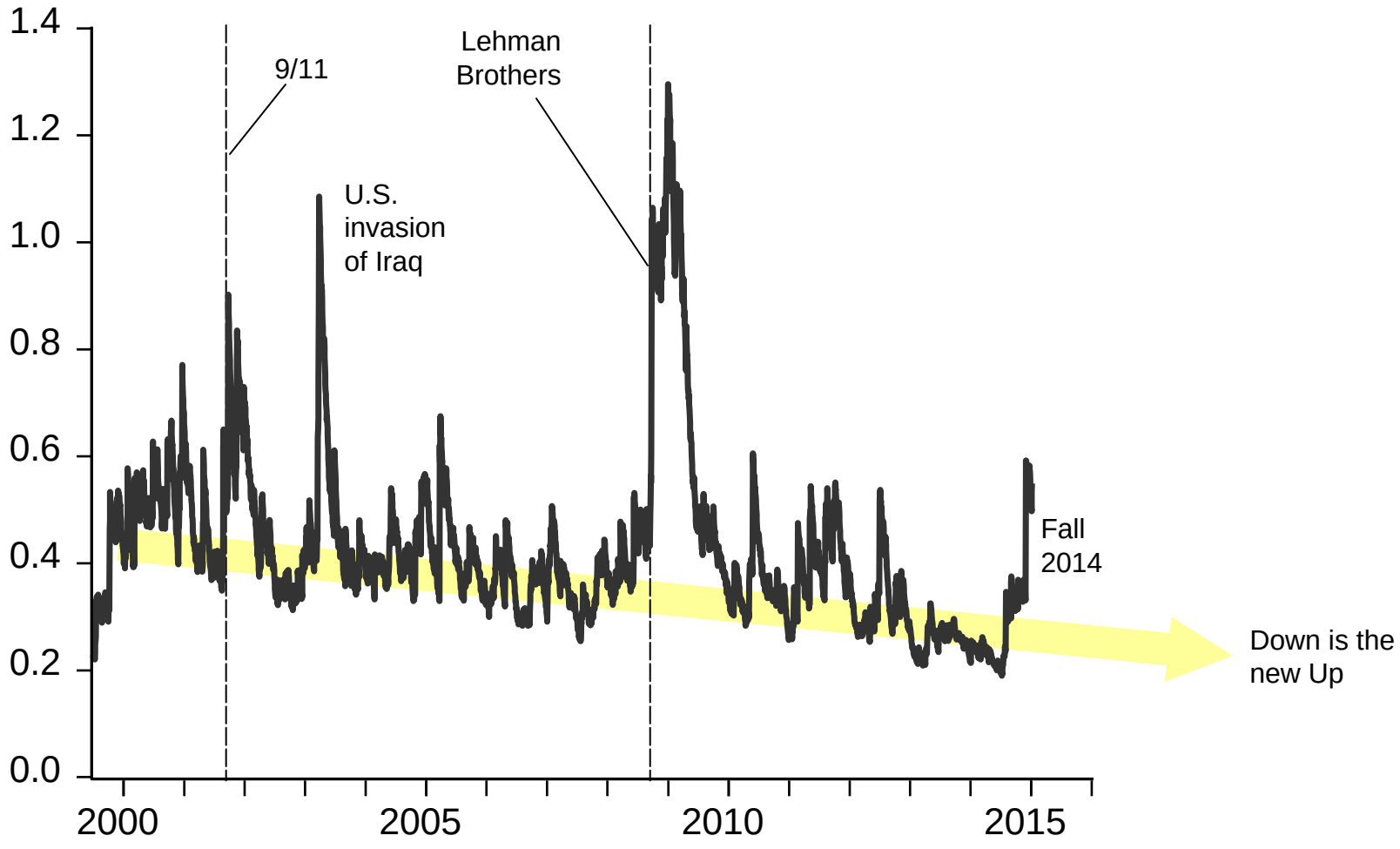
See, for example, Robert Stavins, "The Problem of the Commons: Still Unsettled after 100 Years," *American Economic Review*, vol. **101** no. 1 (February 2011) pp. 81-108

Conditional annualized daily WTI volatility: *declining* for a decade, punctuated by shocks



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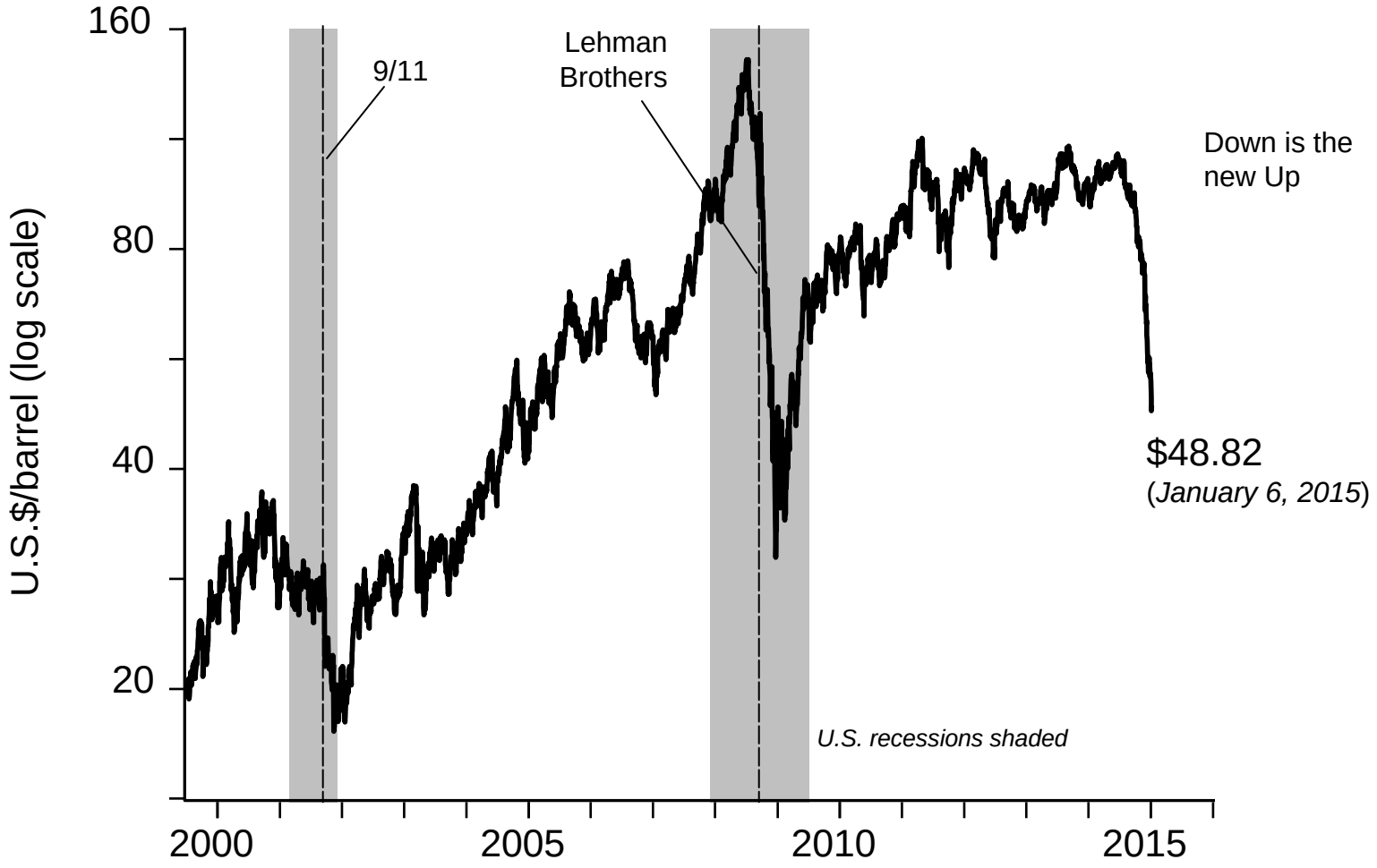
Source: Federal Reserve Bank of St. Louis (http://research.stlouisfed.org/fred2/series/DCOILWTICO); calculation of annualized daily conditional standard deviations from a generalized autoregressive conditional heteroskedasticity model of the log change of oil prices by TZE

Daily West Texas Intermediate crude petroleum benchmark prices since the 1990s



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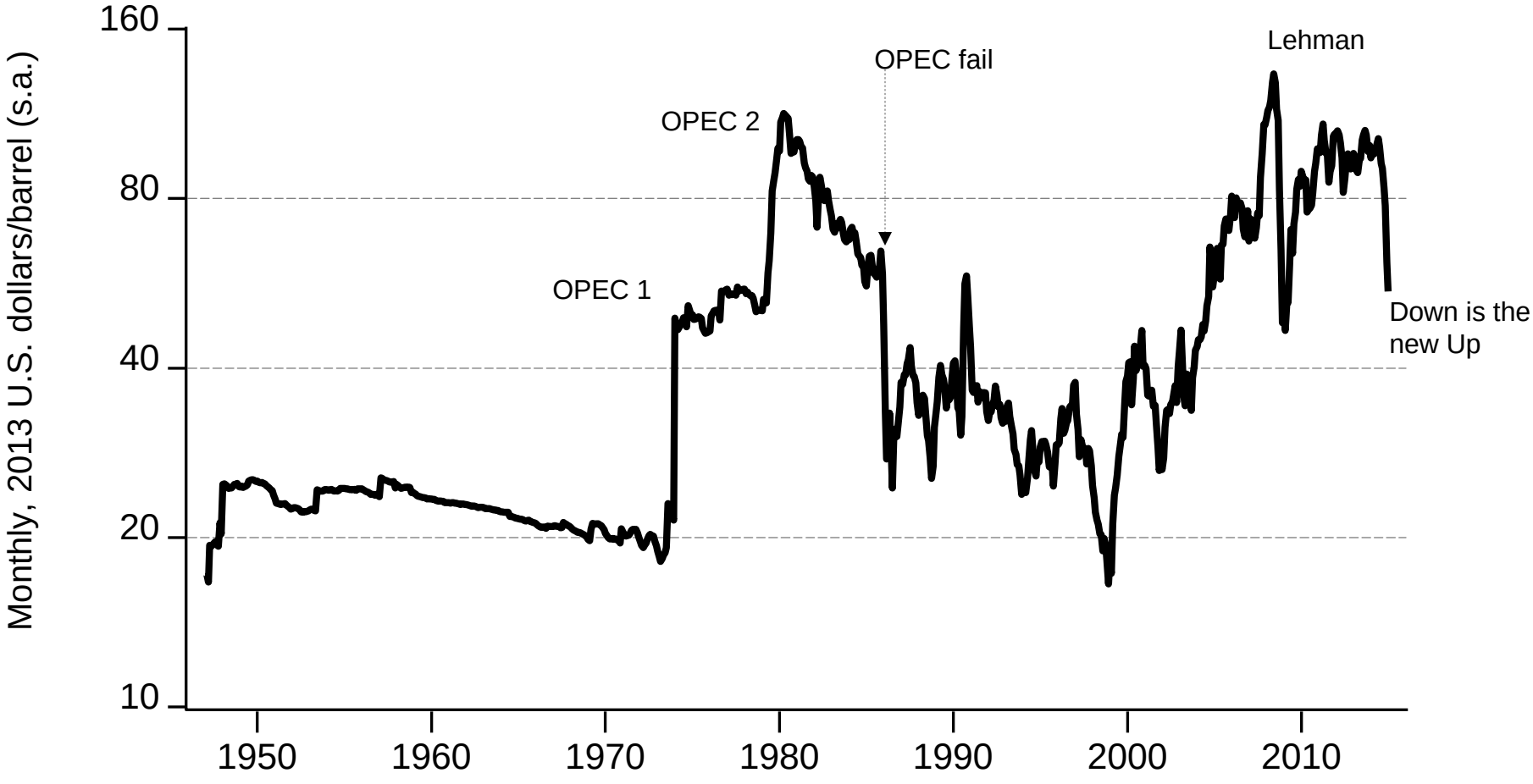
Source: Federal Reserve Bank of St. Louis (http://research.stlouisfed.org/fred2/series/DCOILWTICO)

Real crude petroleum prices: those who cannot remember the past are condemned to repeat it



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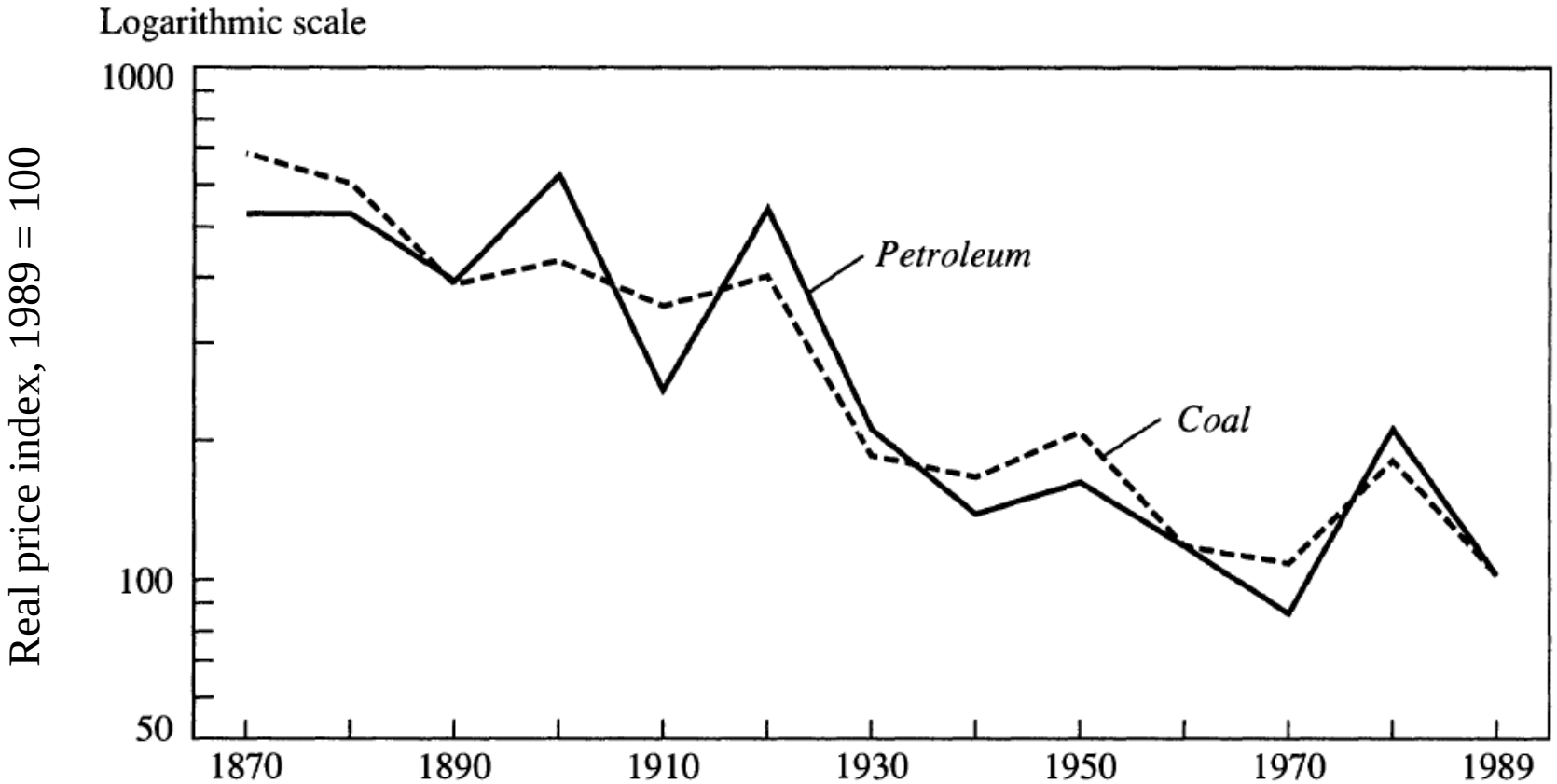
Sources: Federal Reserve Bank of St. Louis, Energy Information Administration, U.S. Department of Energy; monthly data through January 2015 combining West Texas Intermediate benchmark with earlier published crude prices

Real prices of energy products in the U.S. 1870-1989



Source: Author's calculations based on Manthy (1978, p. 11); *Statistical Abstract of the United States, 1991* (table 669, p. 408, and table 1221, p. 698); and U.S. Bureau of the Census (1975, pp. 165, 169–70). Real price is an index of the product price divided by an index of average hourly earnings in manufacturing.

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Source: Figure 2. in William D. Nordhaus, Robert N. Stavins, Martin L. Weitzman, "Lethal Model 2: The Limits to Growth Revisited," *Brookings Papers on Economic Activity*, Vol. **1992**, No. 2 (1992), pp. 1-59

Hawaii expectations unfulfilled for two years

- Here's what either declined or did not grow in Hawaii, 2013-2014, after inflation:
  1. Real general fund tax revenues
  2. Real tourism receipts
  3. Federal civilian employment (defense + nondefense)
  4. Real contracting receipts

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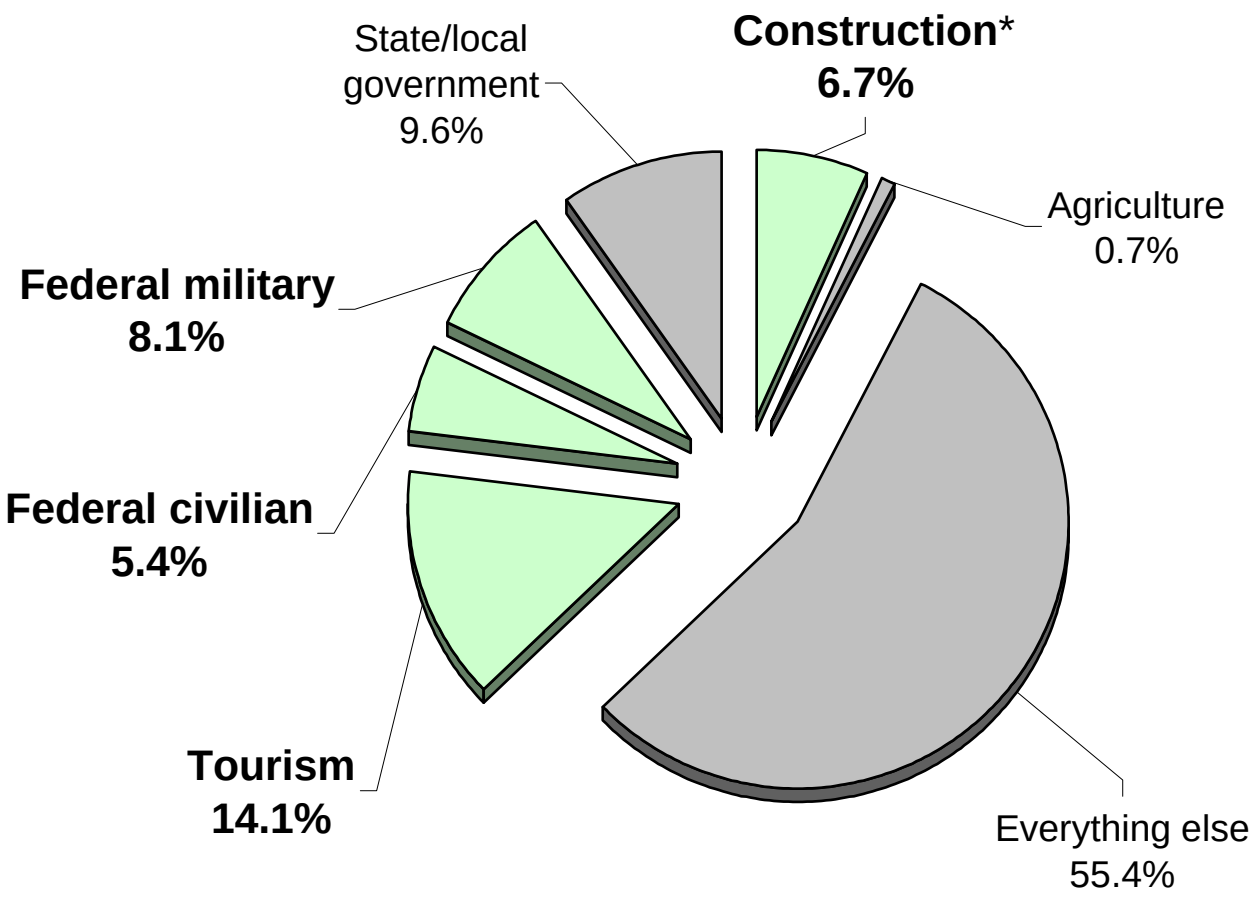
Real Gen. Fund revenues did not grow, nor did tourism, federal employment, construction



Hawaii GDP (2012)

See also:

James Mak, 2005. "Tourism demand and output in the U.S. Tourism Satellite Accounts: 1998-2003," *Journal of Travel Research*, **44** (1), pp. 4-5.

Eugene Tian, James Mak, and PingSun Leung, "The direct and indirect contributions of tourism to regional GDP: Hawaii," *UHERO Working Paper No. 2011-5* (July 28, 2011) (http://www.uhero.hawaii.edu/assets/WP_2011-5.pdf).

*Includes some presumed building materials-related manufacturing, but excludes architecture, engineering and related financial and real estate services.

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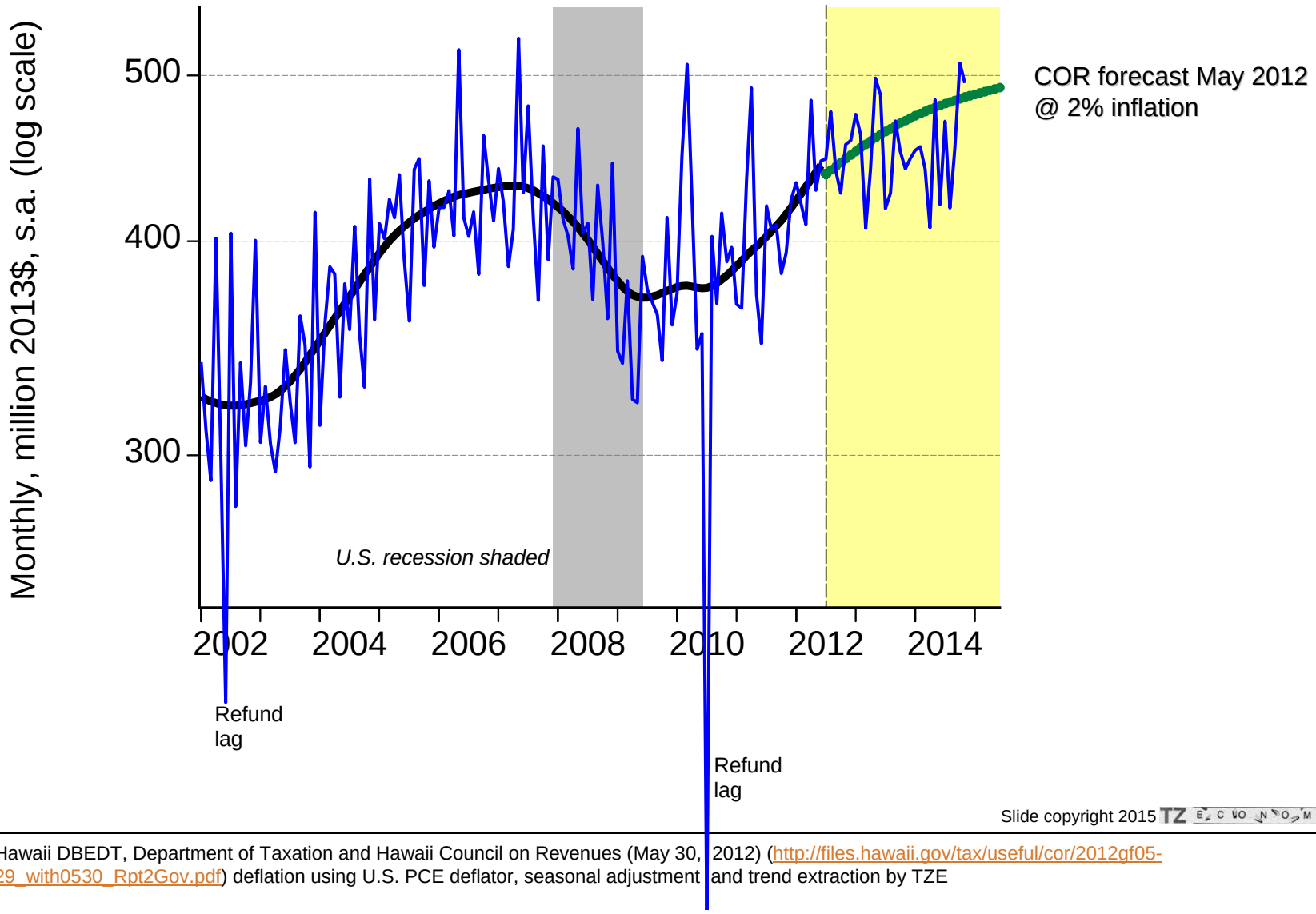
Sources: BEA (http://bea.gov/regional/index.htm), Hawaii DBEDT *State of Hawaii Data Book* Table 7.34 (http://dbedt.hawaii.gov/economic/databook/)

Hawaii real General Fund revenue: Council on Revenues anticipated deceleration, not enough



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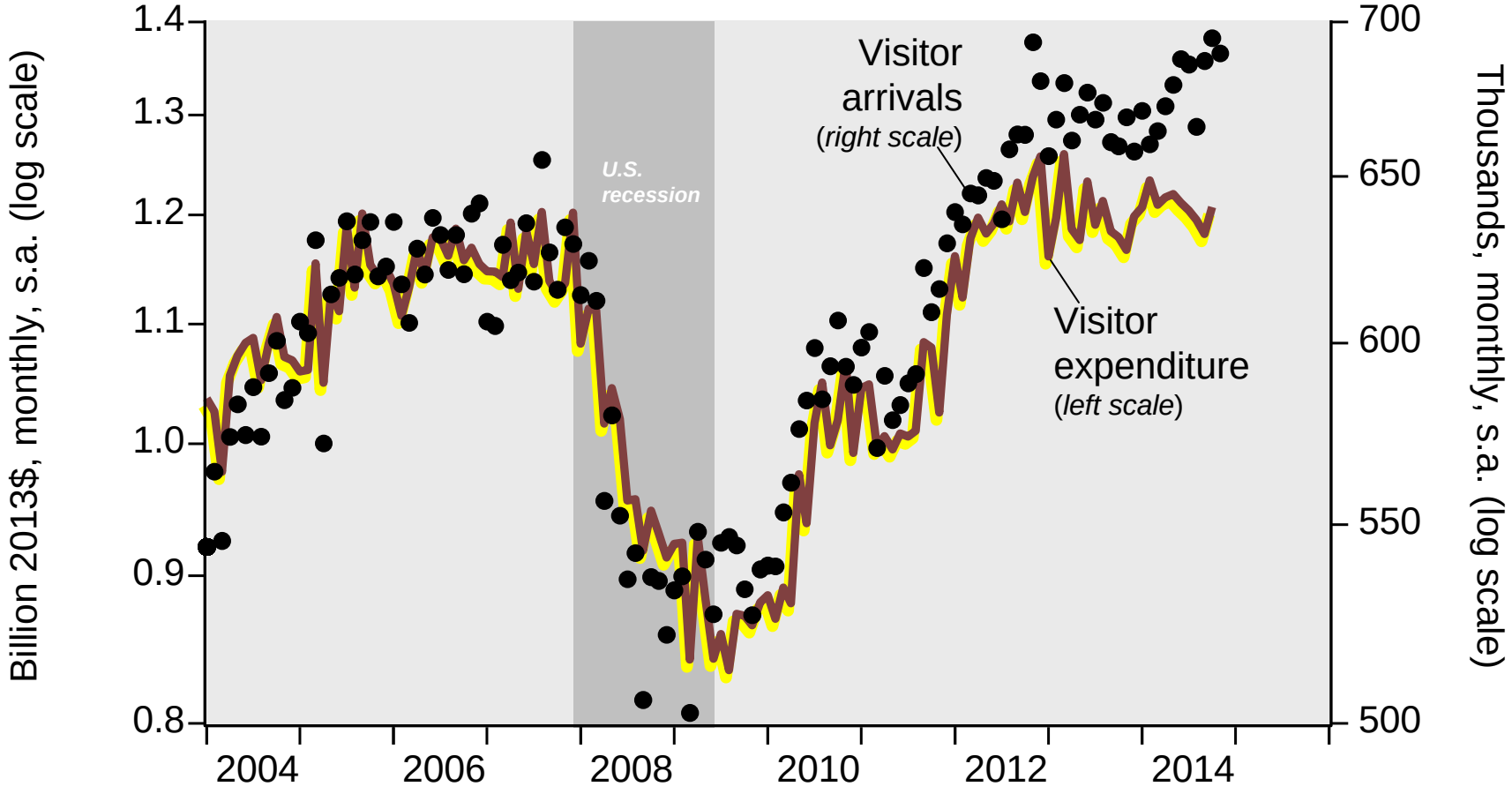
Sources: Hawaii DBEDT, Department of Taxation and Hawaii Council on Revenues (May 30, 2012) (http://files.hawaii.gov/tax/useful/cor/2012gf05-29_with0530_Rpt2Gov.pdf) deflation using U.S. PCE deflator, seasonal adjustment and trend extraction by TZE

Hawaii real visitor expenditure not keeping up with visitor arrivals for several years



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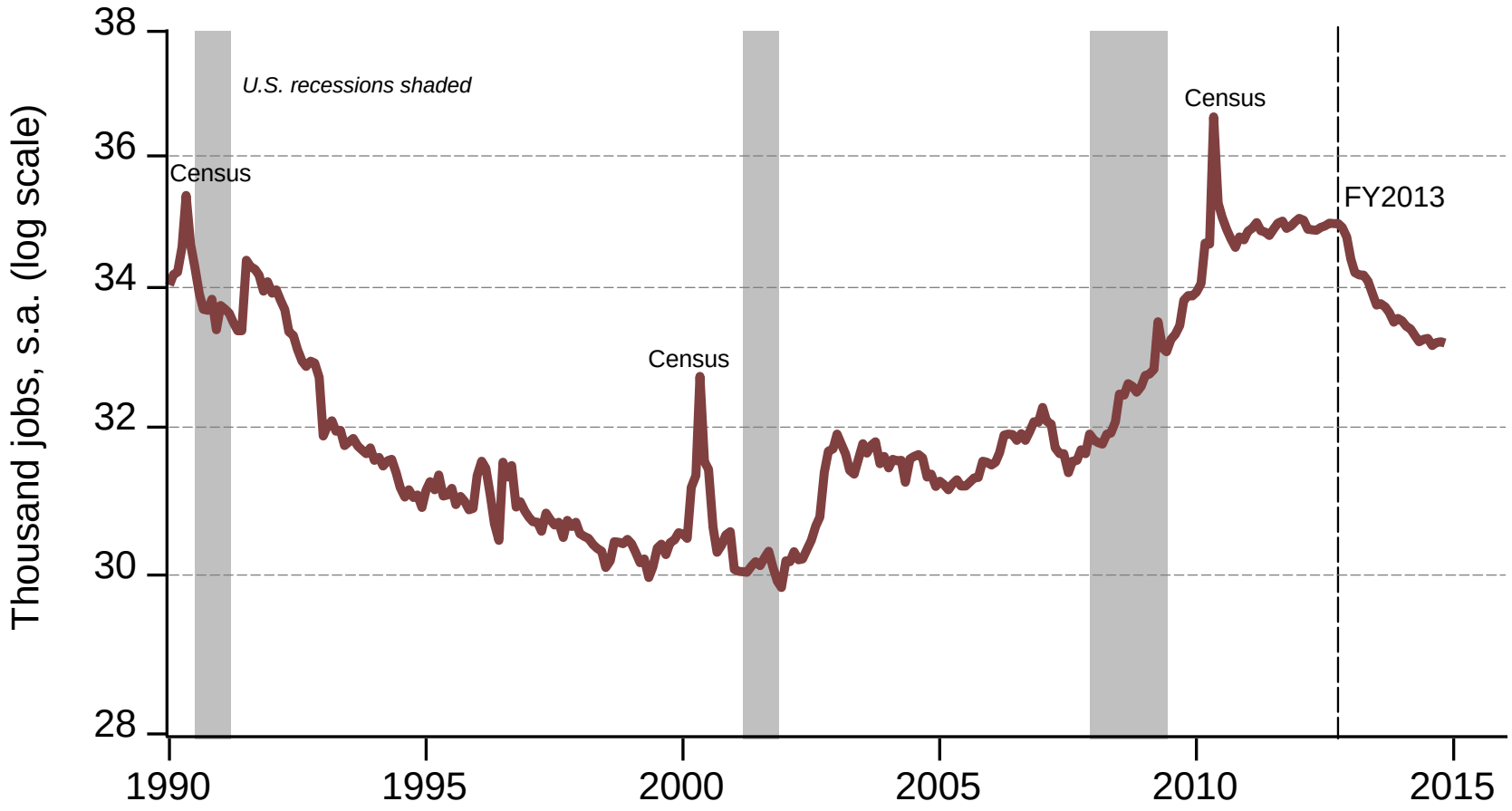
Sources: Hawaii Tourism Authority, Hawaii DBEDT (http://dbedt.hawaii.gov/visitor/tourism/) includes 2013-2014(Apr) revisions and data through November 2014; seasonal adjustment and deflation of visitor expenditure using U.S. personal consumption deflator by TZ Economics

Shrinking federal jobs in Hawaii since 2012: a rerun of 1990s budget-balancing



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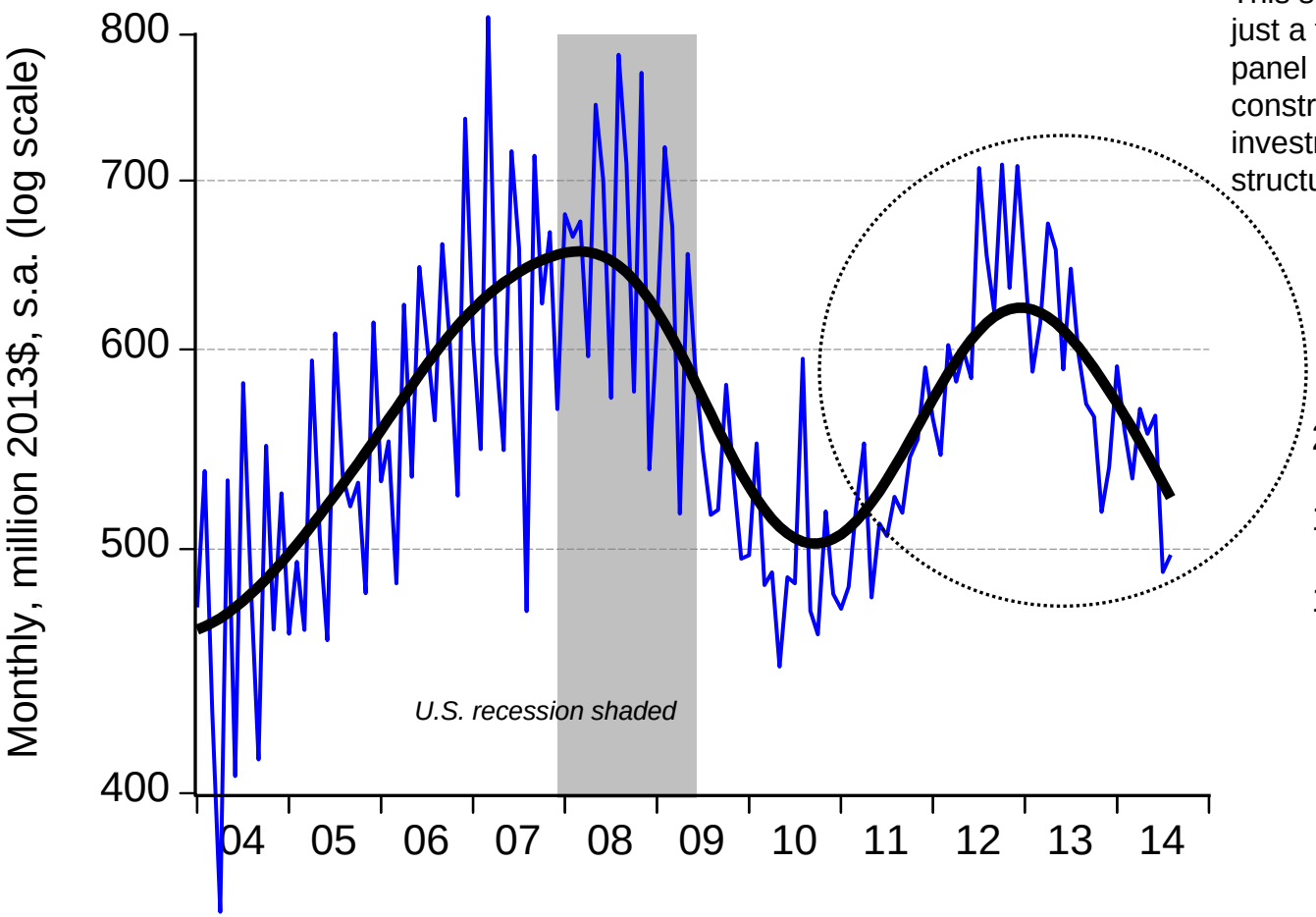
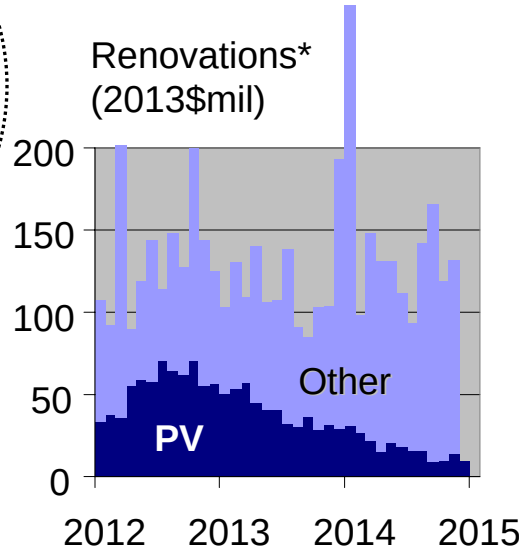
Source: Hawaii DLIR, Hawaii DBEDT; monthly averages through November 2014, seasonal adjustment by TZE (see also http://cbo.gov/publication/45653)

Real contracting receipts statewide: Down is the new Up



This surge (no pun intended) partly was just a transitory impulse of photovoltaic panel installation—that was never really construction anyway, it was *equipment* investment, not capital formation in new structures: PV panels are not buildings.



*Additions and alterations

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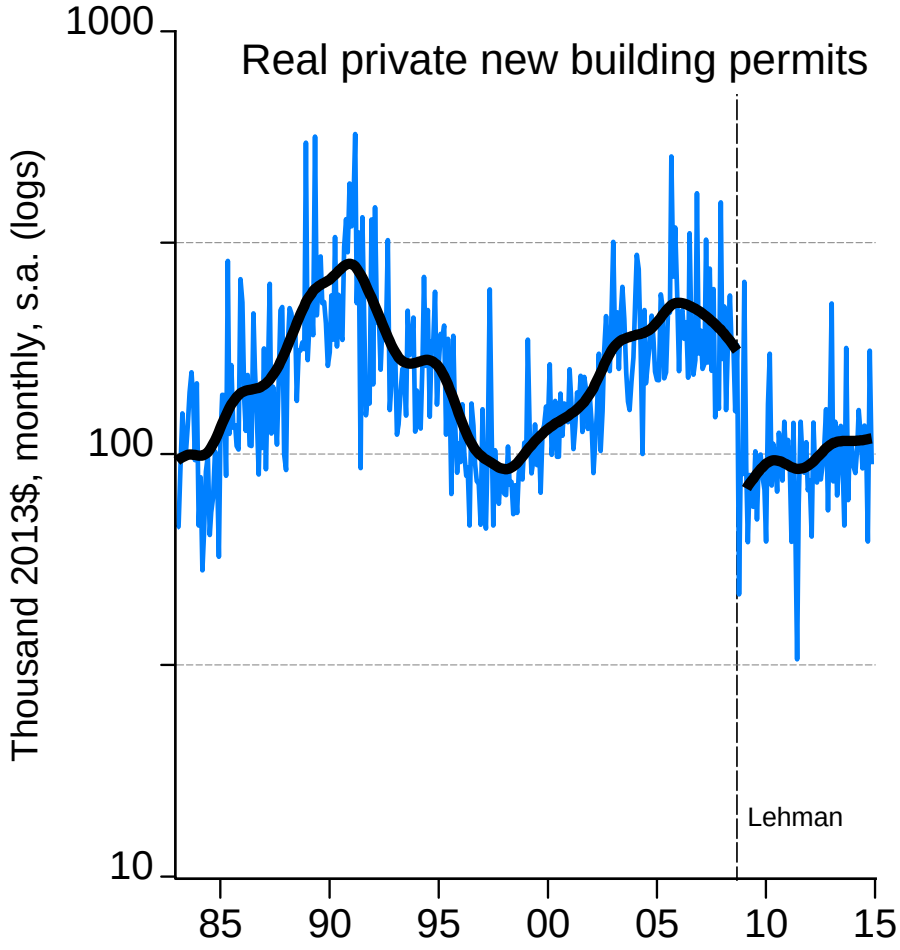
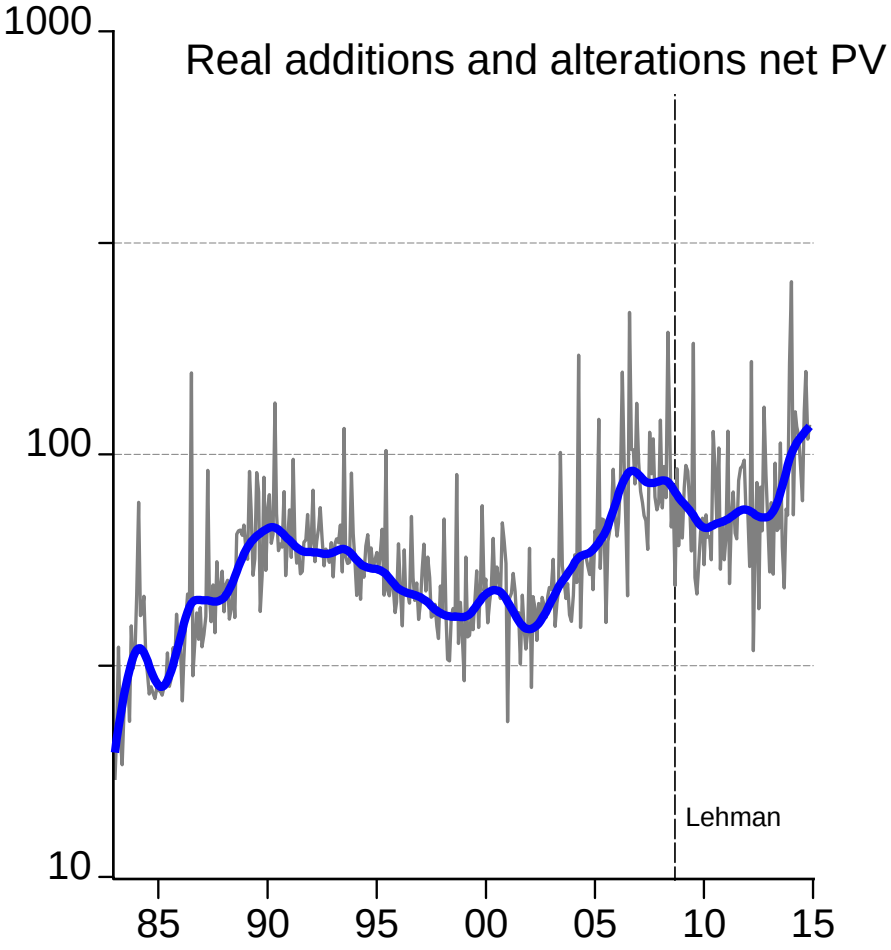
Sources: Hawaii Department of Taxation, Hawaii DBEDT, U.S. Bureau of the Census; seasonal adjustment, deflation using construction cost deflator and trend extraction by TZE, tax base data through August 2014, building permit data (inset) through November 2014 (December 2014 for solar photovoltaic panels)

Hawaii economy on a slower growth path: today, new building same as additions, alterations





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Sources: County building departments, Hawaii DBEDT, U.S. Bureau of the Census; seasonal adjustment, deflation, and trend extraction by TZE

Homebuilding: don't believe everything you hear

- Stop counting cranes: you don't even remember what "a lot" is any more
- So much new homebuilding on Oahu in 2014, *only world war was worse*
- Neighbor Island homebuilding hasn't been this low since the one-third of the twentieth century when Neighbor Island populations declined (1930s-1960s)
- In Hawaii we don't mostly build new buildings, we mostly fix used ones
- Dude, you outlawed anything taller than Walter Dodds built: what up, yo?
- Public construction as percent of GDP lowest in statehood *including* TheTrain

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June 3, 2013

HONOLULU Star Advertiser

THE PULSE of PARADISE

CONDO MANIA!

The nearly 5,000 units planned for the city's urban core are expected to meet pent-up demand — or could even fall short

By Andrew Gomes
agomes@staradvertiser.com

Lanikea. Hokua. Ko'olani. Capitol Place. Keola La'i. Moana Pacific. The Watermark. Allure Waikiki. Pacifica Honolulu. Holomua.

These condominium towers in Honolulu were the product of the last real estate market boom, which prompted developers to build close to 4,000 new units in more than a dozen towers that also included The Pinnacle, 909 Kapiolani and 215 N. King.

number of high-rise homes — almost 5,000, including 1,000 rental units — in Oahu's urban core?

To some observers it's hard to imagine demand meeting such a supply.

But developers, along with a local economist and a real estate market analyst, contend that all the projects planned to date won't produce a glut.

"It's not a question of will there be enough buyers," said economist Paul Brewbaker of Honolulu-based TZ Economics. "The problem is, will there be enough condos?"

1 SYMPHONY HONOLULU
388 UNITS

2 ONE ALA MOANA
210 UNITS

3 1108 AUAHI ST.
300 UNITS

4 1140 ALA MOANA BLVD.
200 UNITS

City kills attempt to reduce habitual 911 calls

Paramedics would have visited the most frequent users of ambulances to get them appropriate care

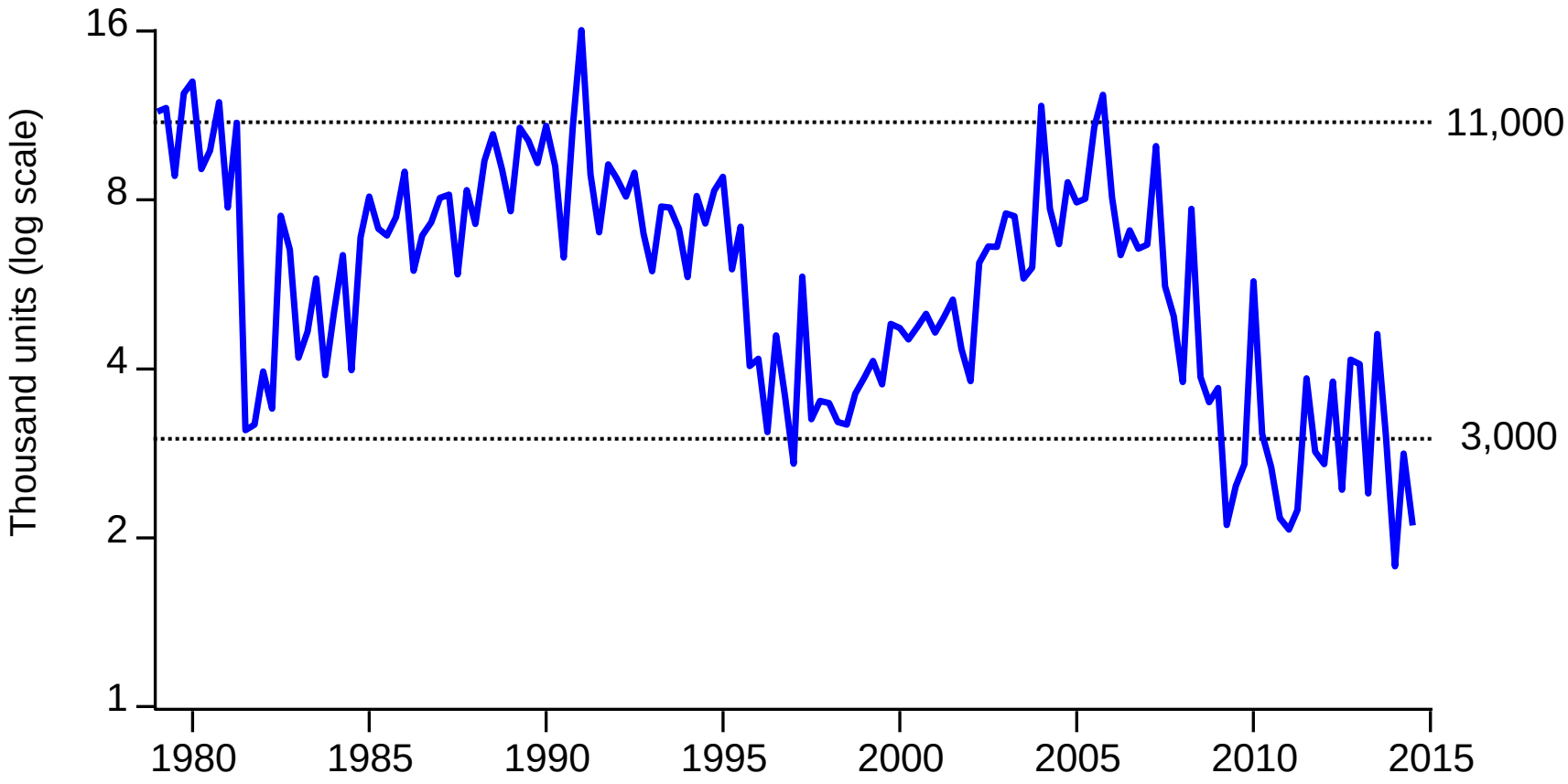
By Susan Essoyan
sessoyan@staradvertiser.com

A "community paramedic" program intended to reduce overuse of ambulances by chronic 911 callers has been dropped by the new city administration, but the state hopes to start a similar effort.

The Honolulu Emergency Services Department, led at the time by Dr. James Ireland, created a community paramedic team in November after research revealed that the top 10 callers to 911 had taken an average of 52 ambulance rides per year. One logged 142 trips in the year before he died.

The plan was for two community paramedics to

Statewide quarterly (annualized) homebuilding



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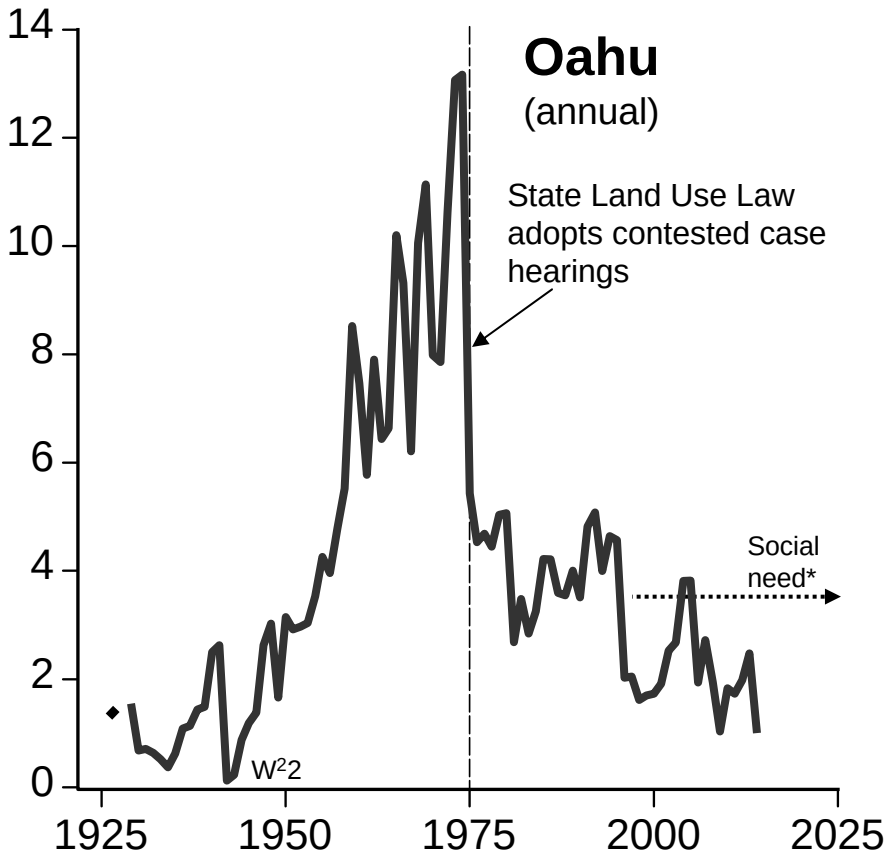
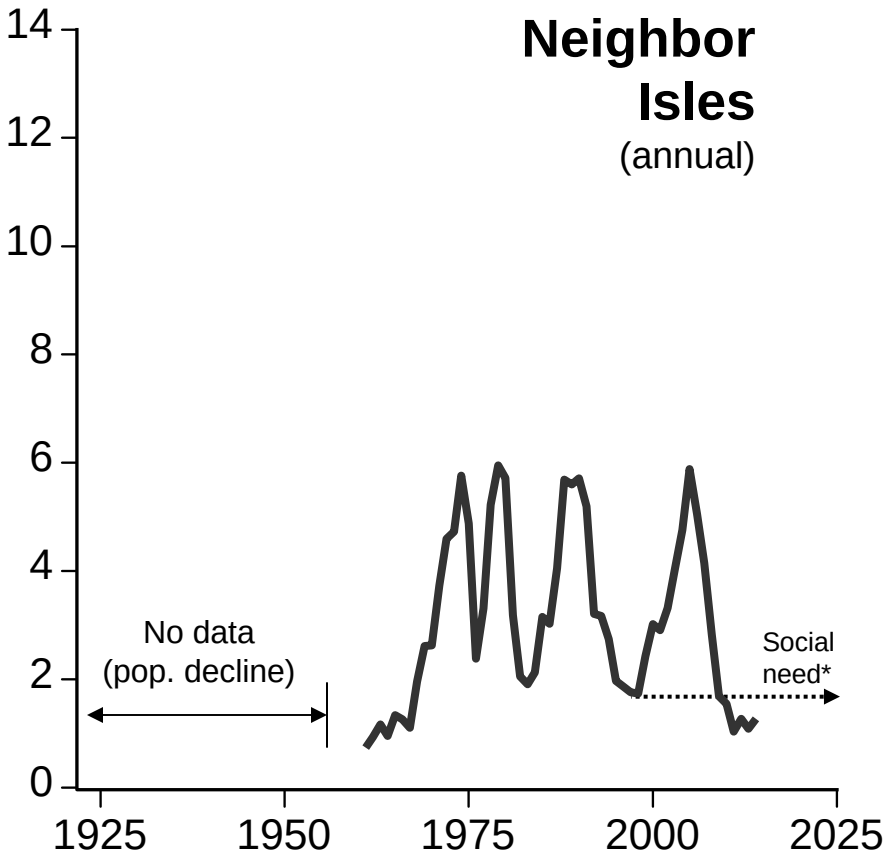
Sources: County building departments, Hawaii DBEDT; data through third quarter 2014, seasonal adjustment by TZE

New homebuilding: so good only world war (Oahu), outmigration (N. Isles) were worse





*Eugene Tian, Hawaii DBEDT, "What are the Economic Drivers for Hawaii in 2014 and Beyond," Realtor Housing Forum (May 2, 2024) calculated annual need to accommodate new household formation at existing density (http://files.hawaii.gov/dbedt/economic/reports/2014-economic-drivers.pdf).

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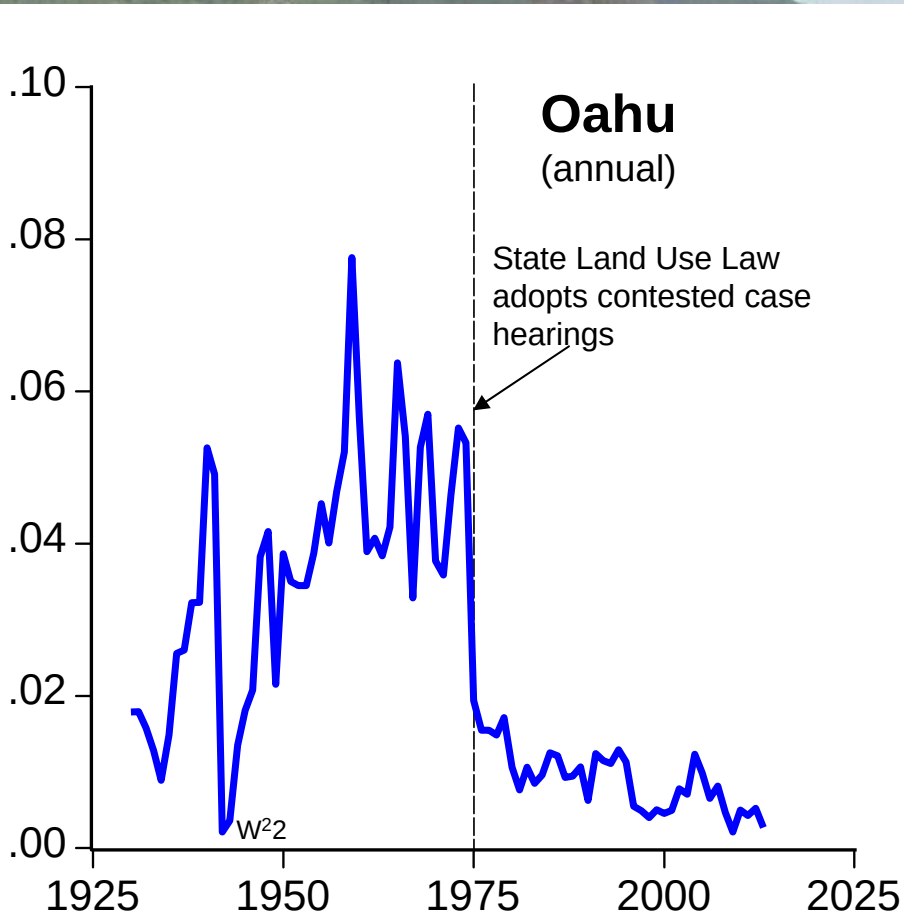
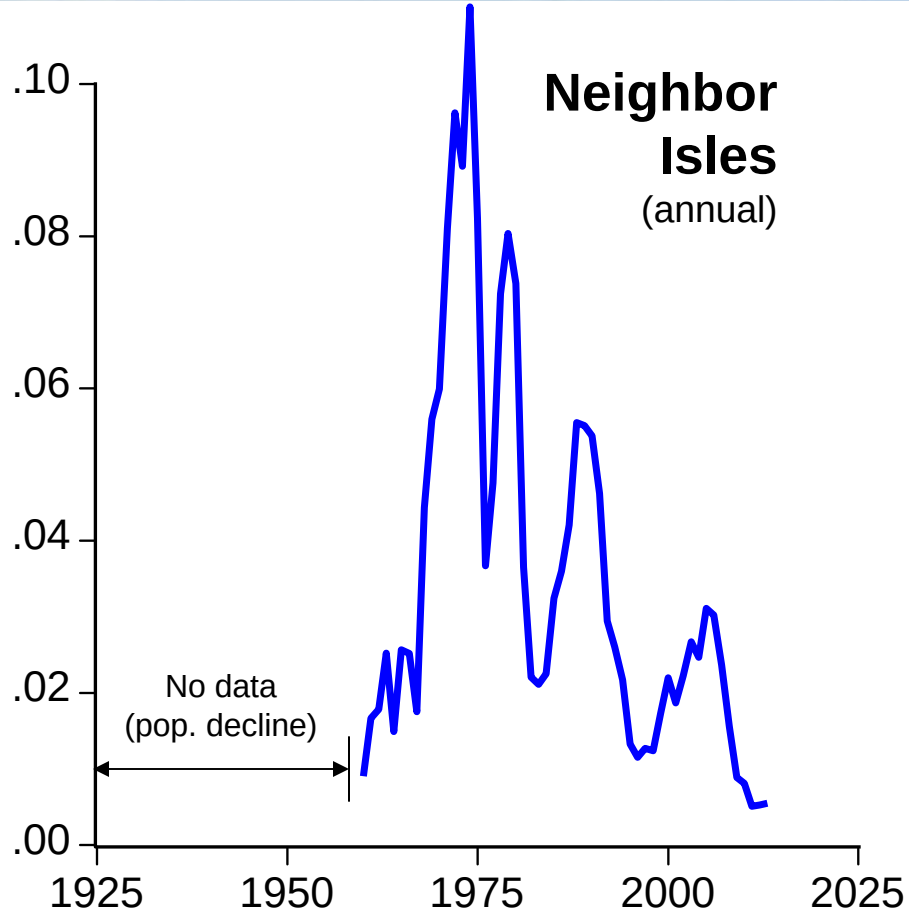
Sources: Robert C. Schmitt (1976) *Historical Statistics of Hawaii* UH Press, county building departments, Hawaii DBEDT (various) *State of Hawaii Data Book* (Section 21), TZE database; flows are permitted new units minus authorized demolitions, but later data (since late-1970s) are gross new units

Net new housing as percent of housing stock at historic lows (capital formation ($\Delta K_t / K_{t-1}$))





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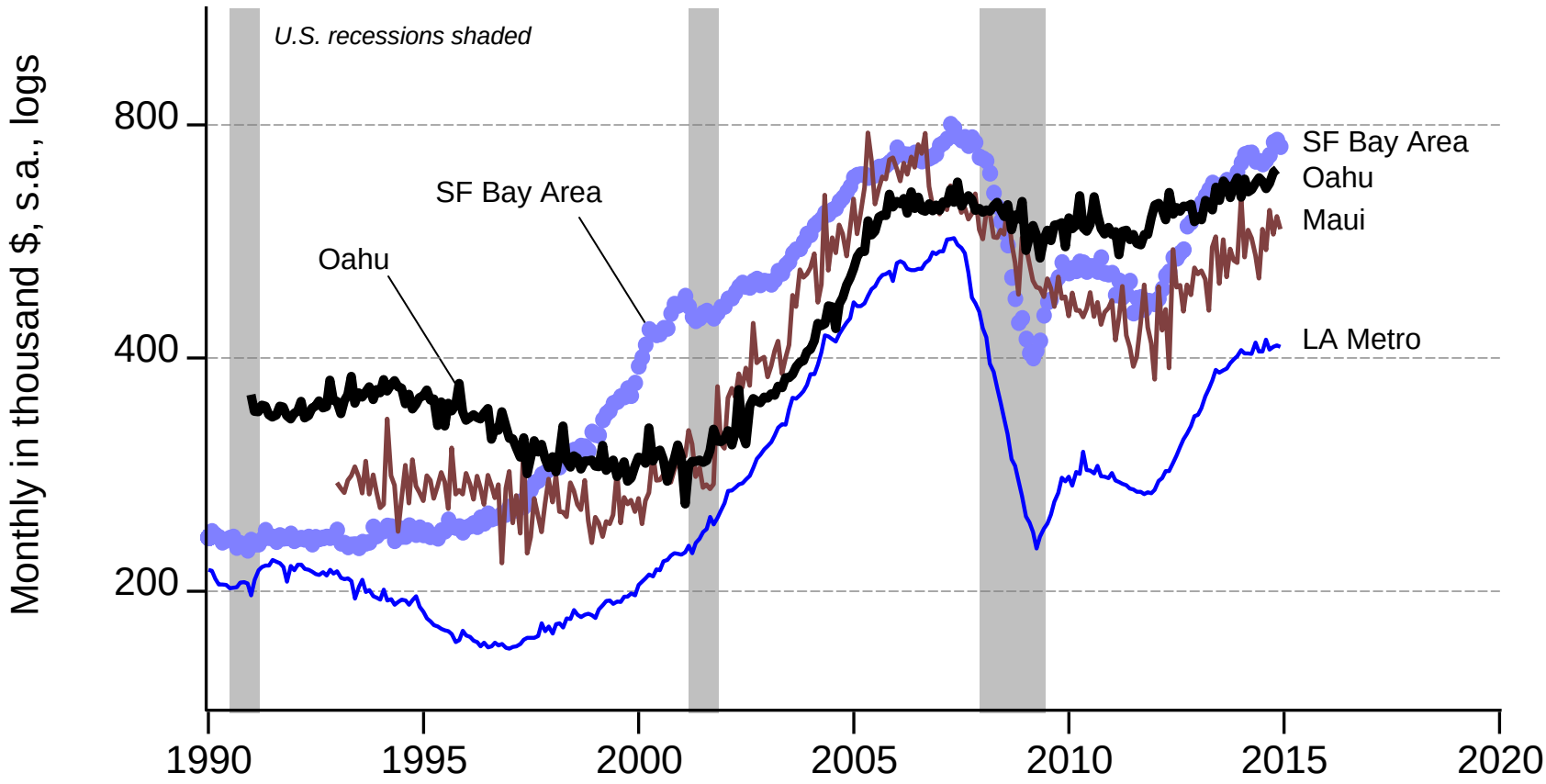
Sources: Robert C. Schmitt (1976) *Historical Statistics of Hawaii* UH Press, county building departments, Hawaii DBEDT (various) *State of Hawaii Data Book* (Section 21), TZE database; flows are permitted new units minus authorized demolitions, stocks are from published census and intercensal estimates

Comparative monthly median single-family existing home prices: not as rapid appreciation now



Note: SF Bay Area includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma
LA Metro includes LA, Orange, Riverside, San Bernardino, and Ventura Counties

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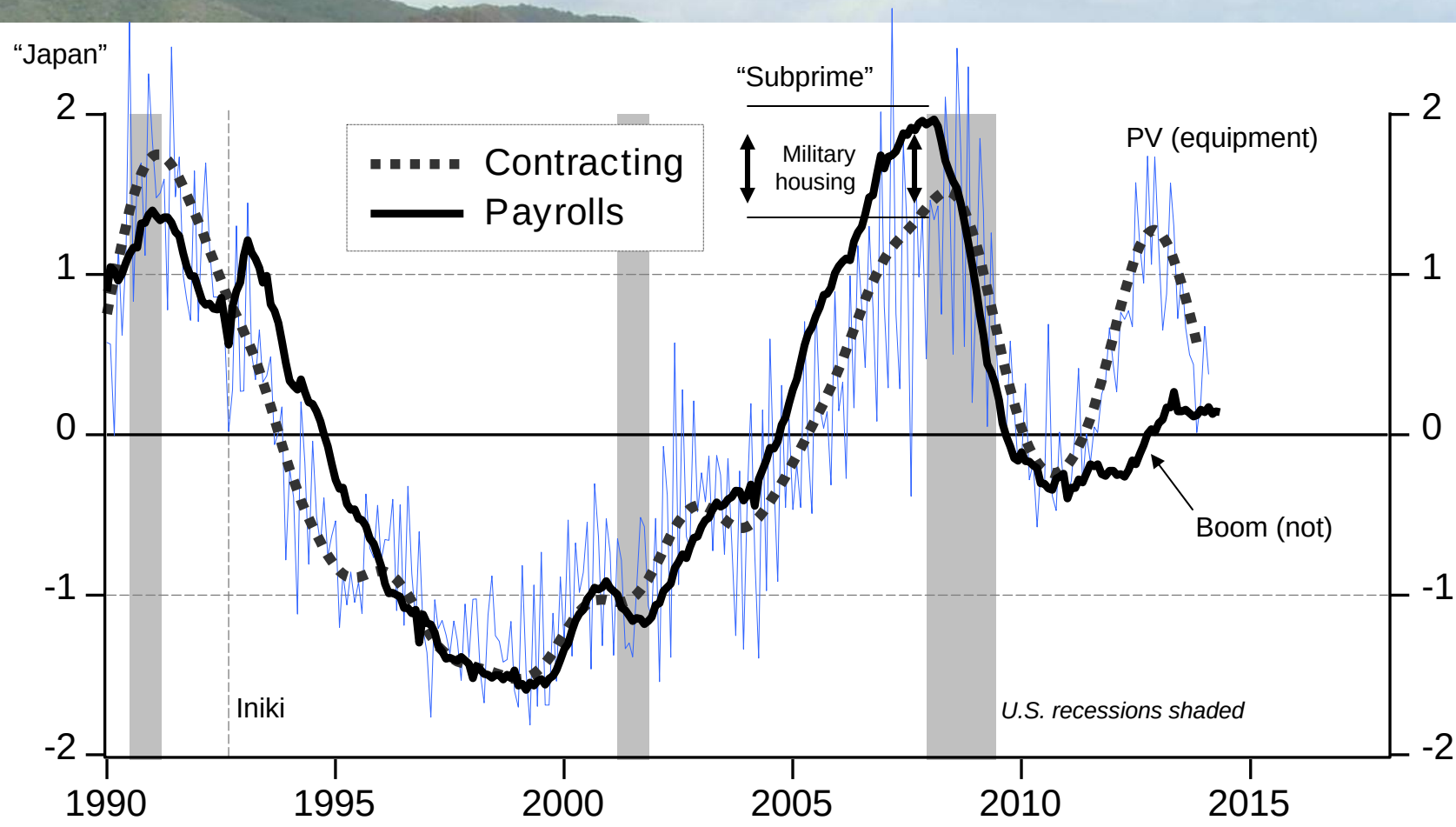
Sources: Honolulu Board of Realtors, California Association of Realtors (http://www.car.org/marketdata/data/housingdata/); seasonal adjustment by TZE, data through December 2014.

Hawaii real construction spending and jobs (normalized): no "real" construction boom (yet)



Scales are standard deviations from the means for each time series in real terms, seasonally-adjusted, January 1990 – latest 2014 (bandwidth is circa ±1.5 s.d.)

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Sources: Hawaii Department of Taxation (contracting receipts), Hawaii DLIR, Hawaii DBEDT (payroll employment), Bureau of the Census (construction cost deflator); seasonal adjustment, deflation, trend/cycle component extraction by TZE

Monetary policy and interest rates

- Waiting for monetary policy normalization and higher interest rates
- Also Waiting For Godot

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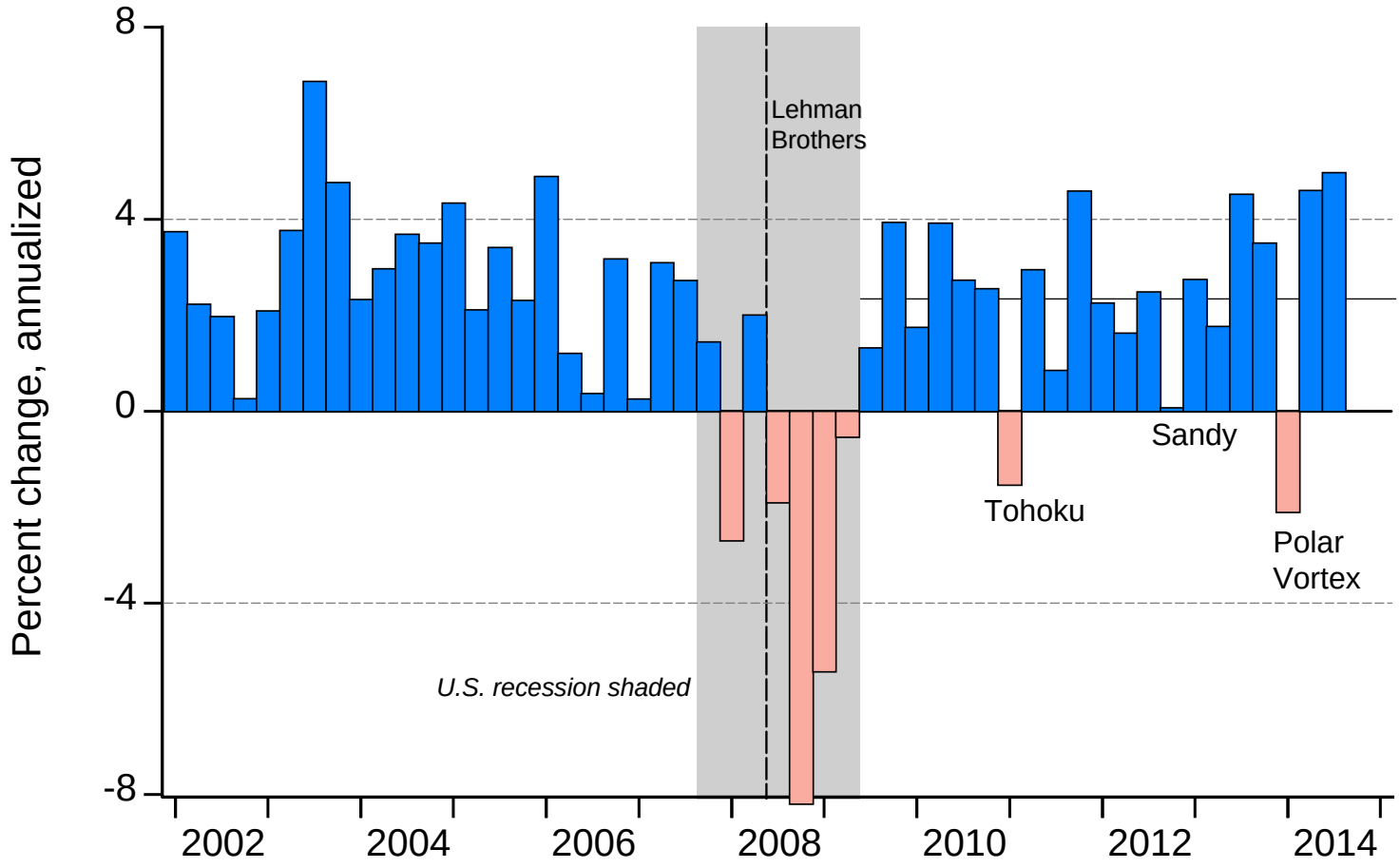
U.S. quarterly real GDP growth: rising



2.34% growth since mid-2009

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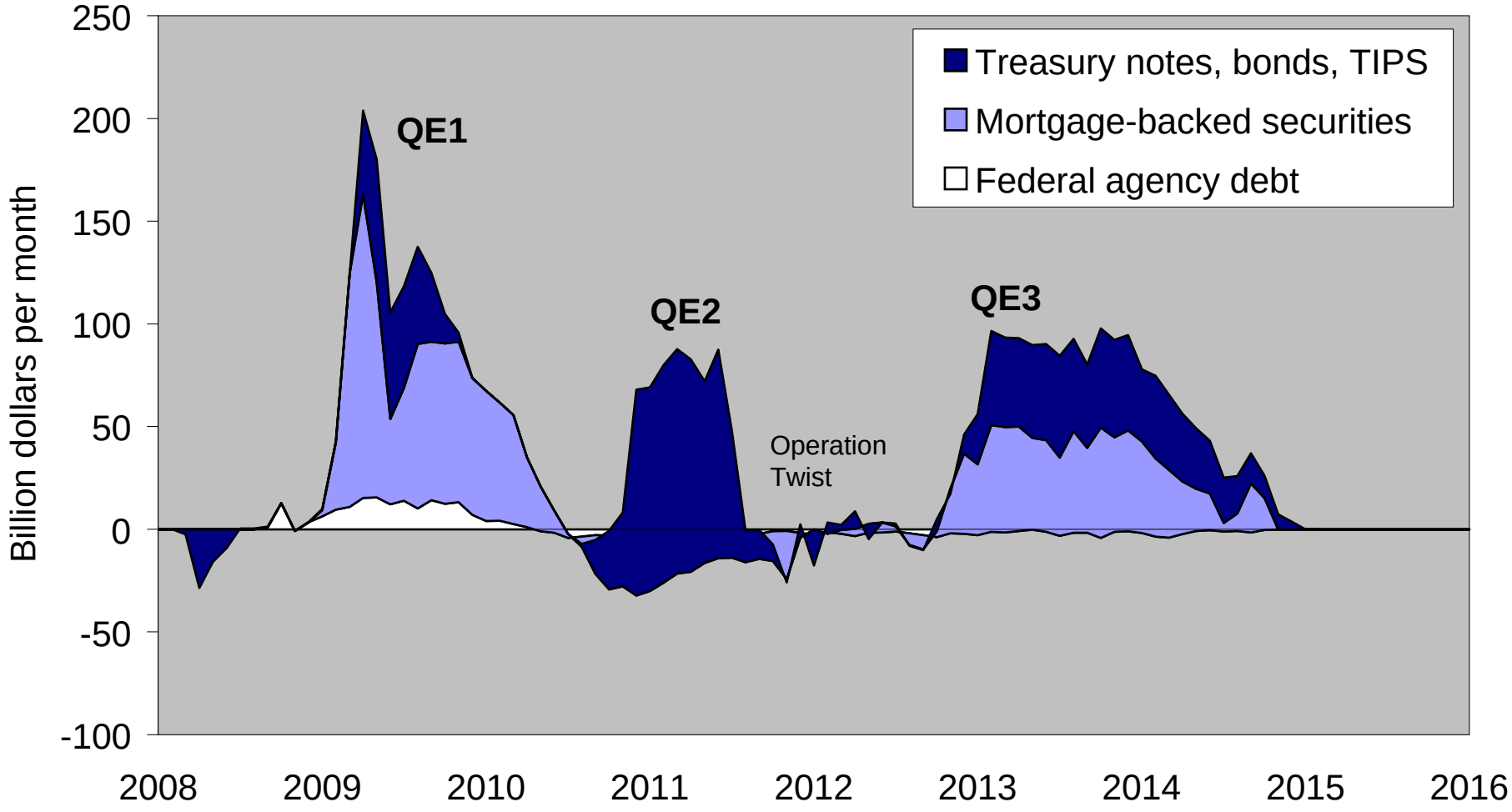
Sources: BEA (http://bea.gov/national/index.htm#gdp) data through 2014Q3 third estimate (December 23, 2014)

Federal Reserve securities holdings, monthly changes: QE is pau



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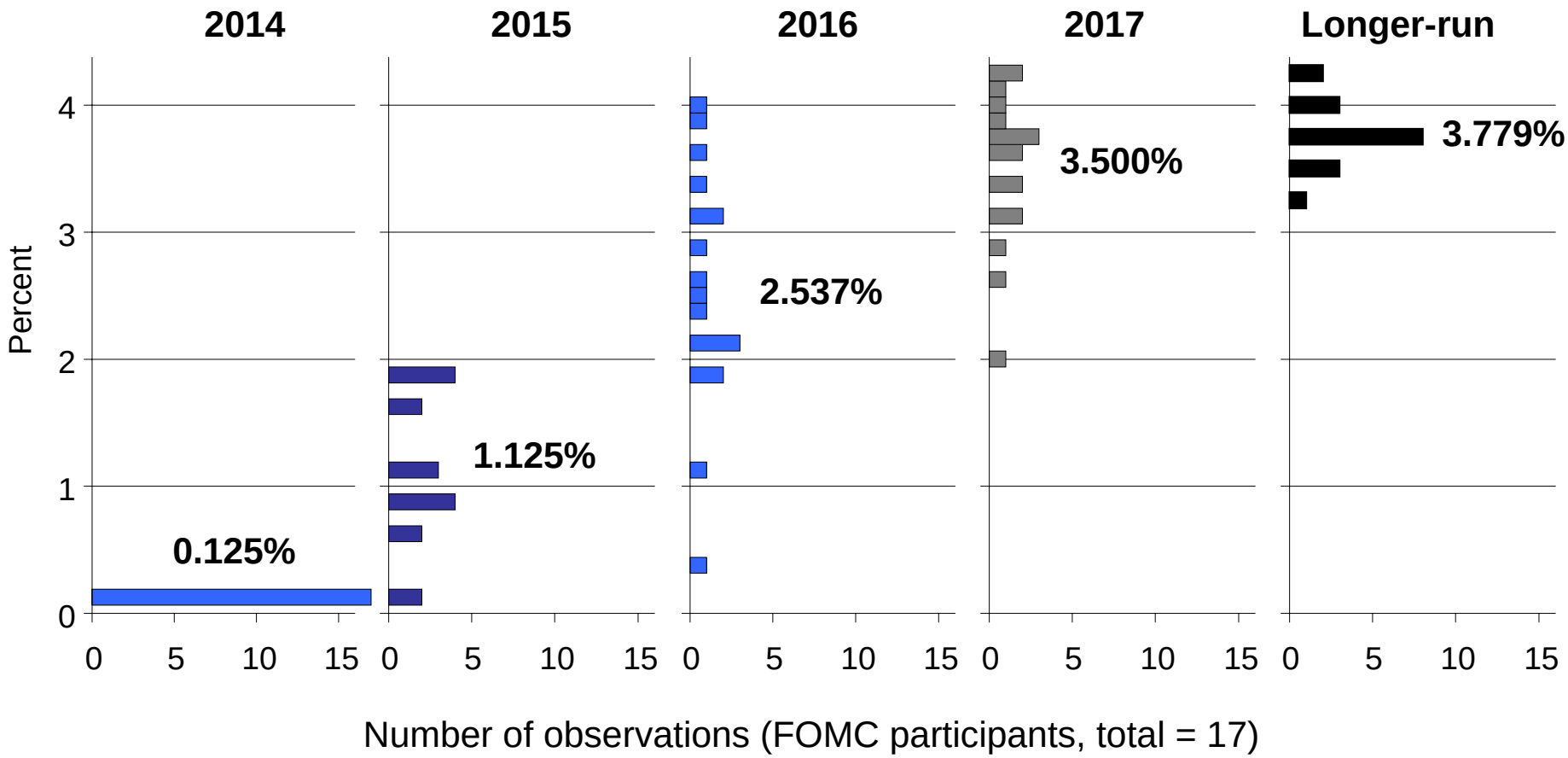
Source: Federal Reserve Board (H.4.1 Factors Affecting Reserve Balances of Depository Institutions); average monthly changes in U.S. Treasury notes and bonds (including TIPS), federal agency debt securities, and mortgage-backed securities (http://www.federalreserve.gov/releases/h41/)

FOMC forecasts for the fed funds target rate and weighted averages: December 17, 2014



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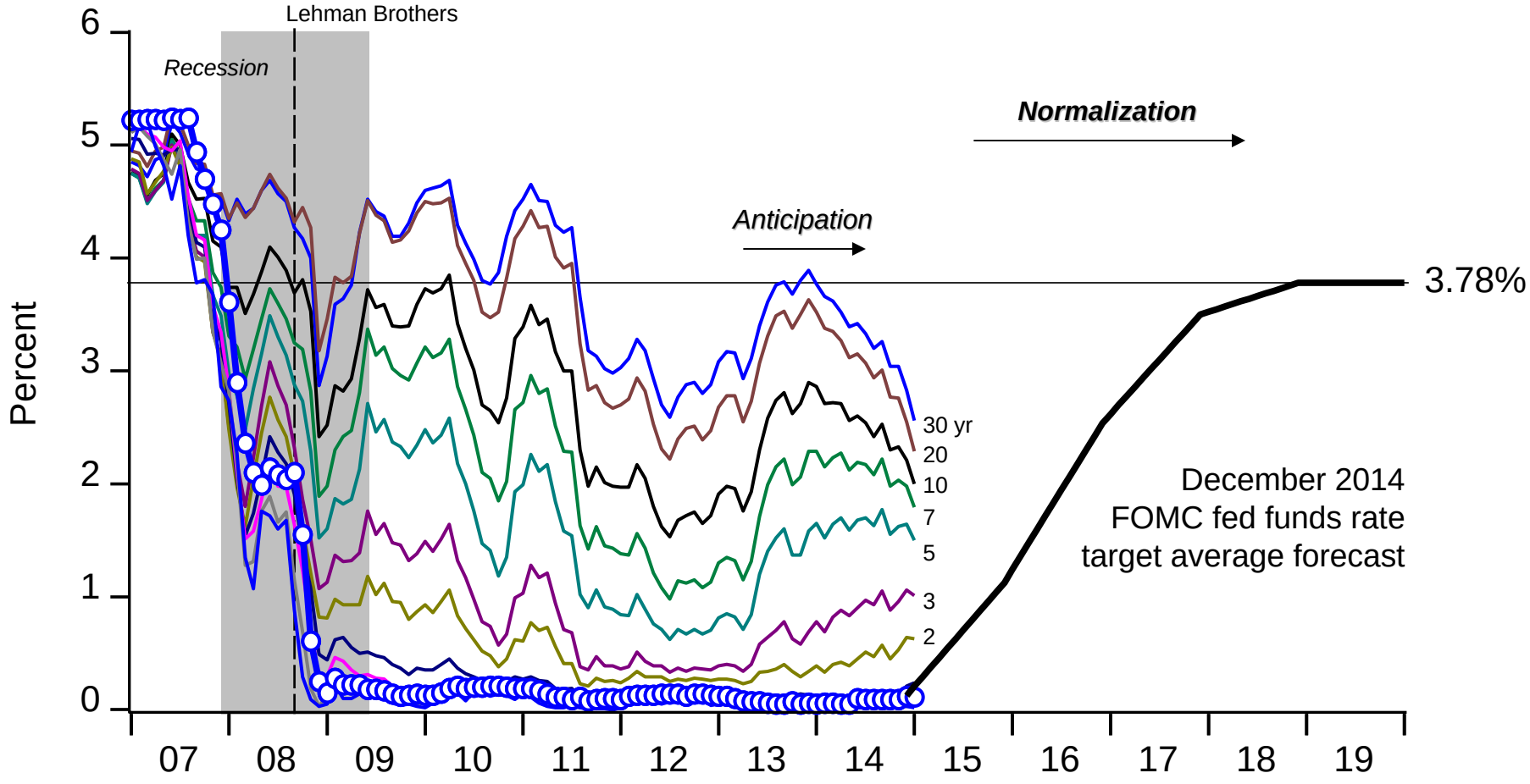
Source: Figure 2. Overview of FOMC participants' assessments of appropriate monetary policy released with December 17, 2014 projections (http://federalreserve.gov/monetarypolicy/files/fomcprojtabl20141217.pdf); interest rate intervals are in 1/8ths

U.S. Treasury yields and interest rate normalization



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Source: Federal Reserve Board (H.15) and December 17, 2014 projections (http://federalreserve.gov/monetarypolicy/files/fomcprojtabl20141217.pdf)

The yin and the yang

- Falling oil prices could add 1-2 percentage points of real Hawaii GDP in 2015*
- Honolulu CPI-U may experience deflation (as in late-1990s, oil (Asian Crisis))
- Transitory oil tailwind now complements investment-led Hawaii growth forecasts
- We're forecasting a construction upswing, again, like we do every year
- Such forecasts erred up to 10 percentage points (wrong direction), last few years
- Economic drag from Hawaii state energy policies (higher cost) will persist
- Hawaii export growth (tourism, military spending) is impaired by
  1. lodging capacity constraints
  2. U.S. dollar appreciation
  3. federal fiscal balancing

* Partly through higher real wages. Estimates are based on a computable general equilibrium model simulations of oil price *increases* (but not a dynamic stochastic general equilibrium model of oil price decreases). See Makena Coffman (2008), "Oil Price Shocks and Hawaii's Economy: An Analysis of the Oil-Price Macroeconomy Relationship," *Annals of Regional Science,* and Makena Coffman, Terrence Surles, and Denise Konan, *Analysis of the Impact of Petroleum Prices on the State of Hawaii's Economy* prepared for DBEDT (August 2007) (https://www.eere-pmc.energy.gov/states/Hawaii_Docs/Petroleum_Price_Impact_Assessment.pdf).

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Mahalo!

Slides available from:

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TZ ECONOMICS

Appendix 1: Honolulu Phillips Curve

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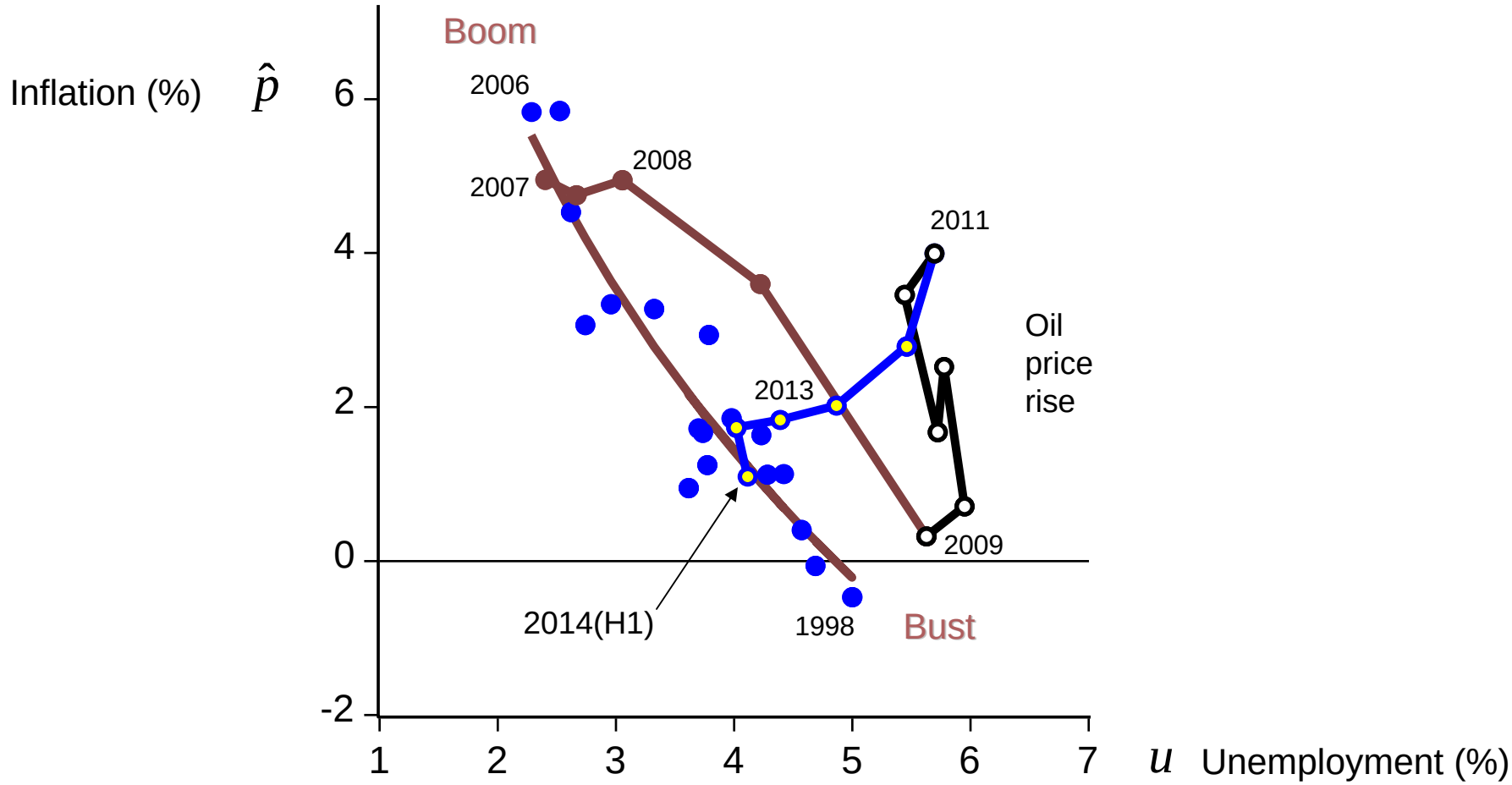
Honolulu data for inflation and unemployment



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Source: Bureau of Labor Statistics (http://data.bls.gov/cgi-bin/surveymost?r9), Hawaii DBEDT (http://dbedt.hawaii.gov/economic/mei/); seasonal adjustment of Honolulu data and Phillips Curve regression by TZE (see http://www.slideshare.net/civilbeat/info-testimony-wamfin121813econ)

Appendix 2: representative construction forecast

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Recent UHERO Hawaii construction forecasts: reality slow to fulfill consensus expectation

Real contracting receipts (%)	2012	2013	2014	2015	2016	2017
Q4 2012	11.5	6.8	11.5	12.0		
Q4 2013*	15.3	8.2	13.3	23.6		
Q1 2014	16.9	6.6	8.5	26.0	13.0	2.3
Q2 2014	16.9	-0.4	2.2	21.7	14.5	5.9
Q3 2014	16.9	-0.4	-1.4	17.4	12.3	5.6
Q4 2014	16.9	-0.4	-2.3	15.0	10.7	5.8

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Source: University of Hawaii Economic Research Organization (http://uhero.hawaii.edu/)—note that these views have been widely shared, but only UHERO publishes numerical construction forecasts

Appendix 3: oil prices and electricity costs

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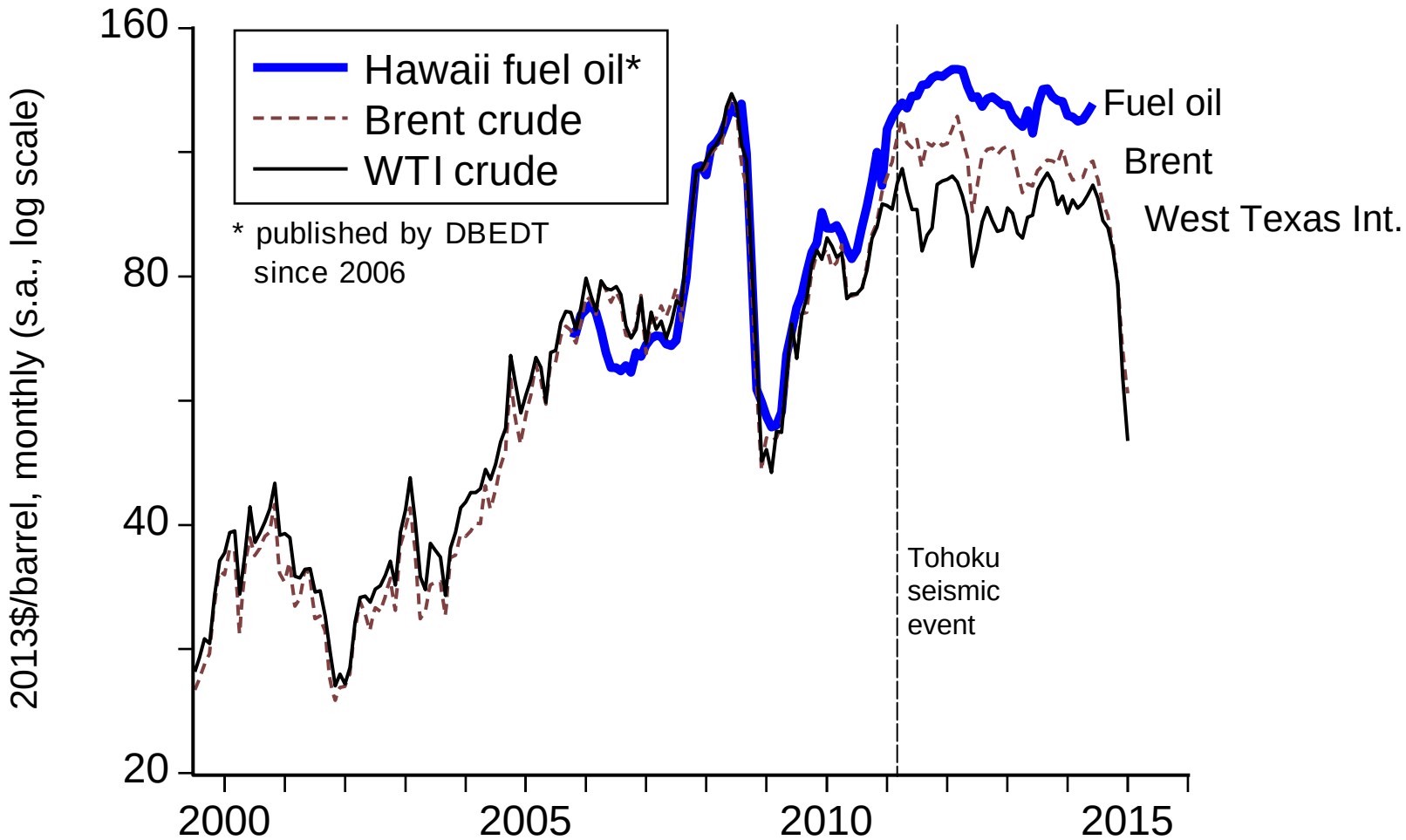
Real petroleum and Hawaii fuel oil prices



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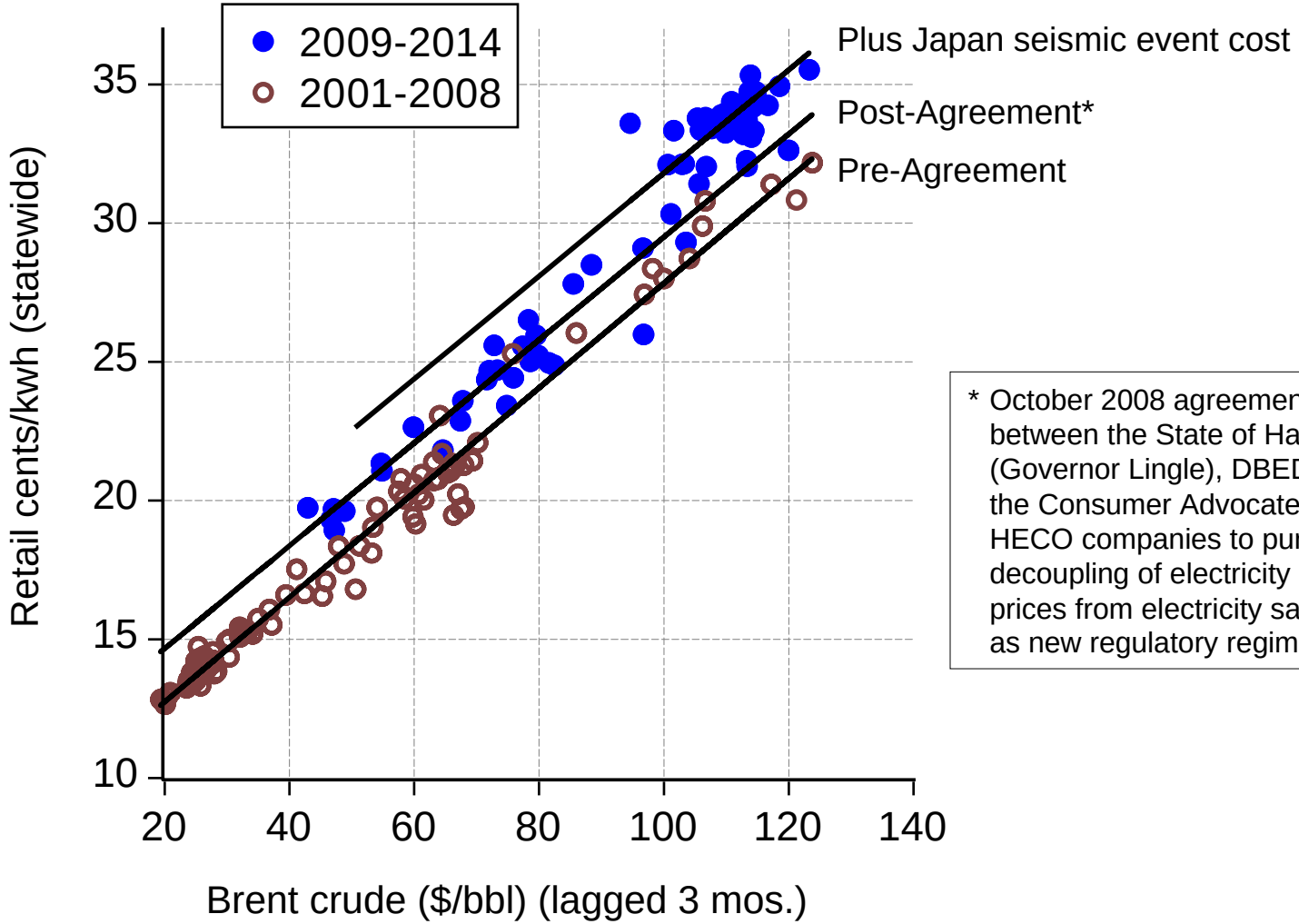
Source: Hawaii DBEDT (http://files.hawaii.gov/dbedt/economic/data_reports/energy-trends/Monthly_Energy_Data.xlsx), Federal Reserve Bank of St. Louis (http://research.stlouisfed.org/fred2/series/DCOILBRENTEU and http://research.stlouisfed.org/fred2/series/DCOILWTICO)

Decoupling also raised Hawaii electricity prices



* October 2008 agreement between the State of Hawaii (Governor Lingle), DBEDT, the Consumer Advocate, and HECO companies to pursue decoupling of electricity prices from electricity sales as new regulatory regime

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Sources: Monthly through September 2014, Hawaii DBEDT and U.S. Energy Information Administration; two regressions break after October 2008, plus a seismic dummy, estimated by TZE (increase in fixed cost is c. 2 cents/kwh times 9.5 billion kwh, or $190 million/year)