Maui's housing market as expansion fades

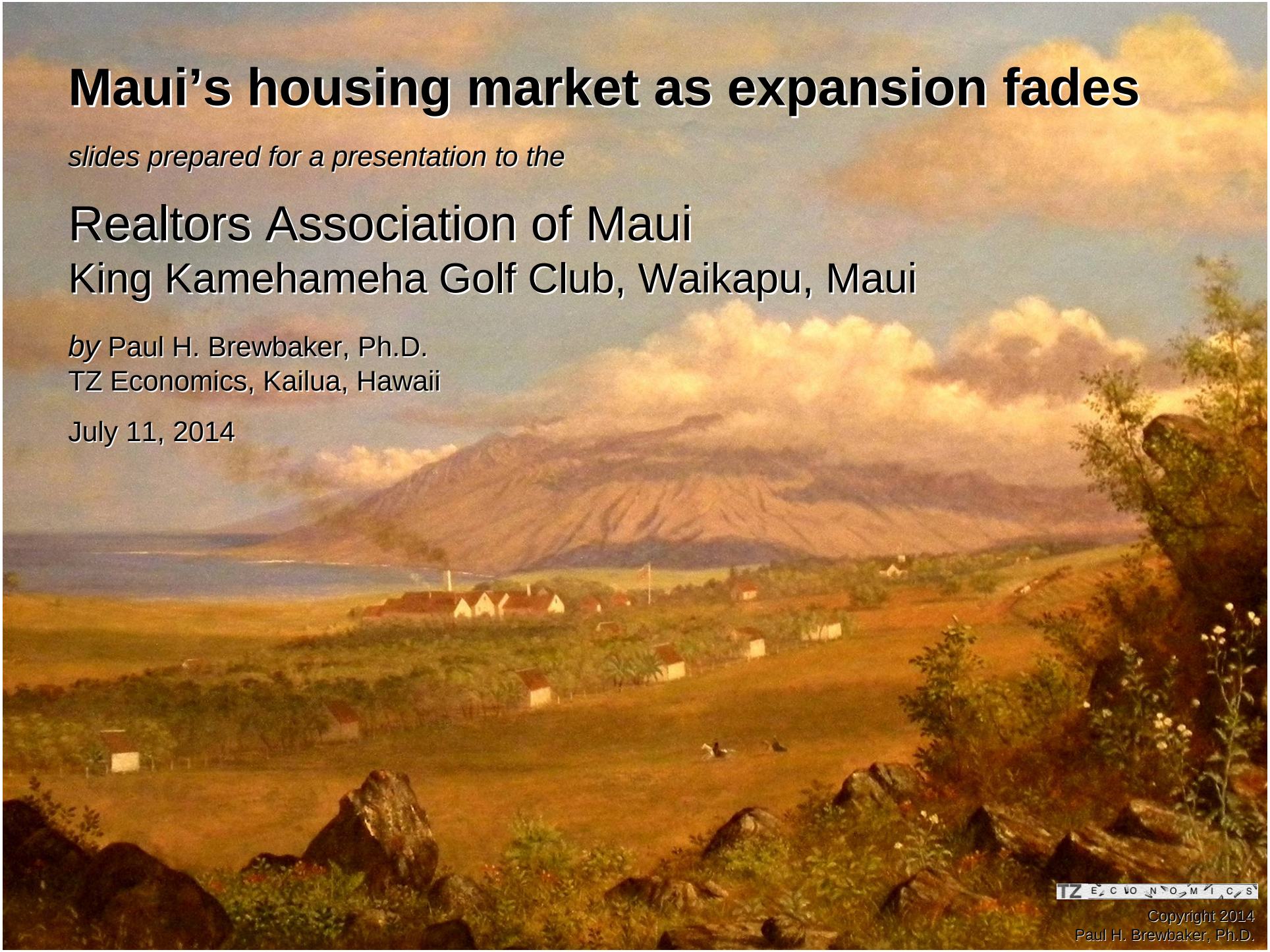
slides prepared for a presentation to the

Realtors Association of Maui

King Kamehameha Golf Club, Waikapu, Maui

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

July 11, 2014



Title slide image

Enoch Wood Perry

Rose Ranch, ‘Ulupalakua, on the Slopes of Haleakala, Maui (1865)

Honolulu Museum of Art
Gift of Mrs. Frank A. Hecht in memory of Selden

Macroeconomic picture for Maui less robust while pace of U.S. expansion seems steady

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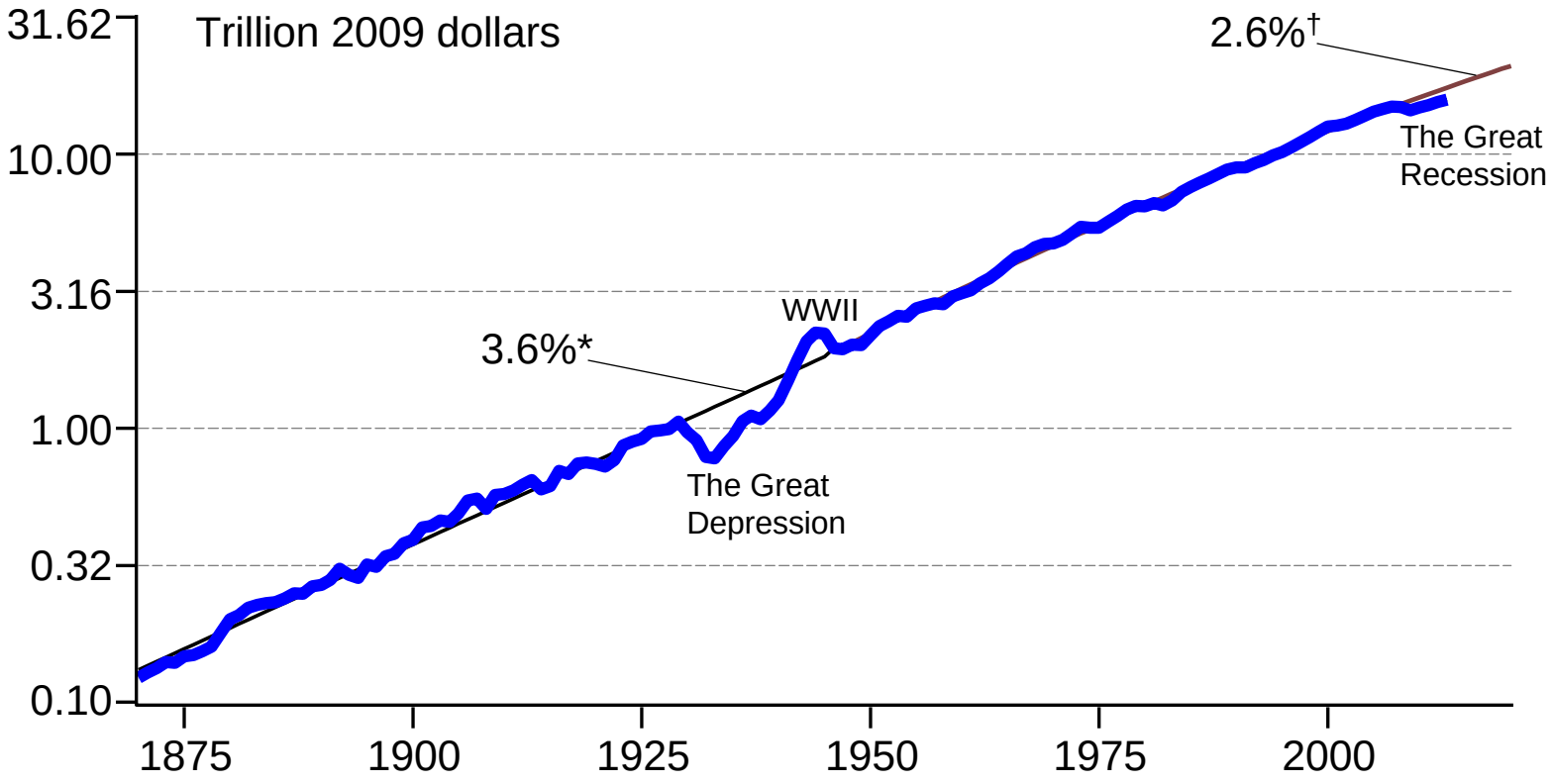
U.S. real GDP, 1870-2013: economic growth decelerating as population growth slows (to 1%)

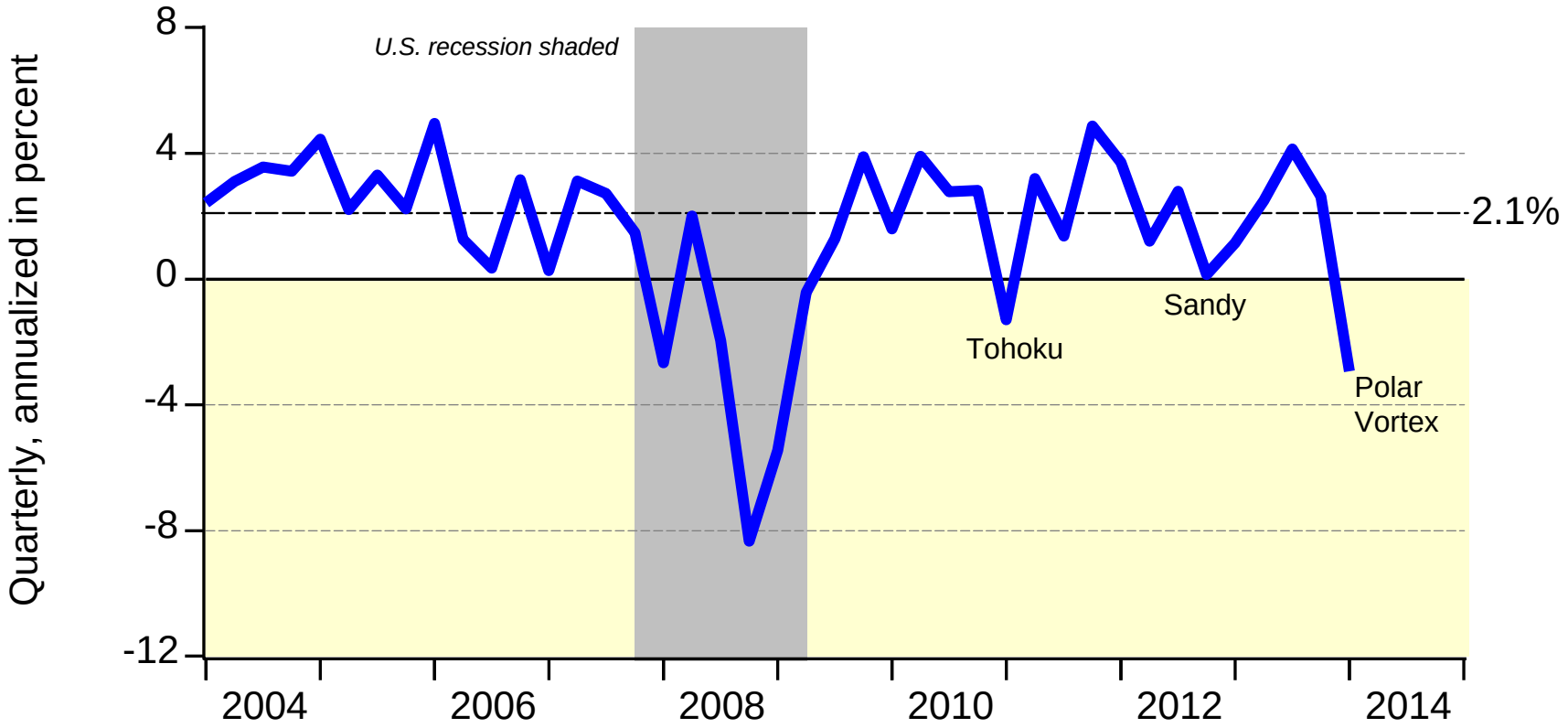


*Regression on log trend (i.e. real output is log-linear) 1970-1945

†Regression on natural log on second order polynomial trend 1946-2007; growth rate is five-year projection 2015-2020

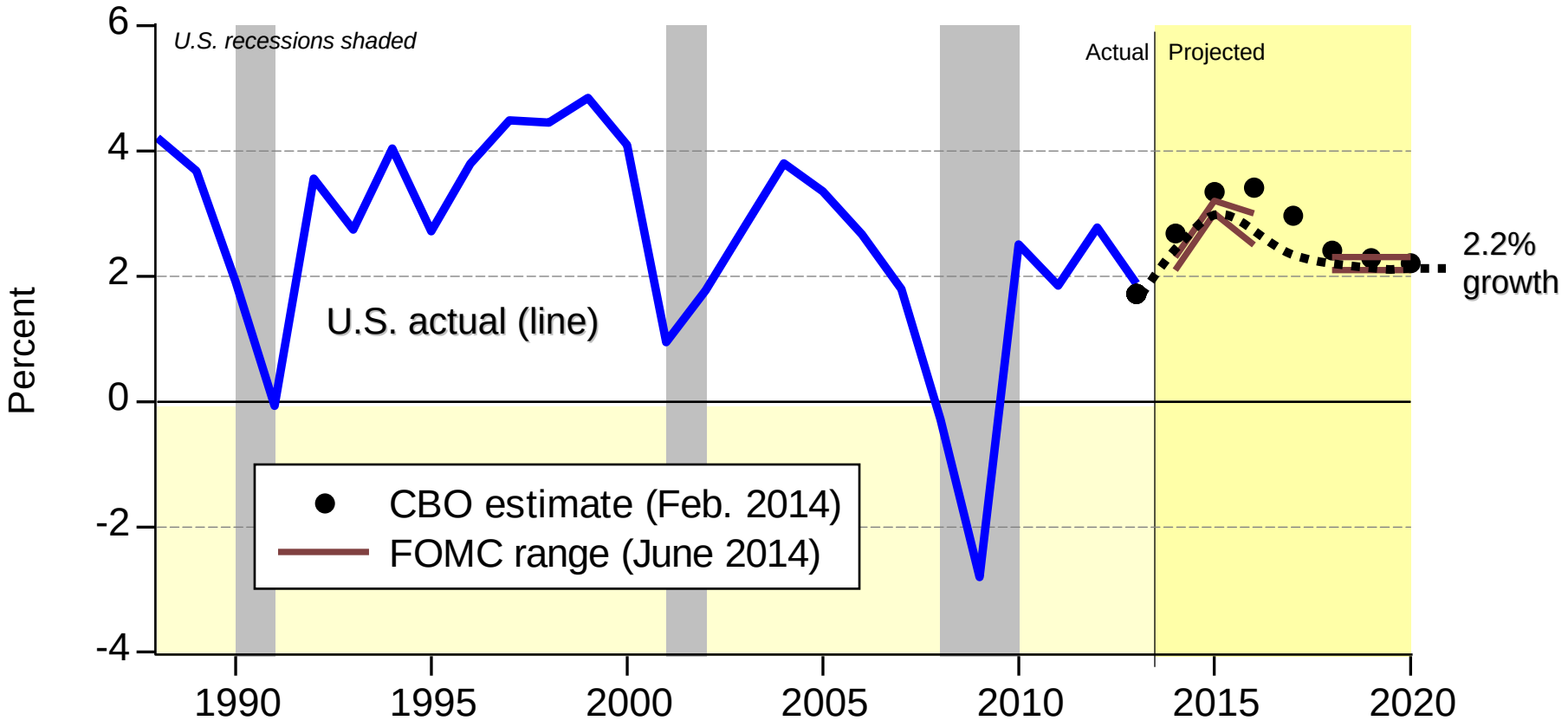
Sources: Real GDP data 1970-1929 from Angus Maddison (http://www.ggdc.net/maddison/maddison-project/home.htm) and data 1929-2013 are from the BEA (http://bea.gov/national/index.htm#gdp); deflation alignment and interval growth rates calculated by TZE

Real U.S. GDP growth through first quarter 2014R



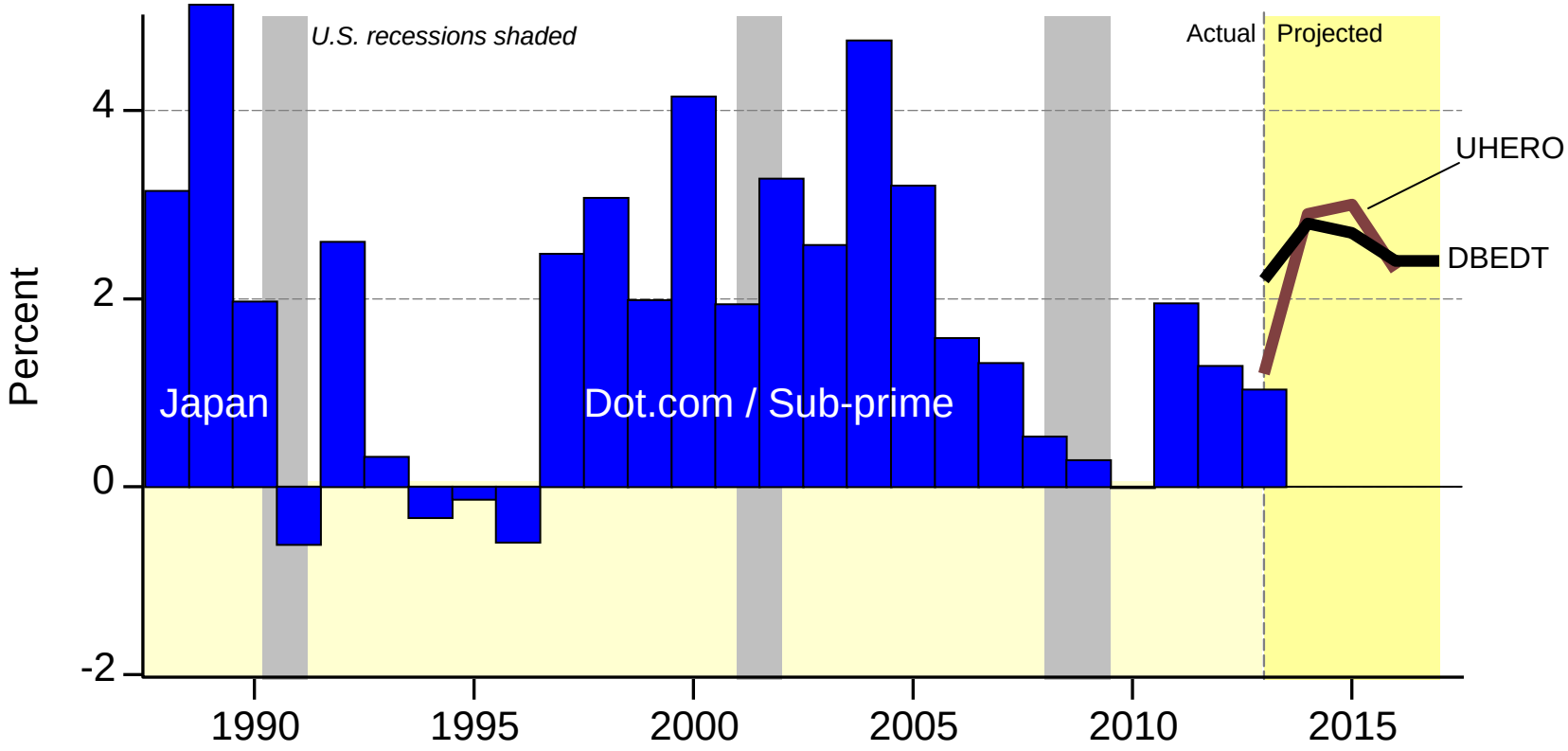
Sources: Bureau of Economic Analysis (http://www.bea.gov/national/xls/gdplev.xls)

Annual real GDP growth rates, selected forecasts



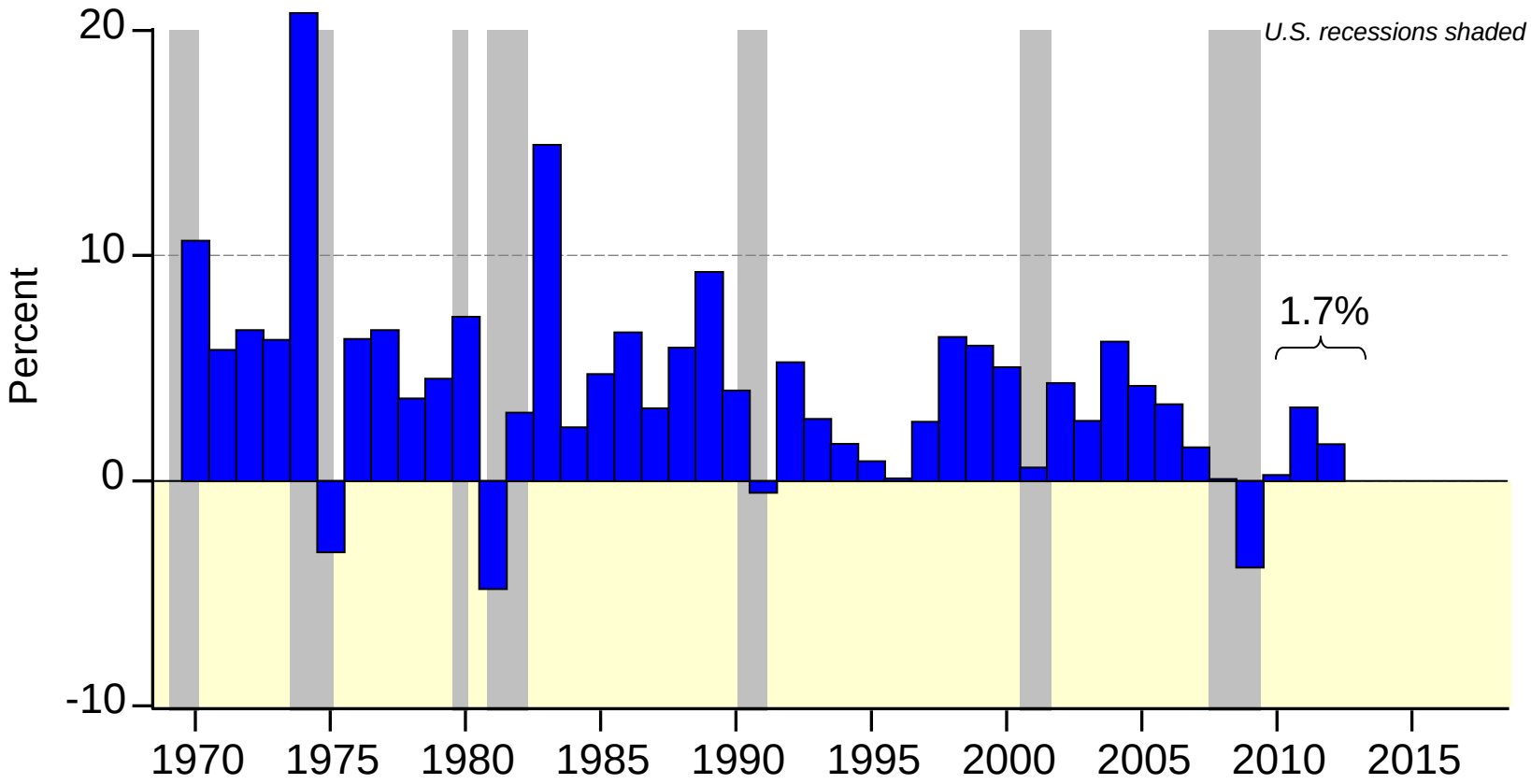
Sources: BEA, CBO (http://cbo.gov/publication/45010); FOMC (June 18, 2014) (http://federalreserve.gov/monetarypolicy/fomcprojtabl20140618.htm)

Hawaii real personal income growth rates: projections based on expectation of investment-led reacceleration



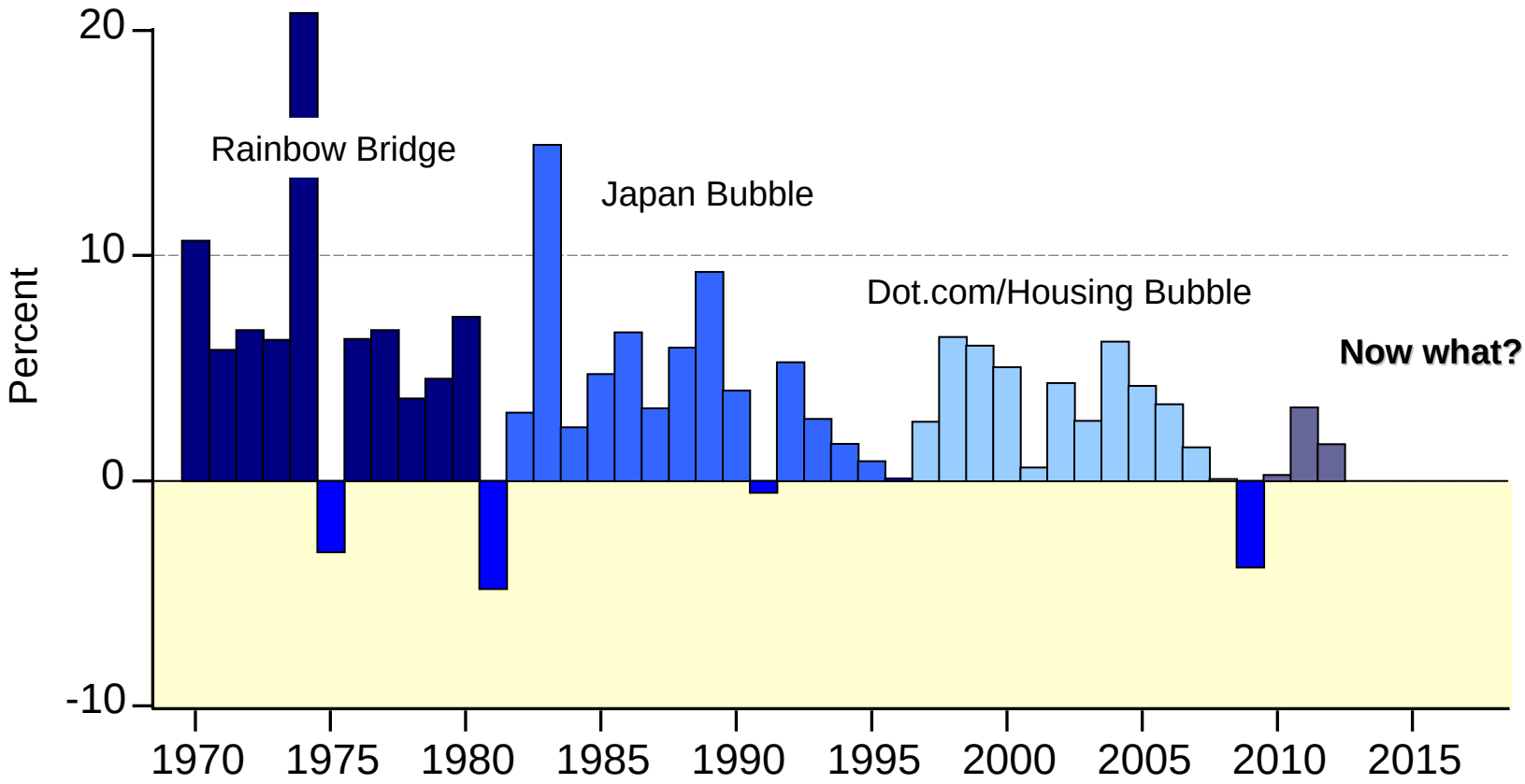
Sources: BEA (http://bea.gov/regional/index.htm), BLS (http://bea.gov/regional/index.htm), Hawaii DBEDT (http://dbedt.hawaii.gov/economic/qser/outlook-economy/); UHERO (http://www.uhero.hawaii.edu/assets/14Q2CountyForecast-PublicSummary.pdf); deflation using interpolated Honolulu CPI-U by TZE

Maui real personal income growth rates



Sources: BEA (http://bea.gov/regional/index.htm), BLS (http://bea.gov/regional/index.htm); deflation using Honolulu CPI-U by TZE

Maui real personal income growth rates: three waves of tourism- and investment-led growth since the 1960s



Sources: BEA (http://bea.gov/regional/index.htm), BLS http://data.bls.gov/cgi-bin/surveymost?r9); deflation using Honolulu CPI-U by TZE

The big picture: aggregate output, income, growth

- Despite three shocks (1. Arab Spring (oil); 2. Sandy; 3. Polar Vortex) U.S. real GDP growth has been 2.1% (annualized) over five years, forecast is *acceleration**
  1. U.S. federal fiscal policy informed by same expectation (CBO)
  2. U.S. monetary policy informed by same expectation (FRB FOMC)
- DBEDT, UHERO also forecast an investment-led Hawaii reacceleration
- Strategic challenge for Maui: extending growth that emerged *after* the 1960s
  1. For thirty years, 1930s-1960s, Maui shrank *absolutely* (population, economy)
  2. Three waves—Rainbow Bridge; Japan Bubble; Dot.com/Subprime Bubble
  3. Challenge in 20-teens is surmounting obstacles to economic growth
  4. (*Contact Old Republic Title*): Maui demographics complicate matters
- [Appendix: Maui recovery uneven (jobs up, tourism flat); waiting for construction]

*See: CBO (http://cbo.gov/publication/45010); FOMC (June 18, 2014) (http://federalreserve.gov/monetarypolicy/fomcprojtabl20140618.htm), Hawaii DBEDT (http://dbedt.hawaii.gov/economic/qser/outlook-economy/); UHERO (http://www.uhero.hawaii.edu/assets/14Q2CountyForecast-PublicSummary.pdf)

Other Maui macroeconomic indicators

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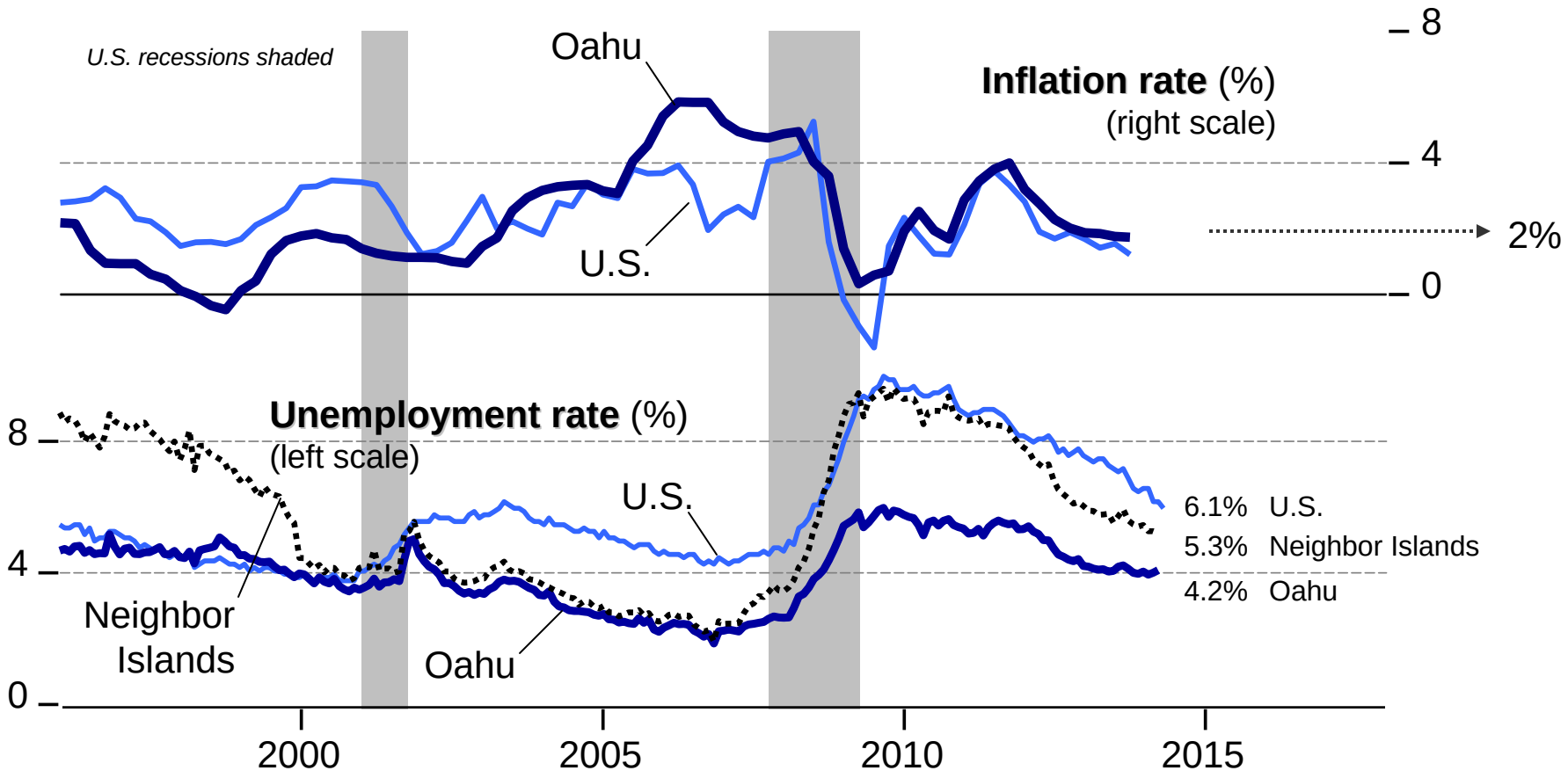
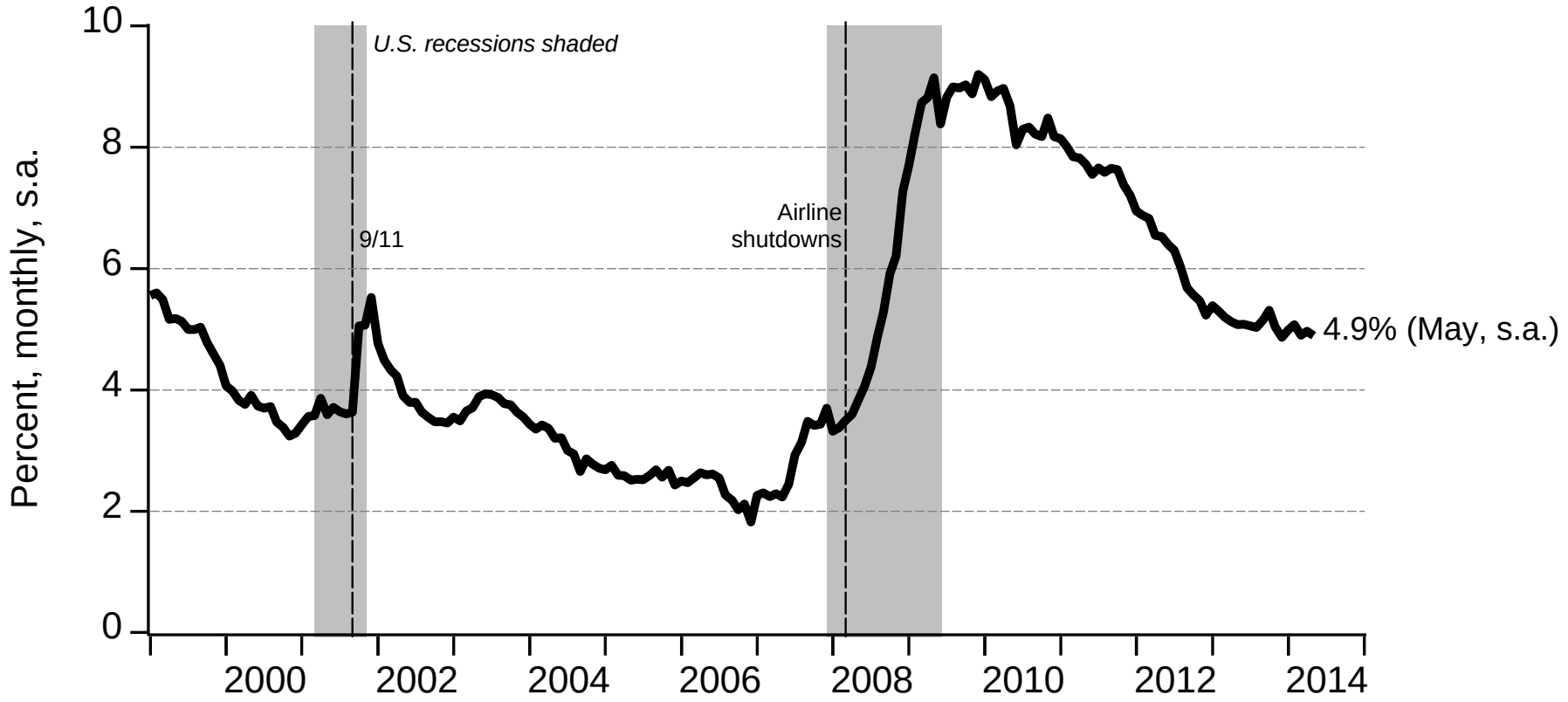
Inflation and unemployment returning to normal



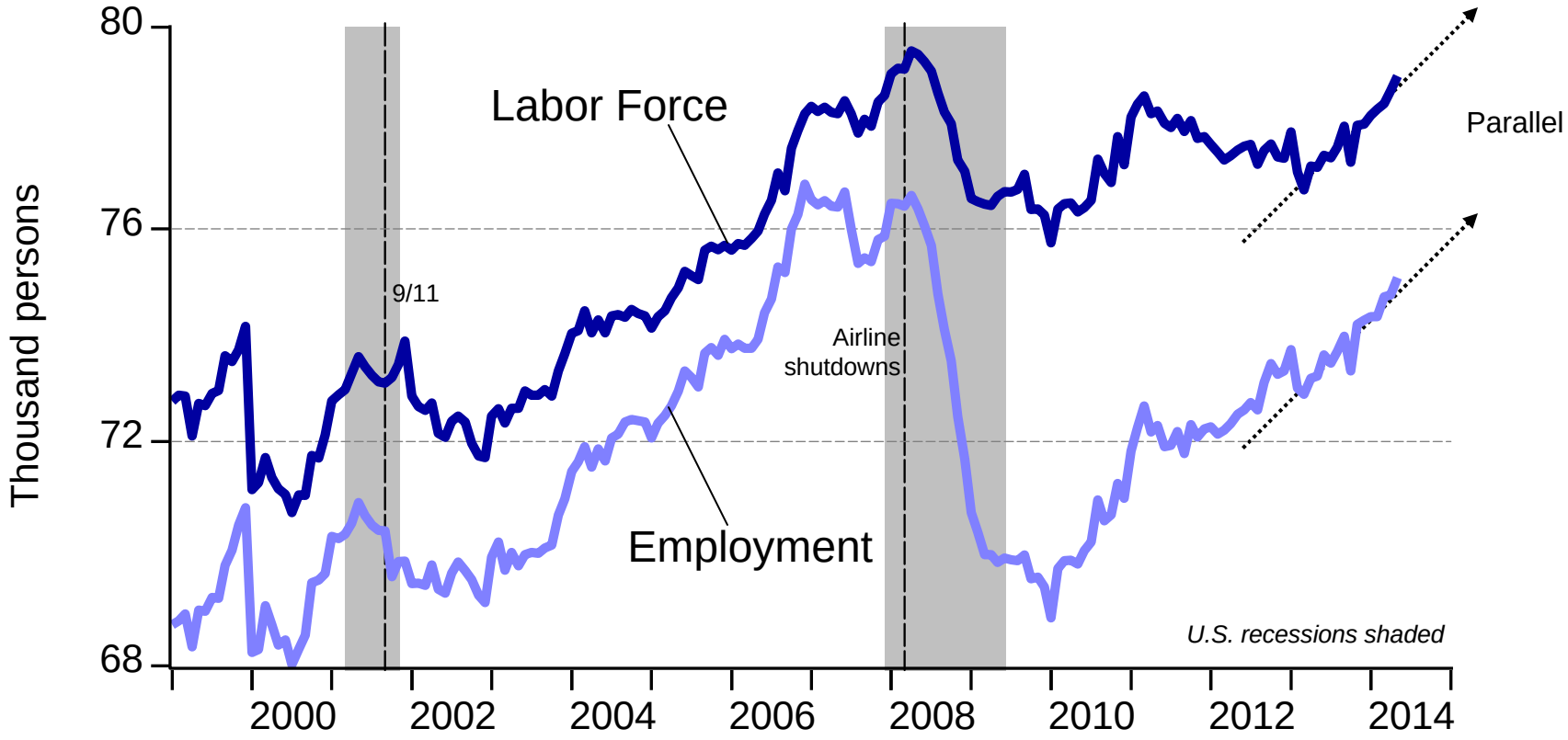
Source: Hawaii DLIR, DBEDT; BLS, U.S. Department of Labor; seasonal adjustment of Hawaii data and quarterly interpolation of semi-annual Honolulu CPI-U index inflation measure by TZ Economics

Maui unemployment settling into 5 percent area



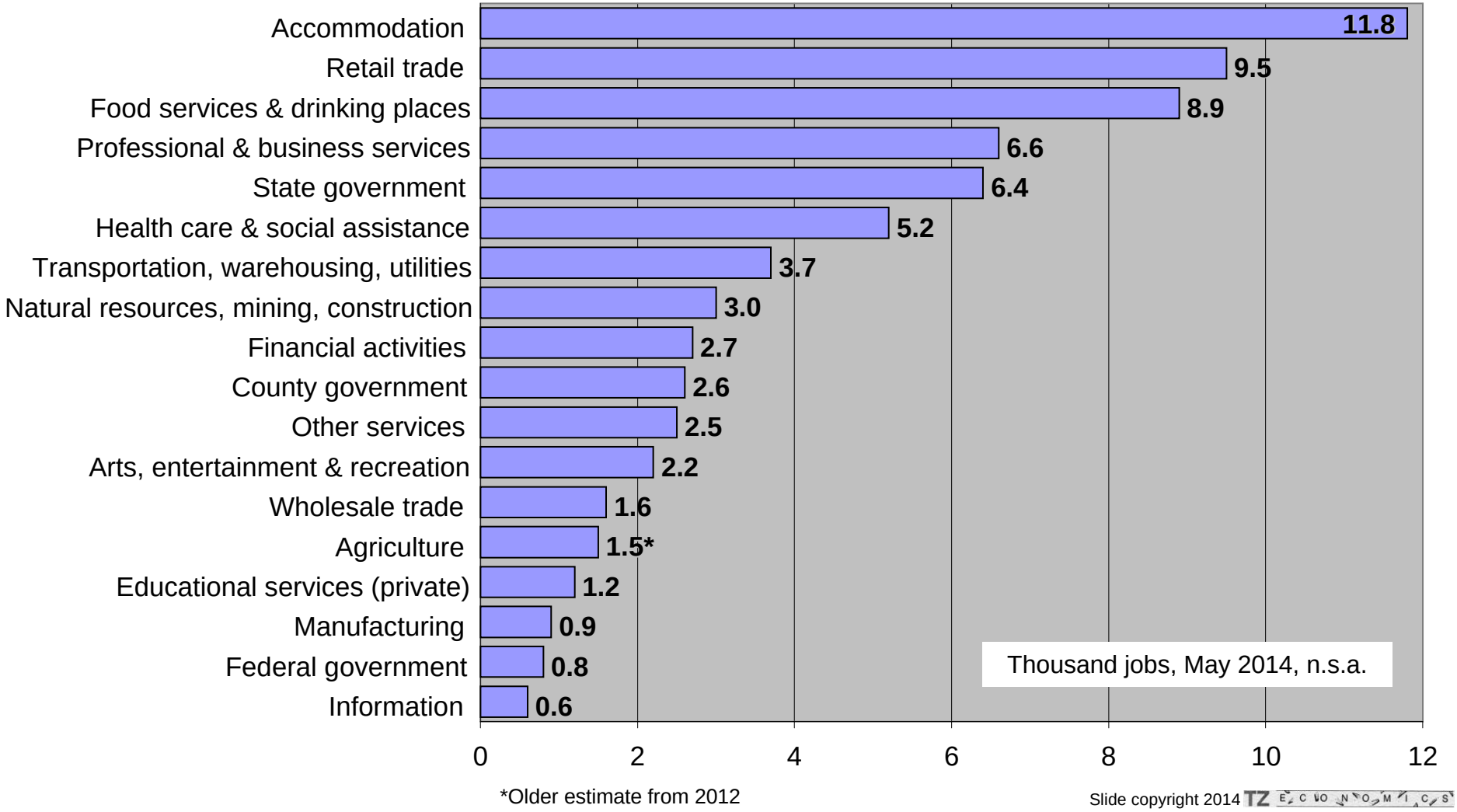
Source: Hawaii DLIR, DBEDT; seasonal adjustment by TZ Economics

Maui unemployment rate is stabilizing because labor force growth matches employment growth



Source: Hawaii DLIR, DBEDT; seasonal adjustment by TZ Economics

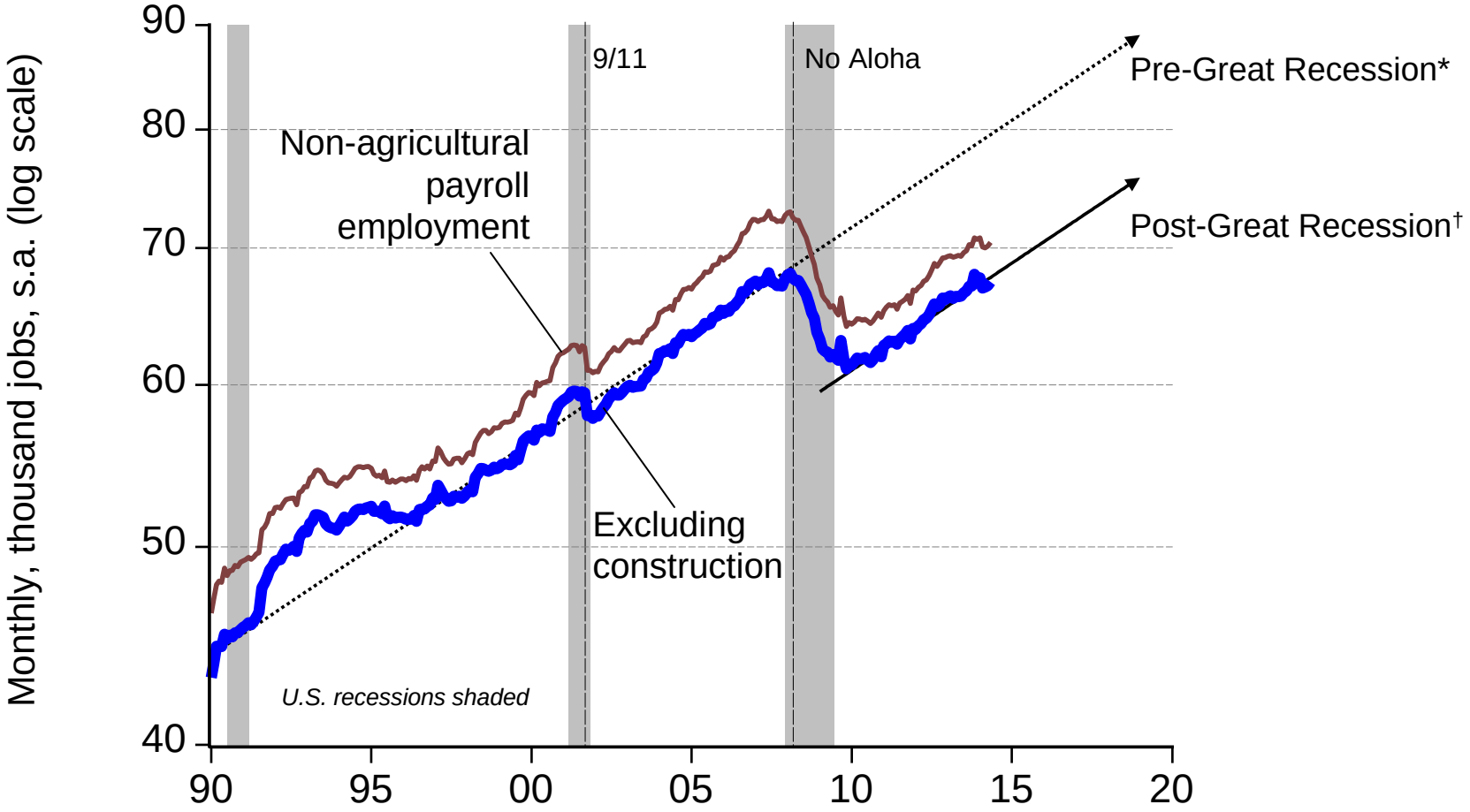
Maui payroll employment by industry Spring 2014



*Older estimate from 2012

Source: Hawaii DLIR, DBEDT

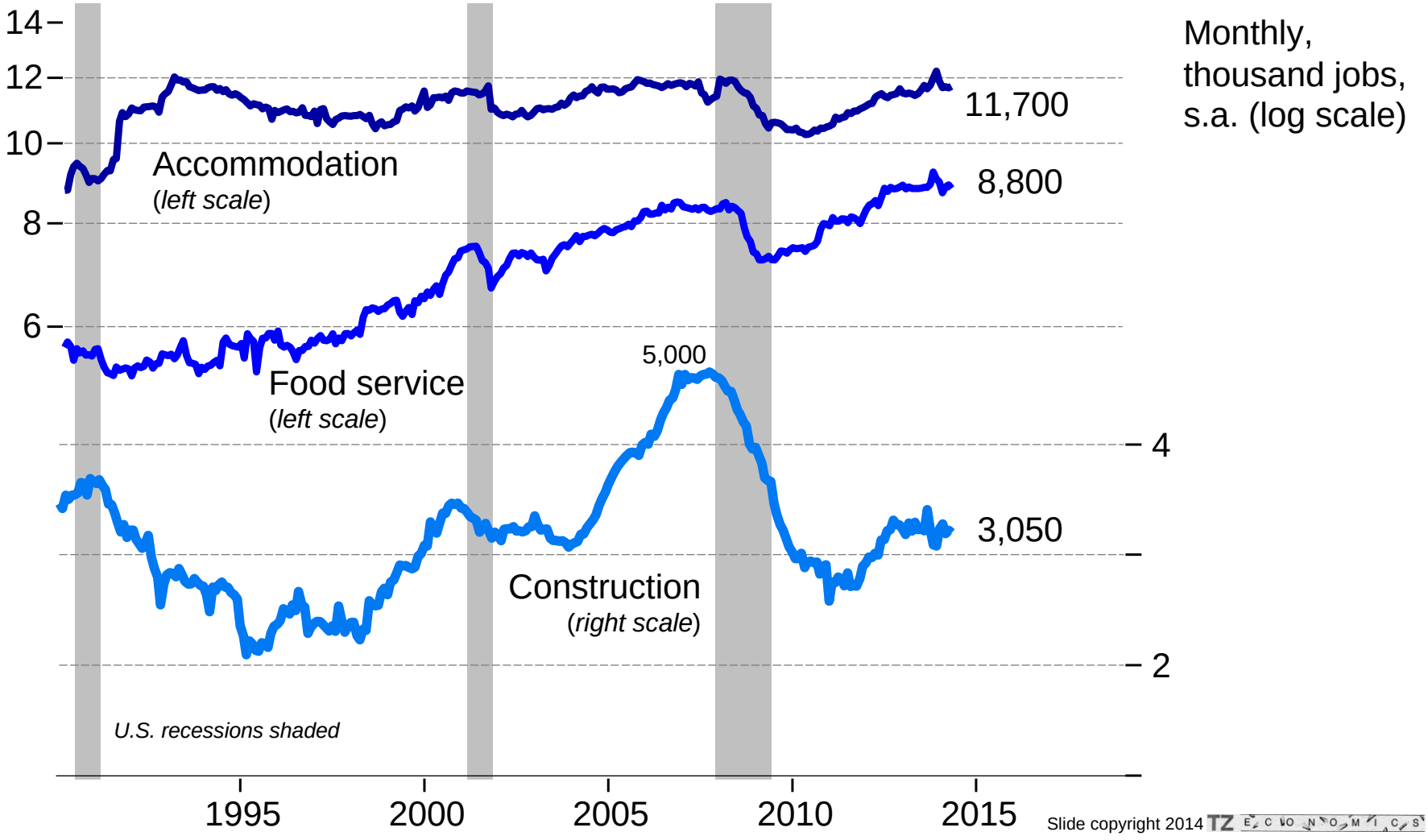
Maui non-agricultural payroll employment trends: the Great Recession was a *structural break* in trend



*Regression of natural log of jobs on time, April 1996-June 2007 (2.437%)
†Regression of natural log of jobs on time, July 2010-May 2014 (2.441%)

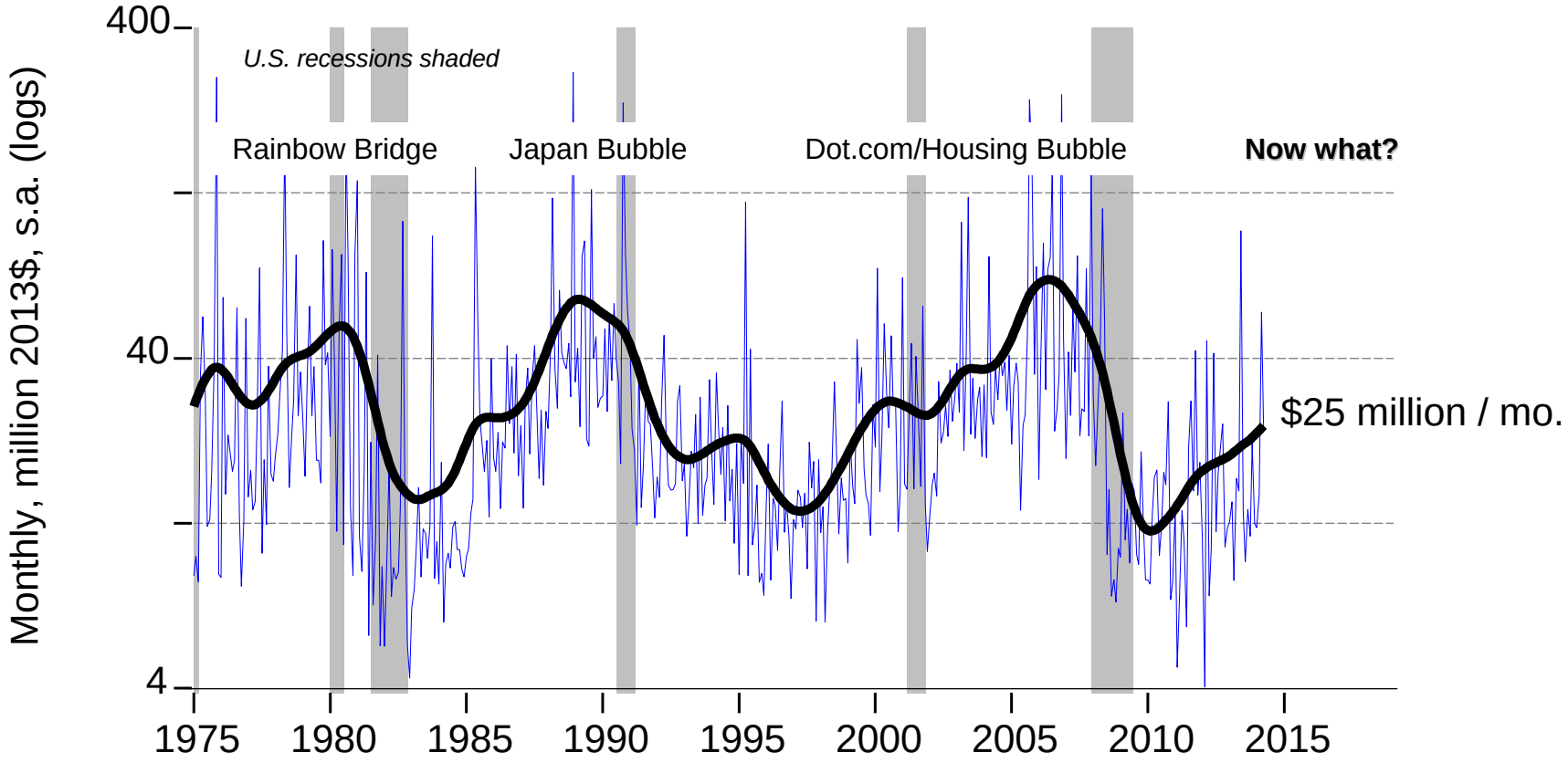
Source: Hawaii DLIR, DBEDT; seasonal adjustment and trend regressions by TZ Economics (DLIR discontinued publishing agricultural employment estimates after 2012)

Maui's story in two decades of jobs: we eat out; tourism is no-growth; construction down 40%



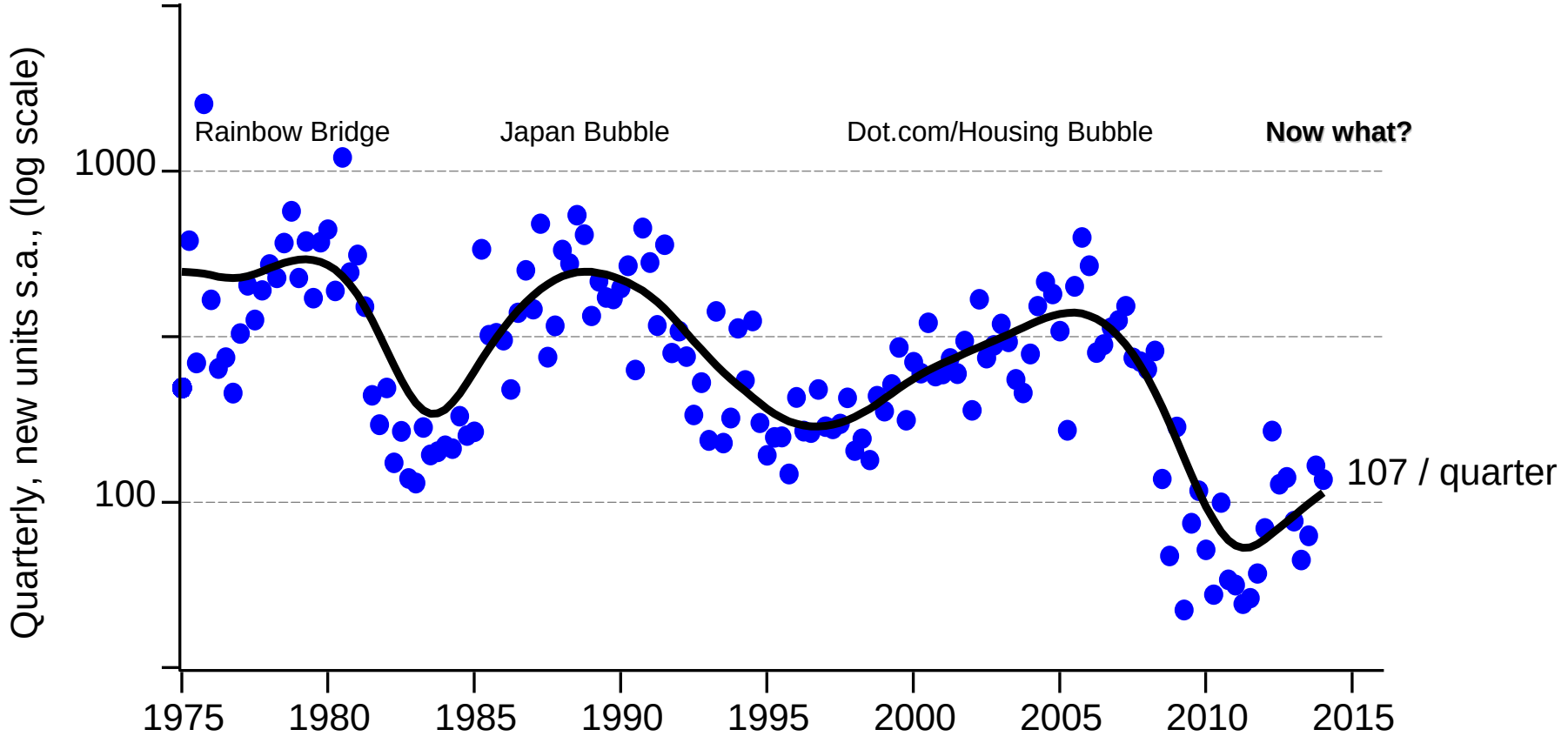
Source: Hawaii DLIR, DBEDT; seasonal adjustment by TZ Economics

Maui's private investment cycle: real authorizations for new private construction by building permit



Source: Maui County building department, Hawaii DBEDT; seasonal adjustment, deflation using U.S. Census Bureau chain-weighted construction deflator by TZ Economics

Maui's new homebuilding: slow comeback from an historic cyclical low point



Source: Maui County building department, Hawaii DBEDT; seasonal adjustment, trend/cycle extraction by TZ Economics

Maui housing market trends

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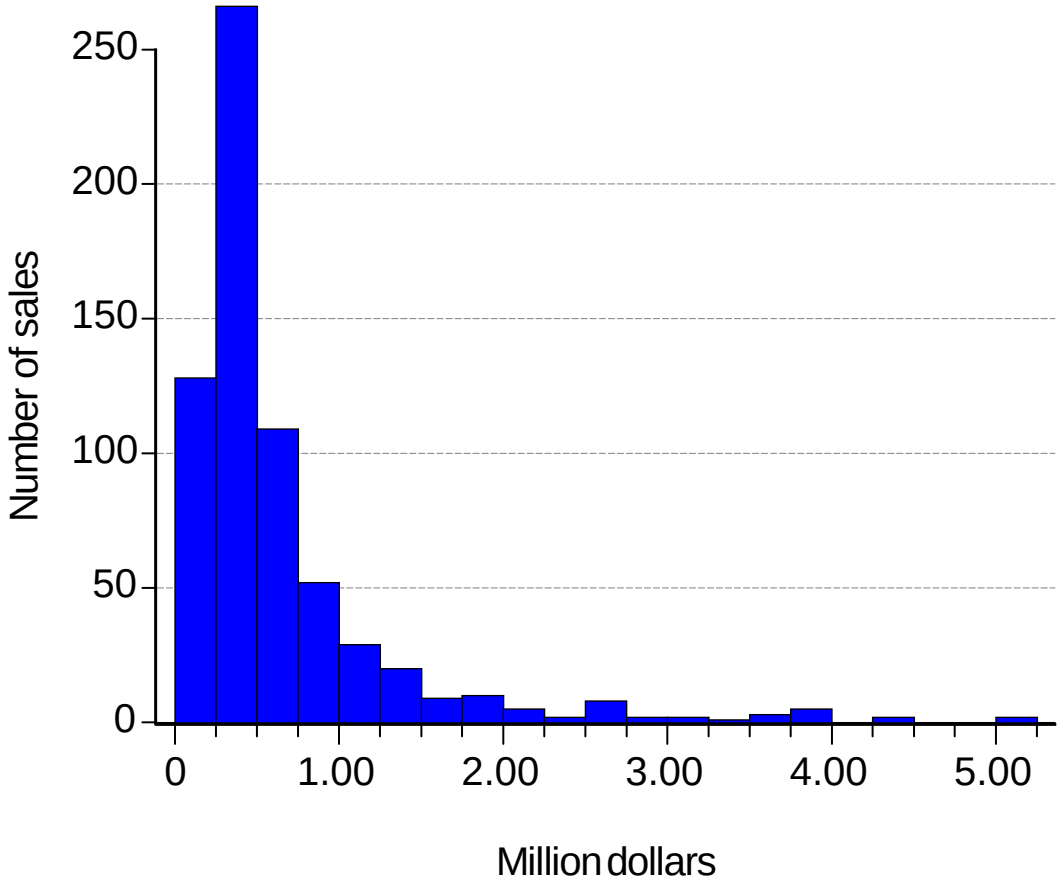
Maui condominium price distribution 2014-to-date

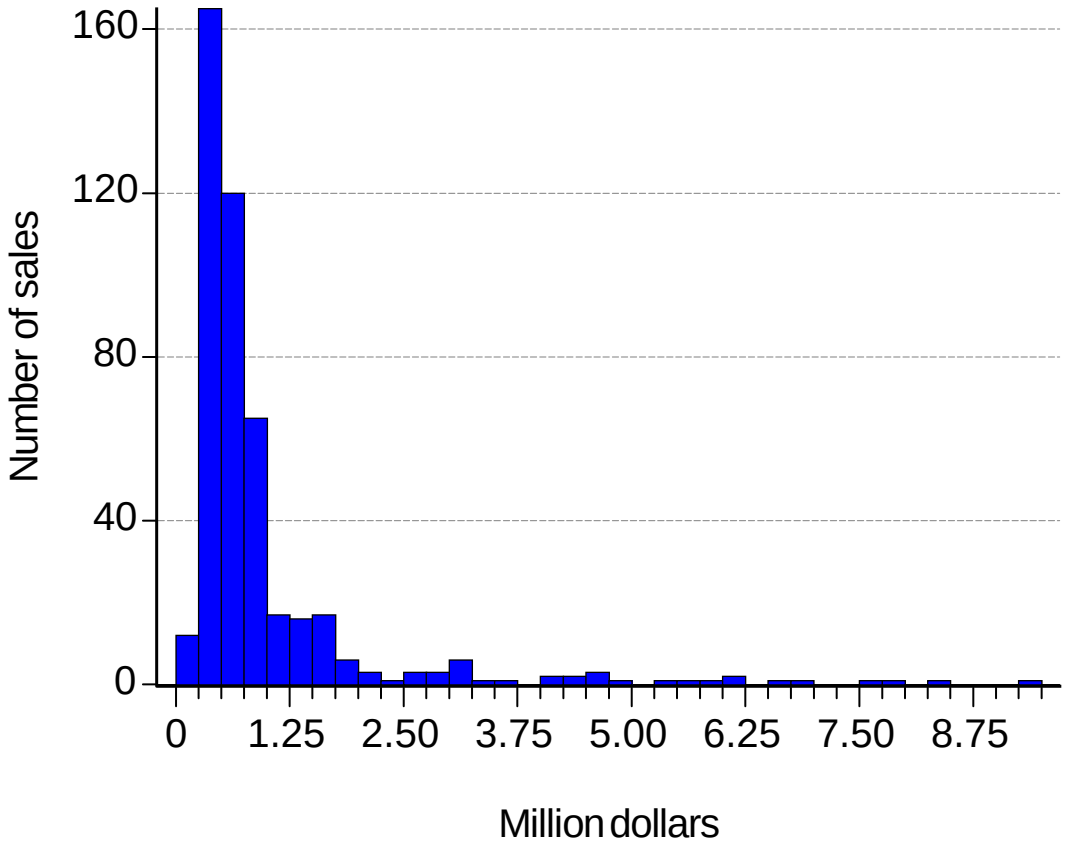


Series: Condominium 2014H1
Statistics in thousand dollars
Observations 655

Mean	640.7963
Median	**422.0000**
Maximum	5200.000
Minimum	39.50000
Std. Dev.	698.6770
Skewness	3.166786
Kurtosis	15.13469
Jarque-Bera	5113.500
Probability	0.000000

Sources: raw data through June 2014 from Realtors Association of Maui; histogram and descriptive statistics by TZ Economics

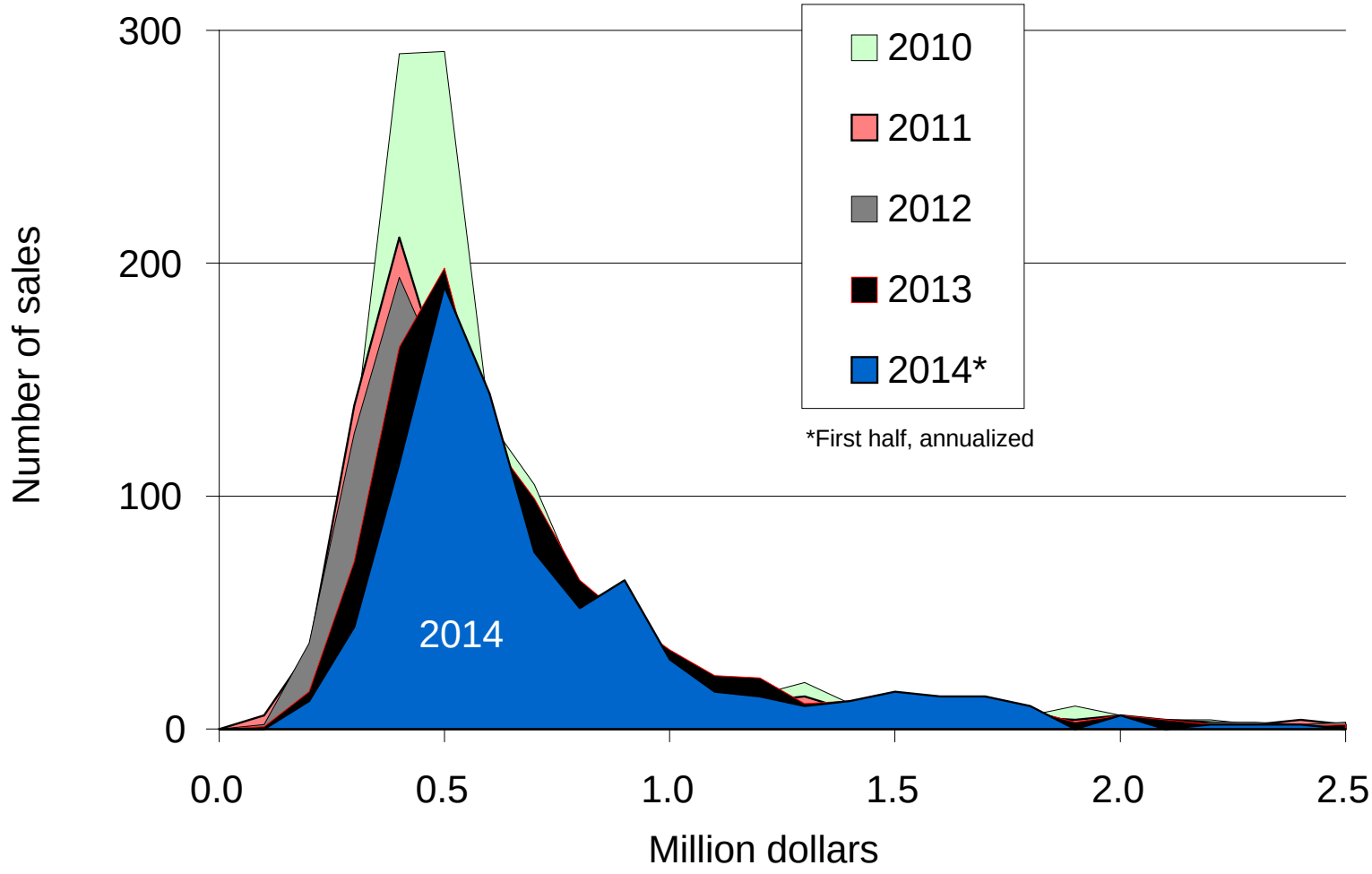
Maui single-family price distribution 2014-to-date



Series: Single-family 2014H1	
Statistics in thousand dollars	
Observations 455	
Mean	956.3794
Median	**574.0000**
Maximum	9300.000
Minimum	150.0000
Std. Dev.	1196.895
Skewness	3.821563
Kurtosis	19.69090
Jarque-Bera	6389.026
Probability	0.000000

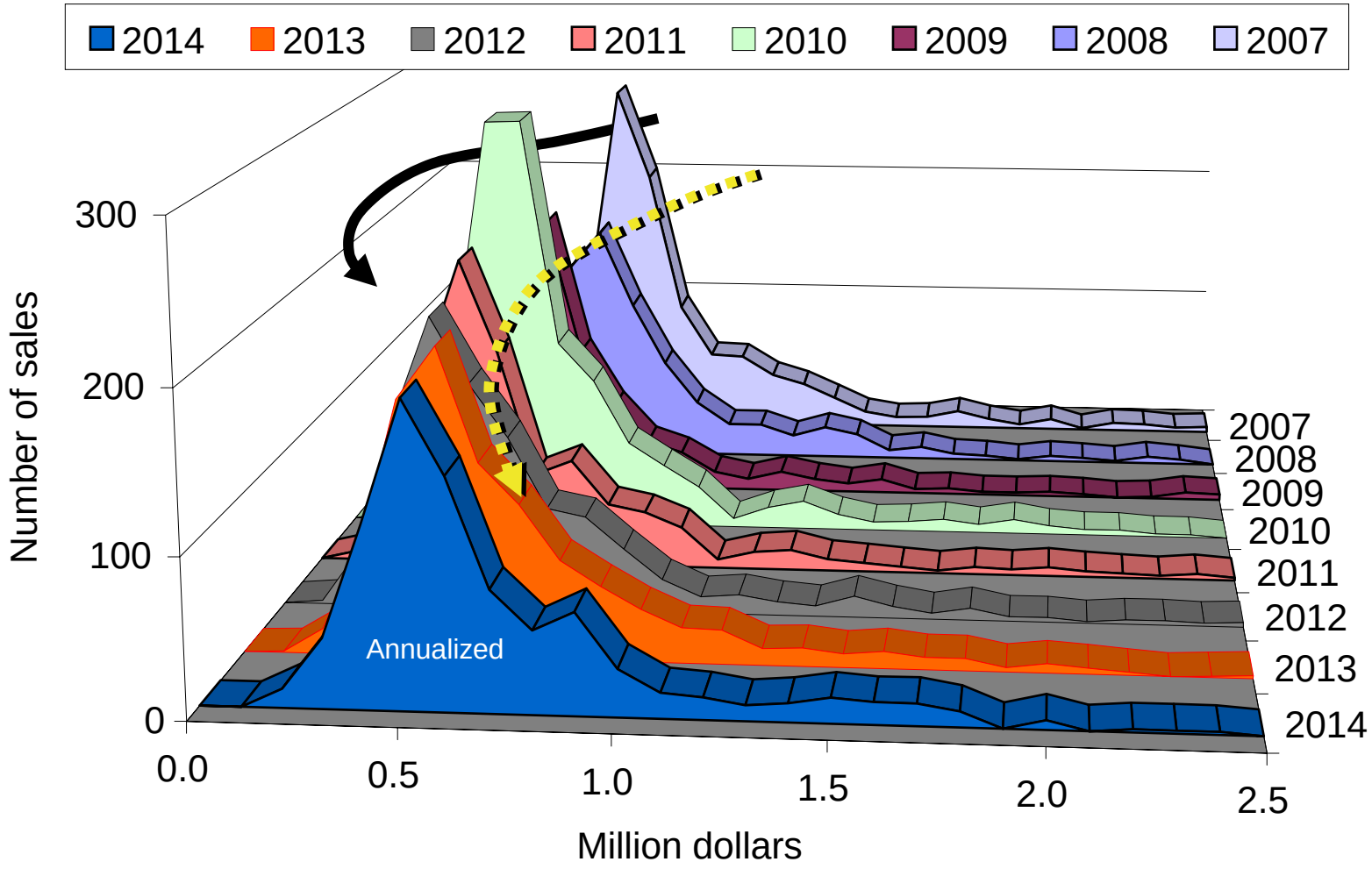
Sources: raw data through June 2014 from Realtors Association of Maui; histogram and descriptive statistics by TZ Economics

Maui annual existing single-family home price distributions (sales in $100k increments)



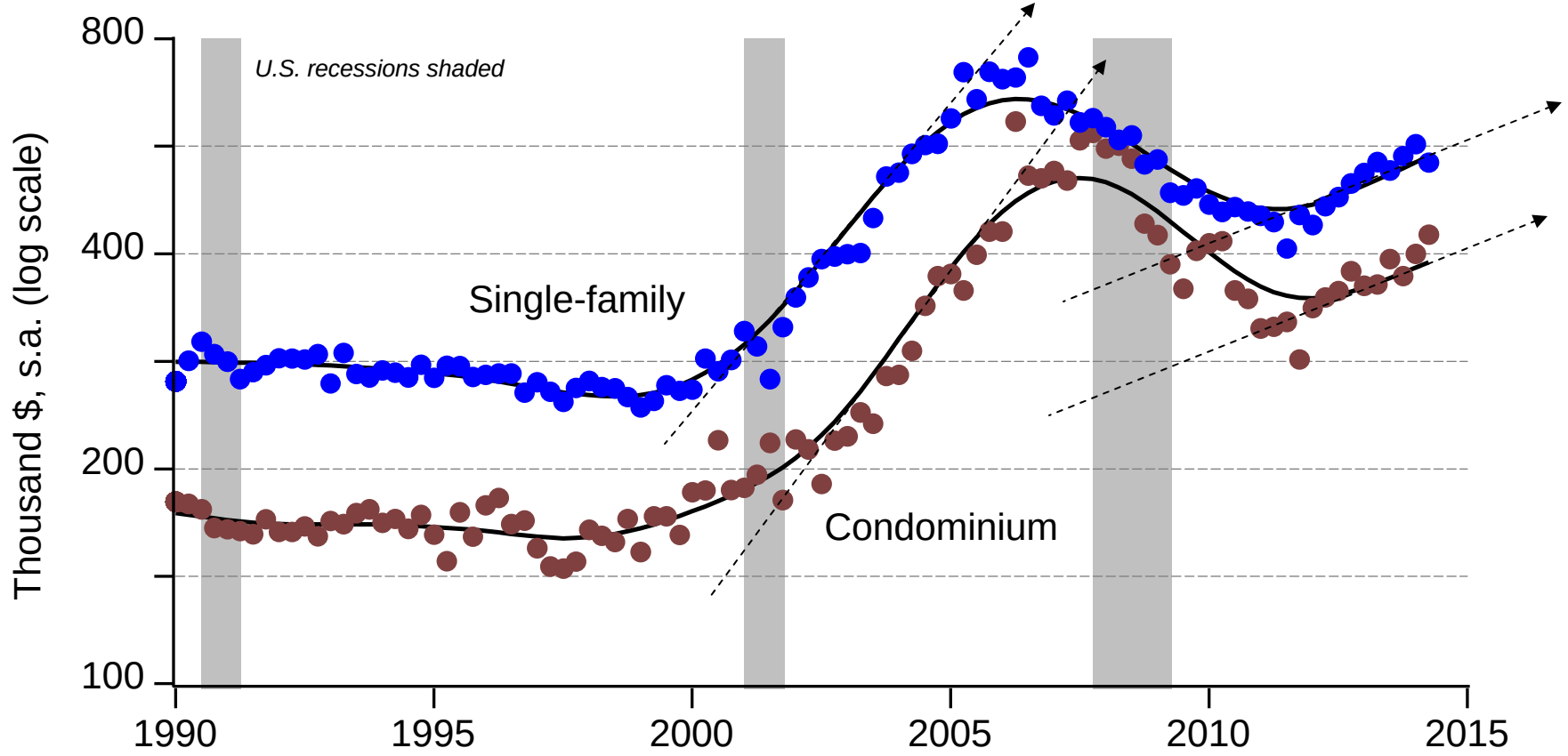
Sources: raw data through June 2014 from Realtors Association of Maui; histograms by TZ Economics

Maui annual existing single-family home price distributions (sales in $100k increments)



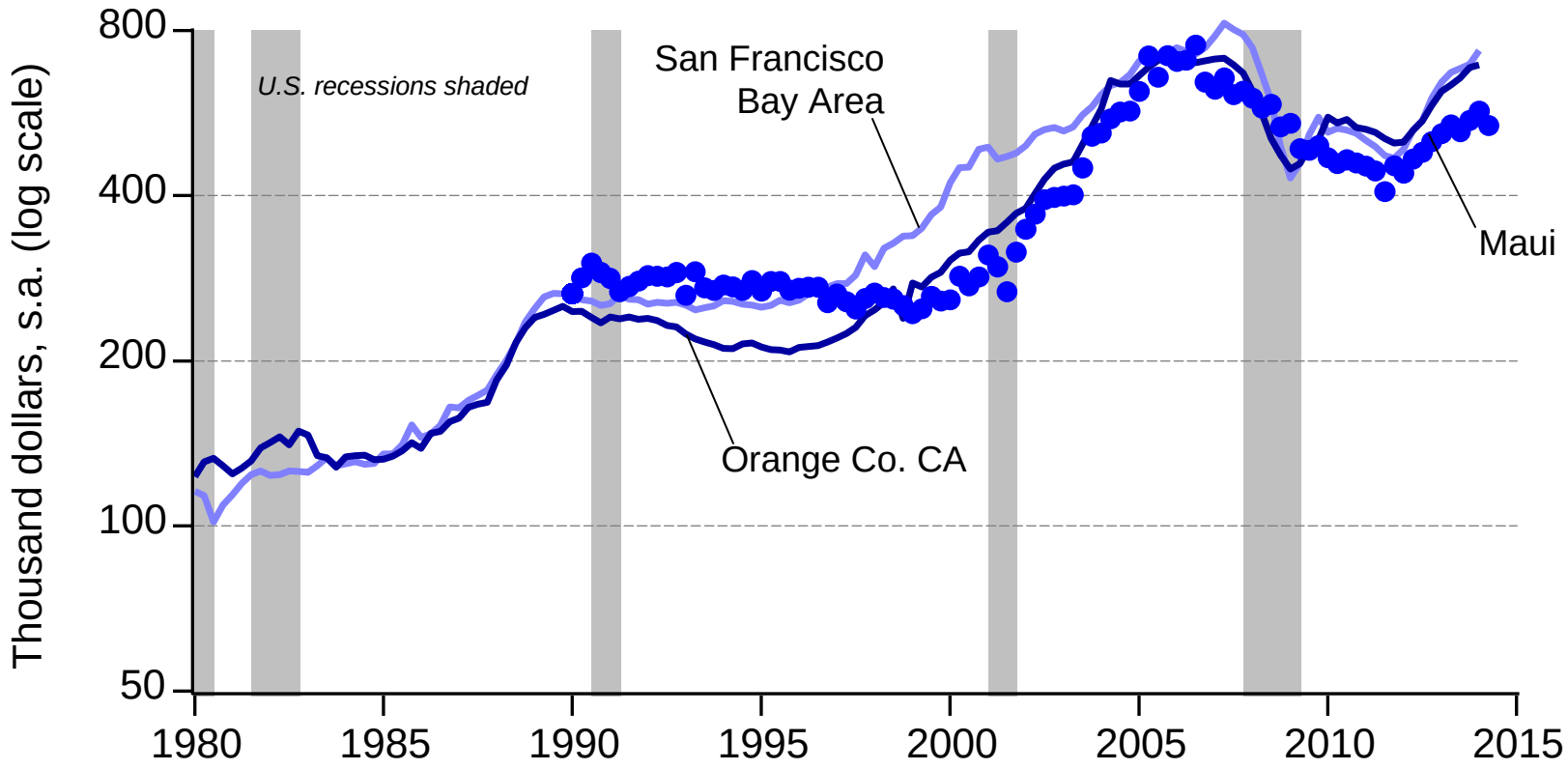
Sources: raw data through June 2014 from Realtors Association of Maui; histograms by TZ Economics

Maui quarterly existing home sales prices: this is not the 90s; this is not the housing bubble



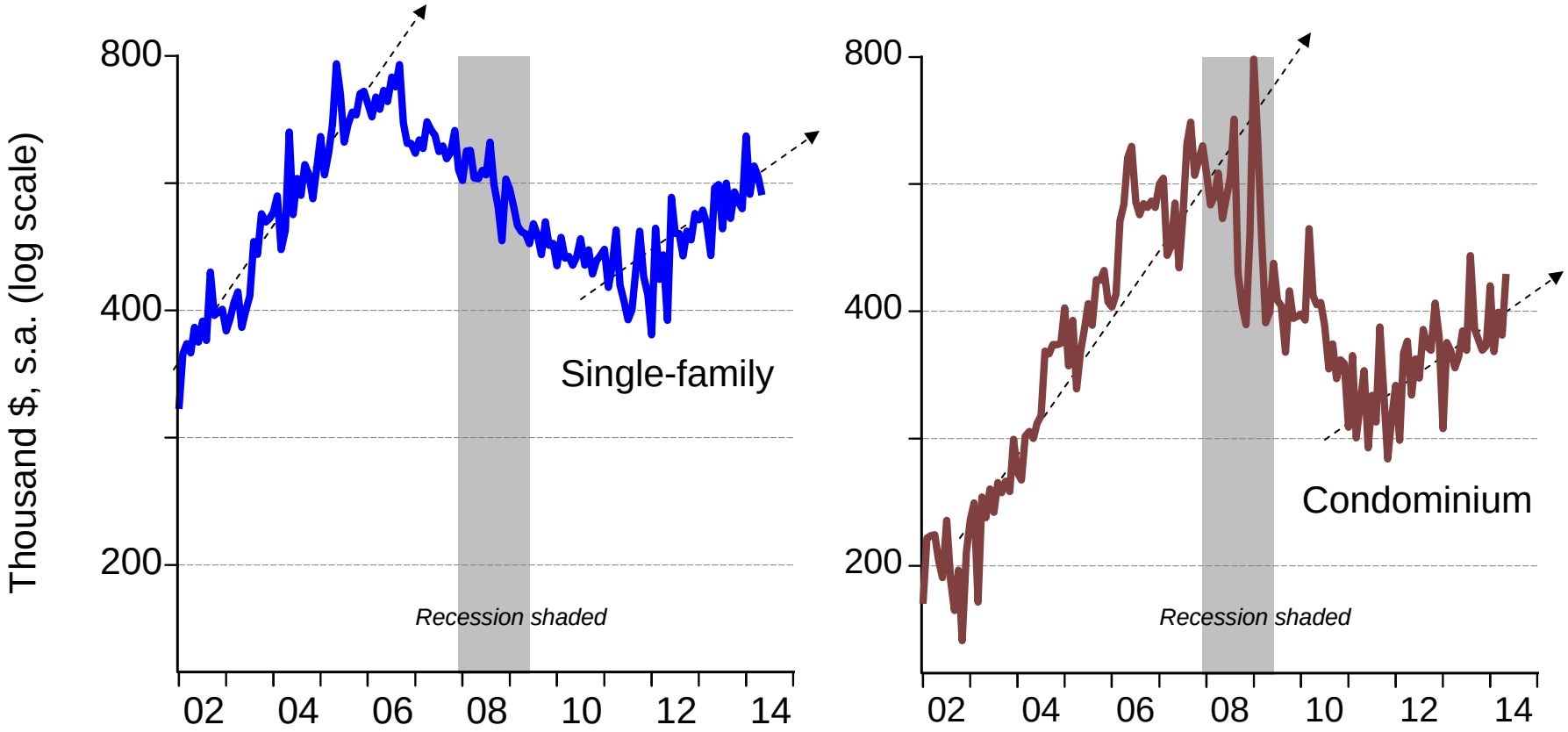
Sources: raw data through June 2014 from Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Single-family home prices: California, Maui



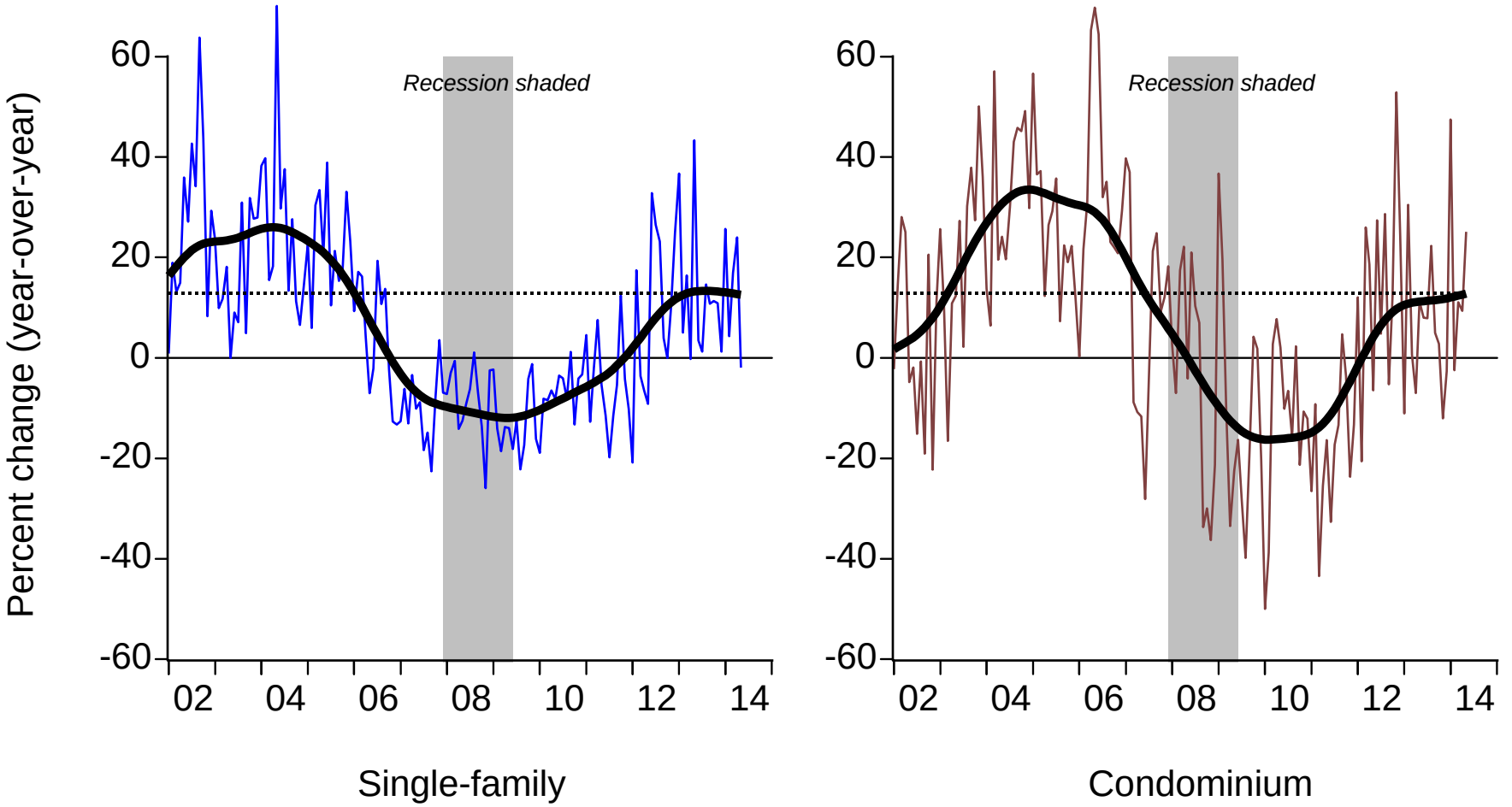
Source: Realtors Association of Maui, National Association of Realtors, Prudential Locations, UHERO; California and Maui quarterly data through second quarter 2014; seasonal adjustment by TZE

Maui monthly existing home sales prices continue to appreciate at moderated rates



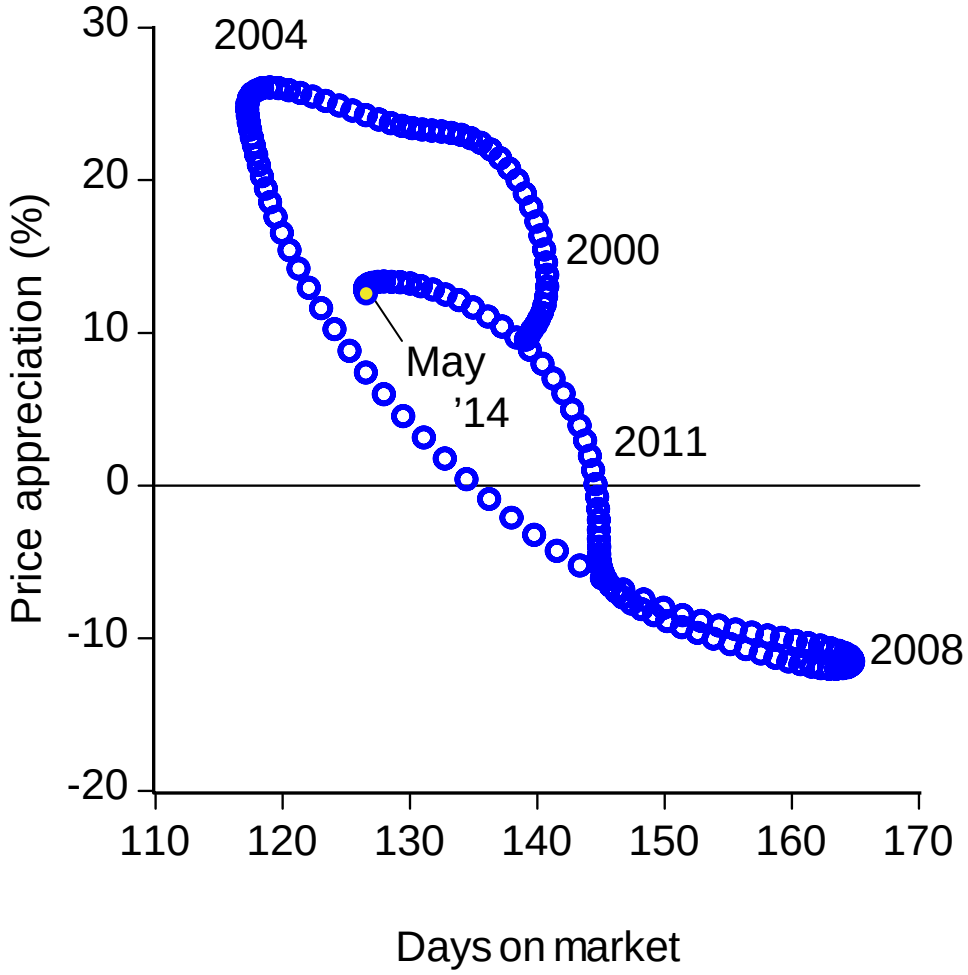
Sources: data through June 2014 from Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Maui monthly existing home sales price appreciation rate has settled to 13%, year-over-year



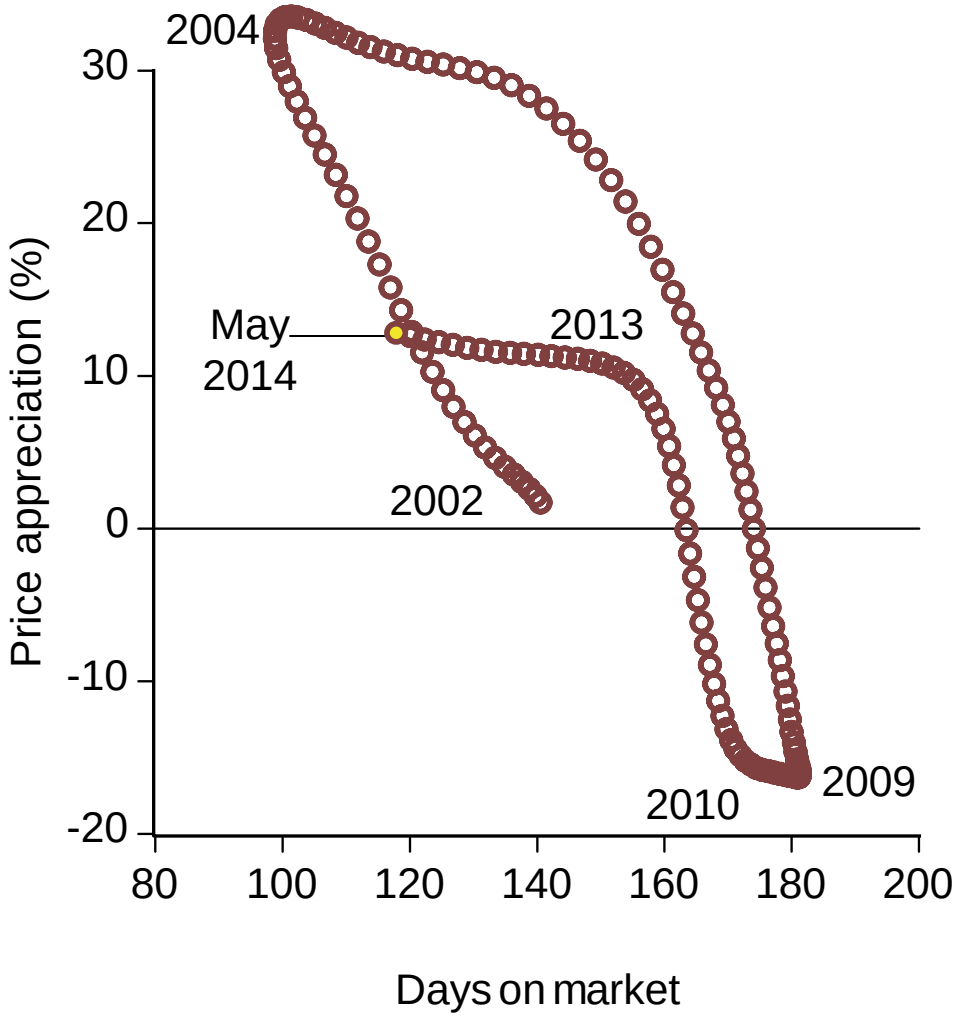
Sources: data through June 2014 from Realtors Association of Maui; seasonal adjustment, appreciation rates, trend extraction by TZ Economics

Inverse relationship between Maui *single-family* appreciation and days on market: cycling out?



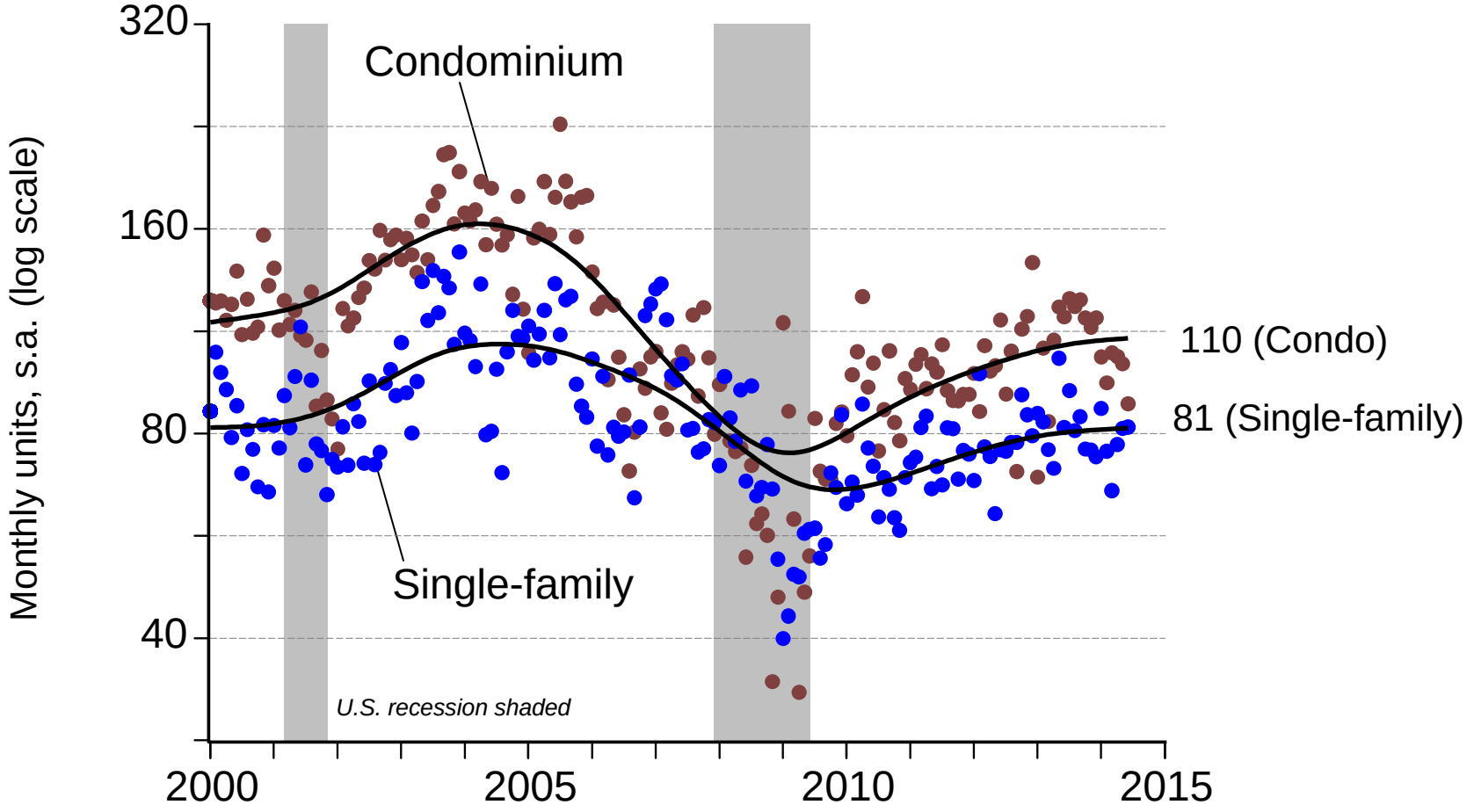
Source: Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Inverse relationship between Maui *condominium* appreciation and days on market: cycling out?



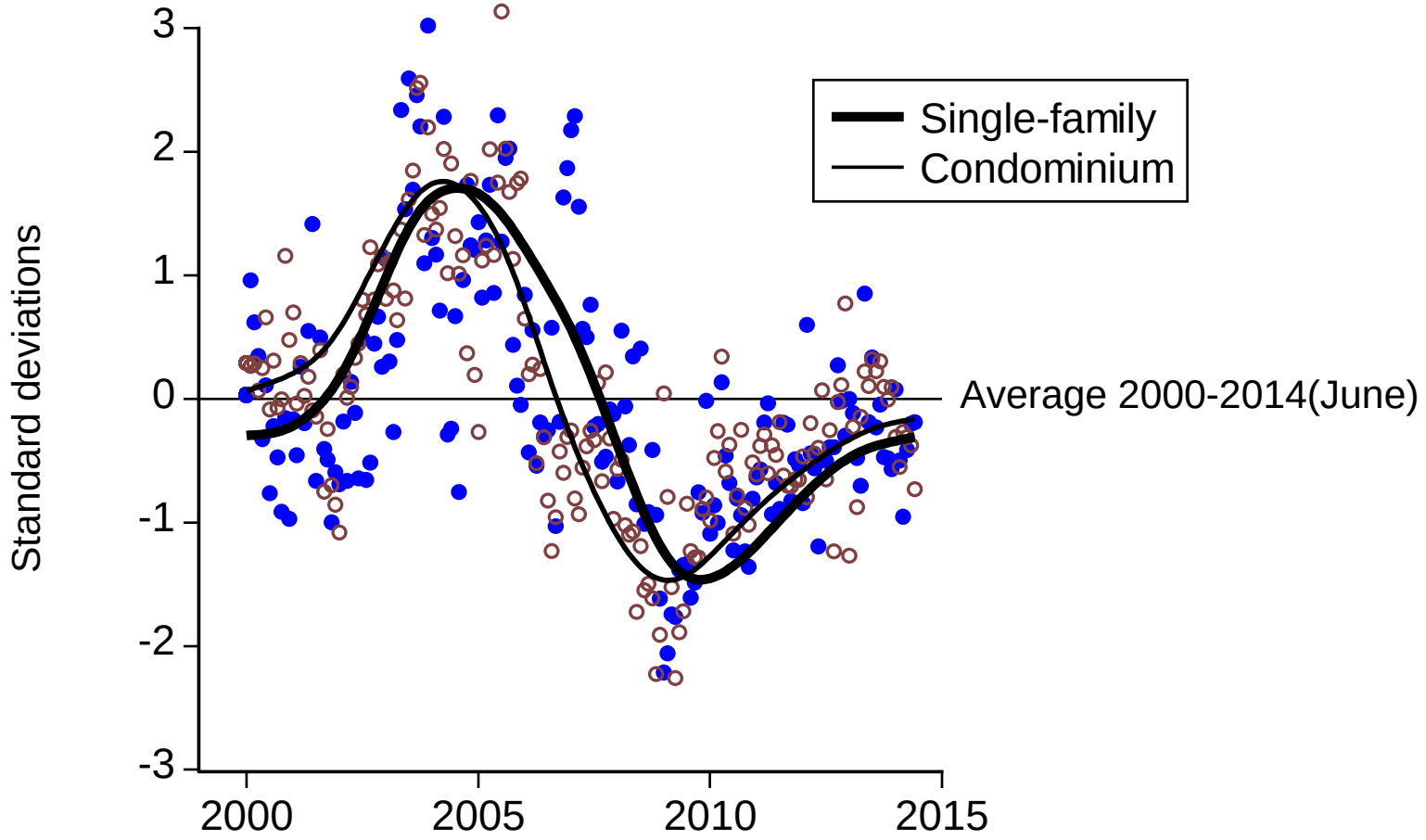
Source: Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Maui existing home sales settling into a steady pace



Sources: data through June 2014 from Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Normalized volumes: current Maui existing home sales about average for 21st century to-date



Sources: data through June 2014 from Realtors Association of Maui; seasonal adjustment, trend extraction by TZ Economics

Longer-term trends: is Maui's economic run over?

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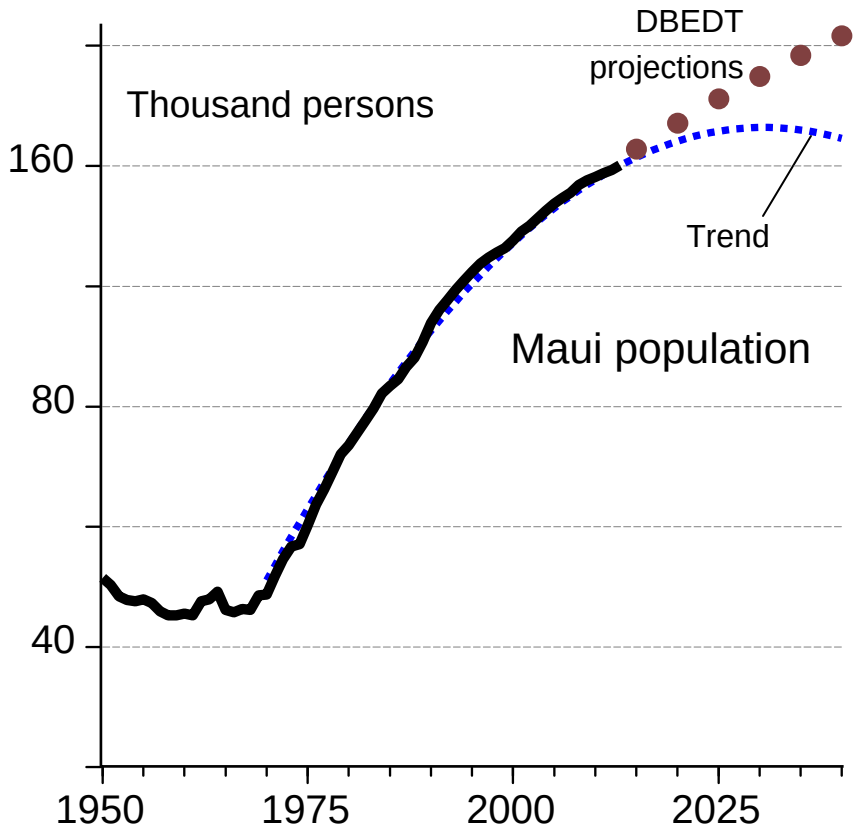
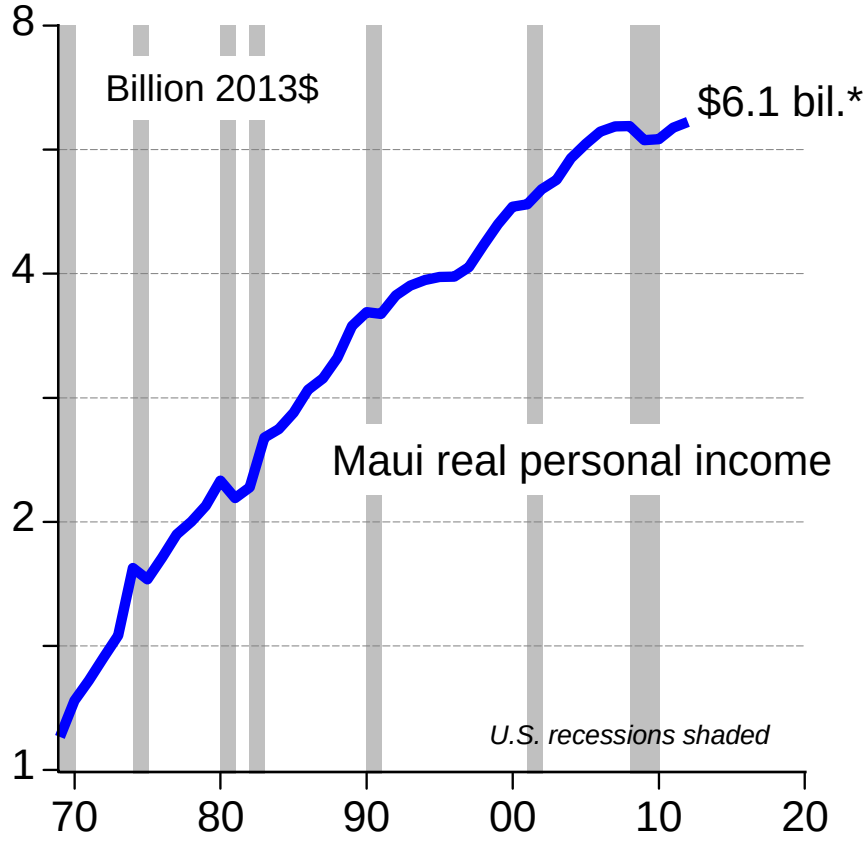
Longer-term Maui trends: if population stabilizes only productivity growth is left

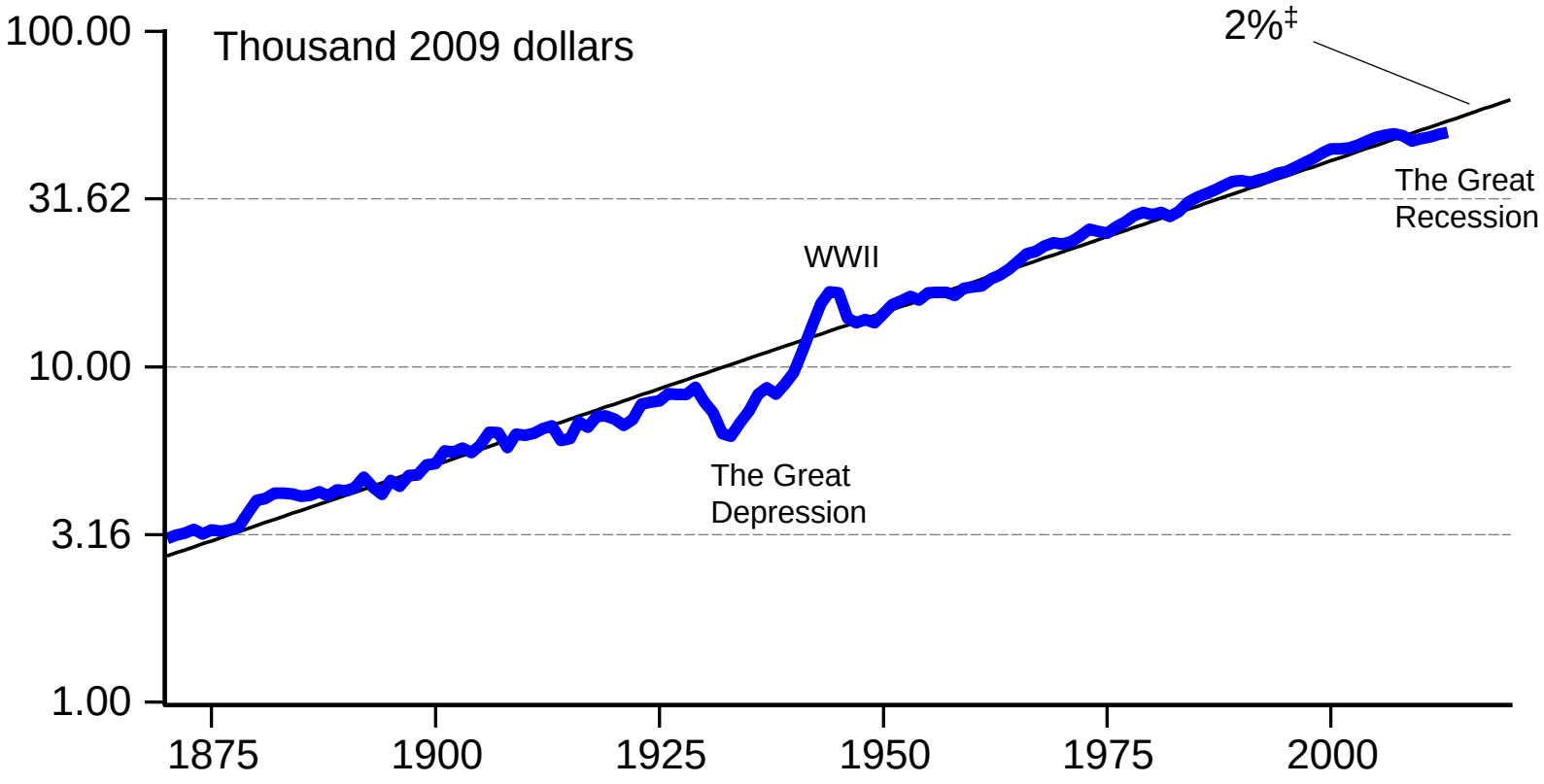




*2012 data; deflation uses Honolulu CPI-U

Source: Bureau of the Census, Bureau of Economic Analysis, Bureau of Labor Statistics, Hawaii DBEDT (various), Robert C. Schmitt *Historical Statistics of Hawaii* (1976) UH Press; regression of the change in the natural logarithm of Maui population on time by TZE

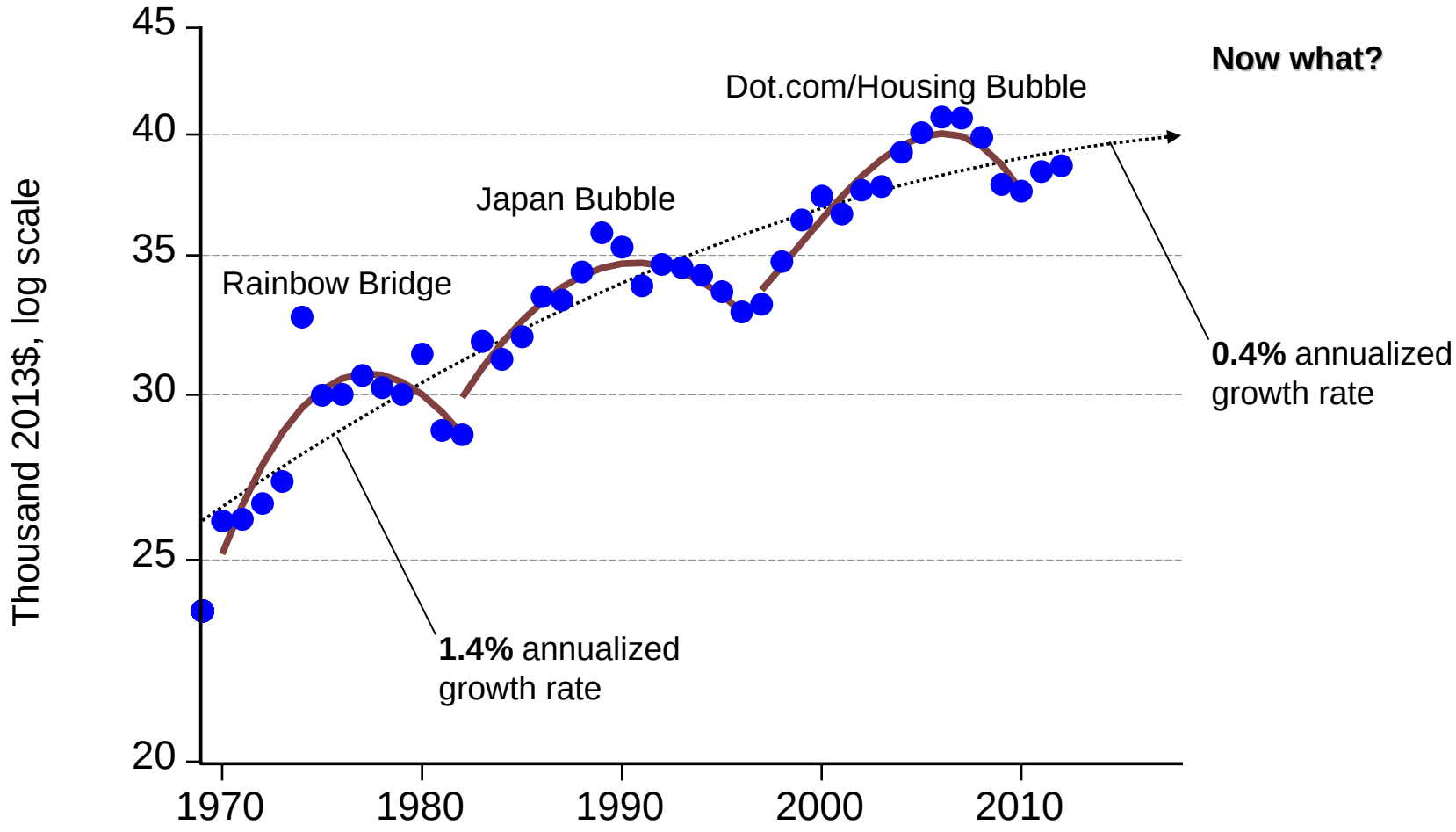
U.S. *per capita* real GDP 1870-2013: productivity growth was approximately 2 percent



‡Regression of natural log on time trend 1870-2007; growth rate constant 2.095% (log-linear by assumption)

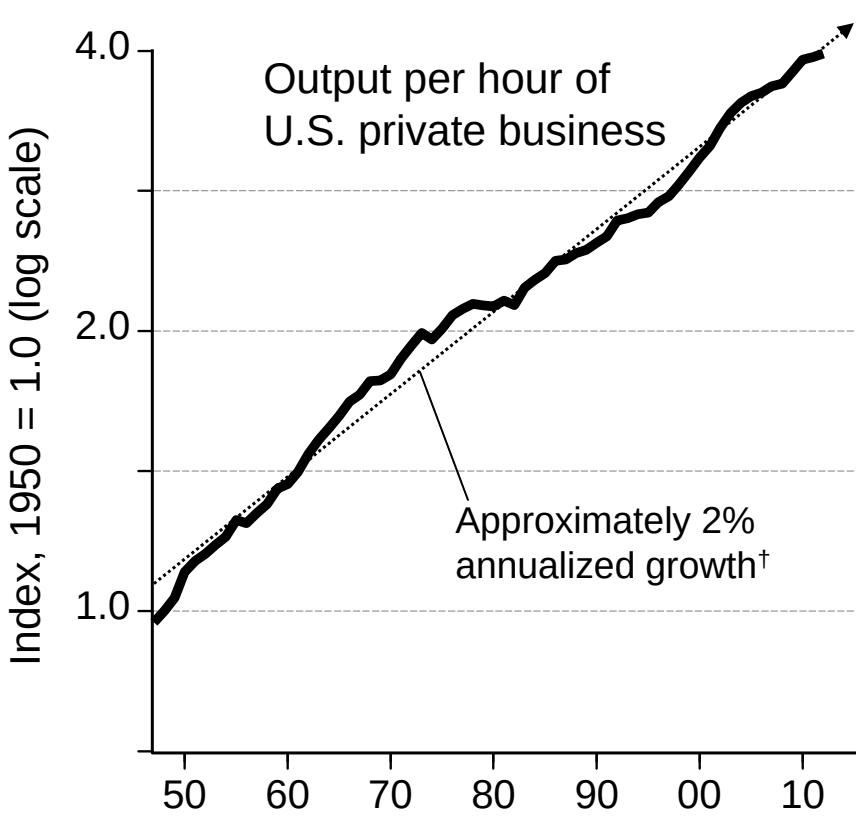
Sources: Real GDP data 1970-1929 from Angus Maddison (http://www.ggdc.net/maddison/maddison-project/home.htm) and data 1929-2013 are from the BEA (http://bea.gov/national/index.htm#gdp); deflation alignment and growth rates calculated by TZE; 2013 estimate is $50,000

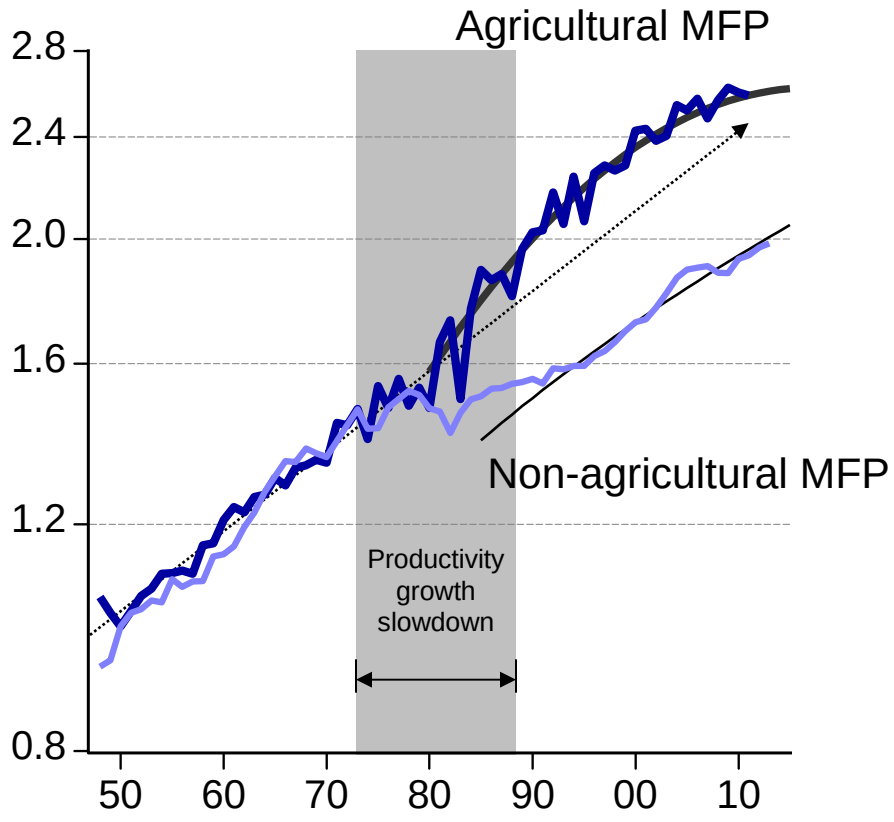
Maui real *per capita* personal income illustrates the three tourism- and investment-led waves



Sources: BEA (http://bea.gov/regional/index.htm), BLS http://data.bls.gov/cgi-bin/surveymost?r9); deflation using Honolulu CPI-U by TZE; three pulses are from interval regressions on changes in natural logarithms of real per capita personal income on linear and polynomial functions of time trend

U.S. output per hour and "multifactor" productivity*





†Regression on log trend yields growth rate of 2.06%

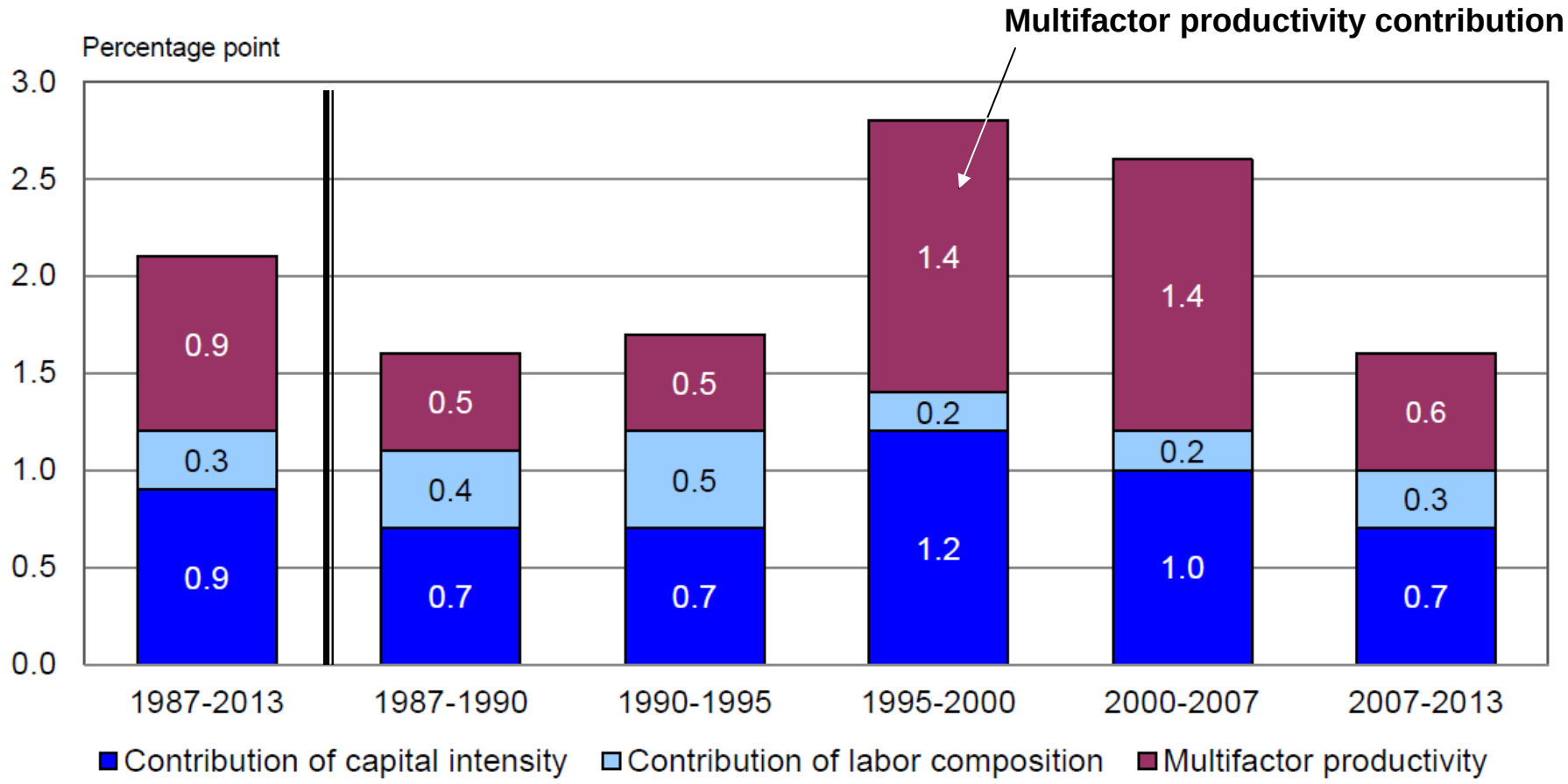
Multifactor productivity measures growth in output separable from the portion attributable to inputs—productivity growth, efficient improvements, returns to scale, resource reallocations and other influences.

*Multifactor productivity growth trends:
1. Agricultural—c. ≤ 1.7% (1948-2012)
2. Non-agricultural—c. ≤ 1.2% (since 1995)

Source: Federal Reserve Bank of St. Louis (http://research.stlouisfed.org/fred2/series/OPHNFB), BLS (http://www.bls.gov/mfp/tables.htm), and USDA (http://www.ers.usda.gov/data-products/agricultural-productivity-in-the-us.aspx#28268); nonfarm revisions July 2014 (http://www.bls.gov/mfp/mprdload.htm); index re-basing and trend regression by TZ Economics

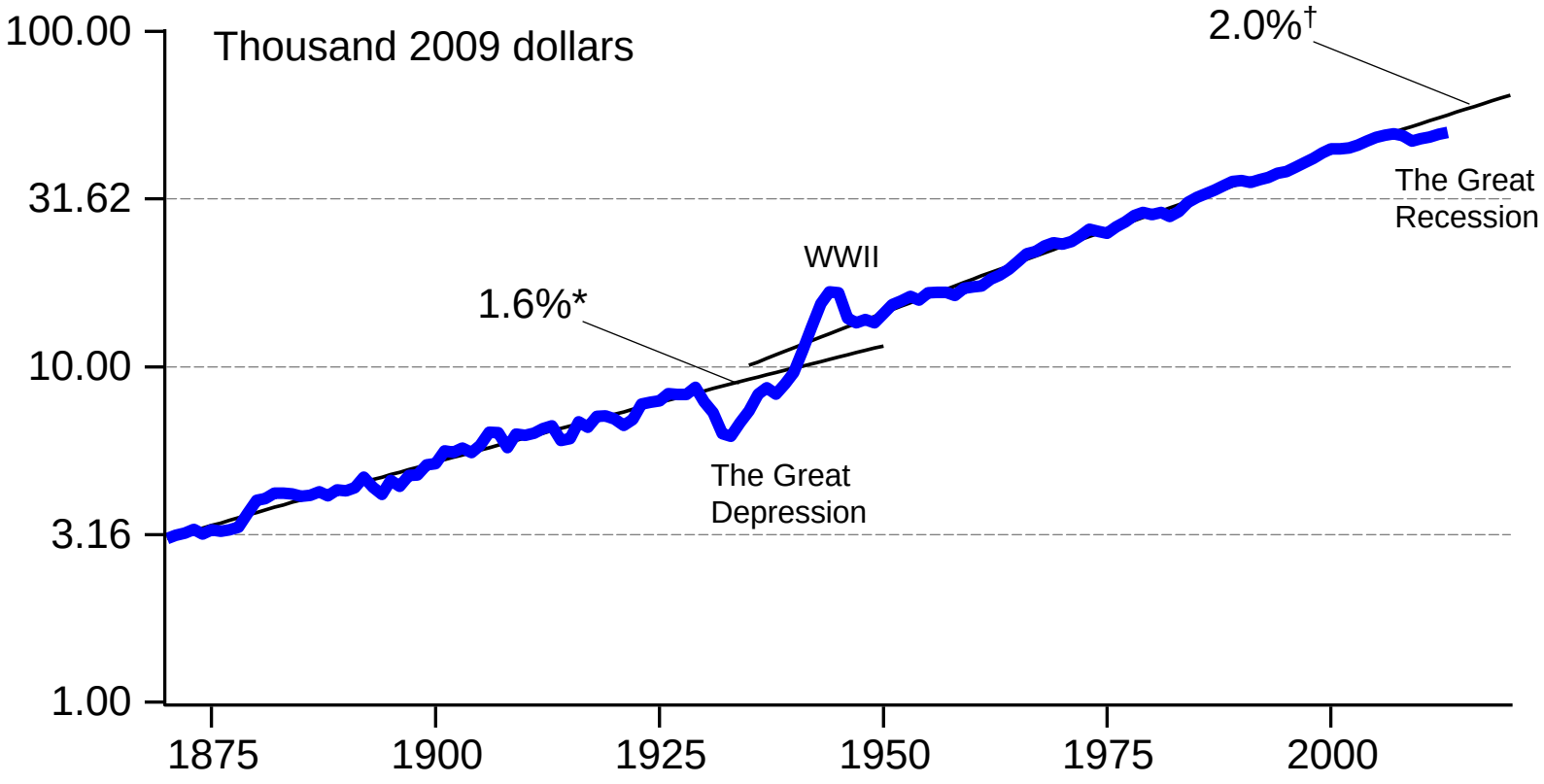
Almost half of U.S. growth in output per hour in the last two decades is from multifactor productivity

Chart 2. Percentage point contributions to growth in output per hour in the private nonfarm business sector, 1987-2013



Source: Bureau of Labor Statistics release July 9, 2014 (http://www.bls.gov/news.release/pdf/prod3.pdf)

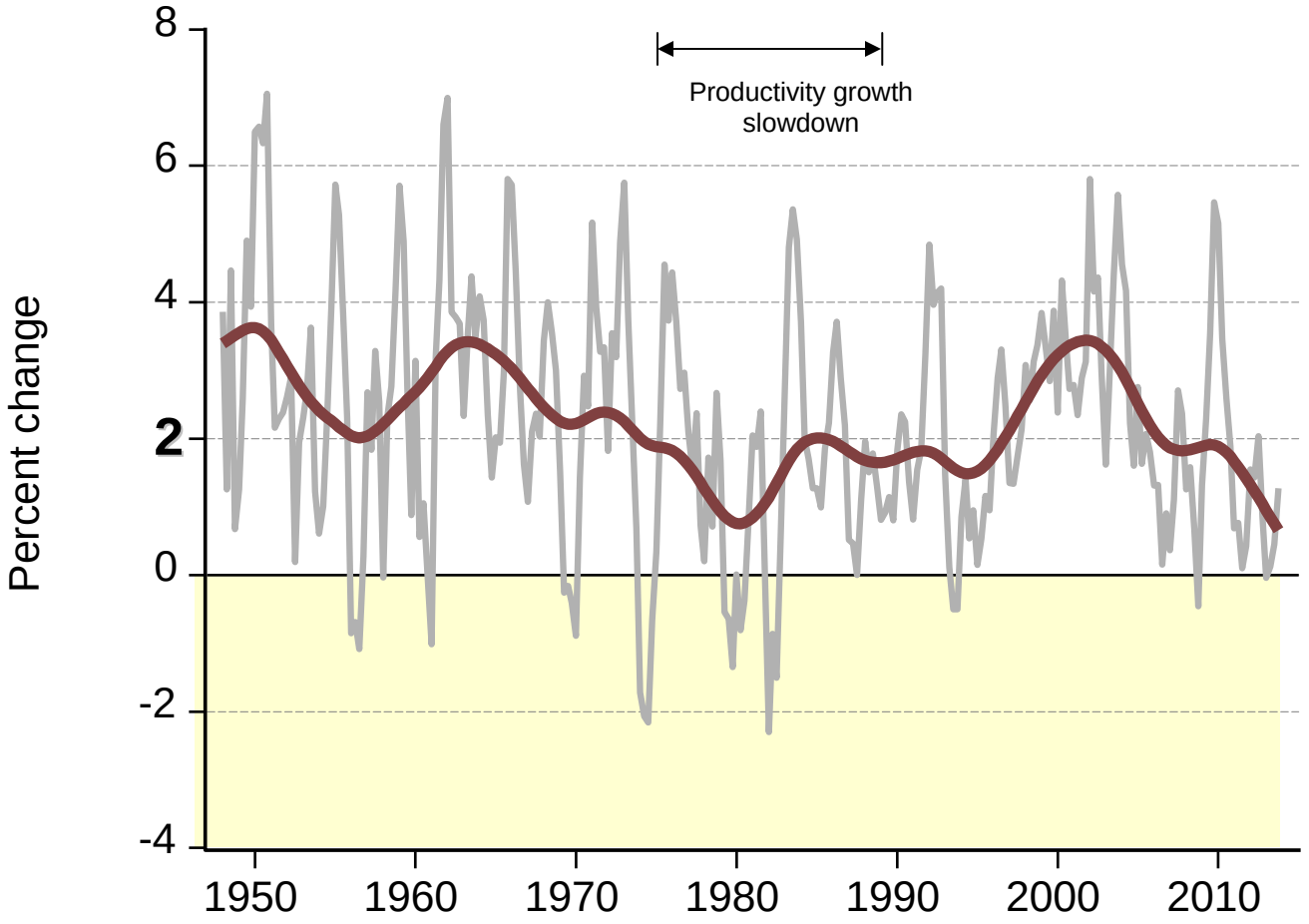
U.S. *per capita* real GDP, 1870-2013: postwar era characterized by upward shift in productivity growth



*Regression of natural log on second-order polynomial trend 1870-1929; growth rate is five-year projection 1930-1935
†Regression of natural log on second-order polynomial trend 1946-2007; growth rate is five-year projection 2015-2020

Sources: Real GDP data 1970-1929 from Angus Maddison (http://www.ggdc.net/maddison/maddison-project/home.htm) and data 1929-2013 are from the BEA (http://bea.gov/national/index.htm#gdp); deflation alignment and interval growth rates calculated by TZE

Growth of U.S. private business output per hour



1990s surge:*

- ¾ IT
- ¼ Non-IT

1970s slowdown:

- ½ Energy-intensive
- <¼ Other
- >¼ Measurement

20-teens slowdown:

- Energy again?

Source: Federal Reserve Bank of St. Louis (http://research.stlouisfed.org/fred2/series/OPHNFB), BLS (http://www.bls.gov/mfp/tables.htm), William Nordhaus (May 6, 2014), "A Retrospective on the Postwar Productivity Slowdown" Yale University, Kevin J. Stiroh (December 2002) "Information Technology and the U.S. Productivity Revival: What Do the Industry Data Say?" *American Economic Review* **92**:5 pp. 1559-76 (http://www.newyorkfed.org/research/staff_reports/sr115.html)

A challenge for Maui: cities are where it's at

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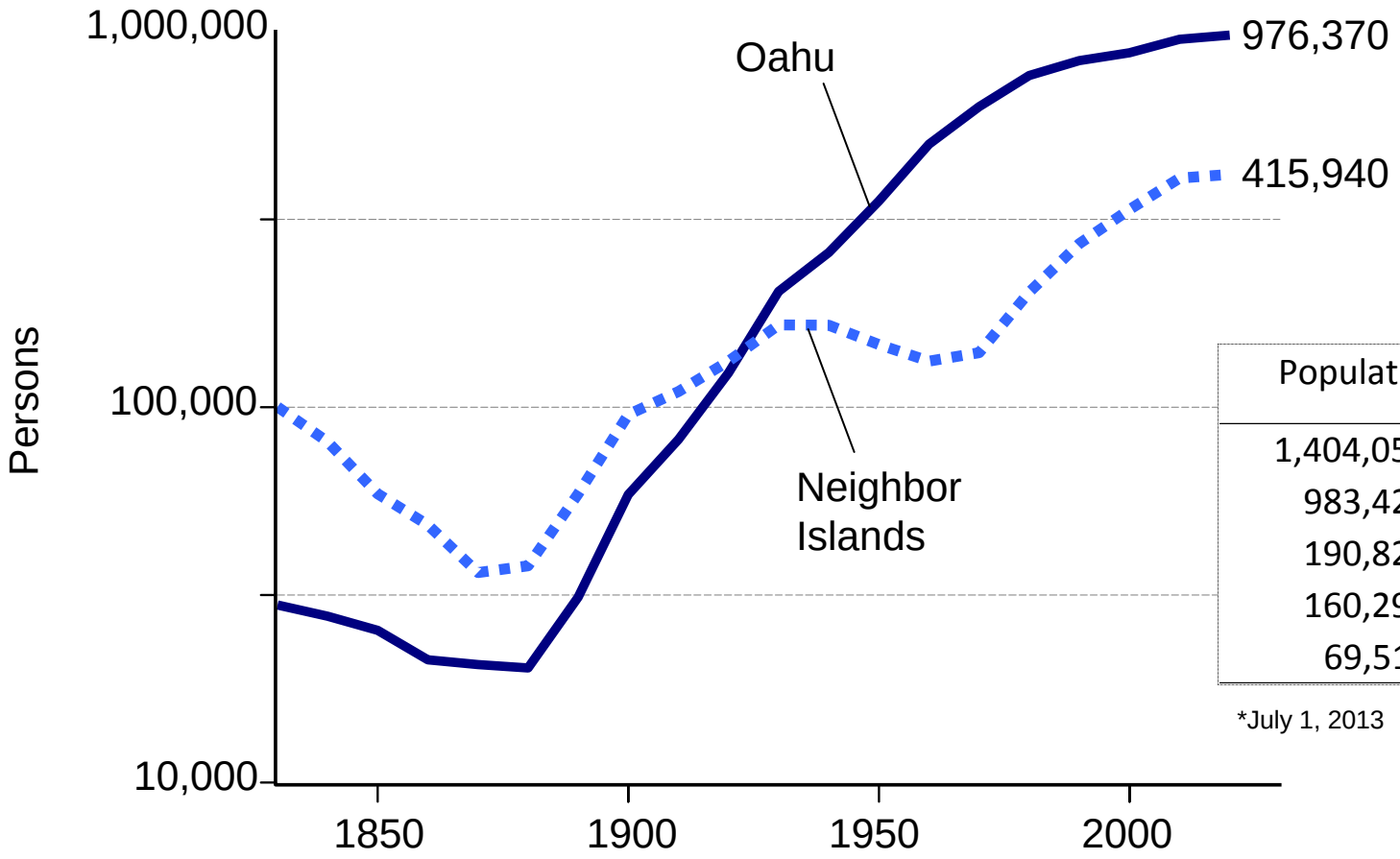
Hawaii population: 21st century neo-urbanization?

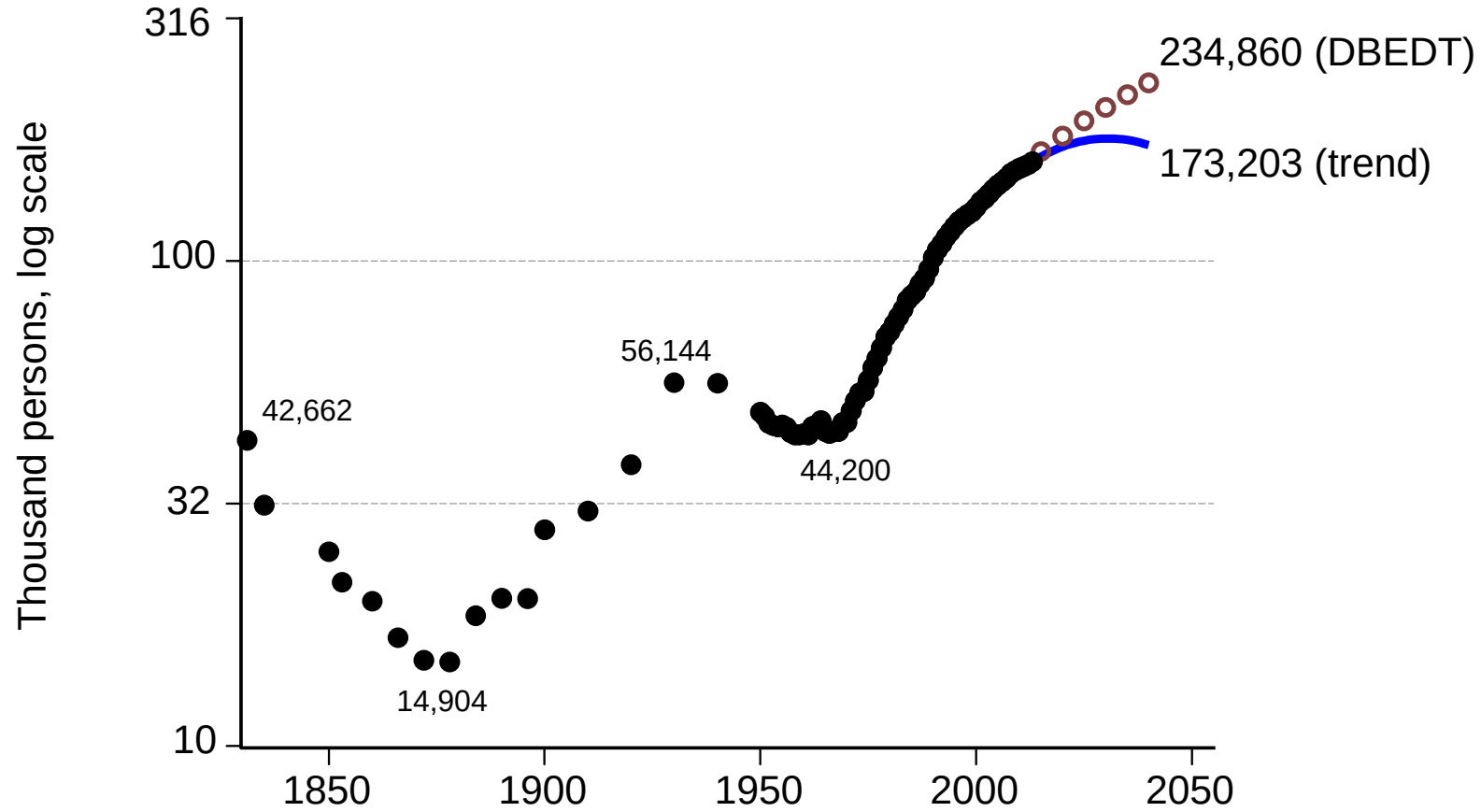


Population by County*	
1,404,054	Statewide
983,429	Oahu
190,821	Big Island
160,292	Maui
69,512	Kauai

*July 1, 2013

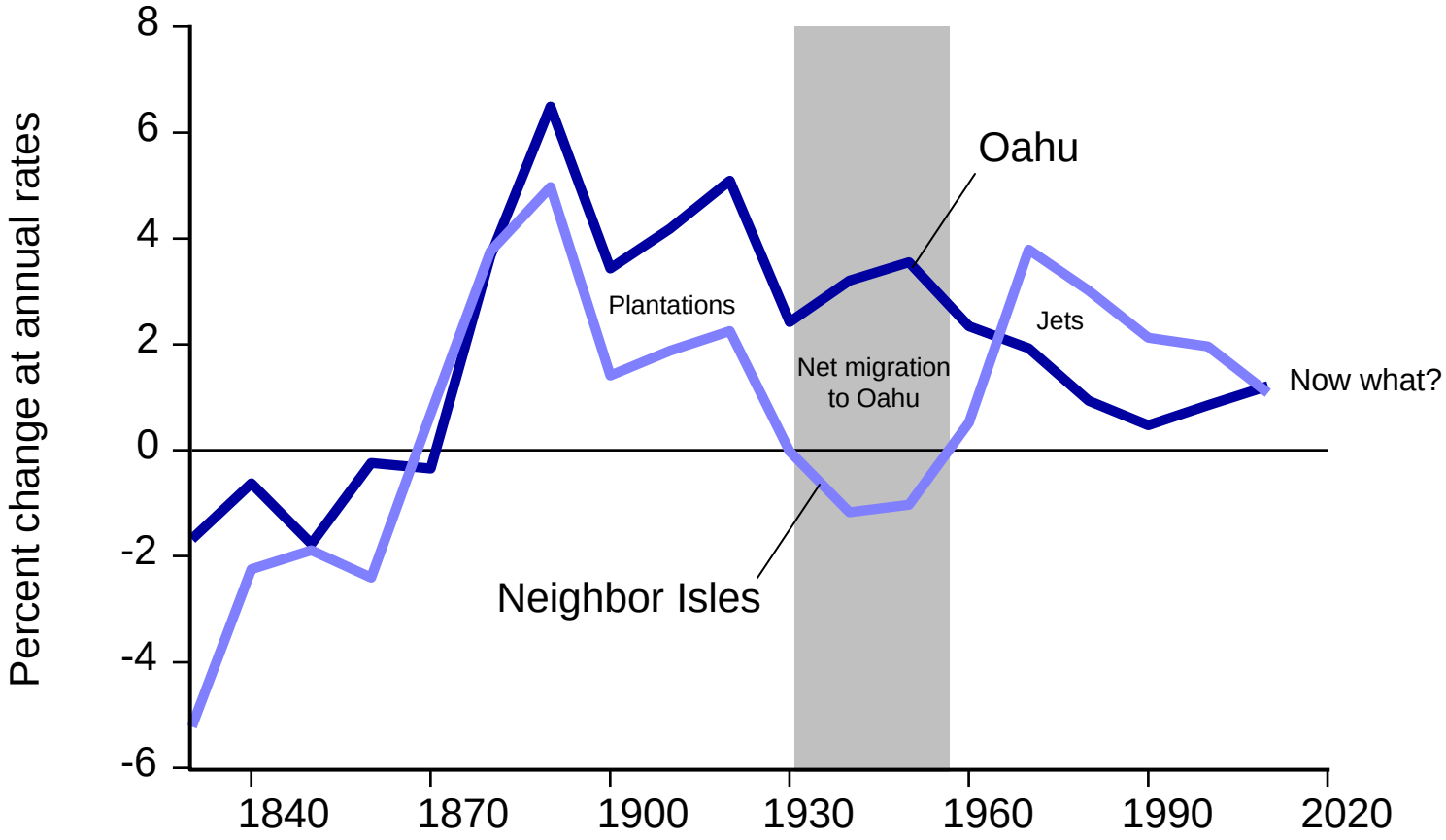
Sources: Robert C. Schmitt, *Historical Statistics of Hawaii* (1976), University of Hawaii Press; Bureau of the Census, U.S. Department of Commerce; Hawaii DBEDT (http://files.hawaii.gov/dbedt/census/popestimate/2013_county_char_hi_file/2013_popest_sumtab.xls)

Maui County population in history: mortality (1830-1865); out-migration (1940-1970)



Sources: Robert C. Schmitt, *Historical Statistics of Hawaii* (1976), University of Hawaii Press; Bureau of the Census, U.S. Department of Commerce; Hawaii DBEDT (http://files.hawaii.gov/dbedt/census/popestimate/2013_county_char_hi_file/2013_popest_sumtab.xls)

Oahu and Neighbor Island population growth rates over decades and the mid-20th century migration



Source: U.S. Bureau of the Census, Hawaii DBEDT (various), Robert C. Schmitt *Historical Statistics of Hawaii* (1976) UH Press

Urbanization has helped the services economy

- Fashionable to deride services as low-wage and presumptively less productive
- Reality is the opposite during the last twenty years
- Rise of the service sector has reshaped economic and physical landscape*

  Since the structural transformation shifts labor from high-productivity growth sectors to low-productivity growth sectors, Baumol (1967) feared that the economy was doomed to long-run stagnation. In our model this dismal prediction fails to materialize because it is exactly the structural transformation that makes the service sector concentrated enough for innovation to endogenously take off. This is consistent with the acceleration of services productivity growth in the mid-1990s, as well as with the increase in land rents and real wages around that period.

- Services spatially have concentrate to the point that innovation and productivity growth took off after the mid-1990s
- New urban model built on agglomeration economies may be ascendant

*Klaus Desmet and Esteban Rossi-Hansberg (2014), "Spatial Development," *American Economic Review* **104**(4), pp. 1211-1243; William Baumol (1967), "Macroeconomics of Unbalanced Growth: The Anatomy of Urban Crisis," *American Economic Review* **57**(3), pp. 415-426..

Agglomeration economies: "density is proximity"

- Agglomeration economies: one person's productivity rises when near others
  1. Externality—productivity rises in learning from or imitating a neighbor
  2. Internalized—supplier and customer co-locate to reduce transportation cost
- Explains urban density without appeal to external factors (ports, canneries)*

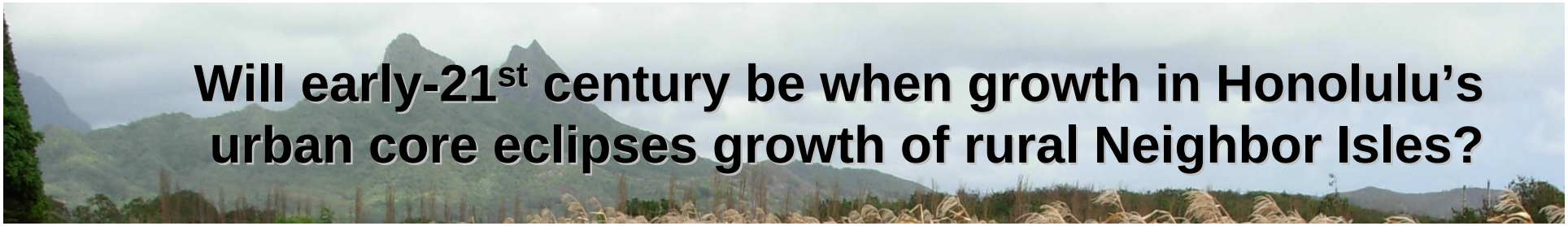
  ...the evidence suggests that these external factors are no longer that important. The older cities were generally built around harbors, and those harbors were significant, but there is no natural advantage that can explain Las Vegas…
- Mechanism partly combinatoric: more productive interactions possible the more people gather in related or complementary occupational pursuits†

  (e.g.) When research effort is applied, new ideas arise out of existing ideas in some kind of cumulative interactive process that intuitively has a very different feel from prospecting for petroleum. To me, the research process has a sort of pattern-fitting or combinatoric feel about it.

* Edward L. Glaeser (2008) *Cities, Agglomeration and Spatial Equilibrium*, Oxford University Press; Paul Krugman (1991), *Geography and Trade.* Cambridge MA: MIT Press. †Martin L. Weitzman (1996), "Hybridizing Growth Theory," *American Economic Review Papers and Proceedings* **86**(2)

Maui looks to extend its economic expansion, but are sources of momentum adequate?

- Maui economy—like all modern economies—does not primarily make *things*
  1. The economy is dominated by services- and information-producing *activity*
  2. Maui's principle export is a cluster of activities around travel and tourism
  3. Maui has two secondary sources of external receipts: sugar, seed corn
  4. Both are capital- and human capital-intensive agricultural activities (e.g. R&D)
- Maui exports have not grown since 2012 (see Appendix 1)
- First-half of expansion was export-led (tourism, sugar, seed corn)(2009-2012)
- Second-half of expansion *should* be investment-led (construction, real estate)
- Evidence so far of only moderate revival in Maui investment activity
  1. Prices, existing home sales settling at three-fourths of last cycle's volume
  2. Private new construction commitments very slow to rebuild from deep trough



Will early-21st century be when growth in Honolulu's urban core eclipses growth of rural Neighbor Isles?

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TZ ECONOMICS

Appendix 1: Maui tourism stalled

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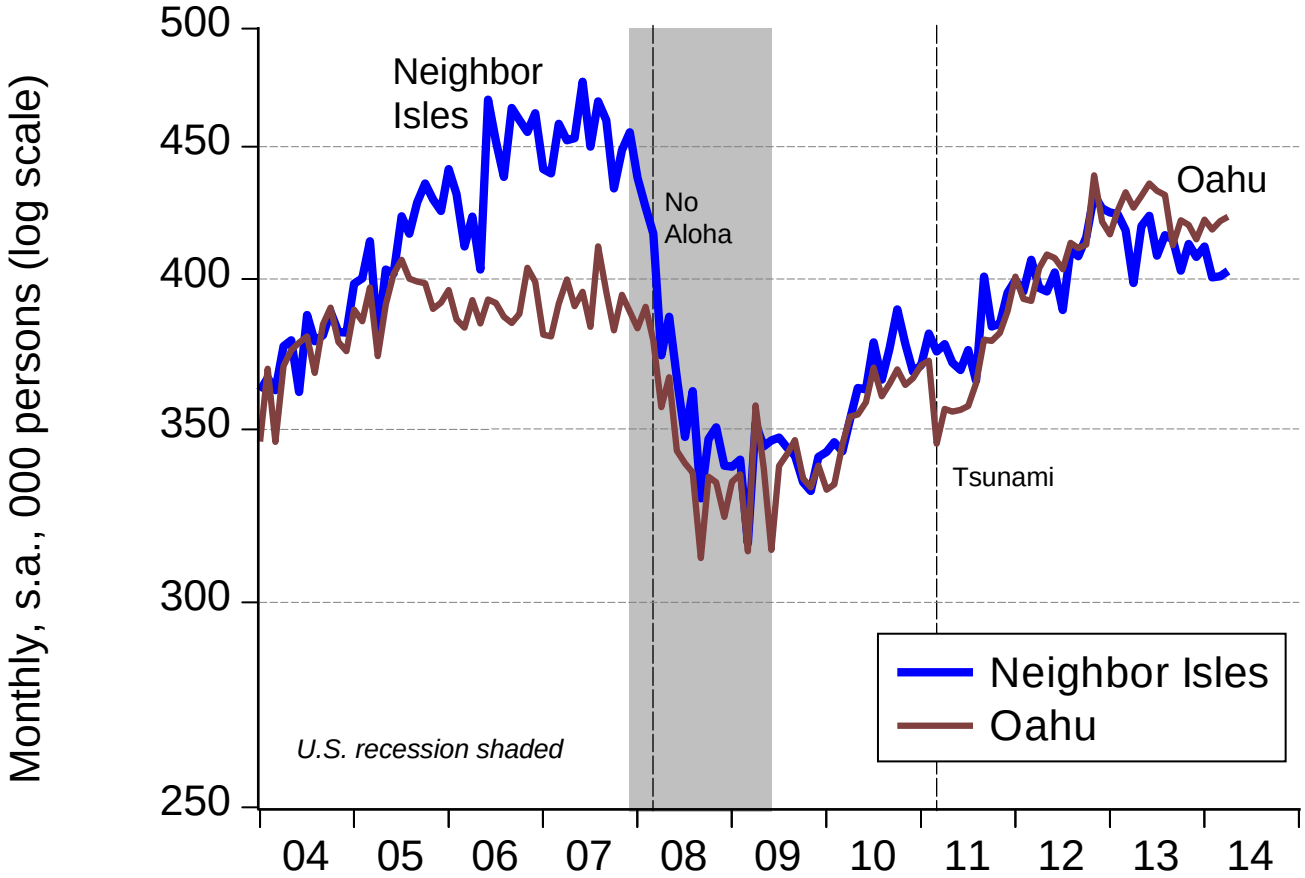
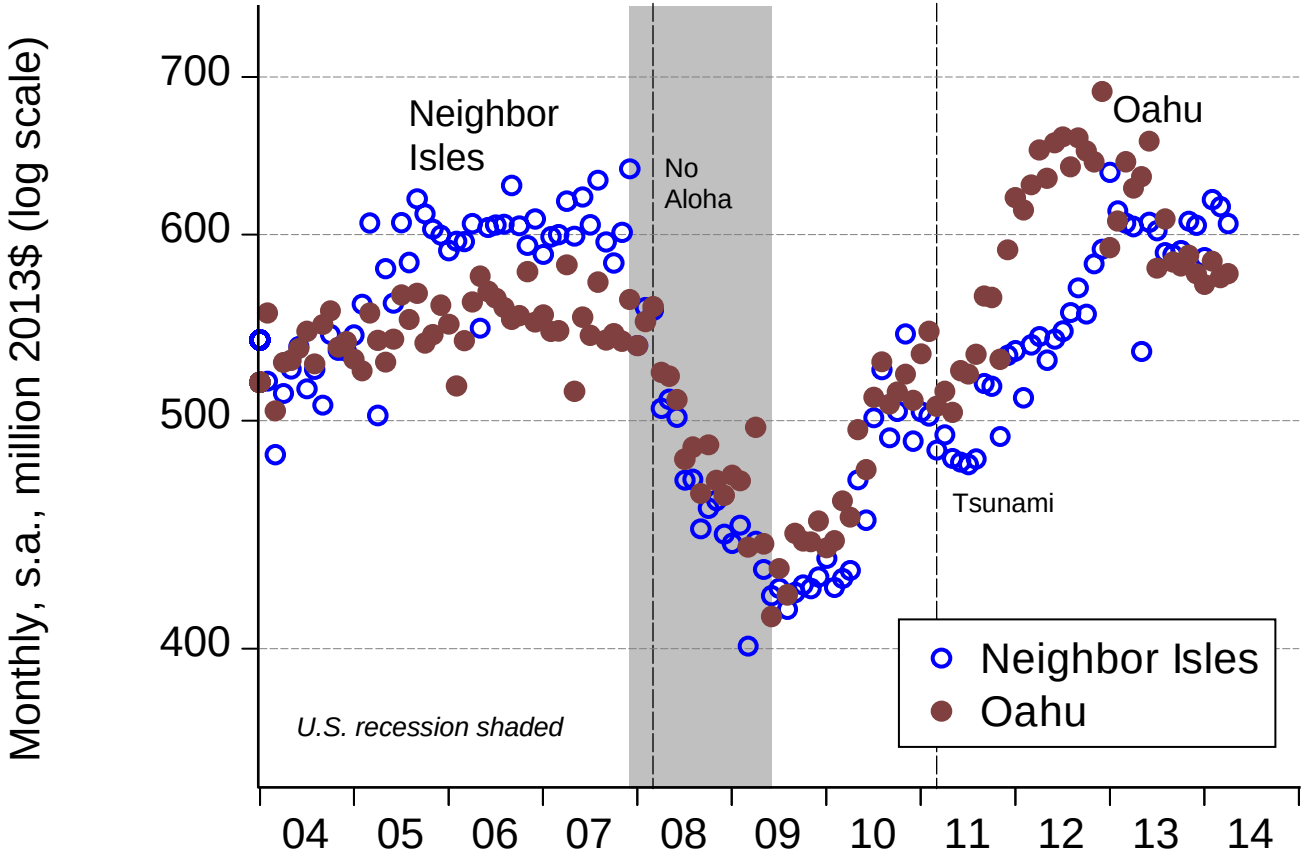
Total visitor arrivals stalled: Neighbor Islands lower, Oahu higher than last cyclical peak



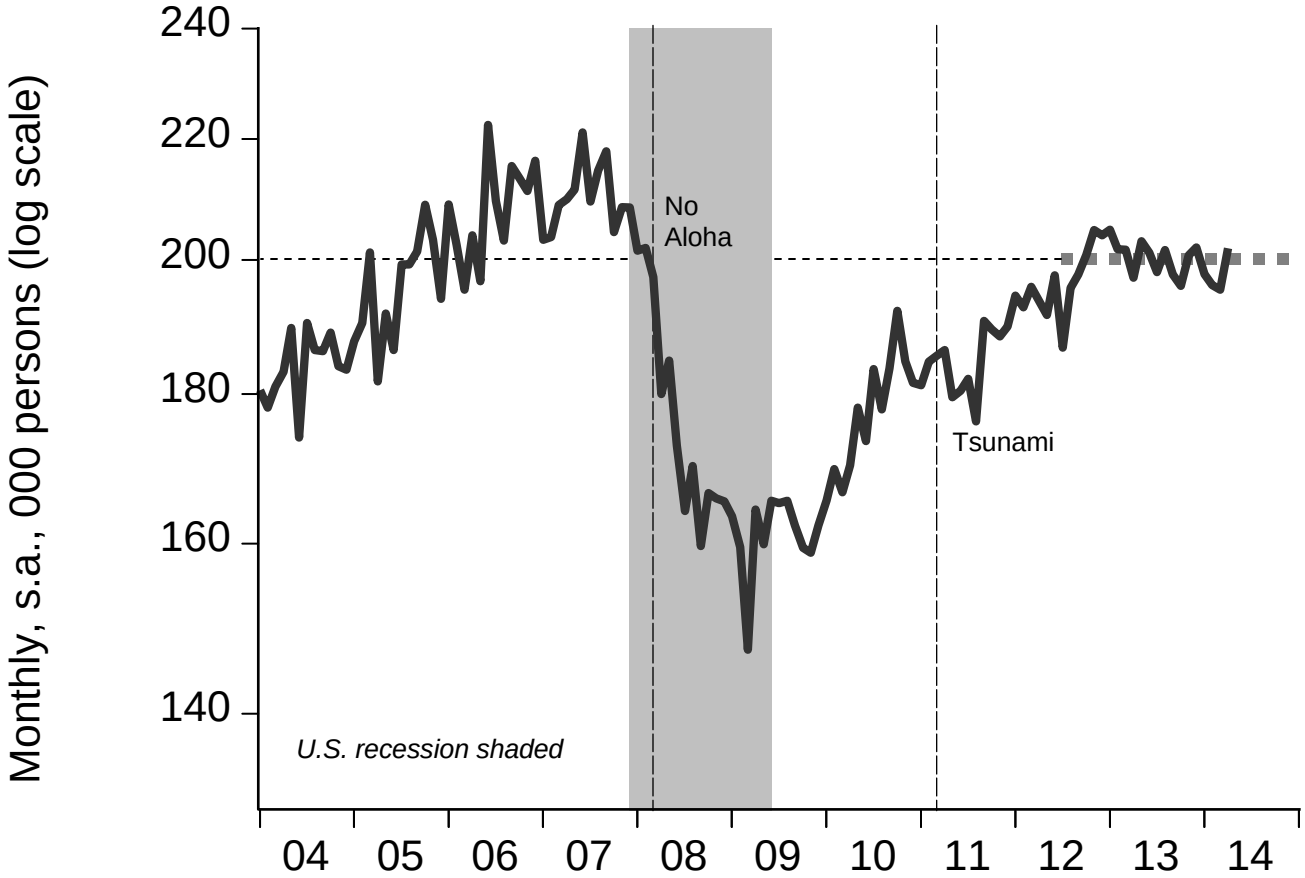
Source: Hawaii Tourism Authority, Hawaii DBEDT; BEA, U.S. Department of Commerce; deflation, seasonal adjustment by TZ Economics

Real visitor expenditure stalled: Oahu higher, Neighbor Islands match last cyclical peak



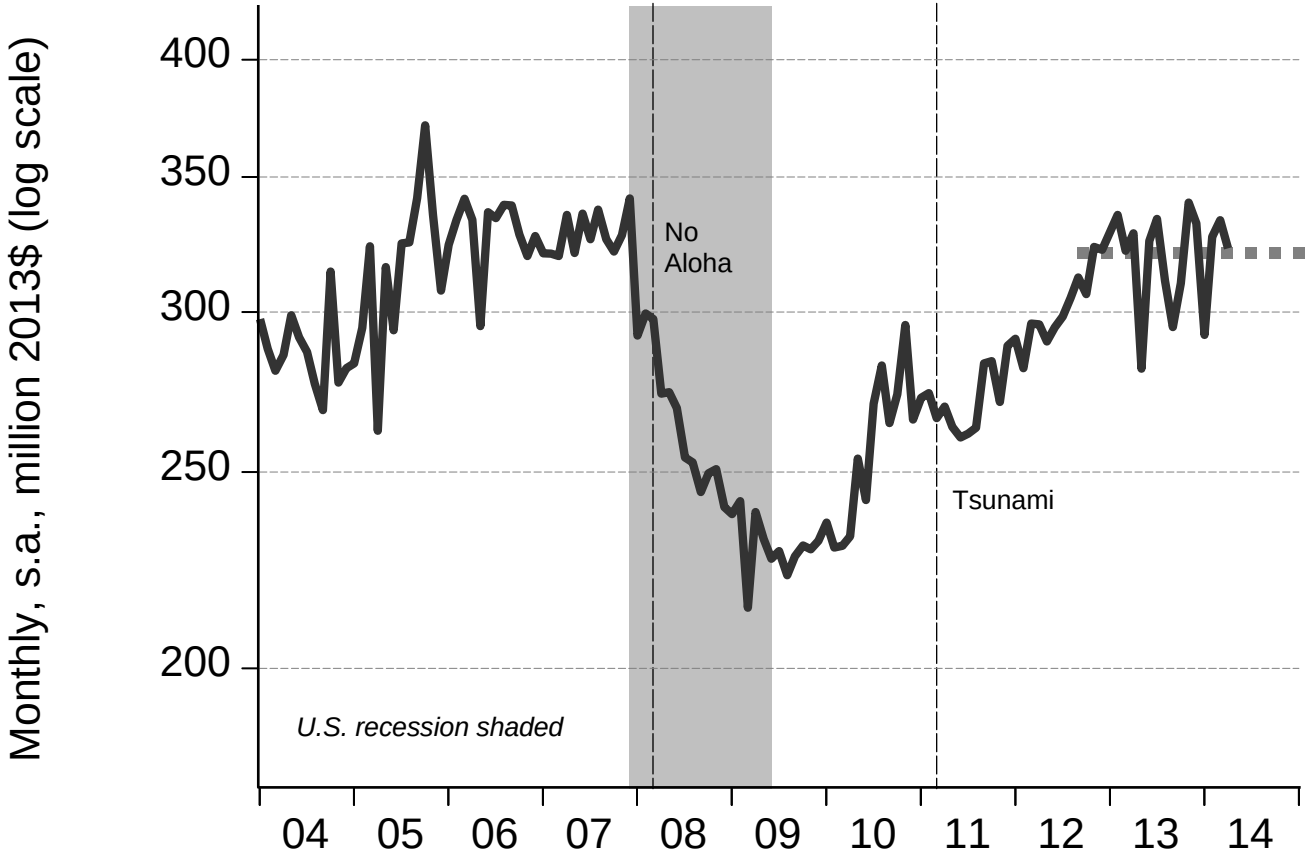
Source: Hawaii Tourism Authority, Hawaii DBEDT; BEA, U.S. Department of Commerce; deflation, seasonal adjustment by TZ Economics

Maui visitor arrivals stalled: just below last peak; trends flat to down



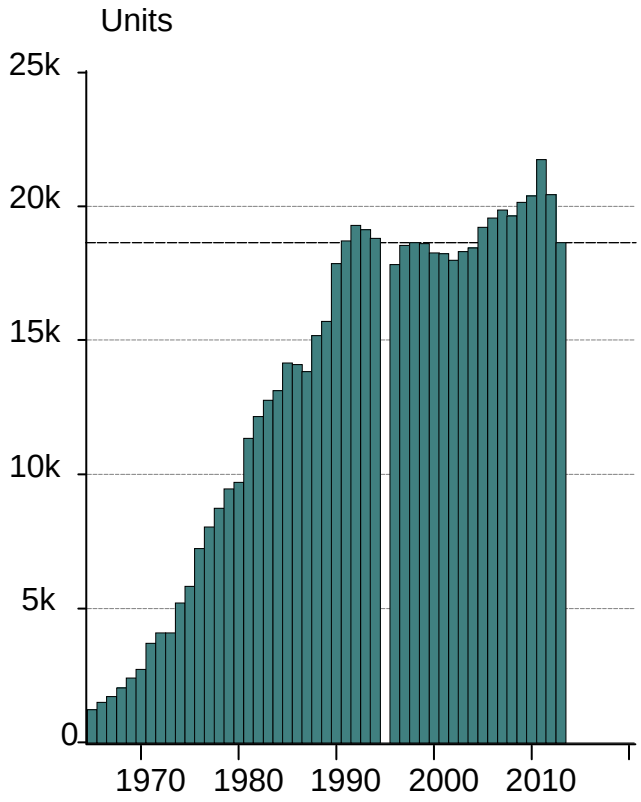
Source: Hawaii Tourism Authority, Hawaii DBEDT; BEA, U.S. Department of Commerce; deflation, seasonal adjustment by TZ Economics

Maui real visitor expenditure stalled: capped at previous peak; trend sideways

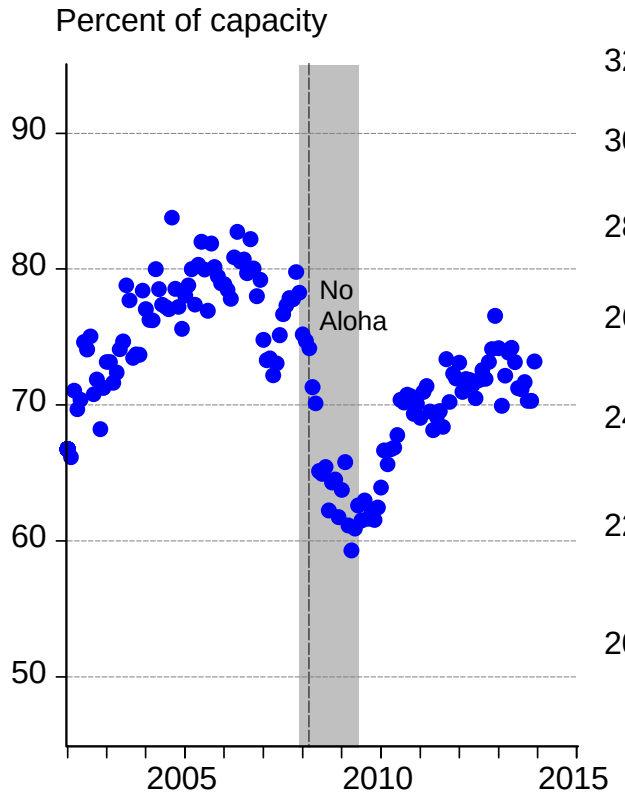


Source: Hawaii Tourism Authority, Hawaii DBEDT; BEA, U.S. Department of Commerce; deflation, seasonal adjustment by TZ Economics

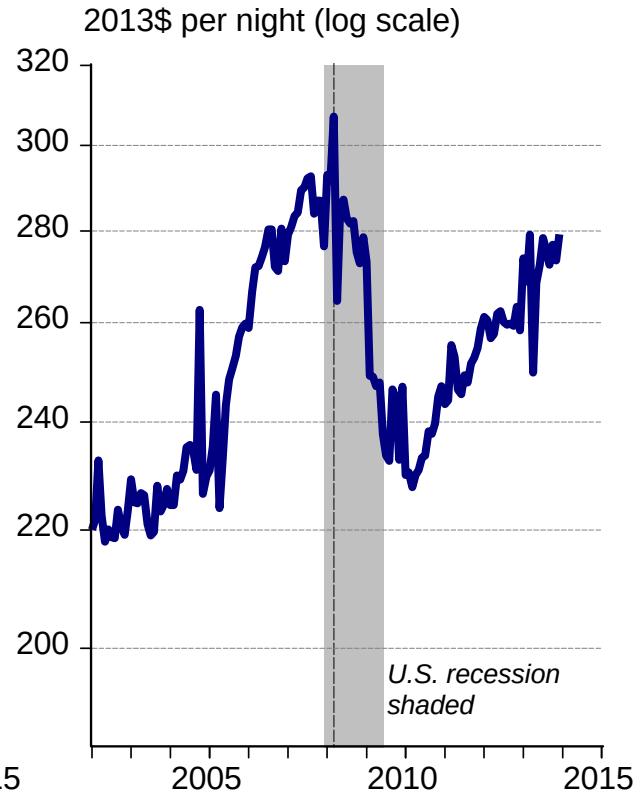
Maui lodging: tight inventory, real room rates rapidly rising after only partial occupancy recovery



Visitor plant inventory



Hotel occupancy



Real average daily room rate

Source: BEA, Hawaii DBEDT, Hospitality Advisors LLC; TZE database; seasonal adjustment by TZE, deflation uses U.S. personal consumption deflator (chain-weighted)