

A Forecast for the Puget Sound Economy: Both Sides of the Curtain

Seattle Economics Council

October 2, 2019

Hart Hodges

Outline

Most recent forecast

- and the data behind it

More general data and issues

Digging behind the Puget Sound Forecaster model

Summary Forecast, September 2019

Annual Percent Change

	2017	2018	2019	2020
Puget Sound Region				
Employment	2.4	2.4	2.3	1.7
Personal income (cur. \$)	5.5	6.2	5.1	4.2
Consumer price index	3.0	3.2	2.7	2.2
Housing permits	7.0	-6.6	-3.9	-12.1
Population	1.5	1.4	1.3	1.2
United States*				
GDP (\$12)	2.4	2.9	2.3	1.9
Employment	1.6	1.7	1.6	1.1
Personal income (cur. \$)	4.7	5.6	4.3	3.6
Consumer price index	2.1	2.4	1.8	2.1
Housing starts	2.8	3.4	1.4	0.3

*Source: Blue Chip Economic Indicators

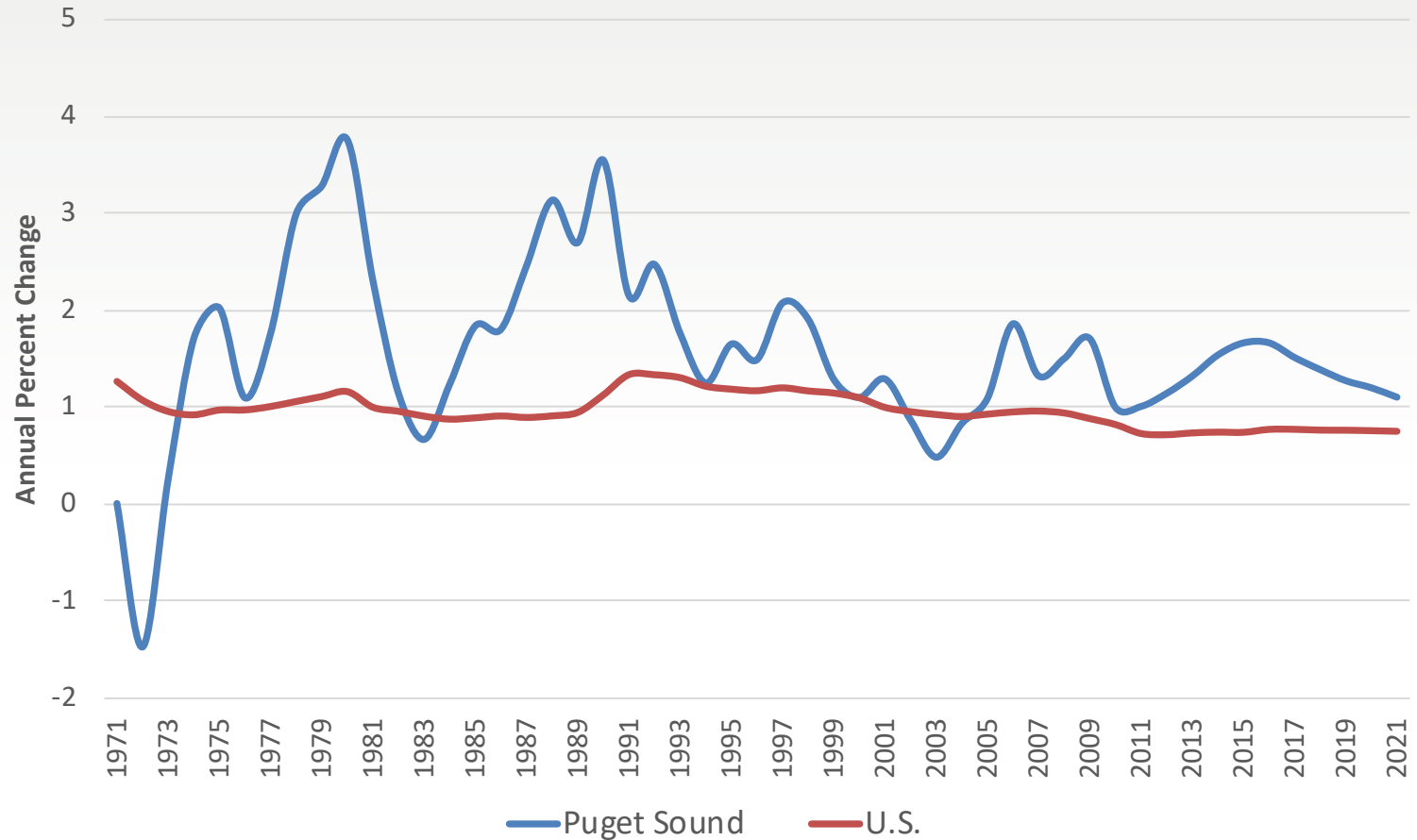
Change in Summary Forecast Since June 2019*

Percent Change

	2017	2018	2019	2020
Puget Sound Region				
Employment	0.0	0.0	0.1	0.3
Personal income (cur. \$)	0.3	1.0	-0.1	-0.3
Consumer price index	0.0	0.0	0.0	-0.1
Housing permits	0.1	-0.1	10.4	-8.3
Population	0.0	0.0	0.0	0.1
United States*				
GDP (\$12)	0.2	0.0	-0.3	0.3
Employment	0.0	0.0	-0.1	0.2
Personal income (cur. \$)	0.3	1.1	-0.1	-0.2
Consumer price index	0.0	0.0	-0.1	-0.1
Housing starts	0.0	0.0	3.0	-2.2

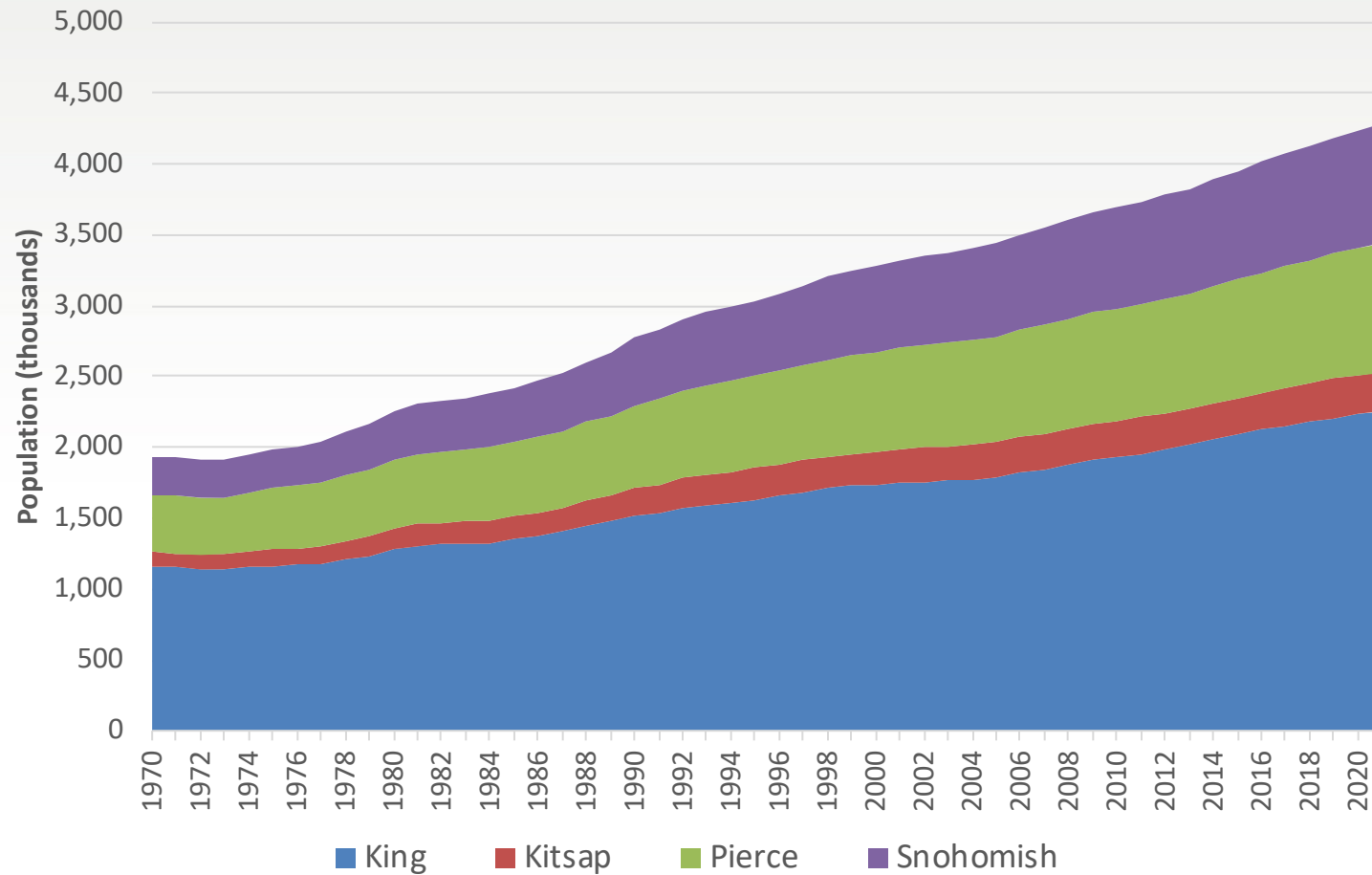
*Percentage point difference between the June 2019 and March 2019 growth rates (June – March = Difference)

Population

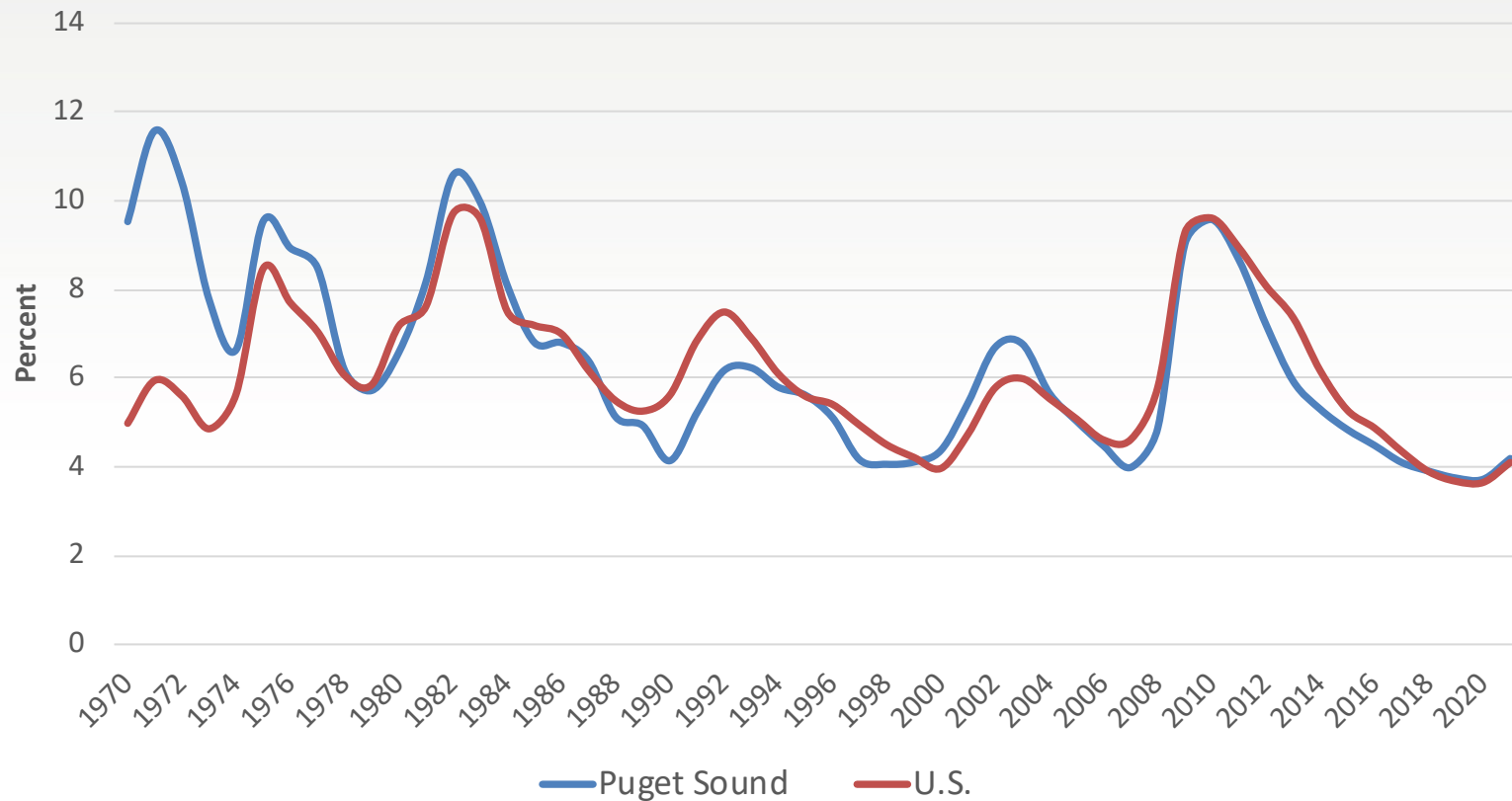




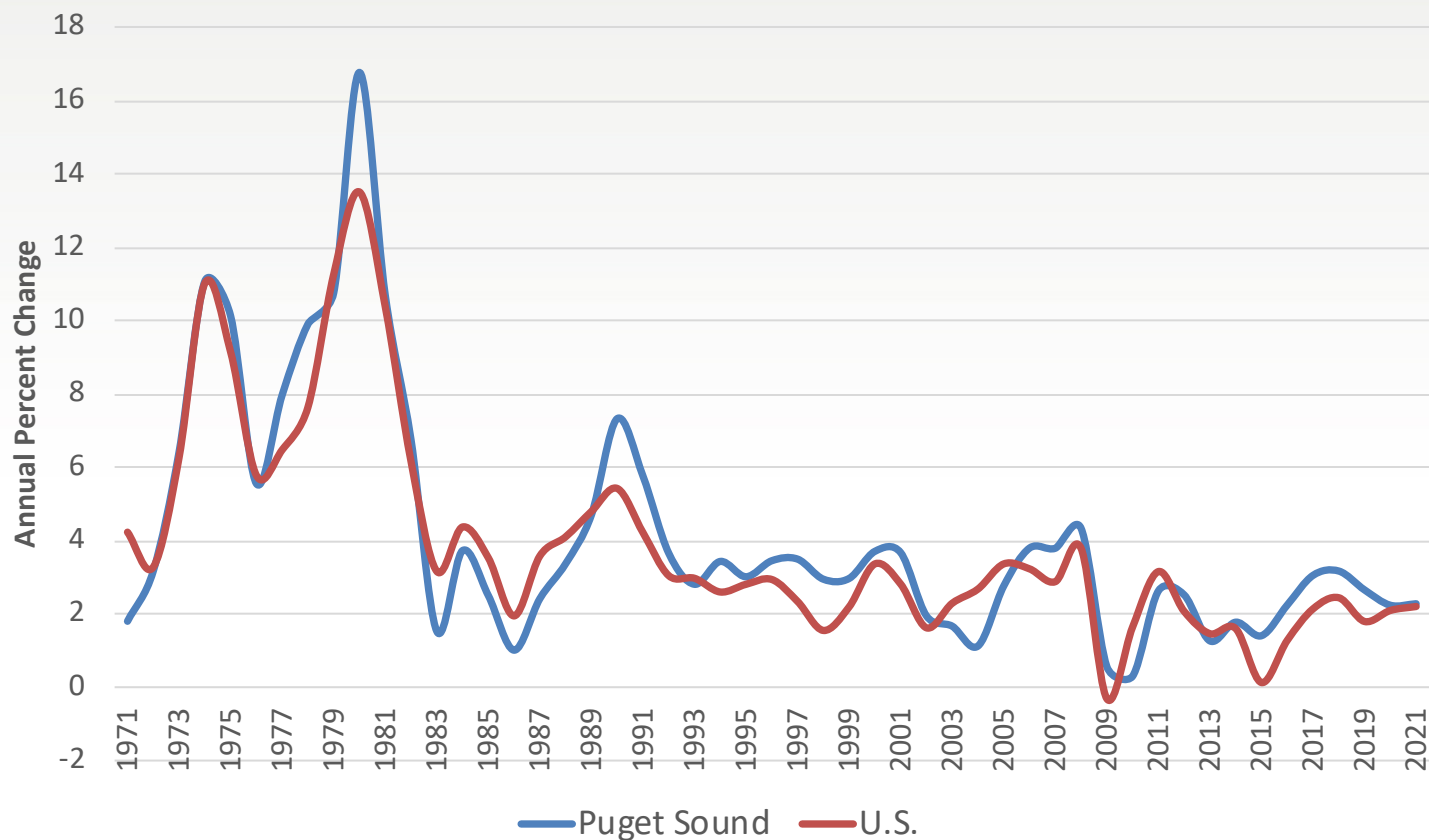
Population



Unemployment Rate



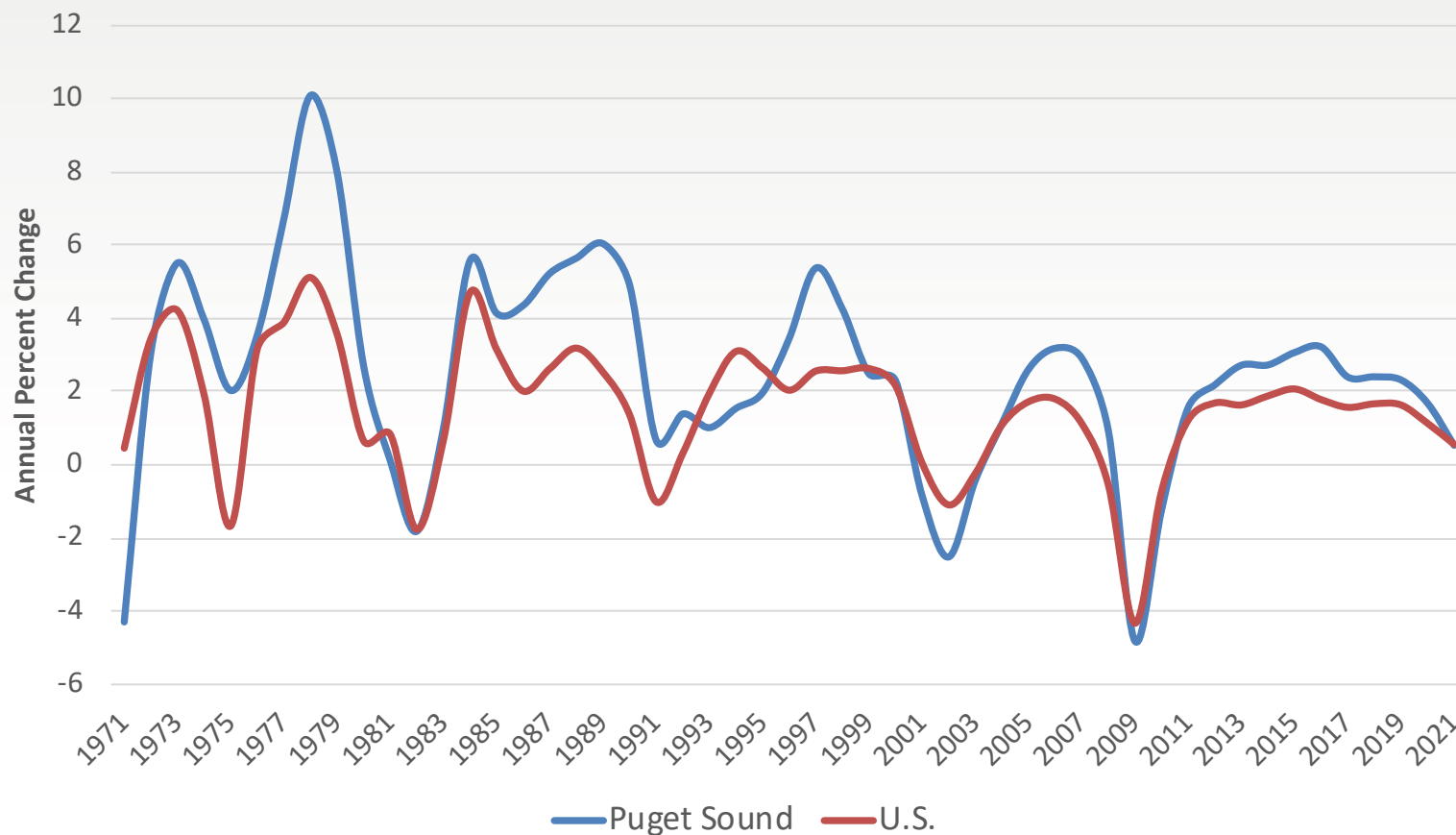
Consumer Price Index



Cost of Living

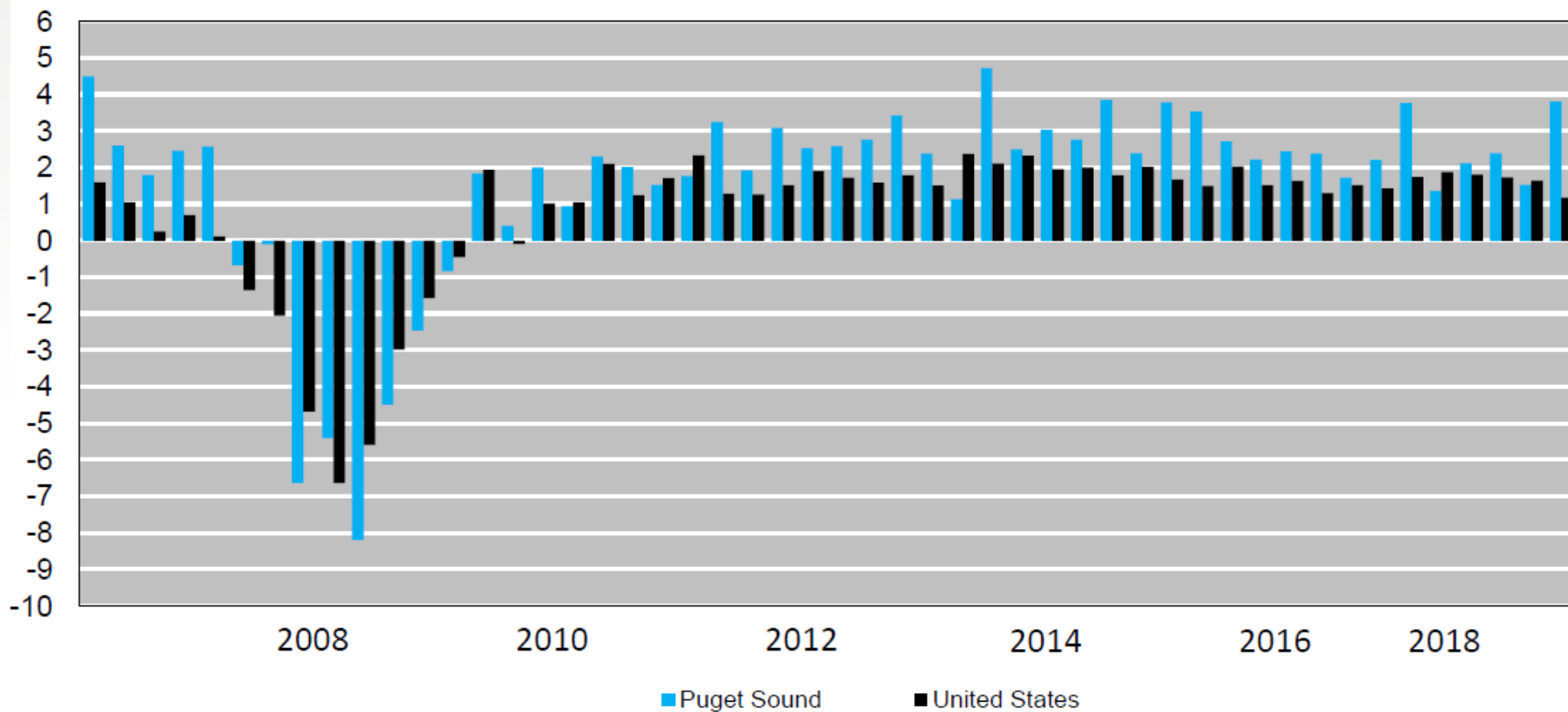
Area	C2ER COL Estimate
Bellingham (Whatcom)	117.5
Anacortes-Mt. Vernon (Skagit)	116.7
Seattle/Bellevue/Everett	156.1
Olympia	105.1
Tacoma	106.5
Wenatchee	109.1
Yakima	95.8

Employment

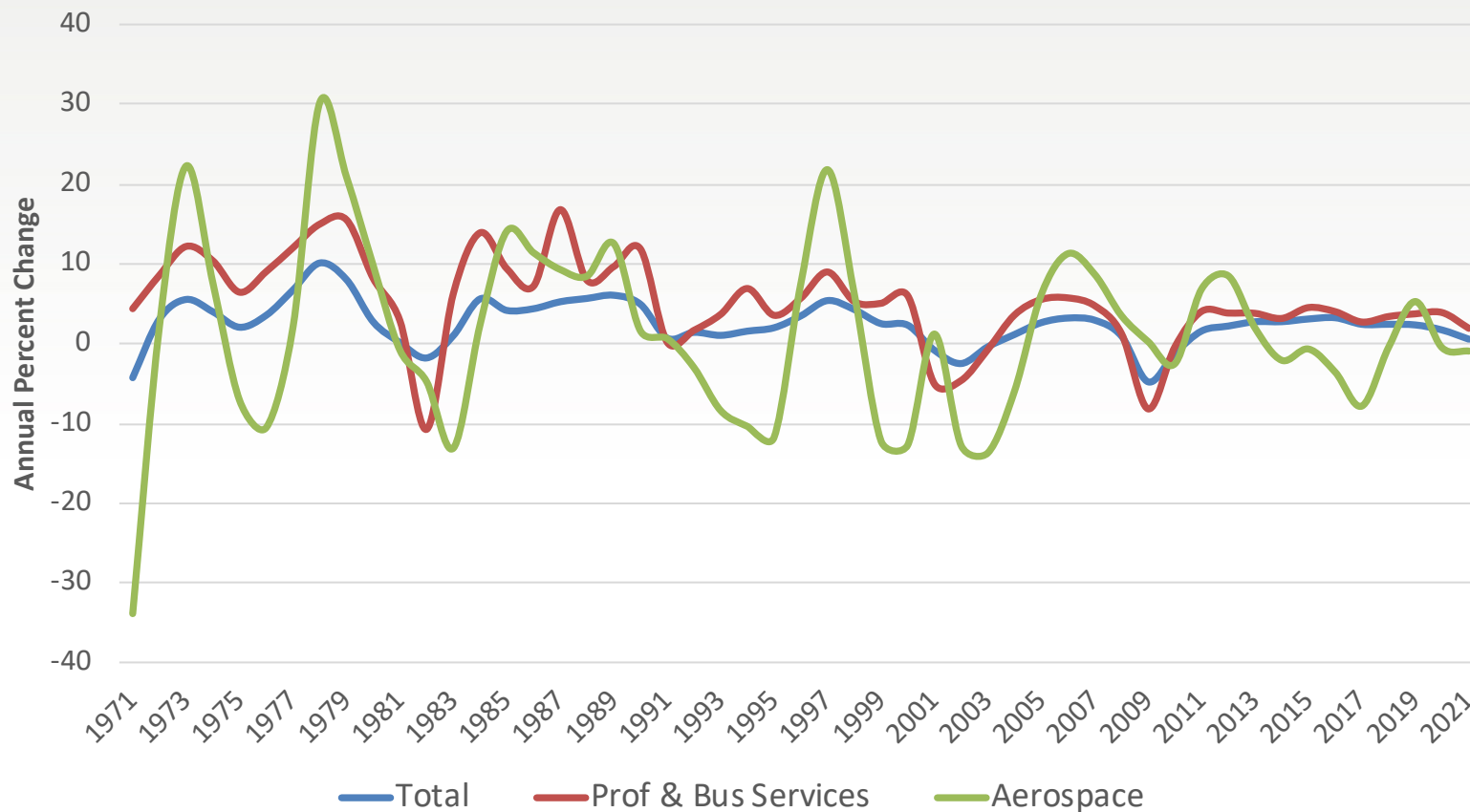


Puget Sound and U.S. Employment Growth

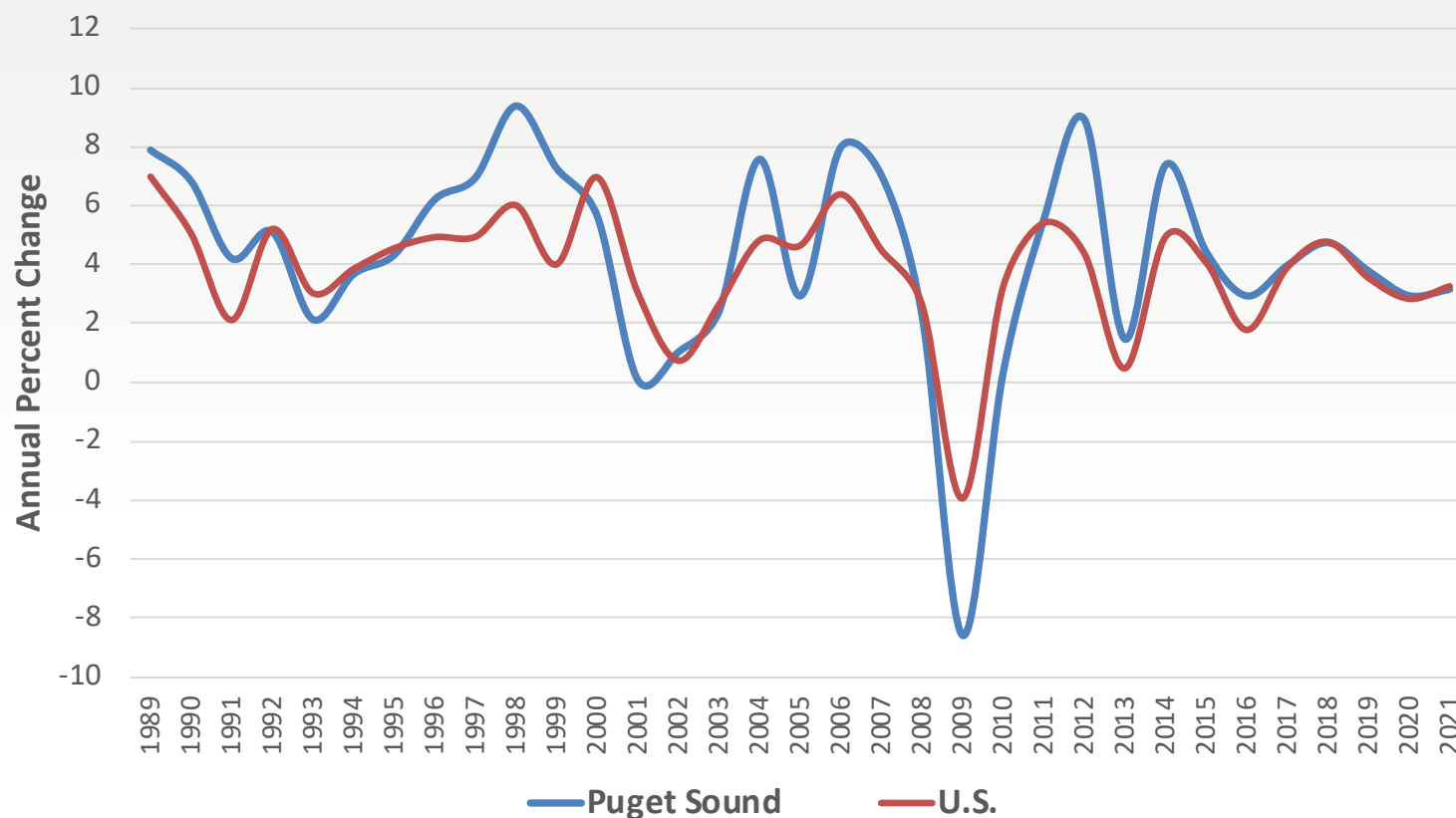
Annual Percent Change



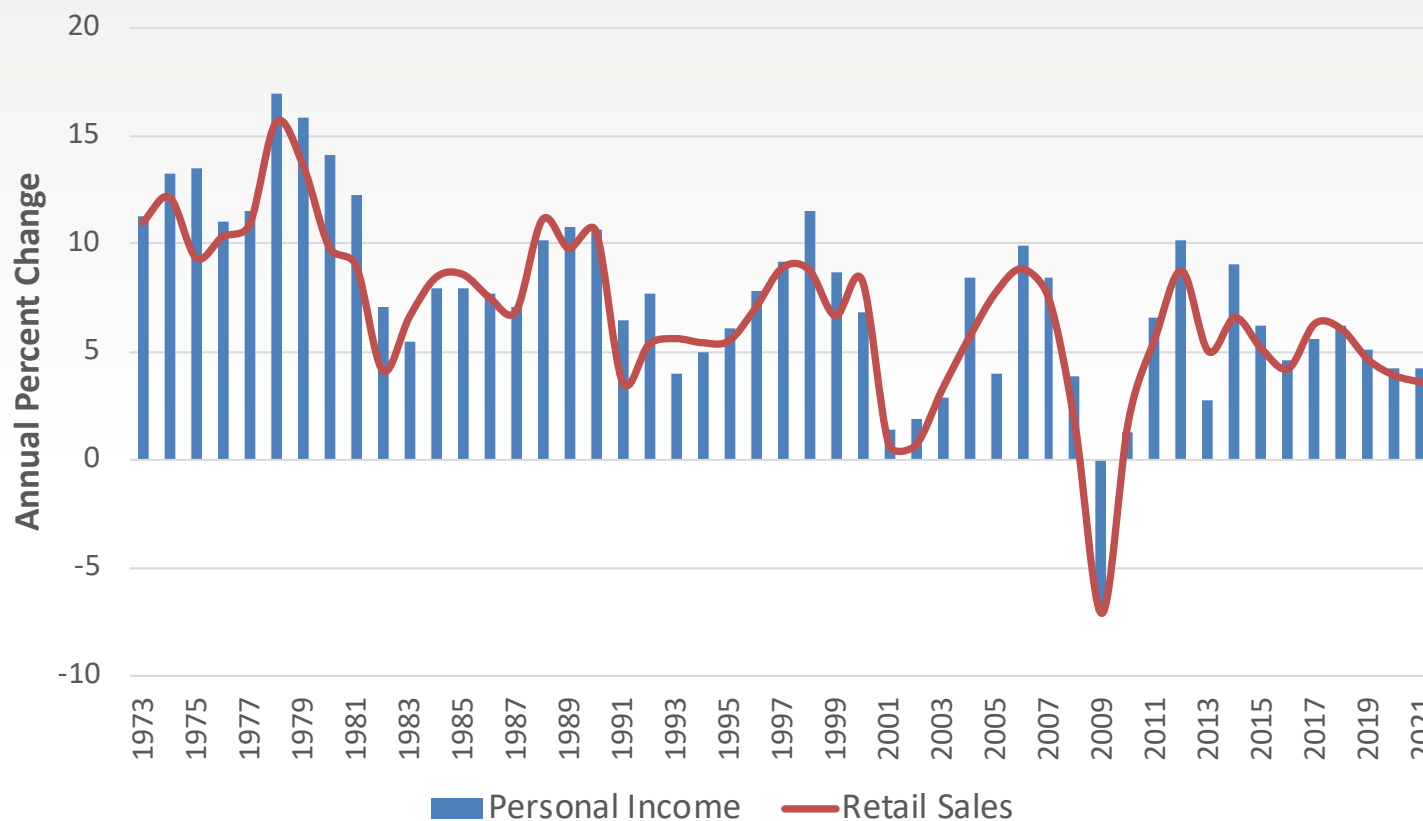
Employment (Puget Sound)



Personal Income



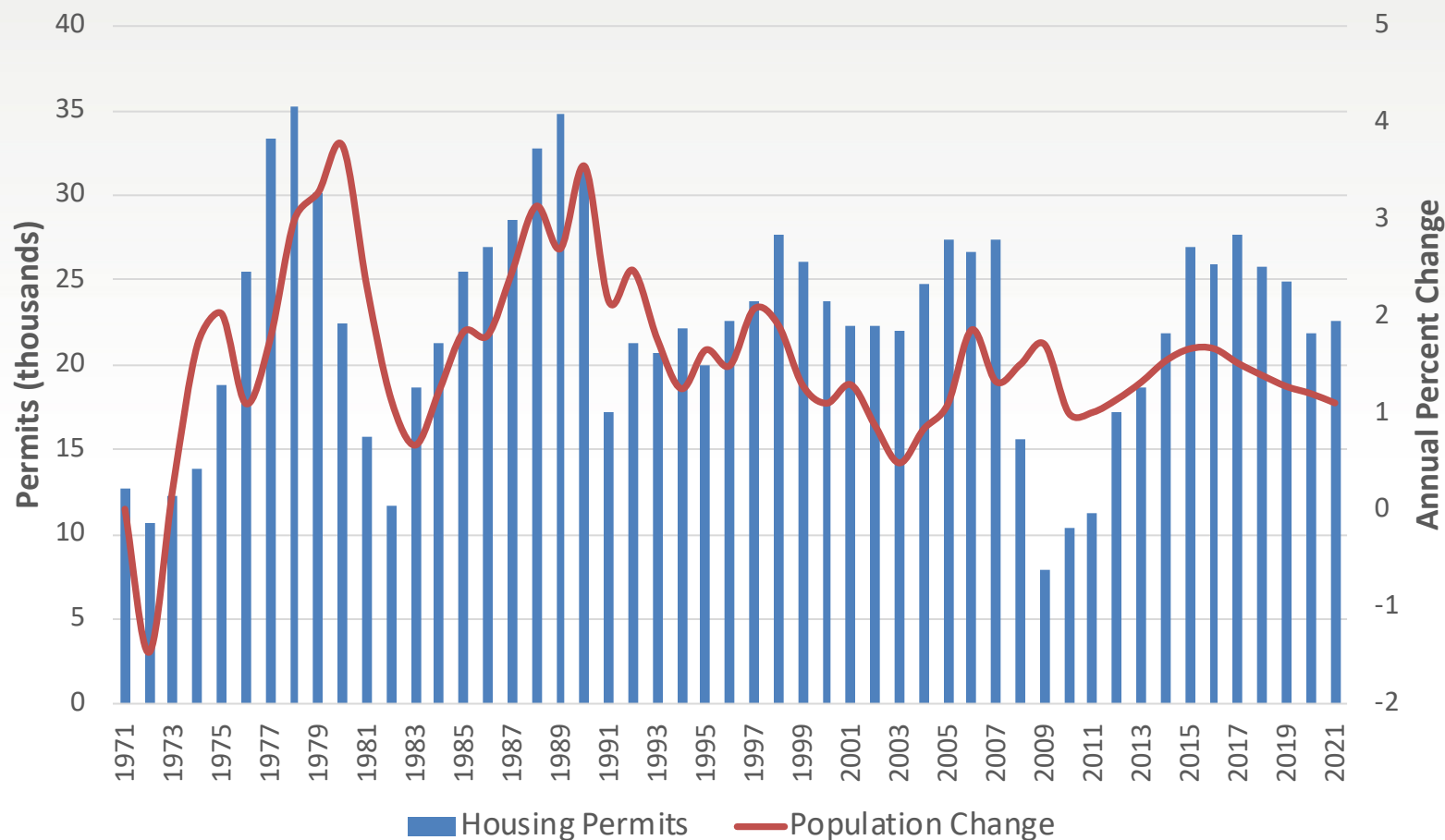
Retail Sales and Personal Income



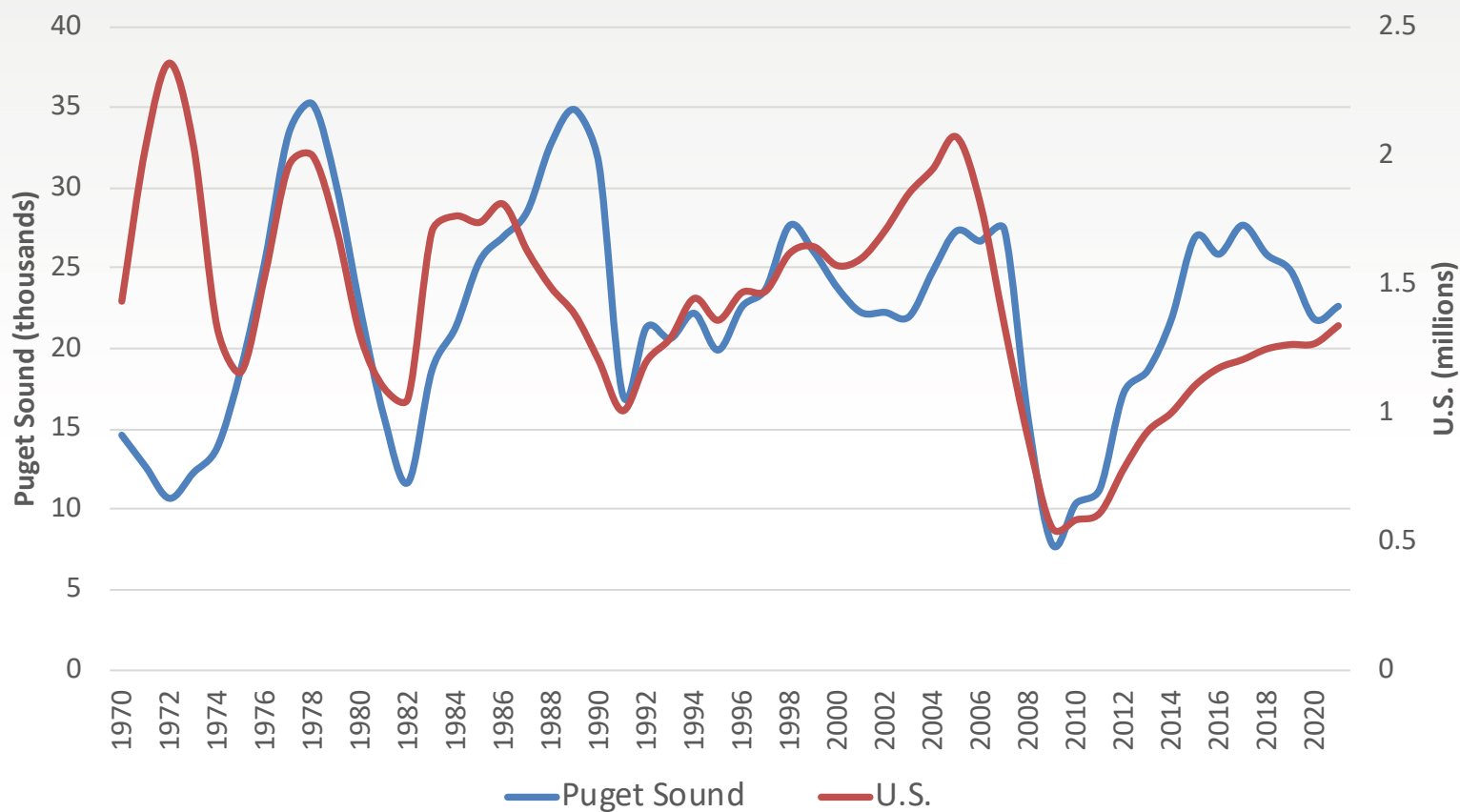
PUGET SOUND RETAIL SALES

	2019				2020		Years			
	2019.1	2019.2	2019.3	2019.4	2020.1	2020.2	2017	2018	2019	2020
Retail sales (bils. \$)	91.9	93.7	94.2	95.0	96.0	96.9	84.5	89.6	93.7	97.4
Building materials	7.1	7.3	7.3	7.2	7.2	7.3	6.7	7.0	7.2	7.3
Motor vehicles and parts	21.5	22.3	22.3	22.6	22.8	23.0	19.7	21.0	22.2	23.0
Furniture and electronics	3.5	3.5	3.5	3.5	3.5	3.6	3.3	3.4	3.5	3.6
General merchandise	9.8	9.9	10.0	10.1	10.1	10.2	9.3	9.6	9.9	10.3
Food and beverage	11.8	12.0	12.1	12.2	12.3	12.4	11.1	11.5	12.0	12.4
Gasoline stations	5.4	5.4	5.4	5.3	5.3	5.3	5.0	5.6	5.4	5.3
Clothing and accessories	4.5	4.5	4.6	4.6	4.6	4.7	4.1	4.3	4.5	4.7
Food services and drinking	11.6	11.8	11.9	11.9	12.1	12.2	10.5	11.2	11.8	12.3
Other retail sales	16.7	17.0	17.3	17.6	18.0	18.3	14.8	16.0	17.2	18.5
Taxable retail sales (bils. \$)	109.0	112.3	112.9	113.6	114.5	115.3	97.9	107.3	111.9	115.7
Retail trade	44.0	45.1	45.3	45.5	45.8	46.1	40.3	43.1	45.0	46.3
Other taxable sales	65.0	67.2	67.6	68.1	68.7	69.2	57.6	64.3	67.0	69.4
Annual growth (% change)										
Retail sales	3.3	7.7	2.3	3.4	4.0	3.9	6.3	6.0	4.6	3.9
Taxable retail sales	-6.9	12.1	2.1	2.7	3.1	2.7	6.2	9.7	4.3	3.3

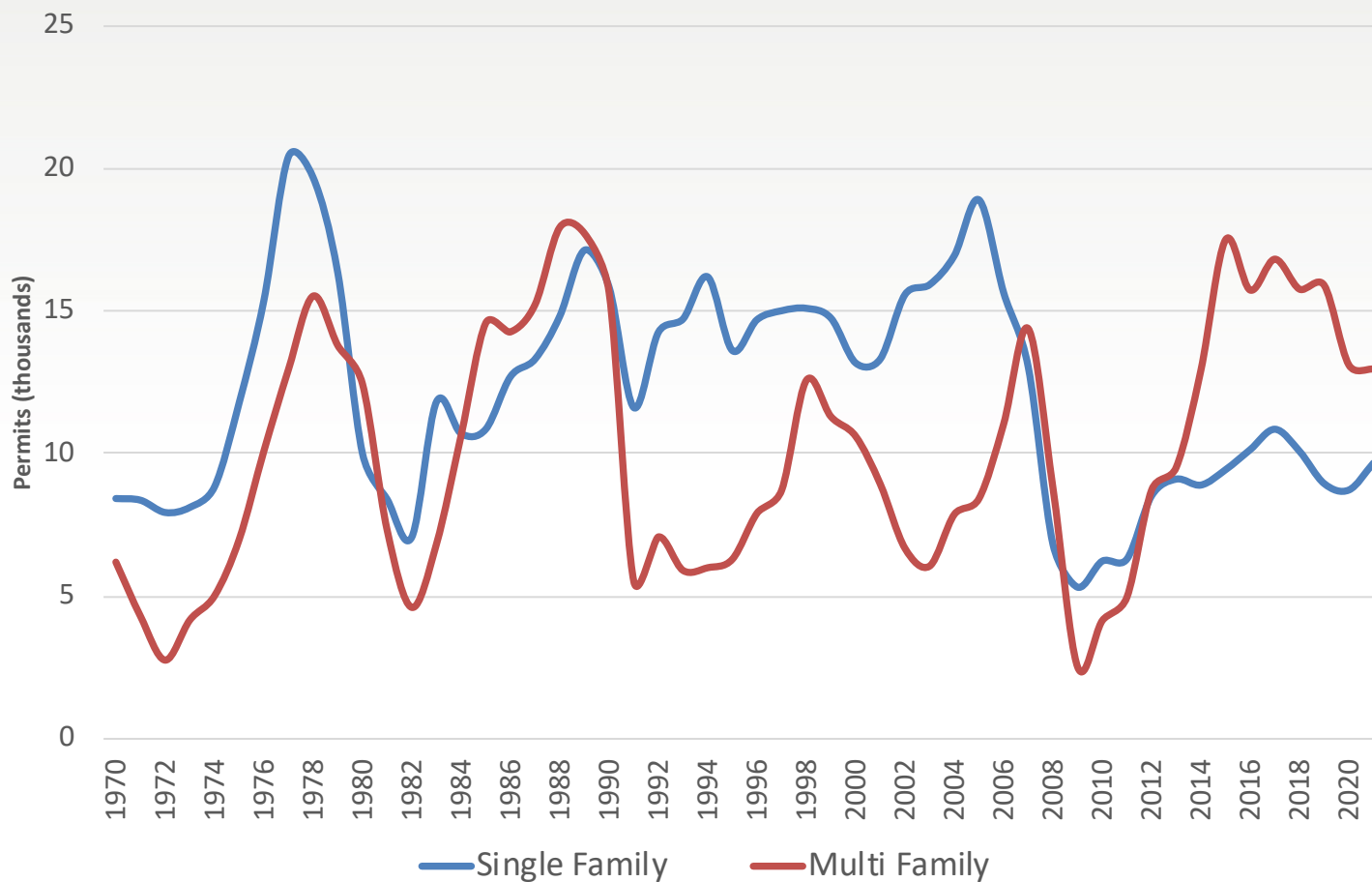
Housing & Population

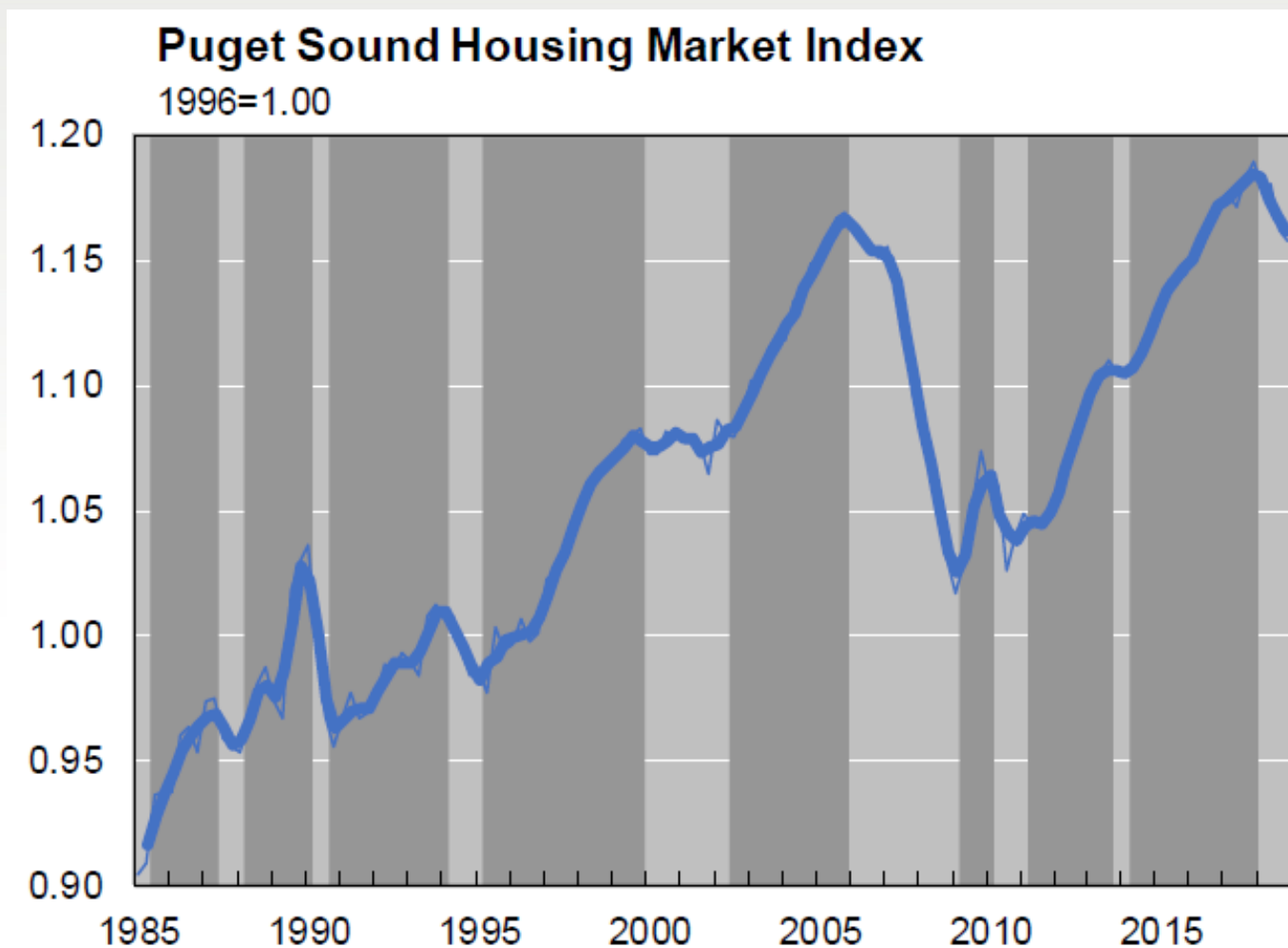


Housing Permits



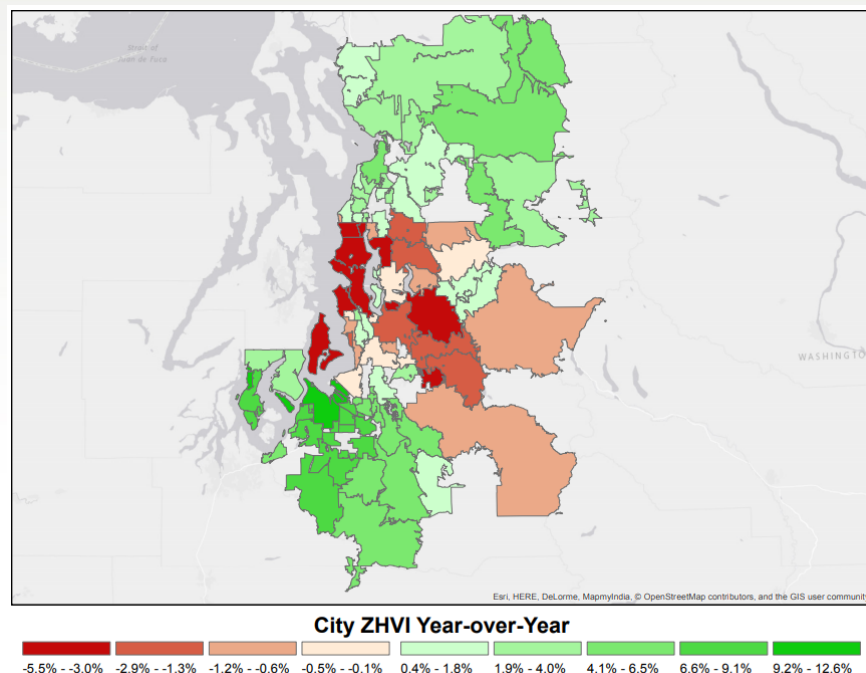
Housing Permits





... four housing indexes in the Newsletter

Puget Sound – Seattle is in the “eye of the storm”

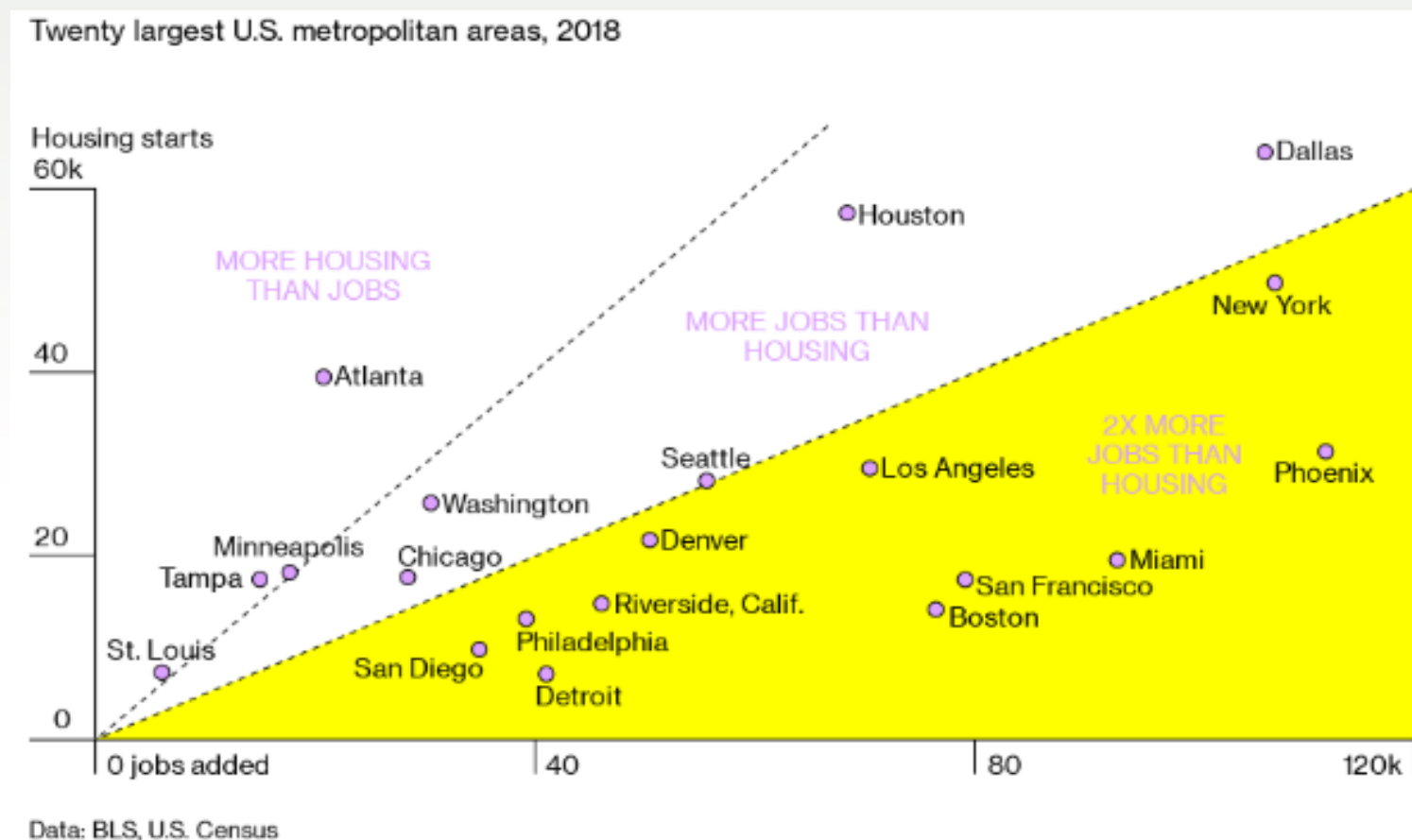


Glimmer of evidence that Seattle home prices again on the rise

Sep. 24, 2019 at 6:50 am | Updated Sep. 24, 2019 at 8:02 am



Housing and People/Jobs



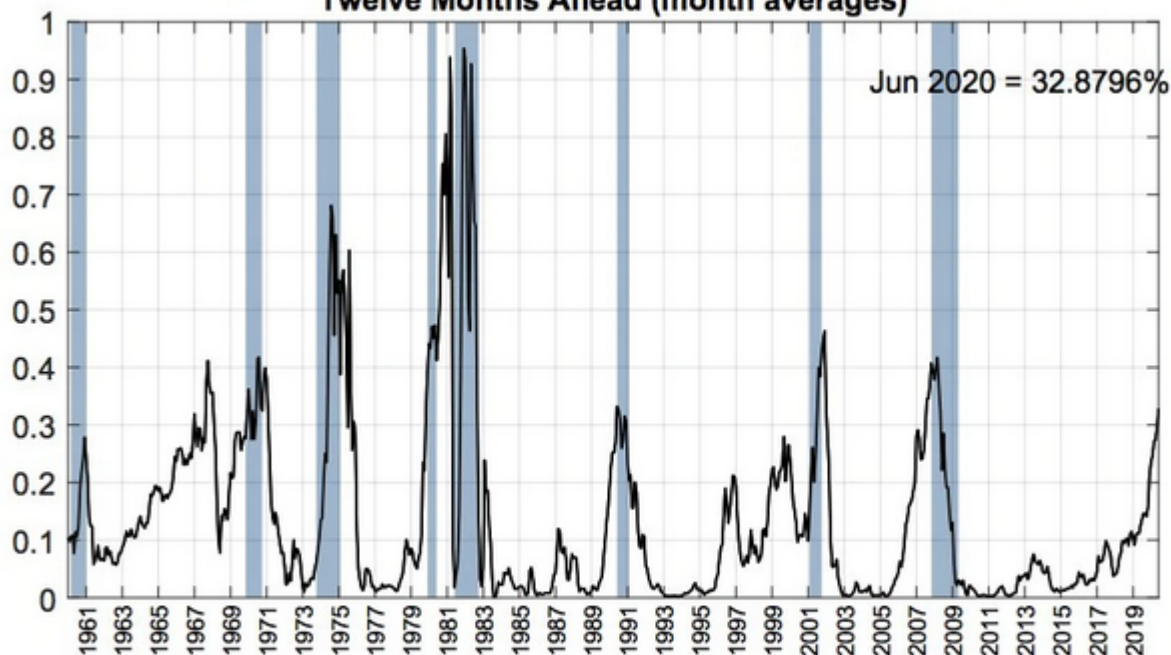
Source: “The Return of Rooming Houses” Bloomberg Businessweek Sept. 23, 2019

Housing Affordability (2019 Q2)

County	Median Home Price	Mortgage Rate	Household Income	Monthly Payment	Affordability Index
King	\$701,200	4.07	\$91,965	\$2,700	71.4
Kitsap	\$380,800	4.07	\$75,387	\$1,466	107.8
Pierce	\$372,300	4.07	\$70,972	\$1,433	103.8
Snohomish	\$500,600	4.07	\$88,253	\$1,928	96

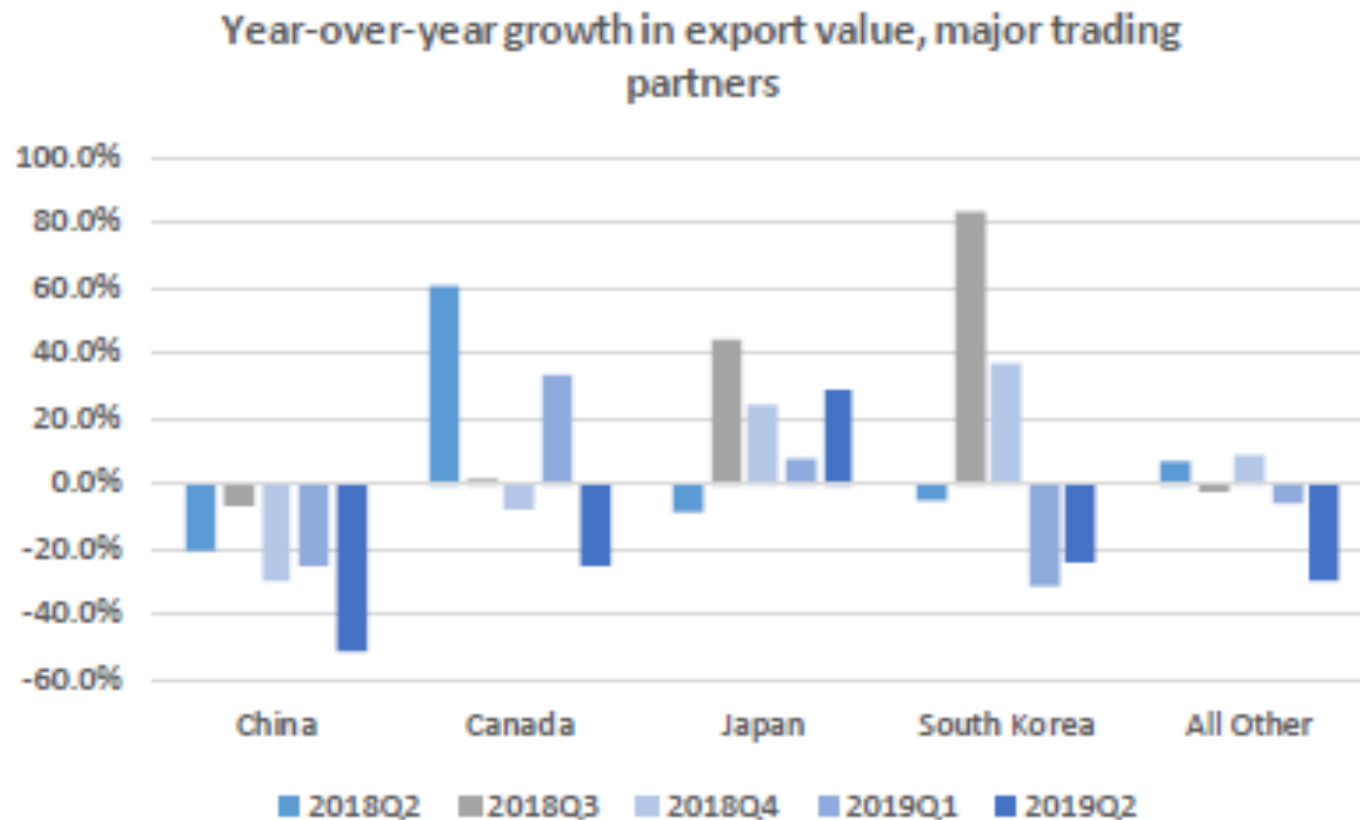
Source: Runstad Center

Probability of US Recession Predicted by Treasury Spread* Twelve Months Ahead (month averages)

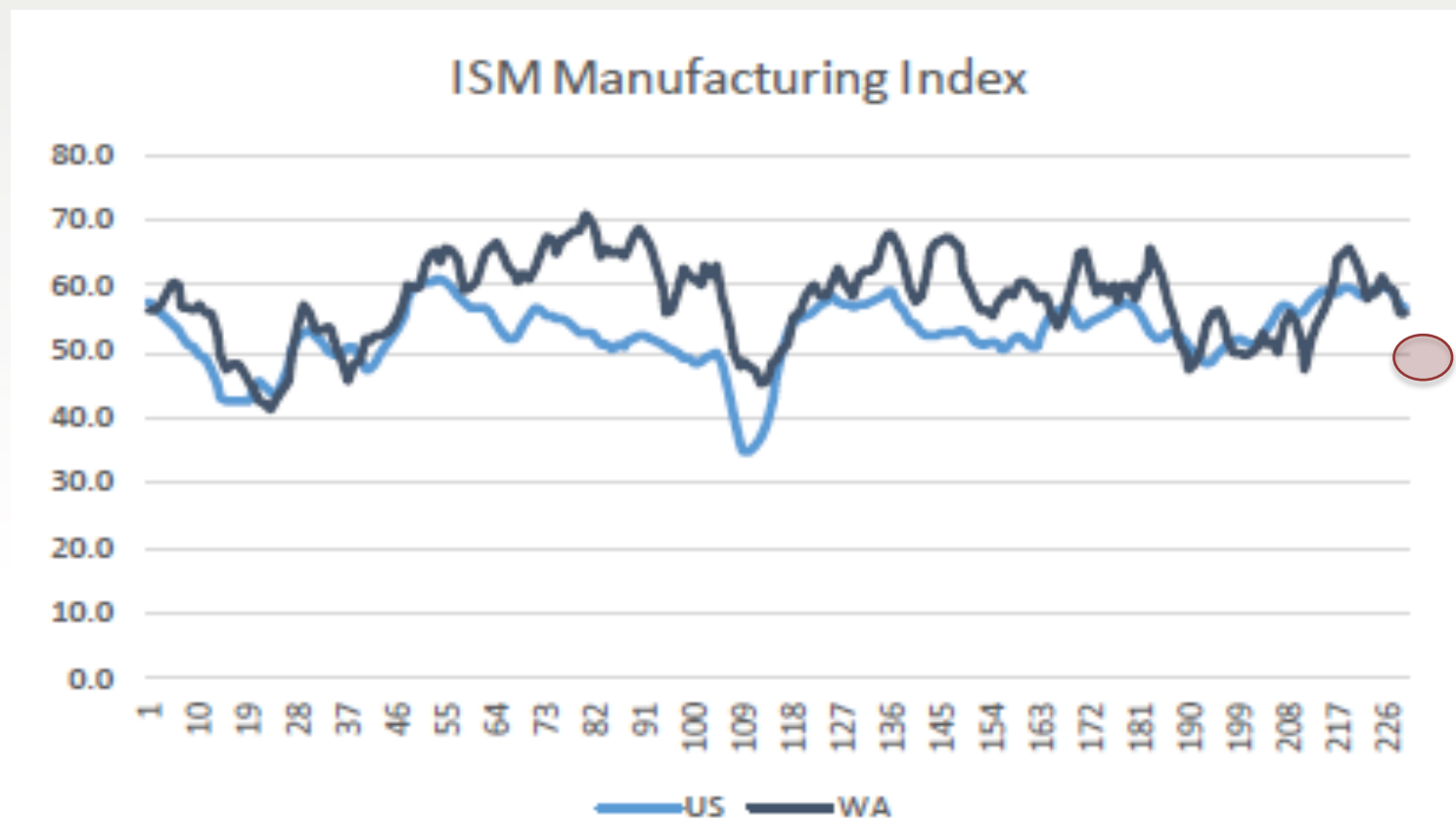


*Parameters estimated using data from January 1959 to December 2009, recession probabilities predicted using data through Jun 2019.
 The parameter estimates are $\alpha = -0.5333$, $\beta = -0.6330$.

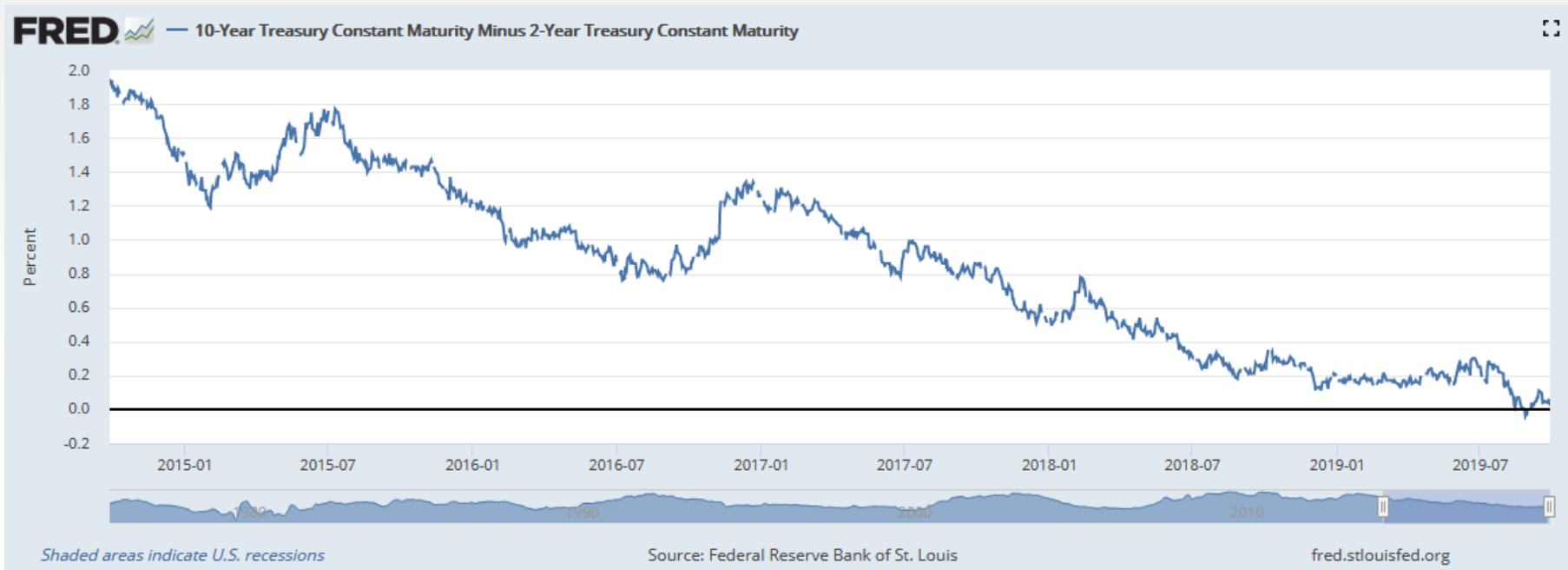
New York Fed

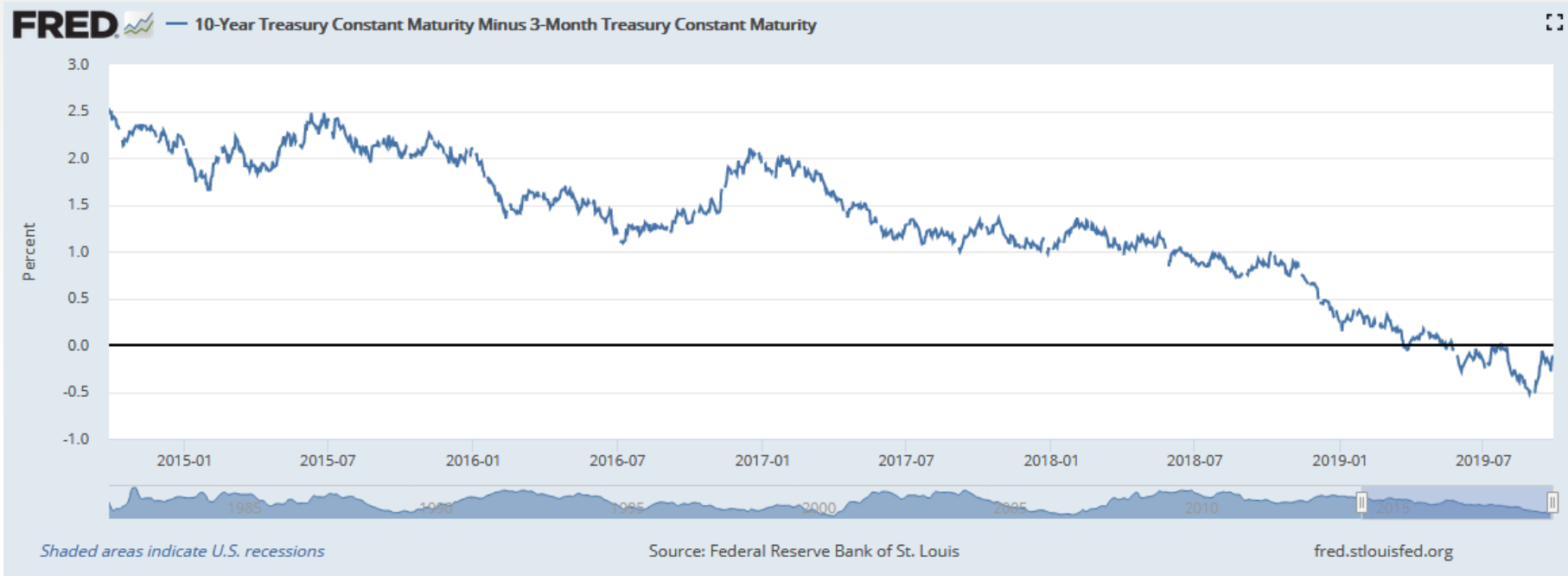


Source: WA Economic and Revenue Forecast Council



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How Long Can the Consumer Carry the Economy?

Strong Labor Market

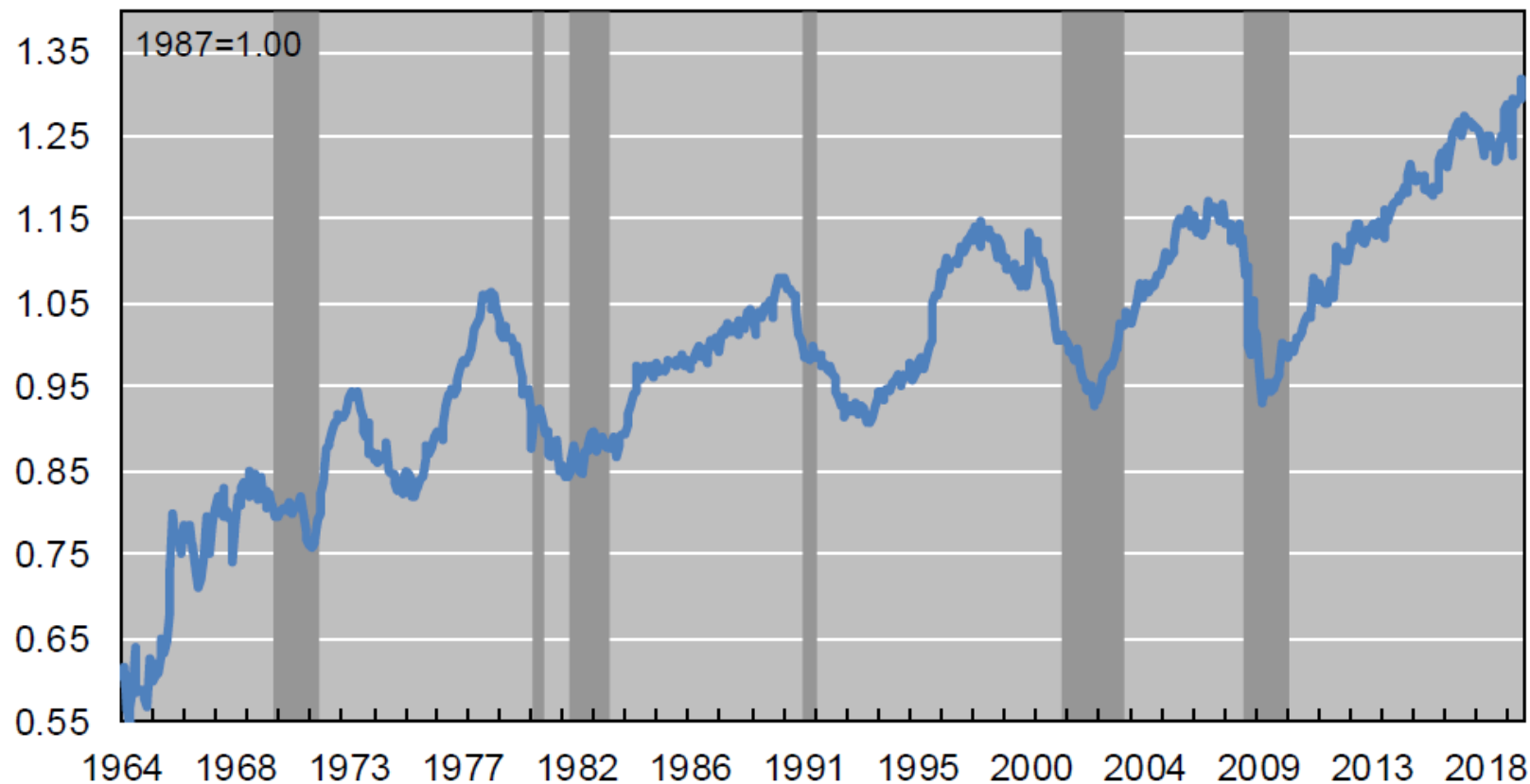
- Low unemployment
- Wages increasing
- Resilient consumer

vs

Negatives/Uncertainty

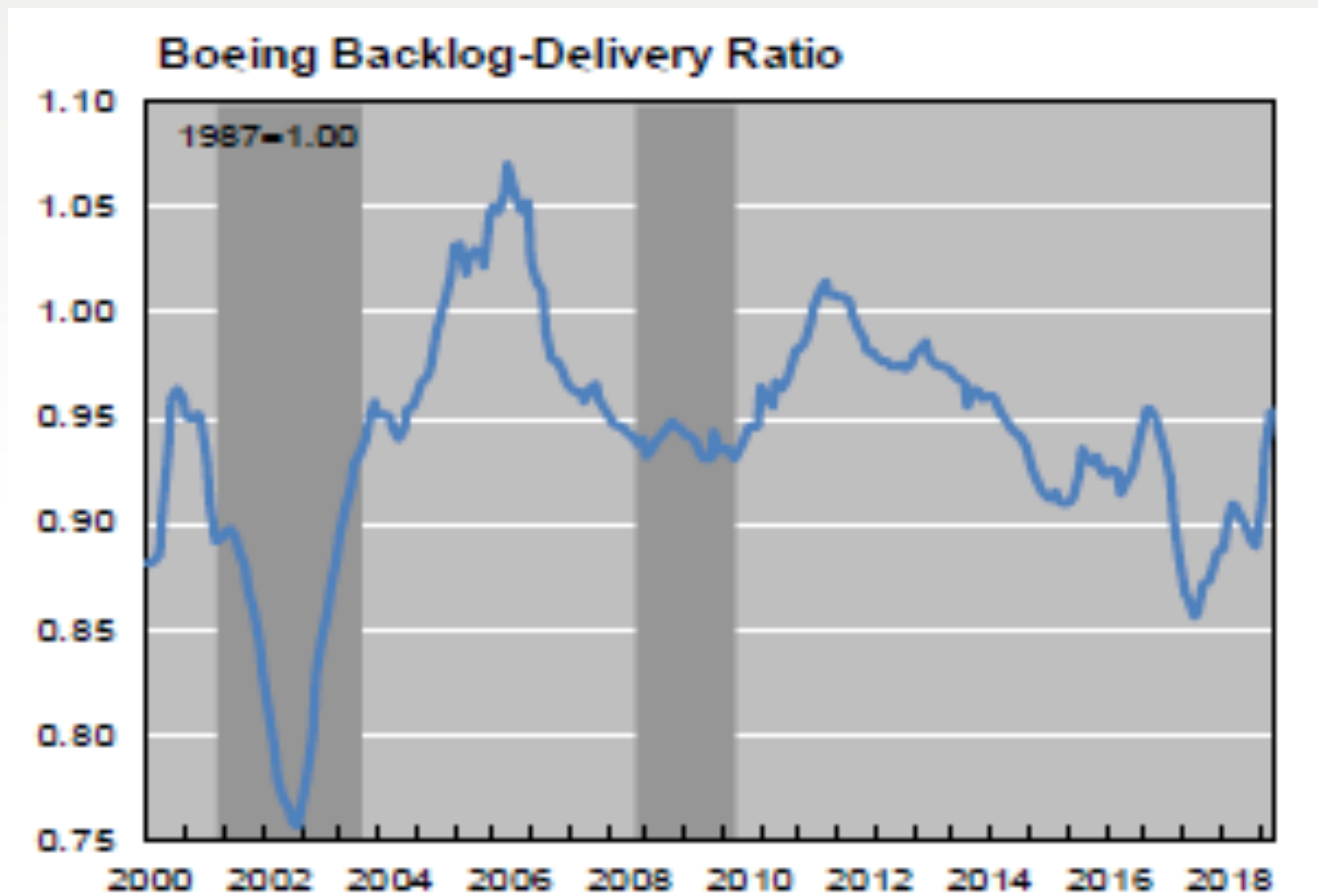
- Weak CAPEX
 - Trade
 - Global weakness
- Geopolitical risks
- Brexit

Puget Sound Index of Leading Economic Indicators



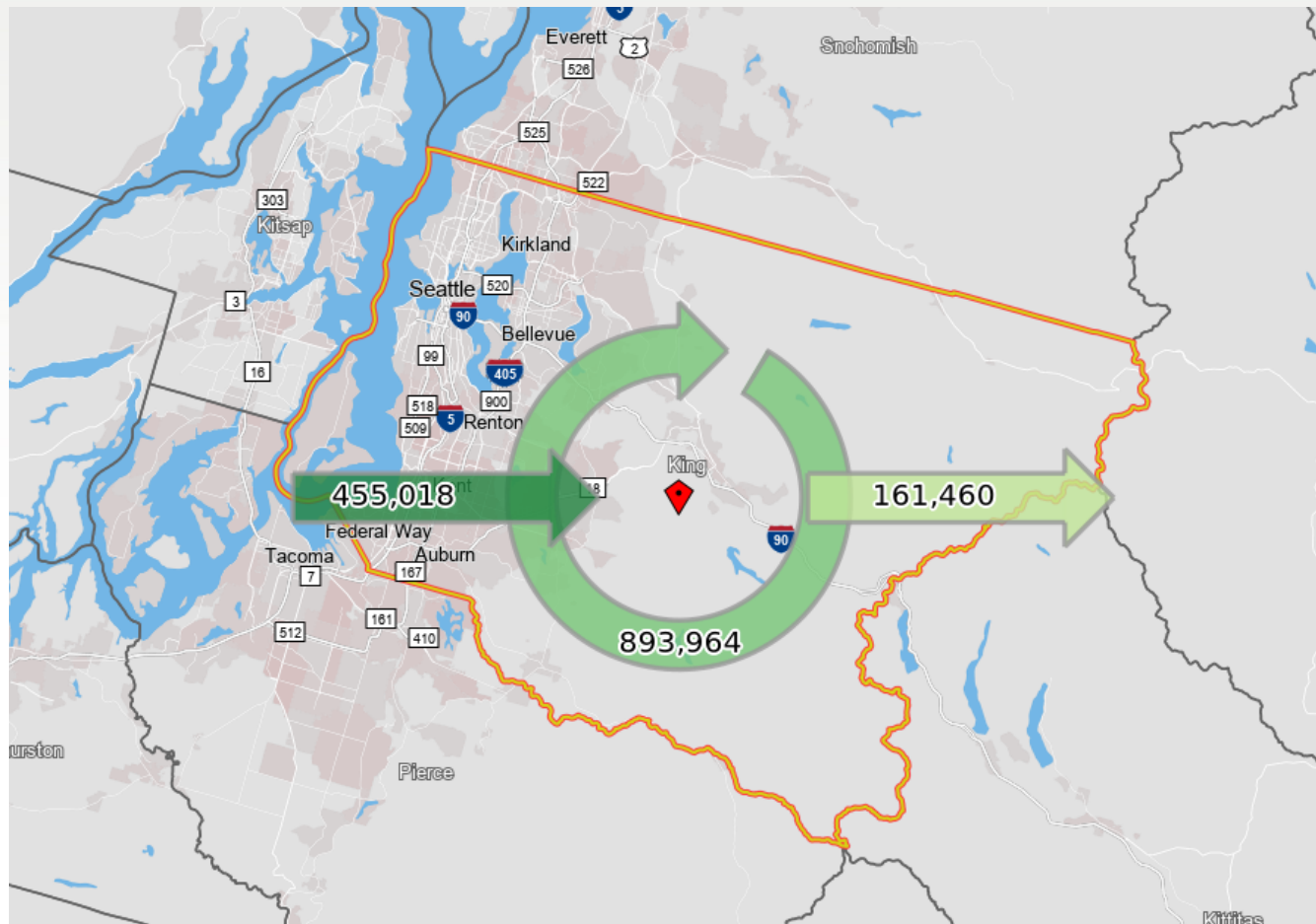
Shaded areas show recessions or periods of economic stagnation.

Leading Index



Leading Index

Percent Change in Leading and Component Indexes								
	<i>Leading Index</i>	<i>Manu- facturing Hours</i>	<i>Help- Wanted Online</i>	<i>Housing Permits</i>	<i>Interest Rate Spread</i>	<i>Boeing Delivery Backlog</i>	<i>UI Claims</i>	<i>Durable Goods Sales</i>
<i>June/July</i>	1.9	0.4	0.6	2.9	0.2	2.0	0.1	-0.9
<i>Apr/July</i>	2.4	2.0	-2.0	-0.1	-0.7	7.3	0.7	-0.2
<i>July18/July19</i>	8.1	3.0	6.4	4.7	-3.5	8.8	-0.3	4.0

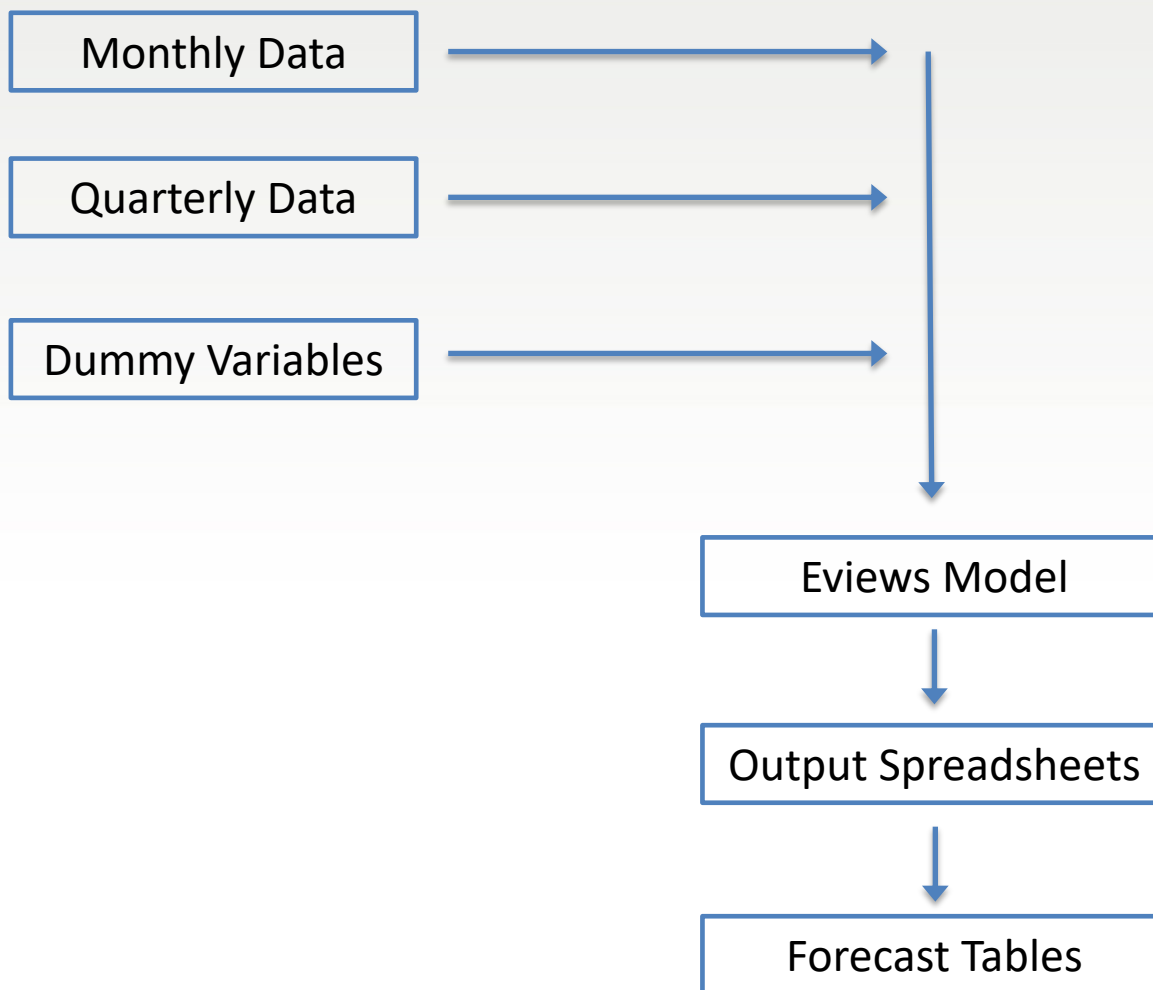


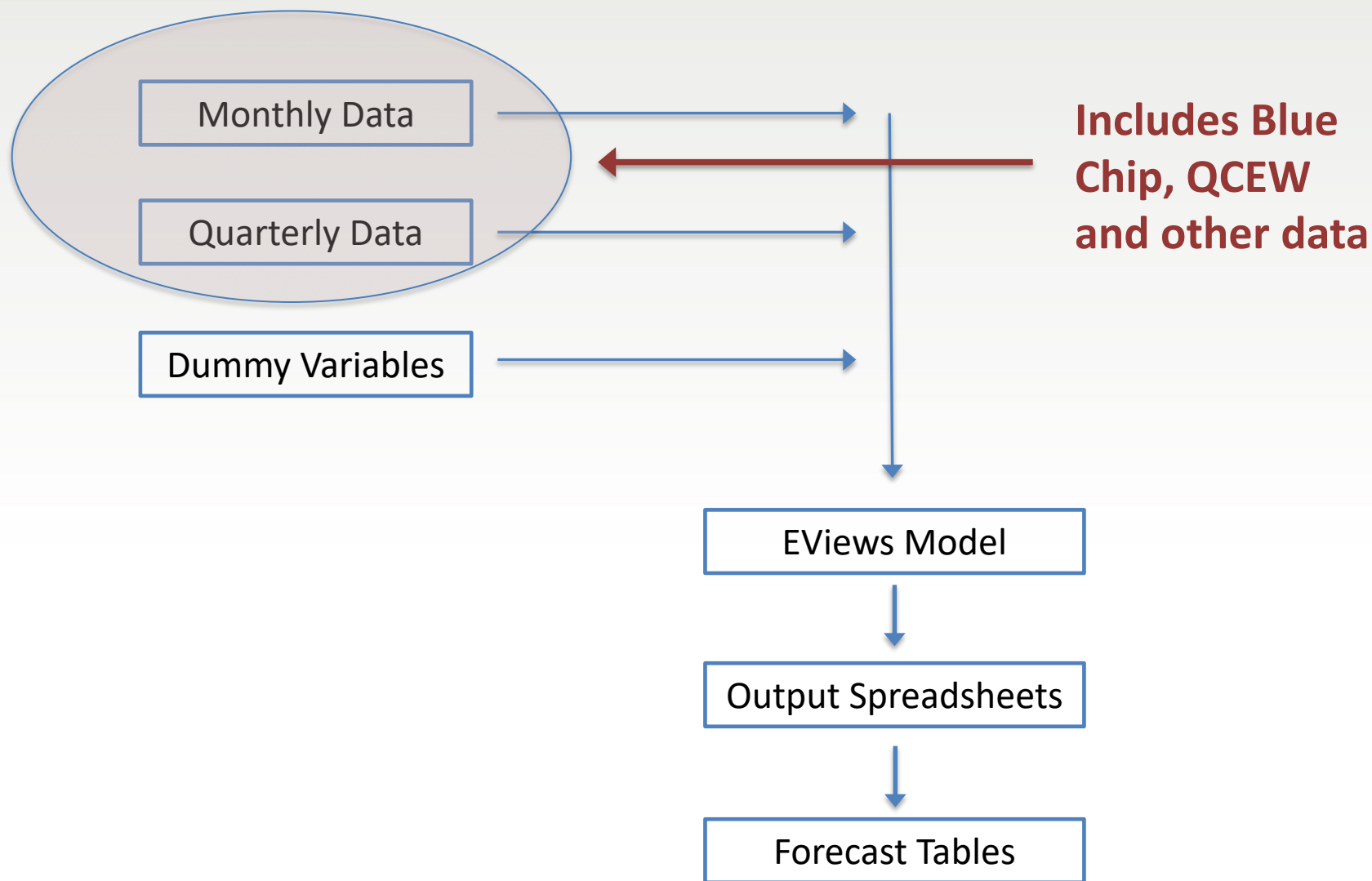
Digging Into the Model

... or models, in fact

- Forecast model
- Retail model
- Housing model

The Forecaster Model





Puget Sound Forecaster vs WA State Council

Economic & Revenue Forecast Council also uses the Blue Chip Forecast as a starting point

- They often alter the forecast based on assumptions about variables like the Federal Funds Rate and oil prices
- We both adjust recent history based on QCEW data
 - But adjustments for the state often differ from adjustments for the Puget Sound region
 - Metro vs. non-metro discussion...

Special Consideration

- Microsoft dividend payments
- Aerospace employment
- Limited manual adjustments
 - e.g., how to consider announcements from Amazon about changes in hiring?

Forecast Errors 1994-2019 One-year-ahead Percent Error

Date of Forecast	1994 - 2015	2015 - now	1994 - now
Employment	0.8	0.7	0.8
Personal Income ^a	0.8	3.2	1.1
Housing Permits	10.8	13.3	11.1
Population	0.2	0.3	0.2
Consumer Price Index	1.0	0.7	0.9

Other Forecast Error Measures

Two-year-ahead Percent Error and Bias

Date of Forecast	1994 - now	Bias ^b
Employment	1.4	0.7
Personal Income ^a	3.0	2.0
Housing Permits	11.8	9.4
Population	0.4	0.2
Consumer Price Index	0.9	0.7

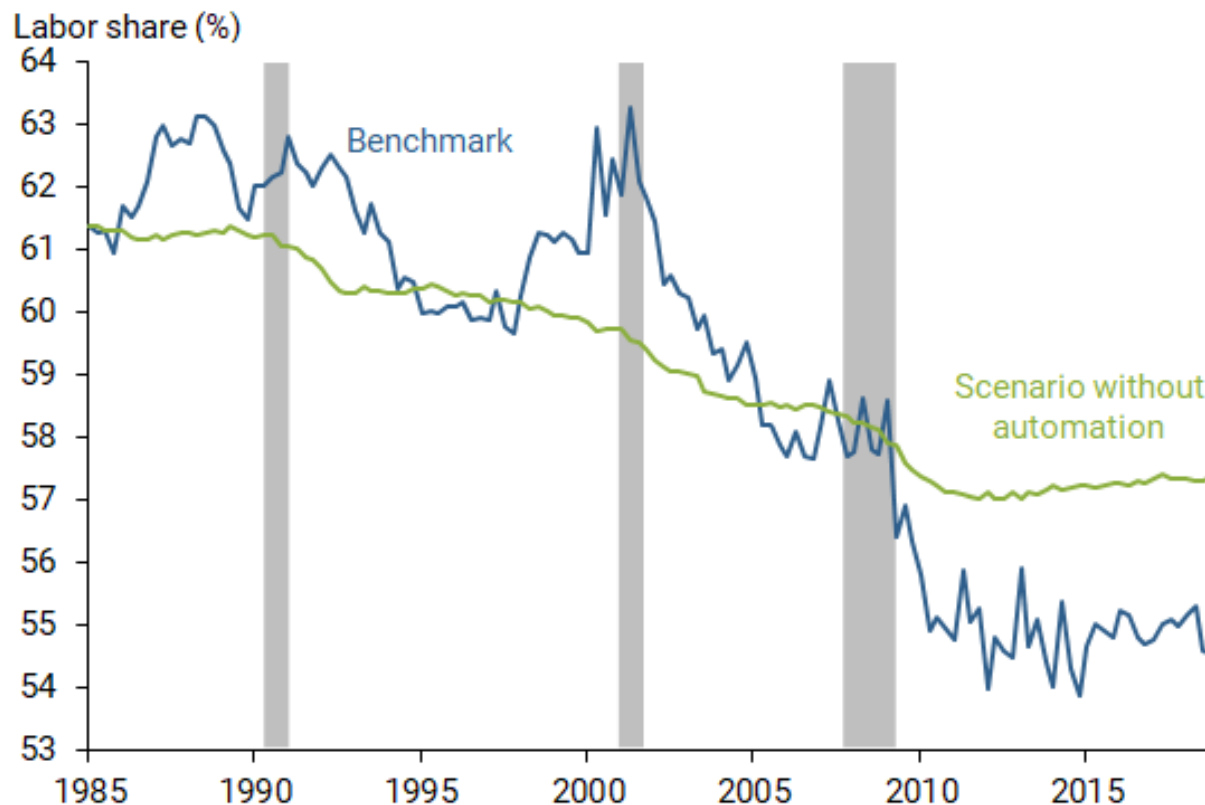
Biggest Sources of Error

- Revisions to Blue Chip estimates
- Aerospace employment
- ... and manual adjustments trying to include Amazon's announcements for HQ2

Ongoing Work

- Review of equations in Forecast model
 - Can they be improved?
 - Are structural relationships captured in the equations still valid (thinking of things like the labor share of income)
- Review of Help Wanted data in Leading Index
 - Are we using the best sources?
- Testing alternative forecasts
 - Based on “what if” scenarios

U.S. labor share: Actual versus scenario without automation



Source: https://www.frbsf.org/economic-research/publications/economic-letter/2019/september/are-workers-losing-to-robots/?utm_source=mailchimp&utm_medium=email&utm_campaign=economic-letter

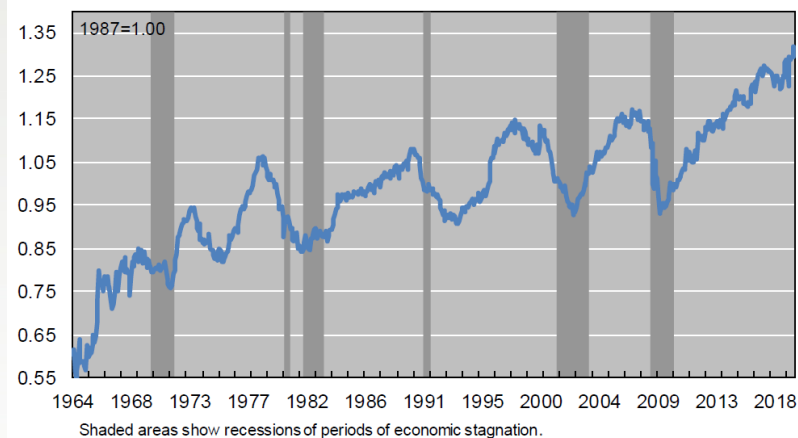
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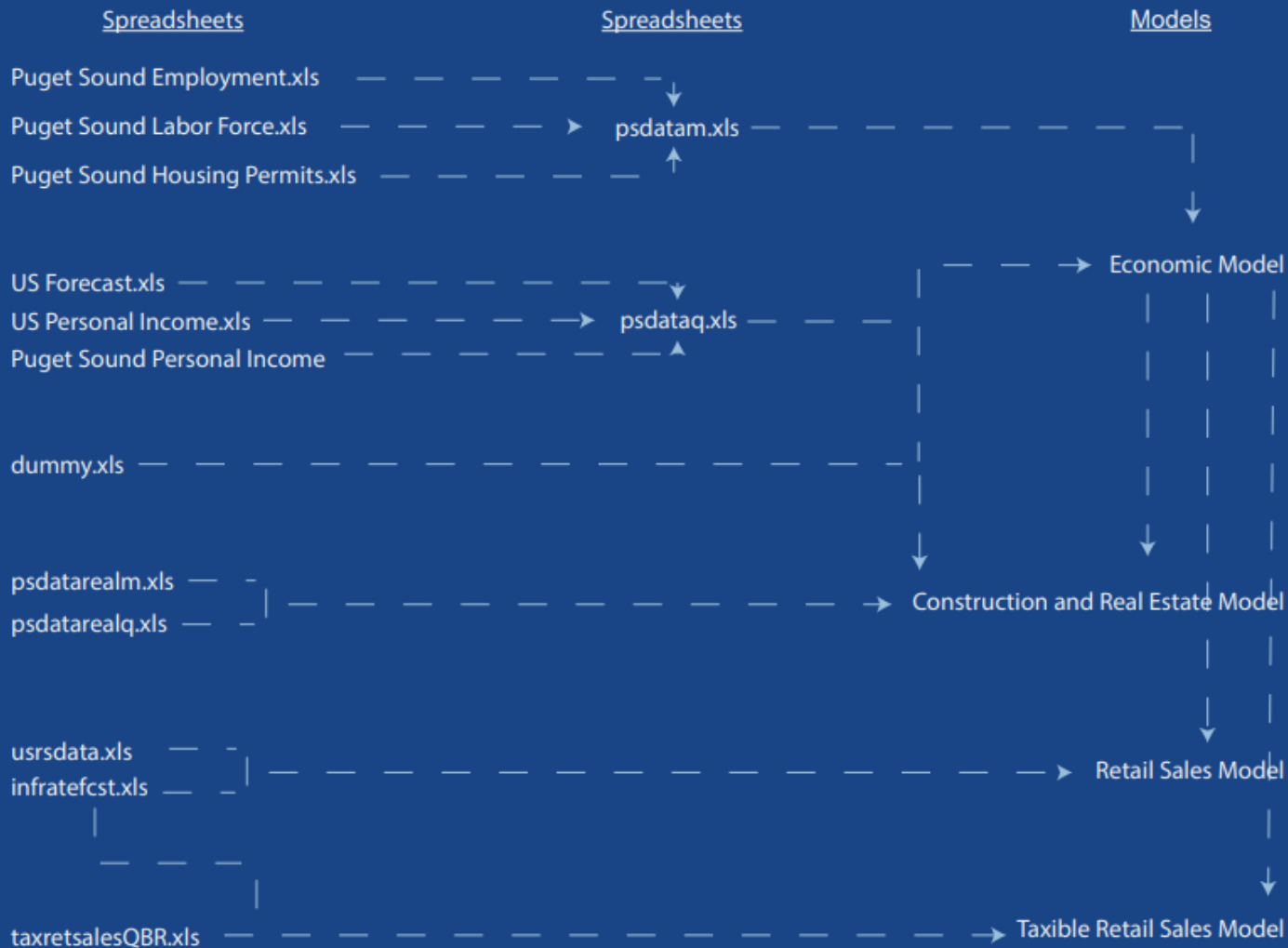
*Source: Blue Chip Economic Indicators

Puget Sound Index of Leading Economic Indicators



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Following one variable through the Economic Model

