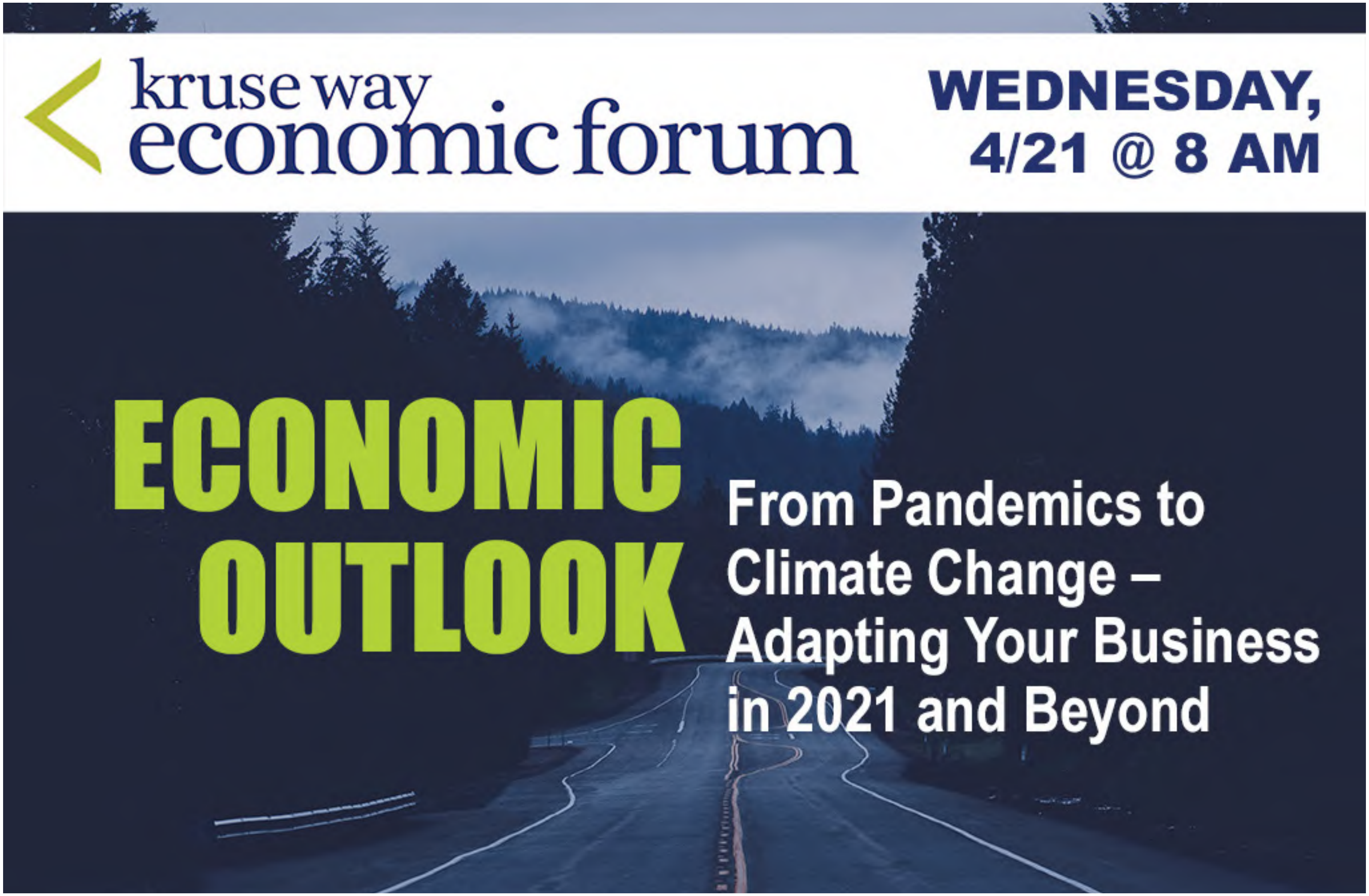

kruse way
economic forum
WEDNESDAY,
4/21 @ 8 AM
ECONOMIC
OUTLOOK
From Pandemics to
Climate Change –
Adapting Your Business
in 2021 and Beyond

THANK YOU SPONSORS

BUCKLEY LAW P.C.

UBS

Columbia Bank

PRAGMAGROUP

SHORENSTEIN

Pamplin Media Group

Lake Oswego Review

JLL

Hoffman, Stewart & Schmidt, P.C.
CERTIFIED PUBLIC ACCOUNTANTS

Lake Oswego
CHAMBER OF COMMERCE
EST. 1941
FORGING RELATIONSHIPS,
BUILDING COMMUNITY

Economic outlook and adapting to a new business environment

Michael Wilkerson, Ph.D

April 21, 2021

ECONorthwest
ECONOMICS • FINANCE • PLANNING

Where we were a year…..lifetime ago

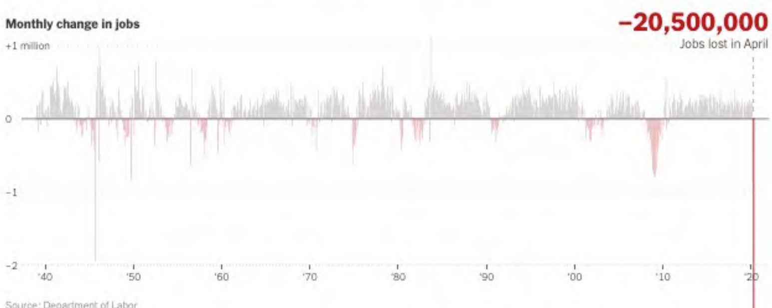
20m Americans lost their jobs in April in worst month since Great Depression

Unemployment rate rose to 14.7% from just 4.4% in March as the coronavirus pandemic shuttered the global economy

Source: The Guardian

How Bad Is Unemployment? 'Literally Off the Charts'

By Nelson D. Schwartz, Ben Casselman and Ella Koeze May 8, 2020



The American economy plunged deeper into crisis last month, losing 20.5 million jobs as the unemployment rate jumped to 14.7 percent, the worst devastation since the Great Depression.

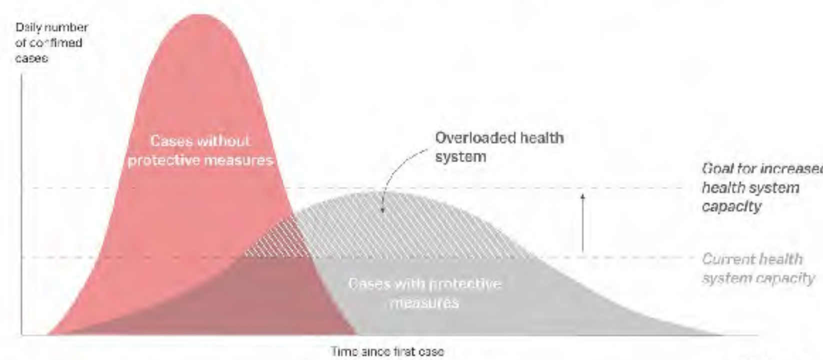
Source: New York Times

Is There Really a Toilet Paper Shortage?

The household staple has consistently been out of stock during the coronavirus outbreak. Manufacturers may not be willing to increase supplies.

Source: New York Times

Raising the line while flattening the curve



Source: Adapted from CDC and Kumar Rajaram, UCLA

Vox

Word of the year was unprecedented

When will Oregon's economy recover? It could take a year or more after pandemic ends

Economists say the return of the economy really hinges on how confident people are that the health crisis has been taken care of.

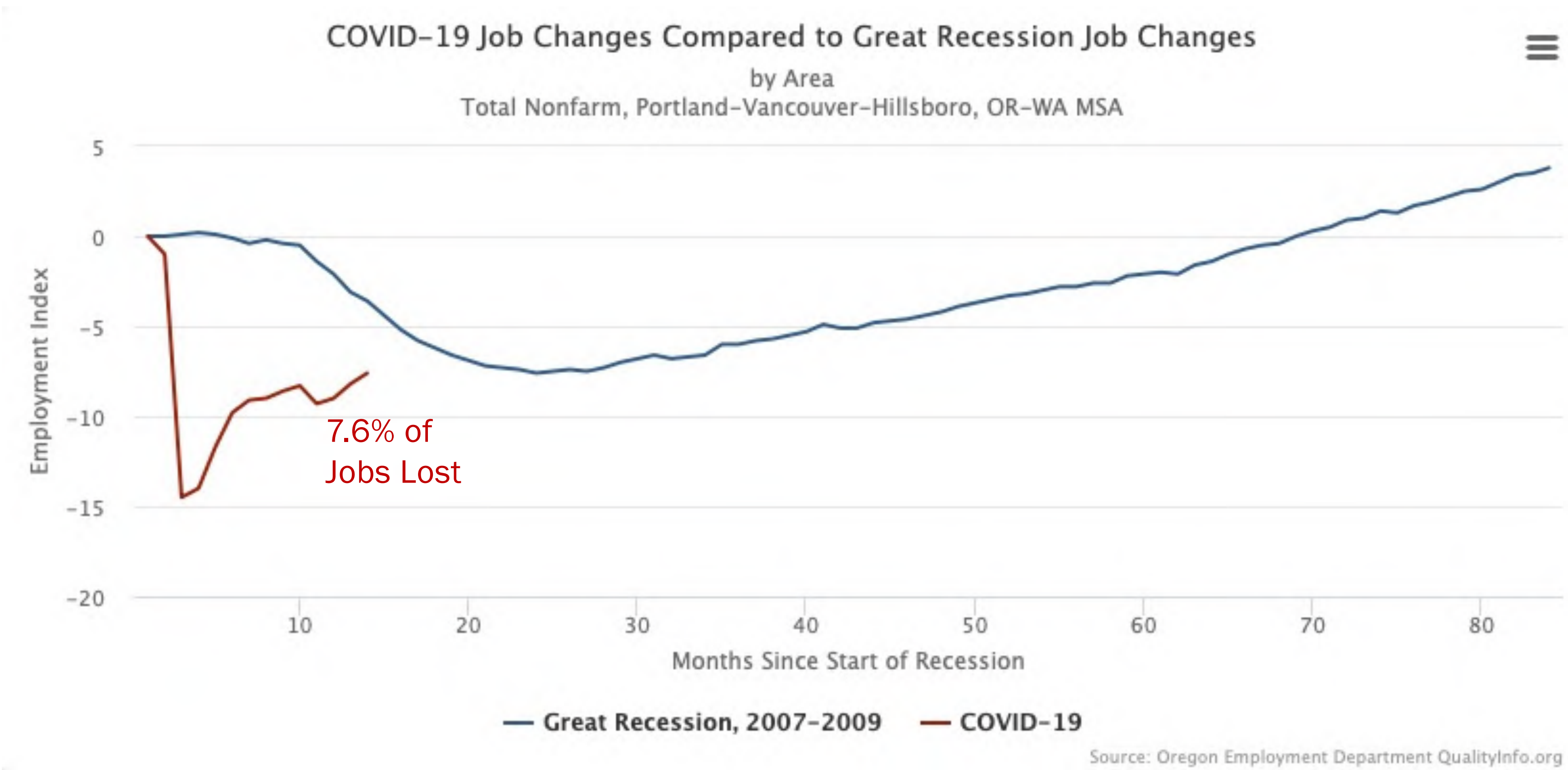
Published: **6:44 PM PDT April 7, 2020**

“The whole thing that's going to make the economy work, is if you and I have confidence that we can go back into the public, maybe go back into a restaurant, maybe even a bar or a theater, and not be at high risk of getting the coronavirus,” Tapogna said.

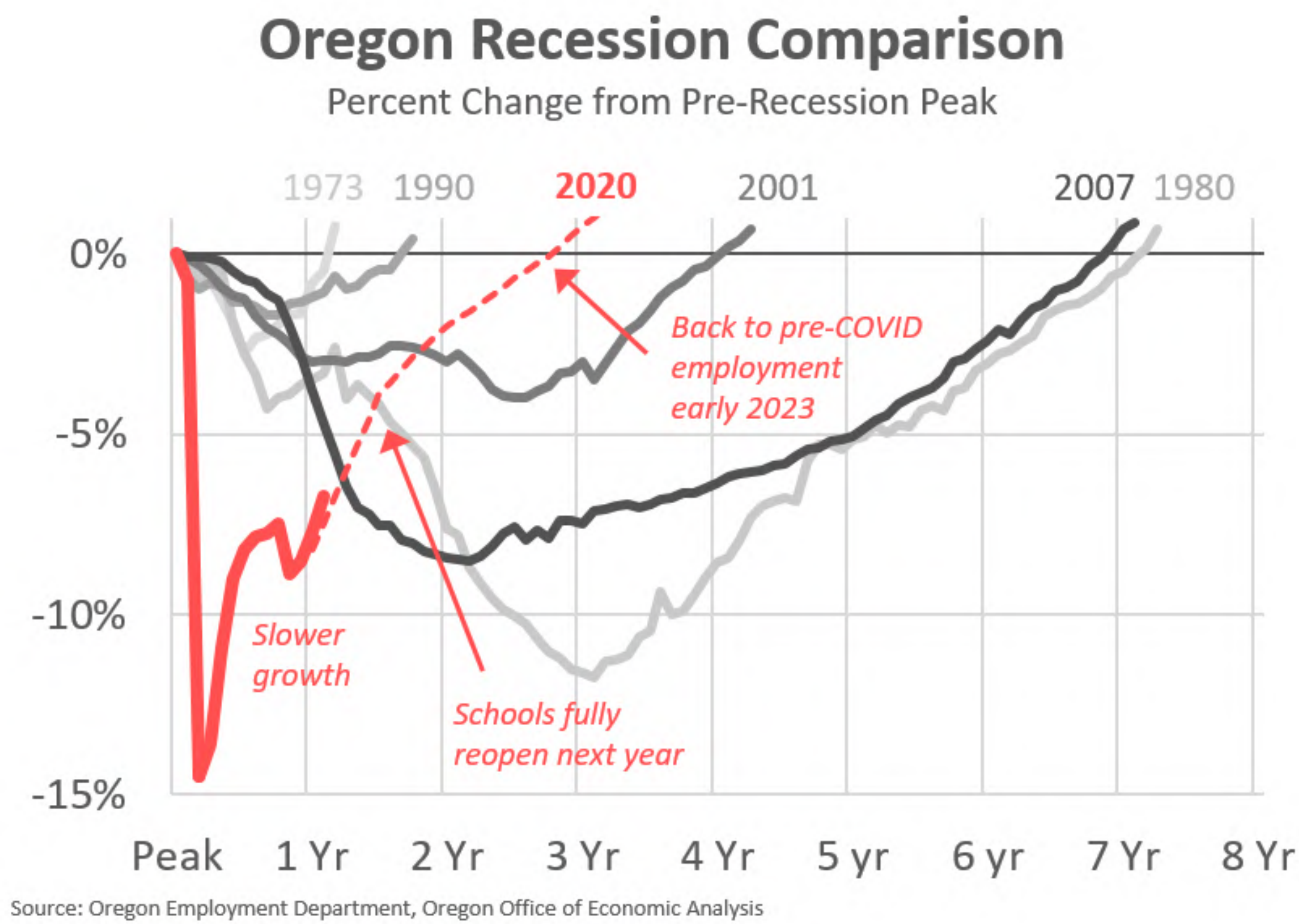
Tapogna said we likely will not get to the third chapter, which he calls true recovery, until June of 2021.

Source: KATU

Where do we stand today?



Employment in Oregon expected to recover by early 2023



10 Factors impacting the recovery

- Consumer confidence
- Return to school
- Pent up demand
- ARP / Government stimulus
- Business formation
- Return to office work
- Portland’s national reputation
- Migration
- Real Estate market
- Inflation

~~10~~ 9 Factors impacting the recovery

- Consumer confidence
- Return to school
- Pent up demand
- ARP / Government stimulus
- Business formation
- Return to office work
- Portland’s national reputation
- Migration
- Real Estate market
- ~~Inflation~~

What is driving consumer confidence?

Prevalent Hospitalizations of Patients with Confirmed COVID-19, United States

August 1, 2020 – April 18, 2021

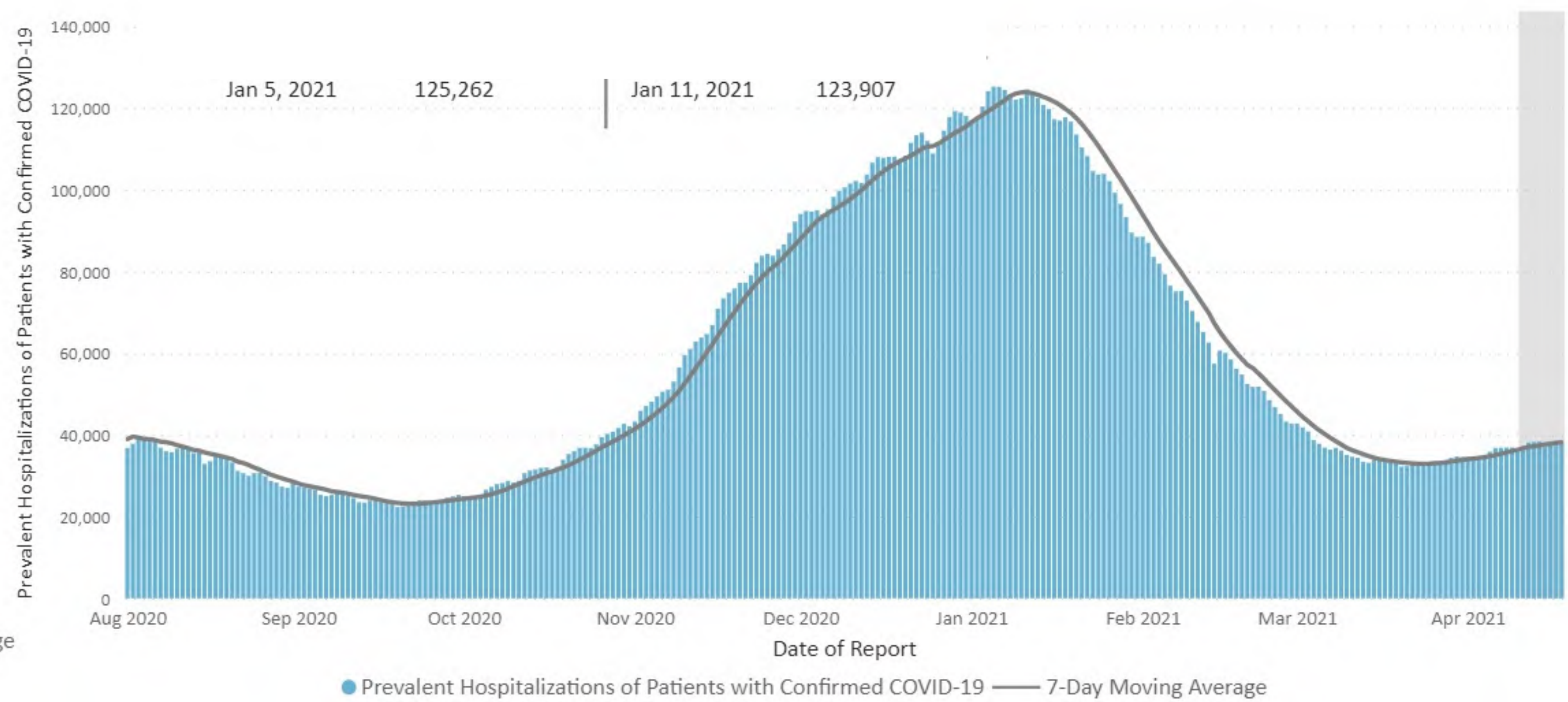
38,073
Hospitalized Patients
Apr 18, 2021

38,185
Current 7-Day Average
Apr 12, 2021 – Apr 18, 2021

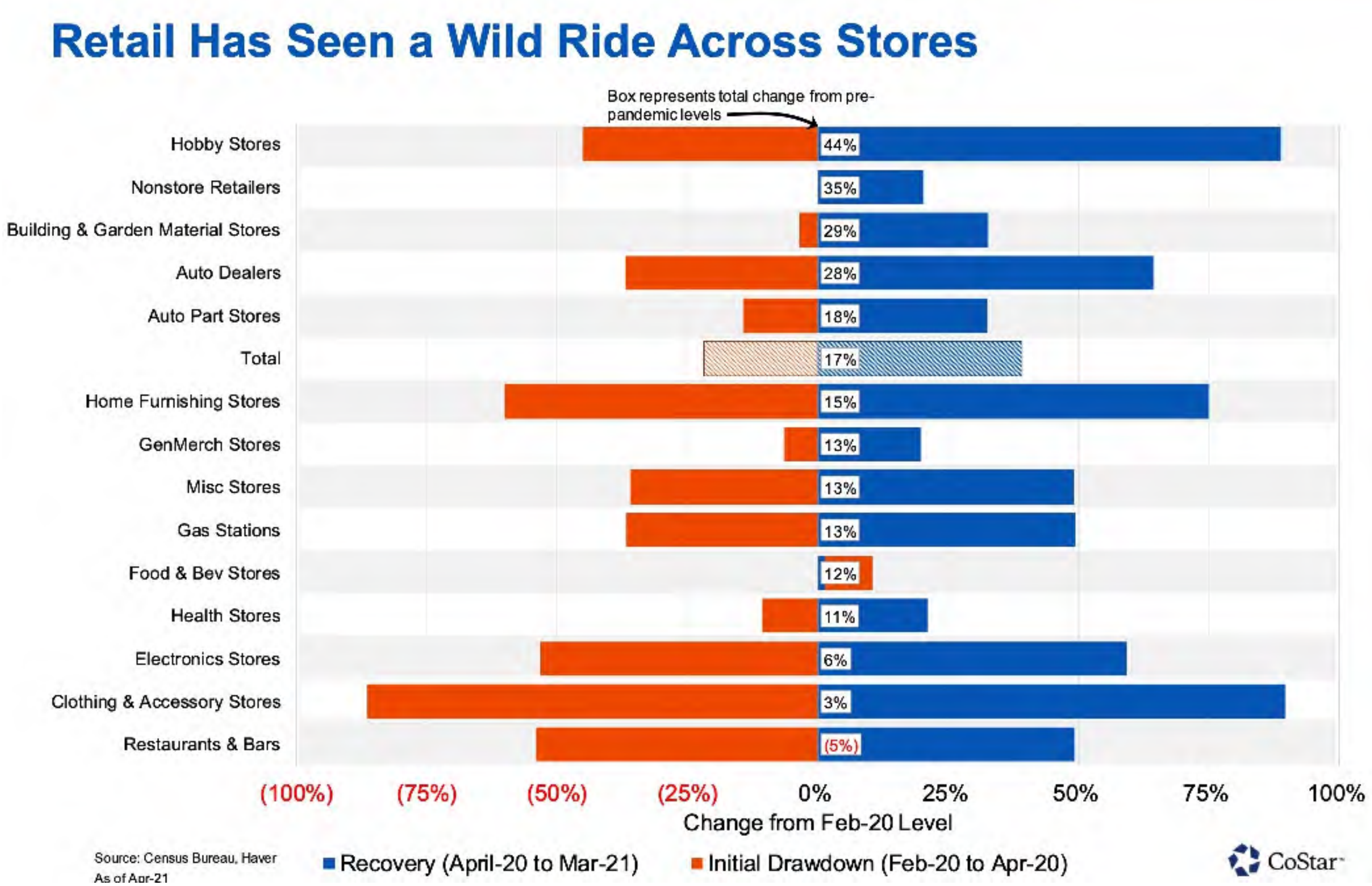
36,711
Prior 7-Day Average
Apr 5, 2021 – Apr 11, 2021

+4.0%
Change in 7-Day Average

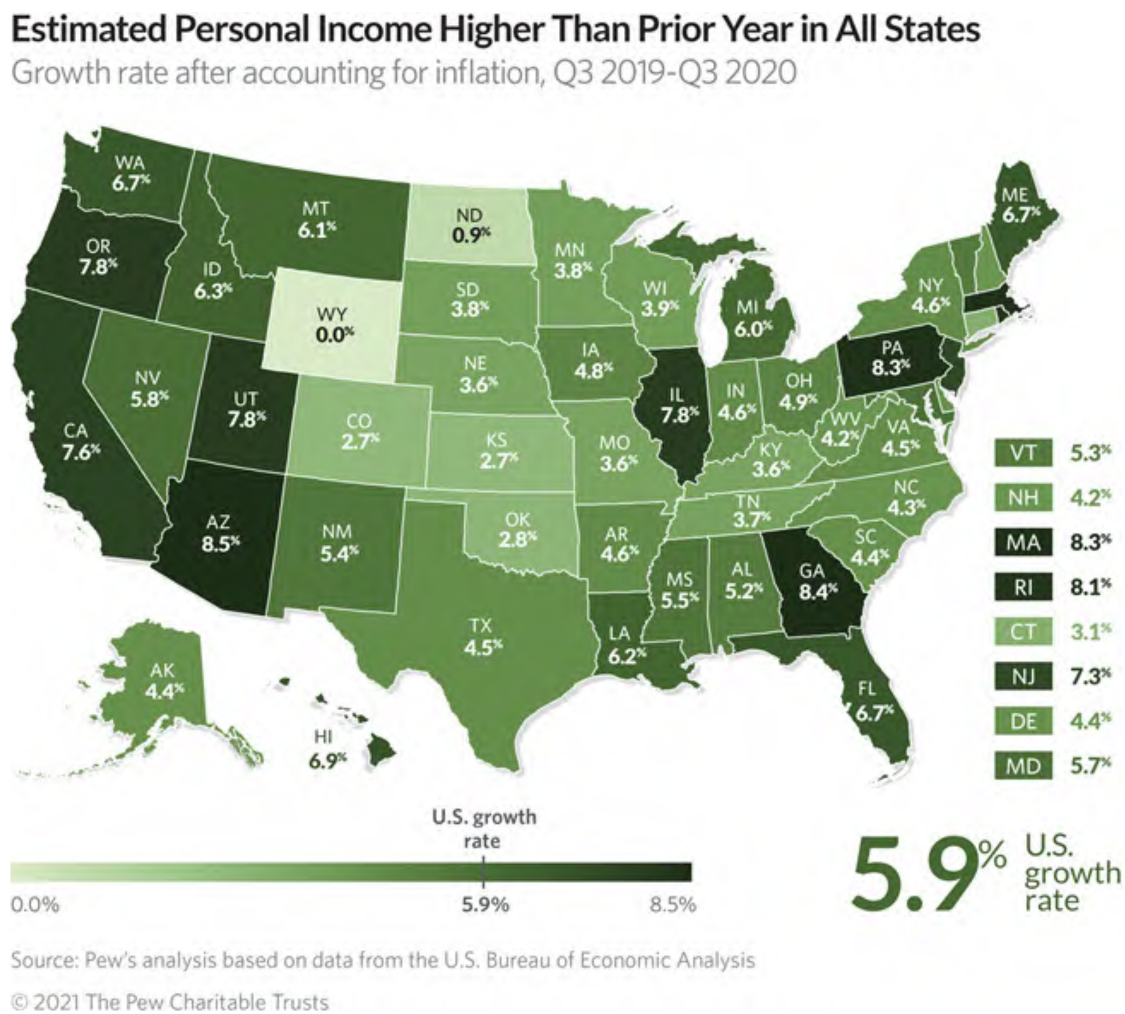
-69.2%
Change Since Peak 7-Day Average



Retail spending is up 17% from pre-pandemic levels nationally

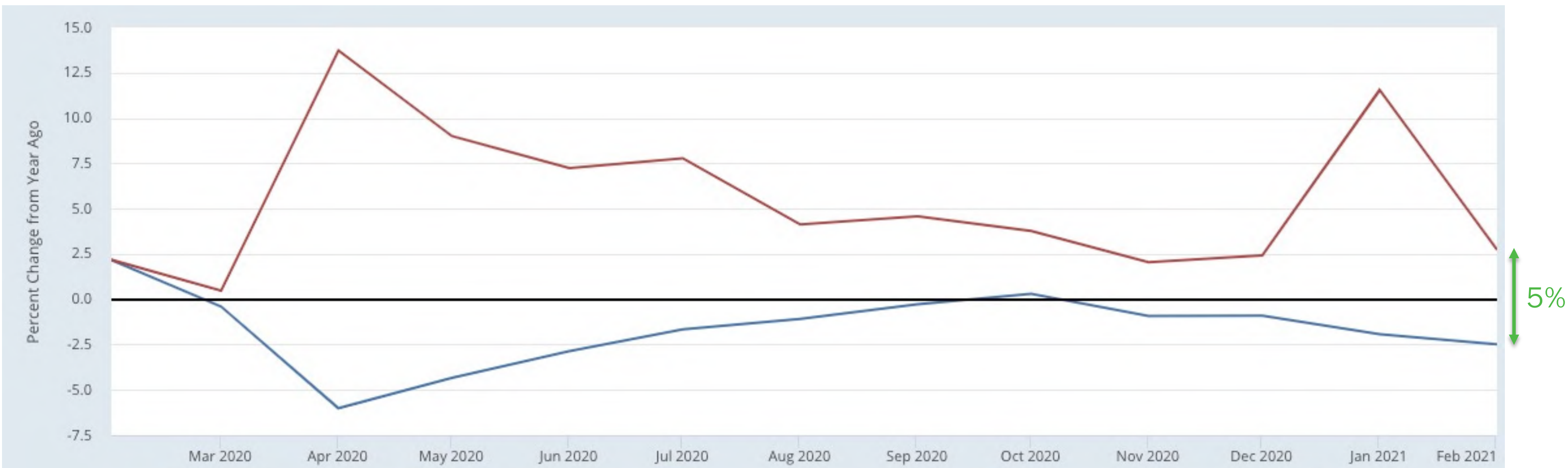


Personal income is higher due to stimulus payments in every state



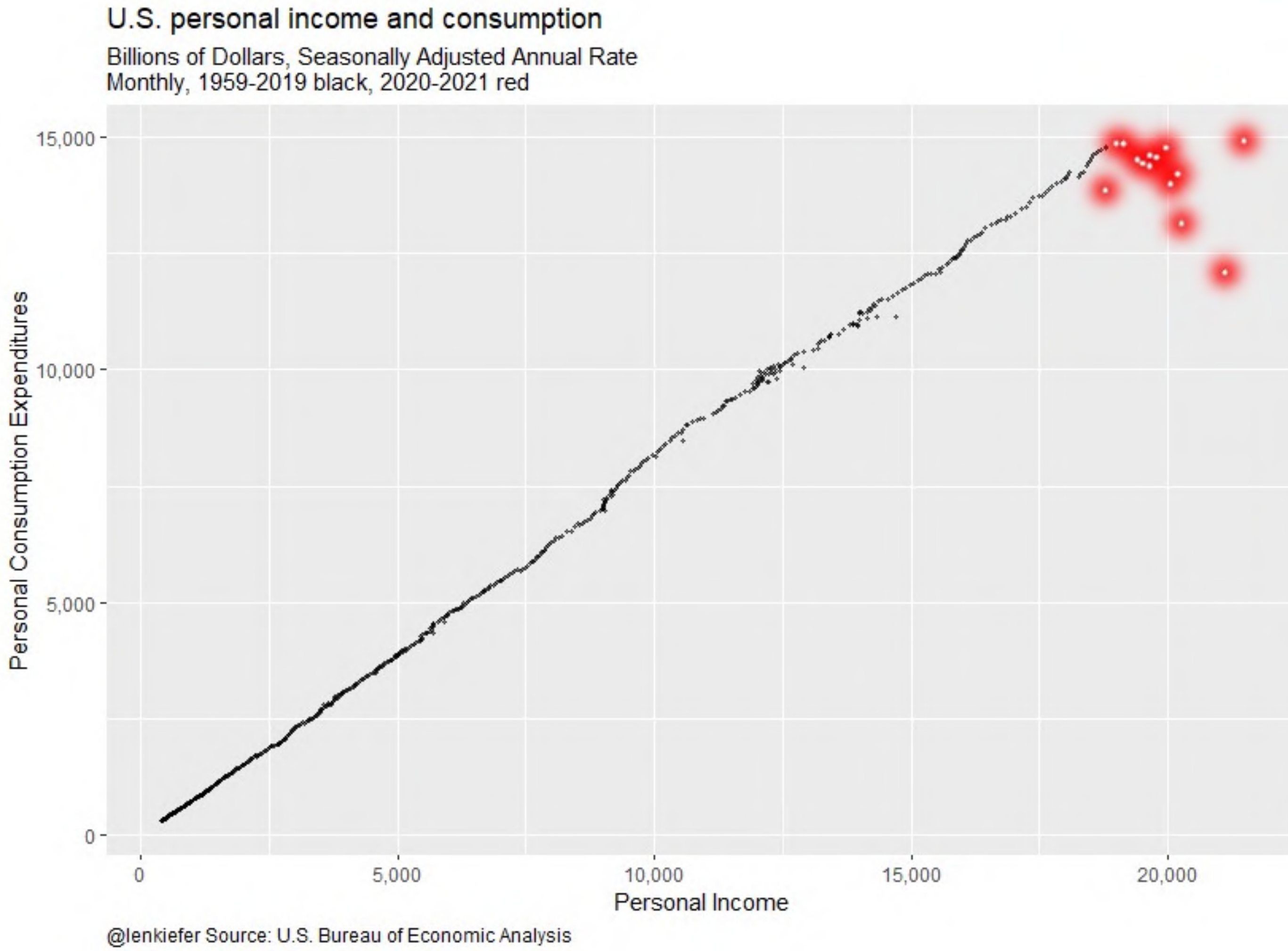
Stimulus payments have increased incomes by 5%

Absent government assistance programs incomes would be down 2.5%

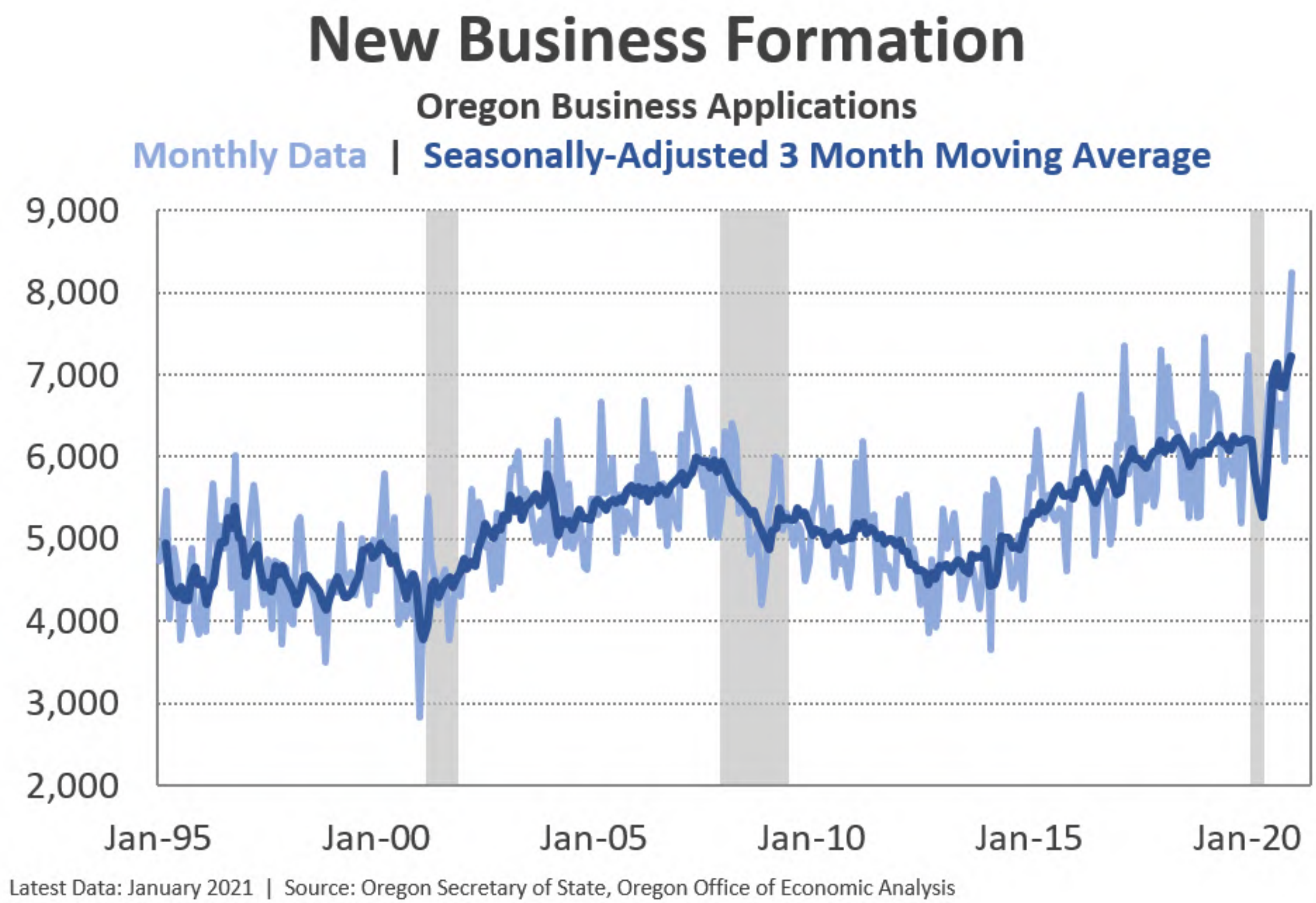


Source: FRED, BEA

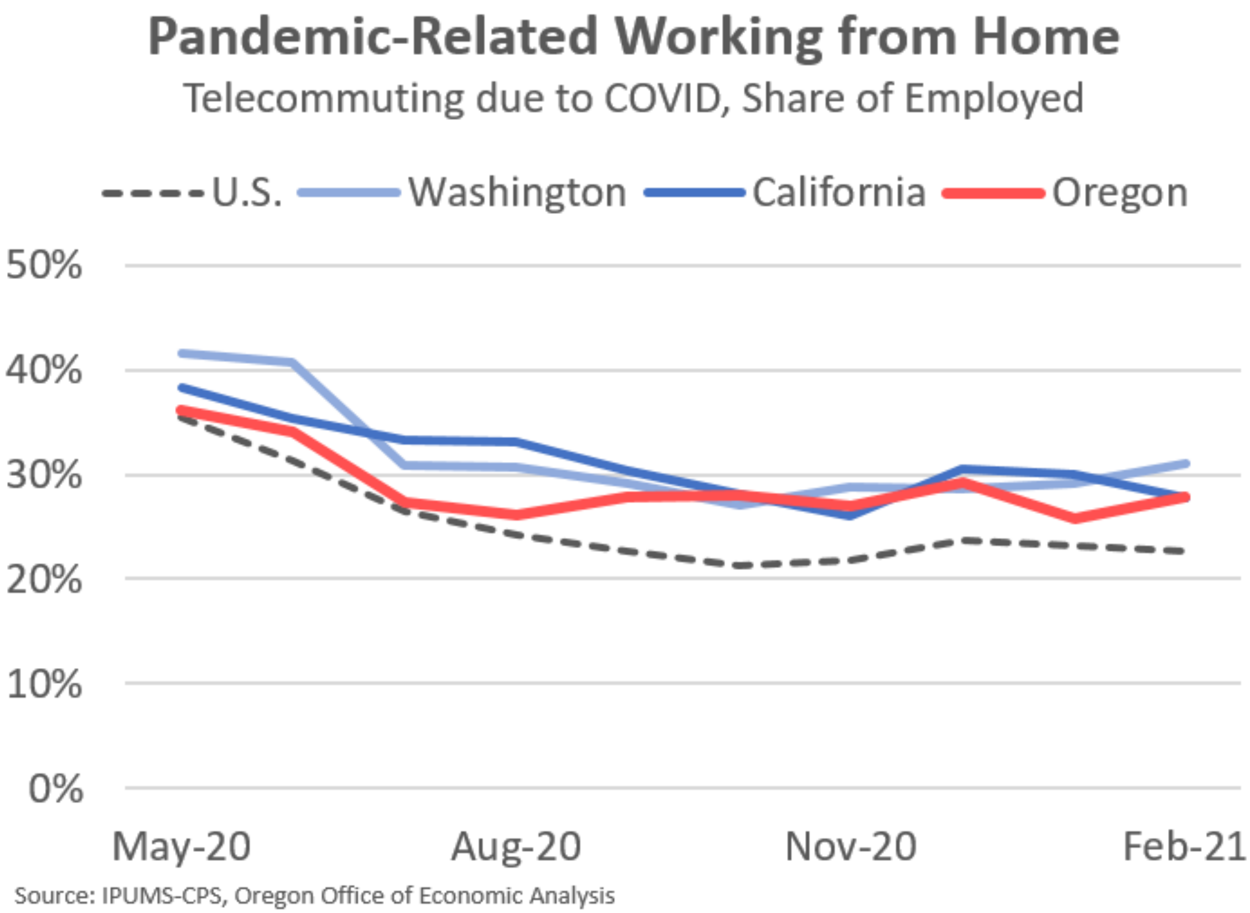
Savings rate set historic highs during the pandemic



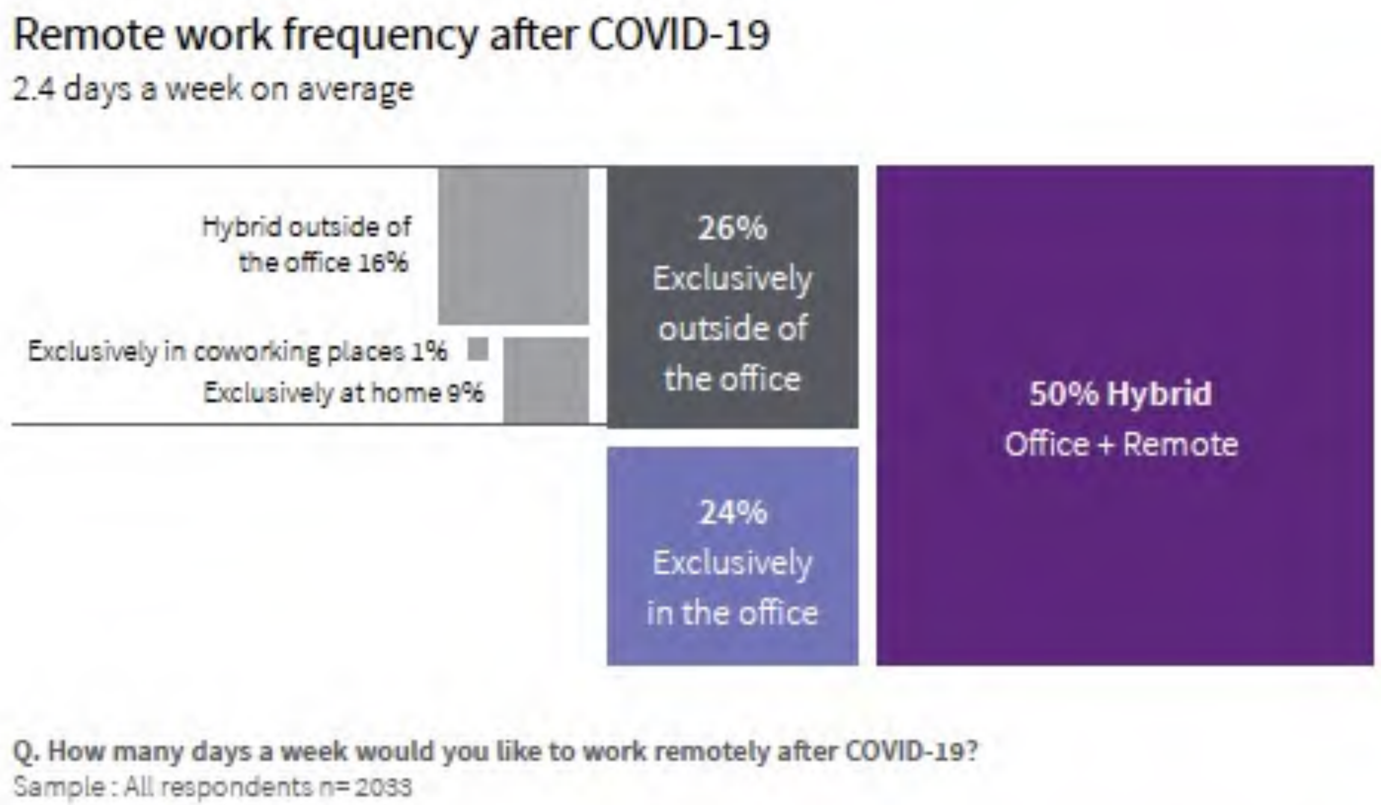
Business formation in Oregon is at the highest rate since 1995



What is the new normal when we return to offices



Majority of employees want a hybrid (office + remote) workplace



Number of days at home

5 days – 15%
4 days – 10%
3 days – 27%
2 days – 31%
1 day – 17%

Source: JLL

Portland in the News

What Happened to Portland?

Looking for the roots of the city's violent summer.

By David Shipley
September 17, 2020, 3:30 AM PDT

Photographs by David Shipley

Source: Bloomberg

Opinion

Lessons for America From a Weird Portland

Soaring rhetoric about justice is fine. But what matters more is keeping people safe and picking up the garbage.

By Nicholas Kristof
Opinion Columnist

April 14, 2021

Dumptown: How Portland's trash problem spiraled out of control

By Shane Dixon Kavanaugh

Posted by The Oregonian 2021-03-12

Portland's protests were supposed to be about black lives. Now, they're white spectacle.

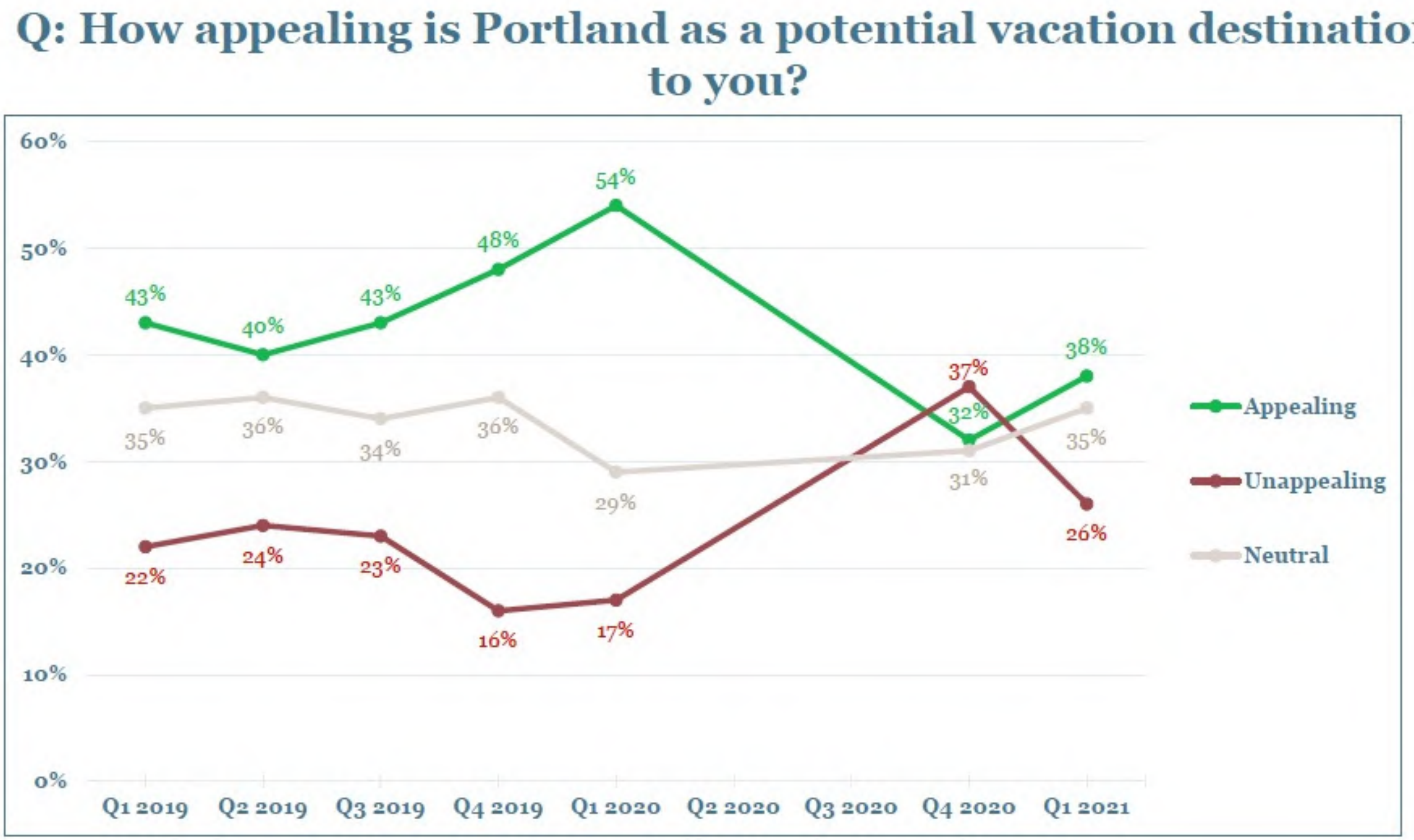
Source: Washington Post

Feds, right-wing media paint Portland as 'city under siege.' A tour of town shows otherwise

Updated Jul 20, 2020; Posted Jul 18, 2020

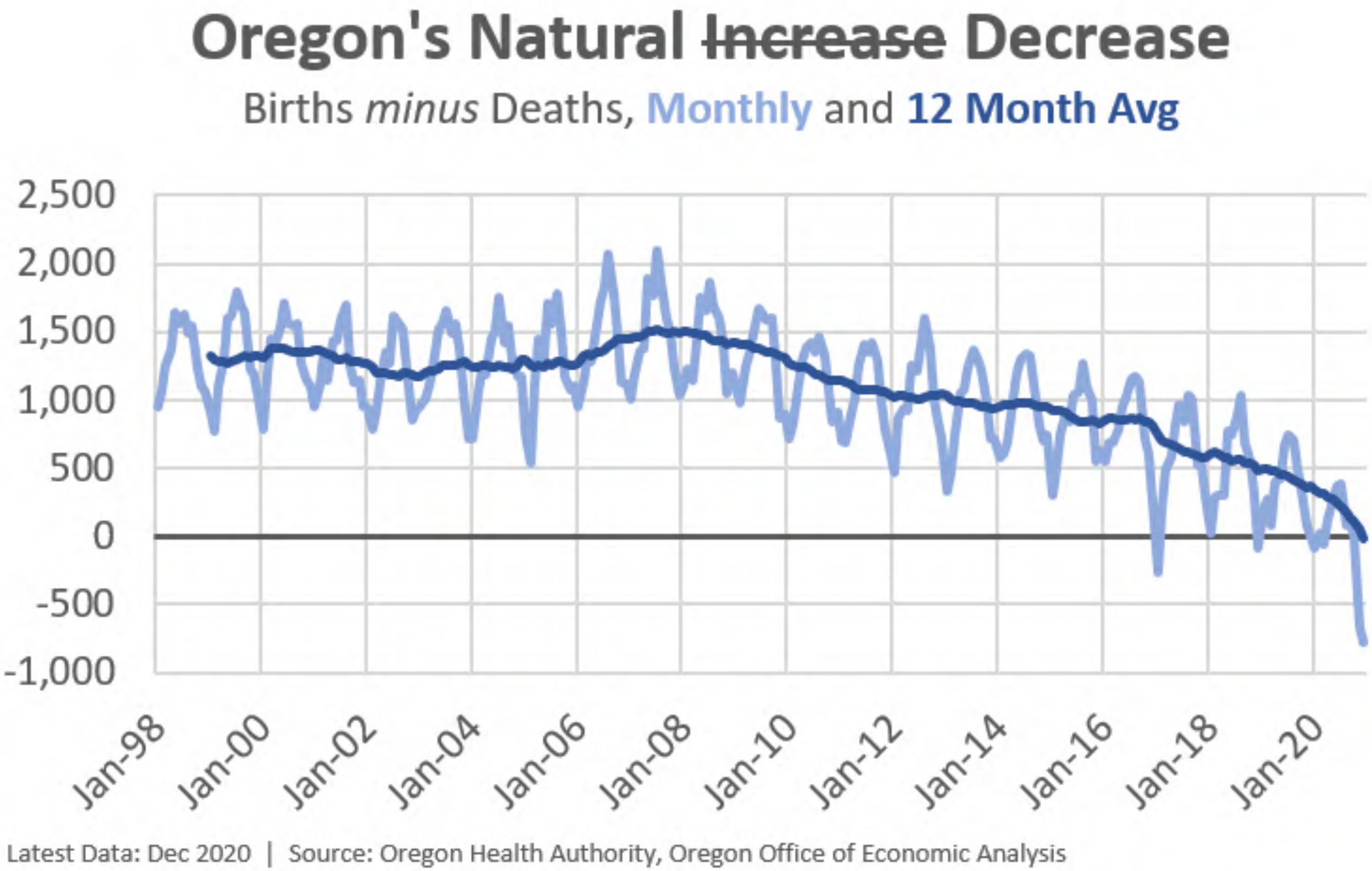
Source: Oregonian

Repairing Portland’s national profile

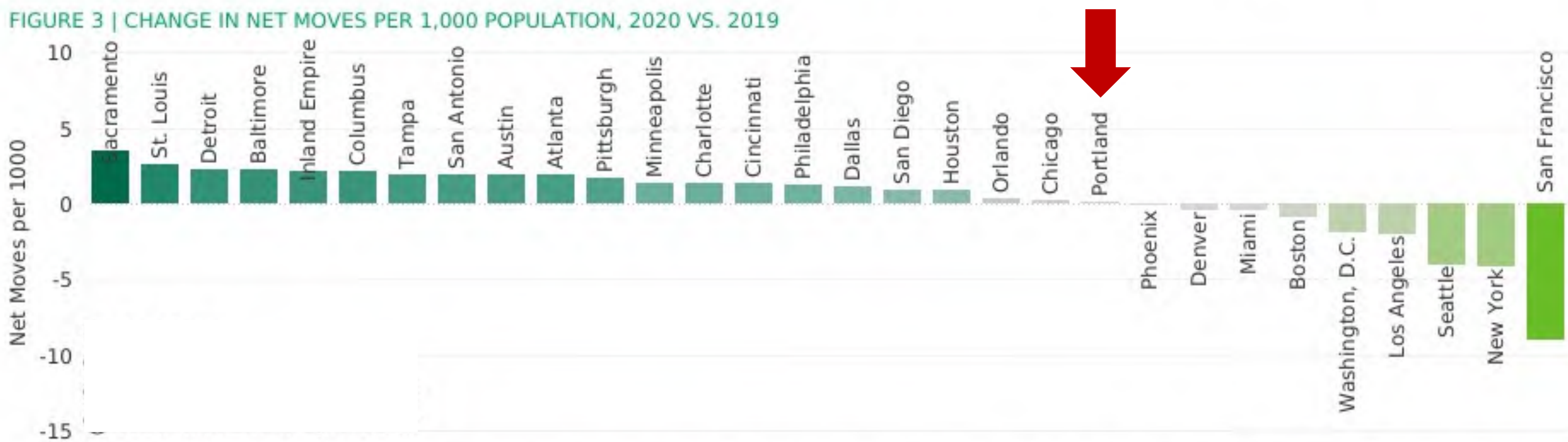


Source: Travel Portland

Oregon will only continue to grow through migration



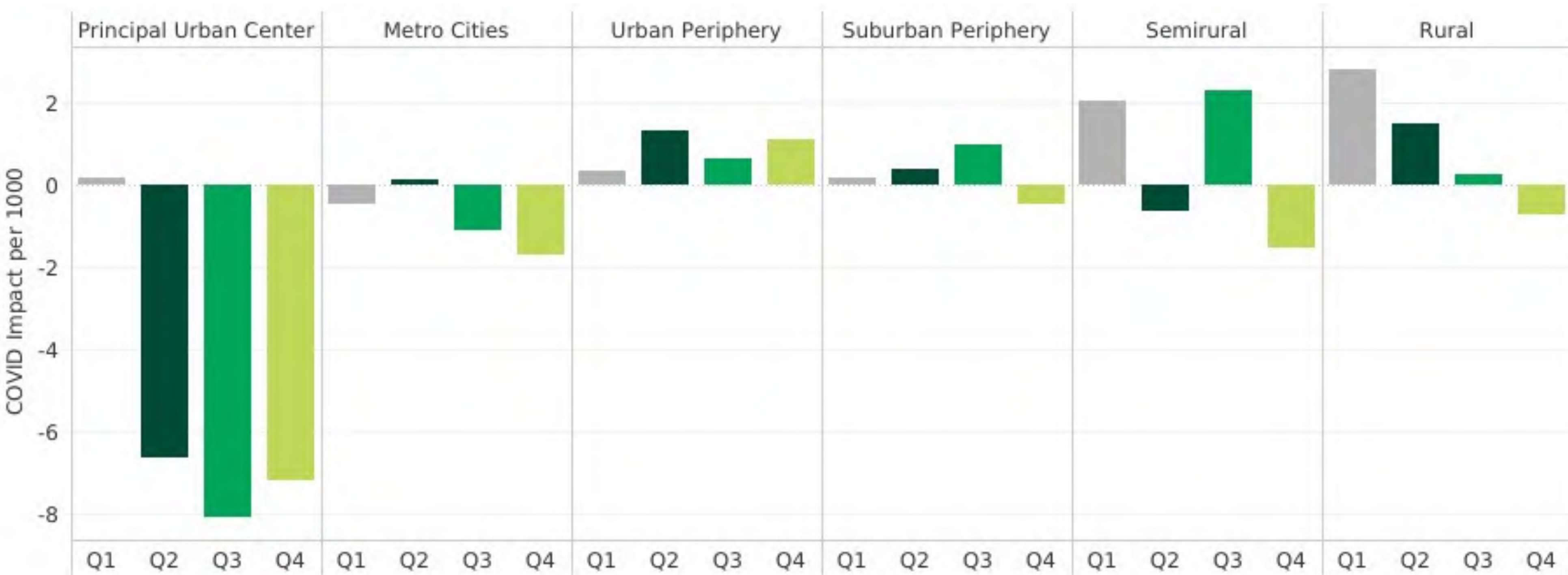
Portland had a slight increase in migration during 2020



Source: CBRE

Rural exodus over, urban centers continue to see reduced migration

Change in Migration 2020 vs. 2019 by Neighborhood Type in the Portland MSA



Source: CBRE

Are we forming another housing bubble?

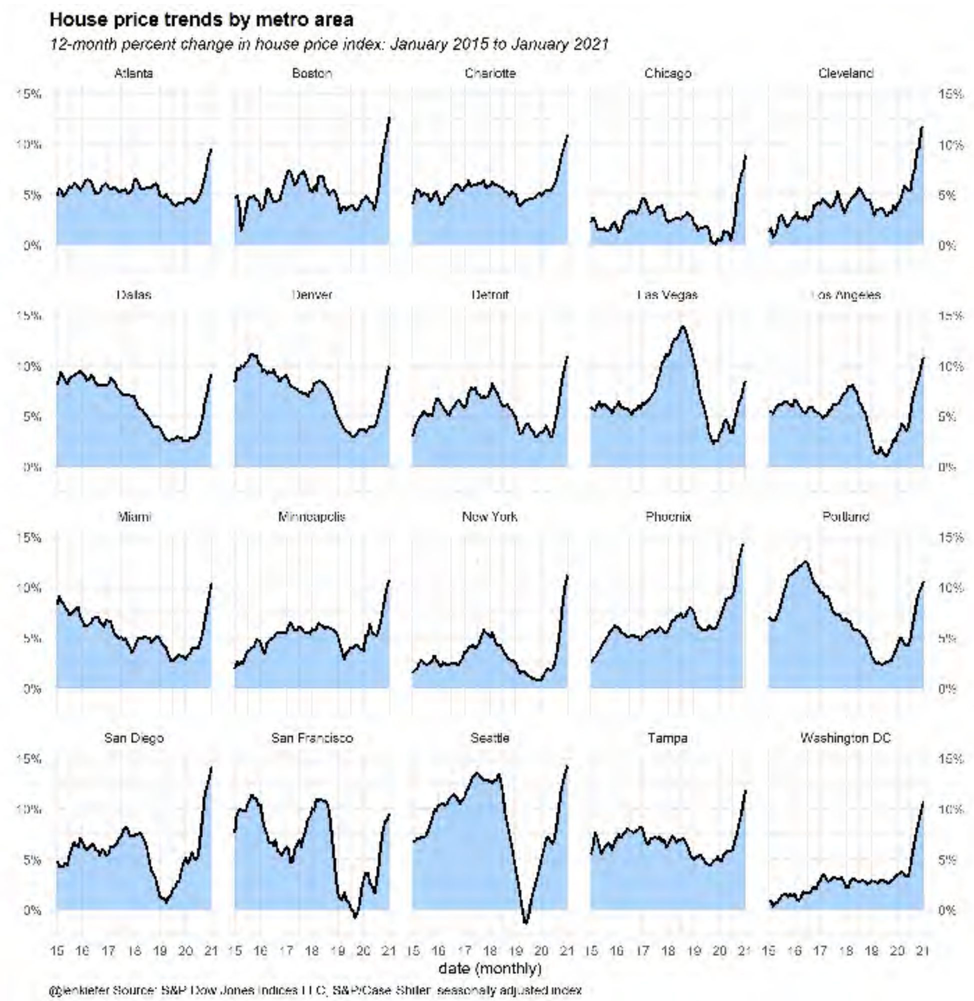
The Housing Boom Is Already Gigantic. How Long Can It Last?

Byron Eggenschwiler

By Robert J. Shiller

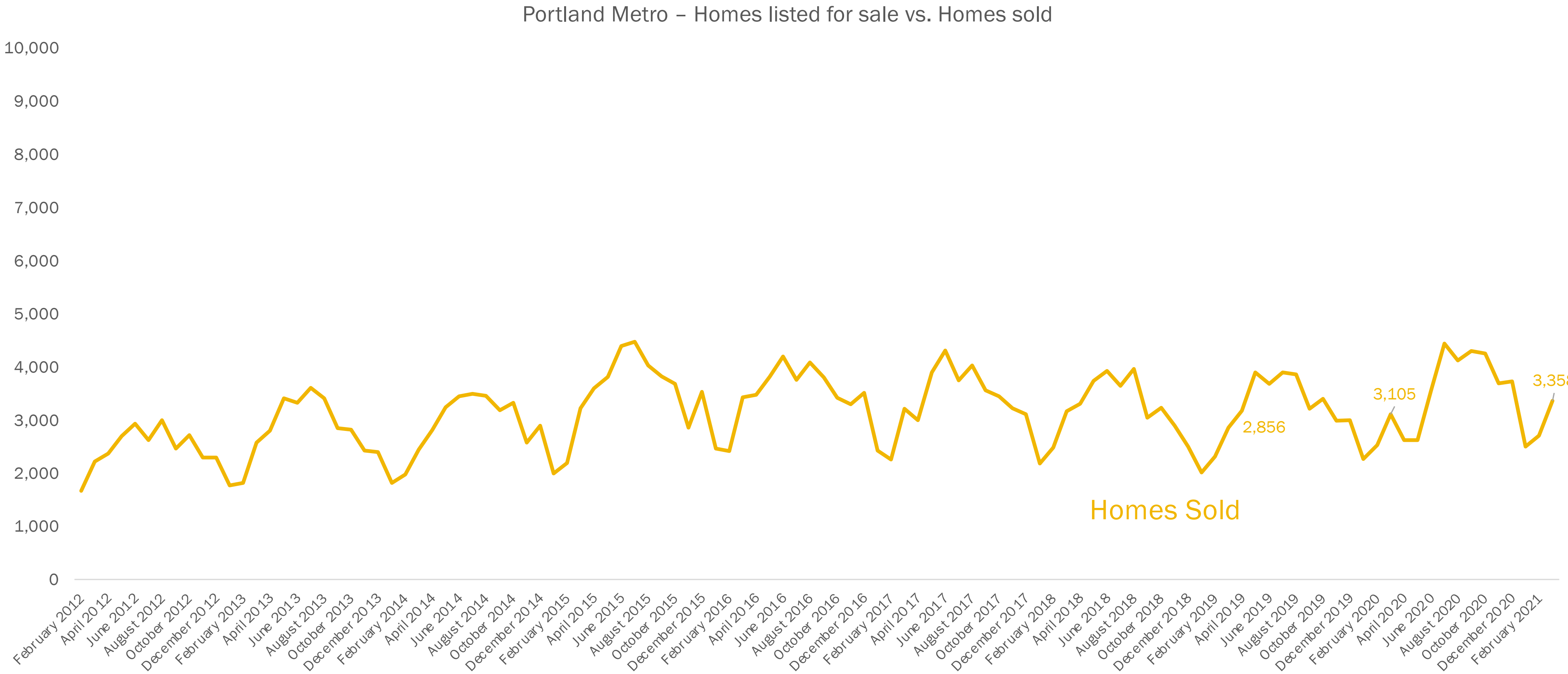
We are, once again, experiencing one of the greatest housing booms in United States history.

How long this will last and where it is heading next are impossible to know now.

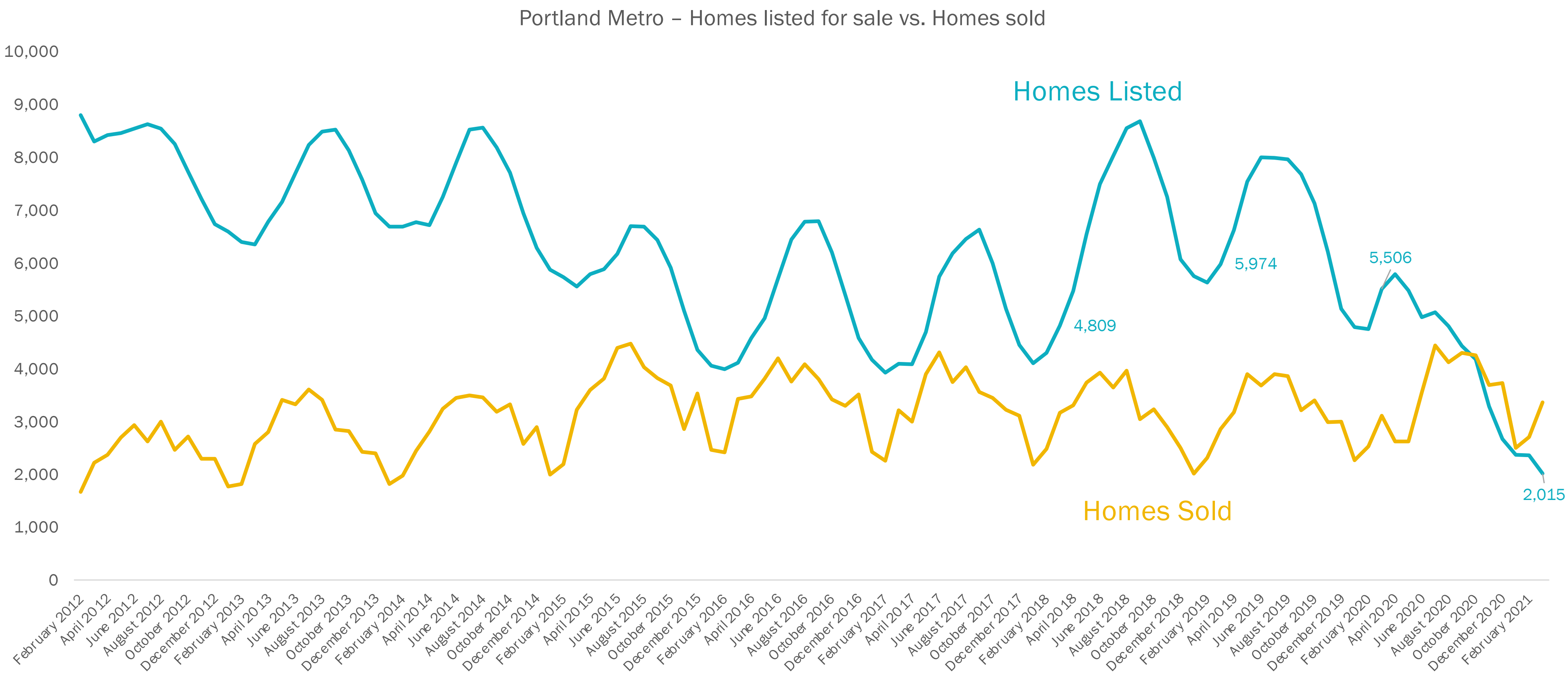


Source: New York Times

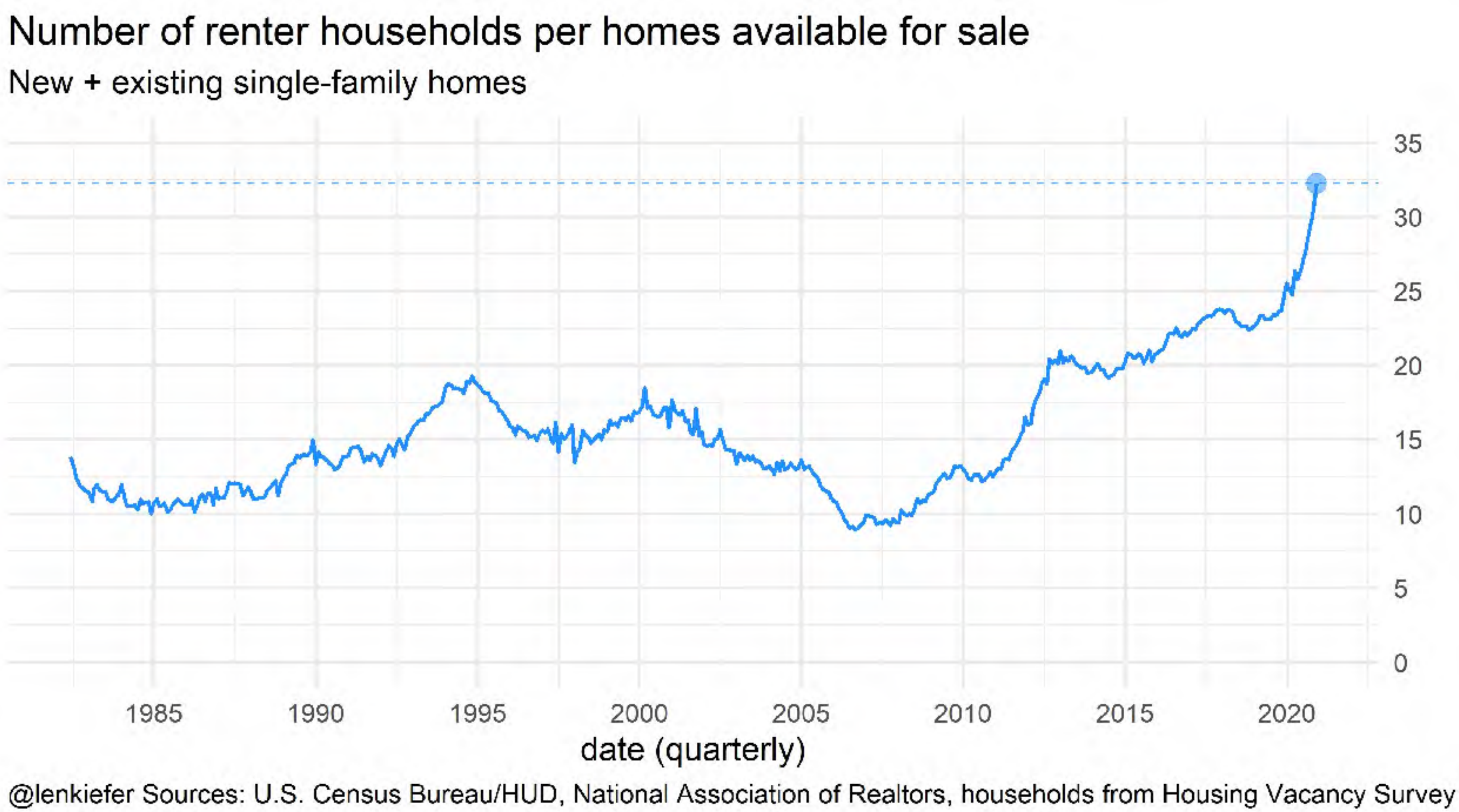
Historic low of less than 1 month of supply of homes for sale



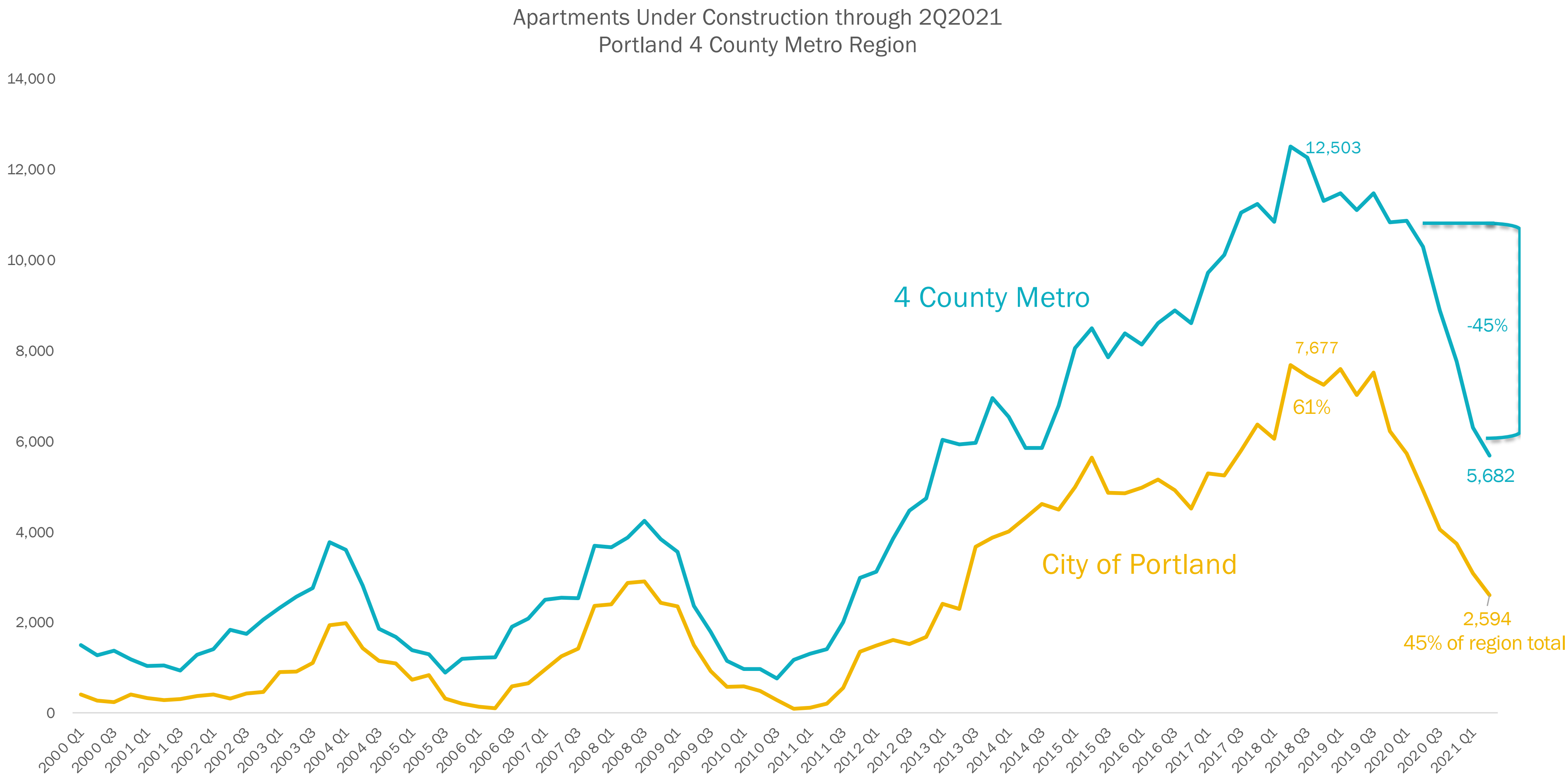
Historic low of less than 1 month of supply of homes for sale



There have never been more renters per home listed for sale



Apartment pipeline in free fall, down 45% in last year



Source: CoStar

Takeaways

- This recession is different than what we have seen before
- Understand how your clients are being impacted, how that will change when restrictions ease?
- How do you plan for growth, what is your new baseline?
- Going from “can you see my screen” to zoom fatigue. What types of meetings will continue to be remote?
- Government has the opportunity to change business as usual with infusion of ARP, more than offsetting any revenue losses
- Lack of new construction will see rents increase and continued price increases
    - Influenced by migration and mortgage rates

wilkerson@econw.com

ECONorthwest

ECONOMICS • FINANCE • PLANNING

Los Angeles

Portland

Seattle

Boise

Economic implications of disasters, disruptions, and changing environmental conditions in Oregon

ECONorthwest
ECONOMICS • FINANCE • PLANNING

Kruse Way Economic Forum
April 21, 2021
Mark Buckley
buckley@econw.com

Motivating questions

- What are the major disruption or disaster risks?
- Which preparations, investments are worthwhile?
- Are organizations likely to be prepared?
- What are good strategies, tools to prepare?
- How do we consider budget constraints?

Columbia Journalism Review

Example natural disaster and change concerns

Somewhat predictable, regular

- Drought, flood, heat wave, wildfire (climate change)

Unpredictable

- Earthquake, tsunami, volcanic eruption
- War, terrorism, civil unrest
- Disease pandemic

AP

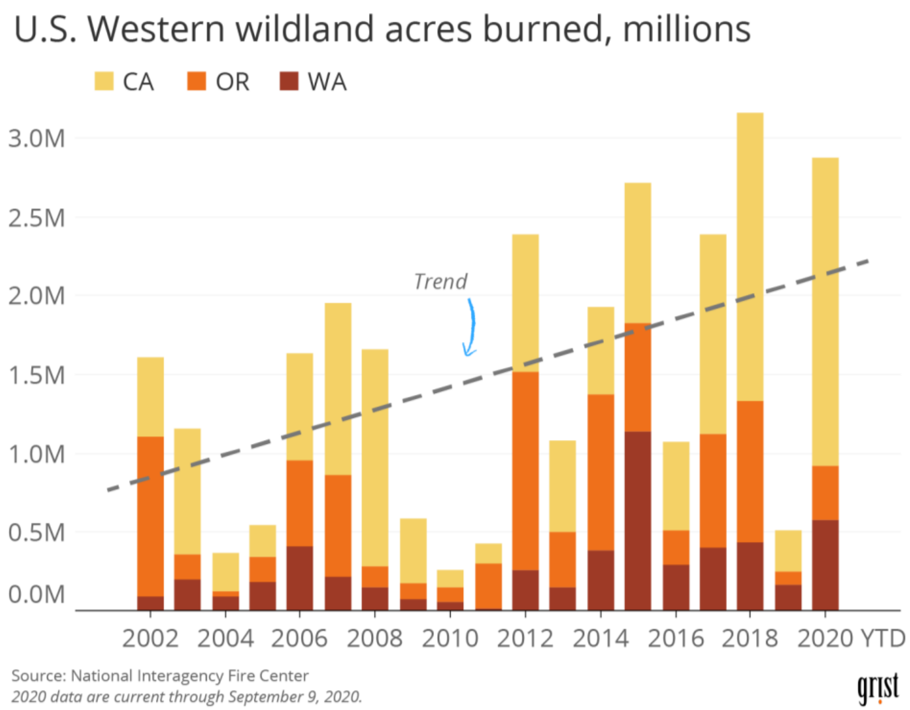
Oregon Climate Adaptation Framework: Risks

- Increase in average annual air temperatures, and likelihood of **extreme heat events**
- Changes in hydrology and water supply; reduced snowpack and water availability in some basins; **changes in water quality and timing of water availability**
- Increase in **wildfire frequency and intensity**
- Increase in ocean temperatures, with potential for changes in ocean chemistry and increased **ocean acidification**
- Increased incidence of **drought**

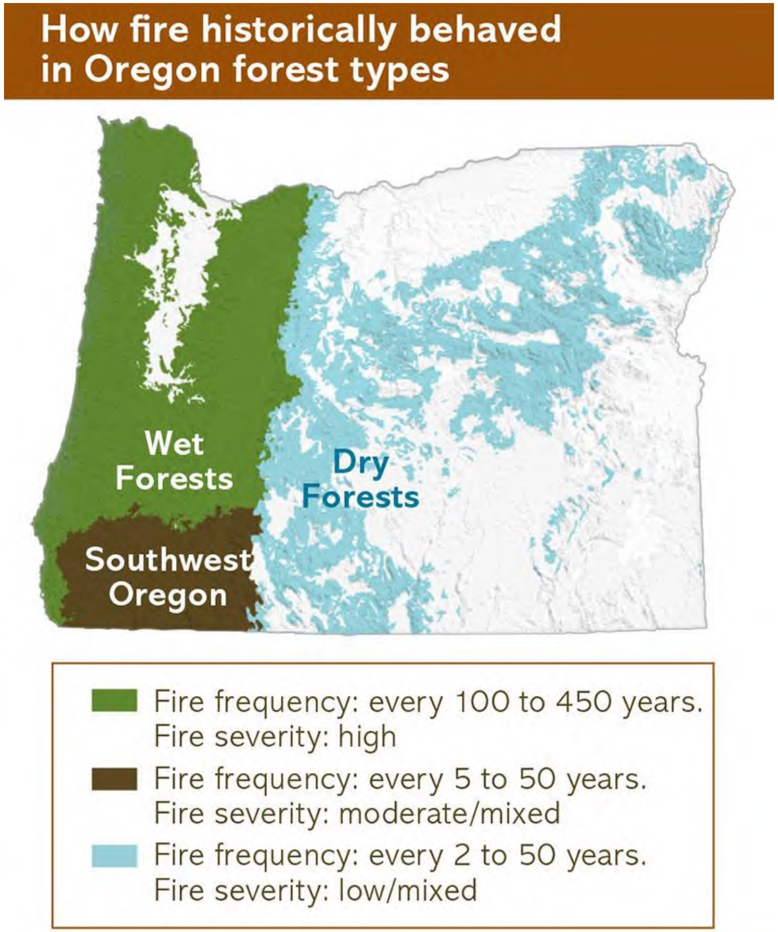
Oregon Climate Adaptation Framework: Risks B

- Increased **coastal erosion** and **risk of inundation** from increasing sea levels and increasing wave heights and storm surges
- **Changes in the abundance** and geographical distributions of plant **species and habitats** for aquatic and terrestrial wildlife
- Increase in **diseases**, **invasive species**, and insect, animal, and plant **pests**
- **Loss of wetland** ecosystems and services
- Increased frequency of **extreme precipitation** events and incidence and magnitude of damaging **floods**
- Increased incidence of **landslides**

Wildfire in Oregon



Source: Grist



Source: OFRI

Over 1 million acres burned in Oregon in 2020

2021 Water Scarcity in Oregon

BREAKING TOP STORY

Klamath Project to receive historically low water allocation

By GEORGE PLAVEN Capital Press Apr 14, 2021

'ANOTHER DUST BOWL': KLAMATH BASIN GROWERS SAY 2021 WATER SHORTAGE WILL HAVE LASTING IMPACTS

(Photo courtesy US Geological Survey)

Both the Bureau of Reclamation and Department of Agriculture announced monetary assistance for the Klamath Project on Wednesday, but the funding comes in lieu of water for irrigation.

Posted: Apr 14, 2021 12:17 PM
Updated: Apr 14, 2021 5:23 PM
Posted By: Jamie Parfitt

KLAMATH FALLS, Ore. — 2021 is shaping up to be the worst year on record for drought conditions in the Klamath Basin, and federal agencies have promised relief funding for farmers as any meaningful supply of water for irrigation appears increasingly unlikely.

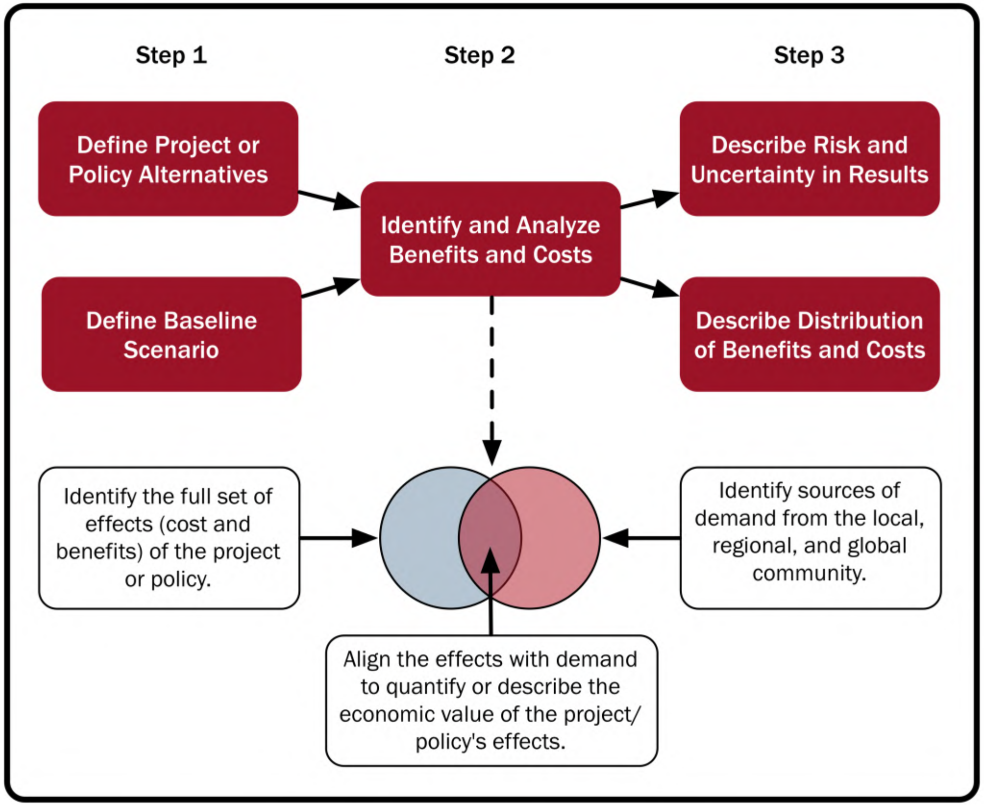
Oregon drought at unprecedented levels, farmers unable to operate in Southern Oregon 2021

Risk and value

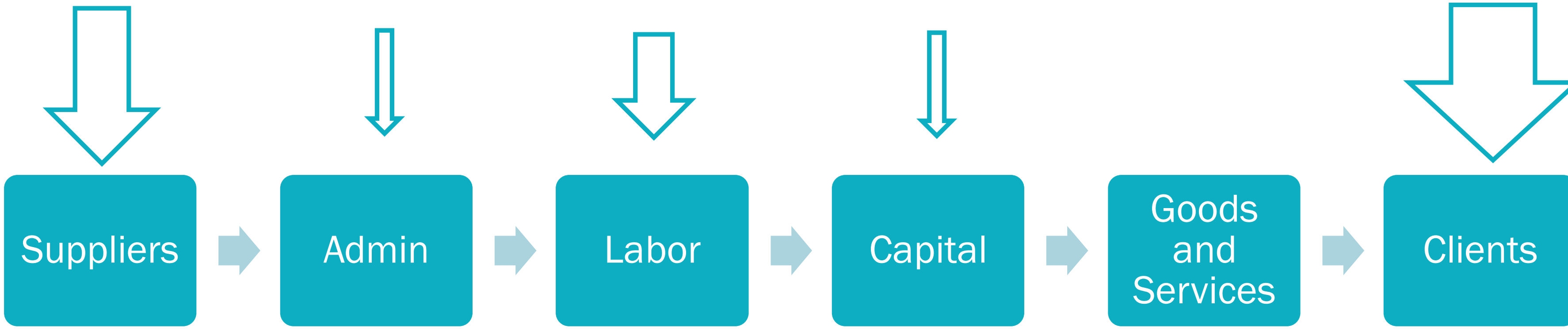
- Behavioral challenges to expected value: (probability * value)
- Uncertainties, shifting probabilities
- Sufficient value at risk? Sufficient probability of occurrence?
- Costs and effectiveness ofproactive vs. reactive responses?
- E.g. earthquake vs.
  wildfire

Benefit Cost Analysis of Actions

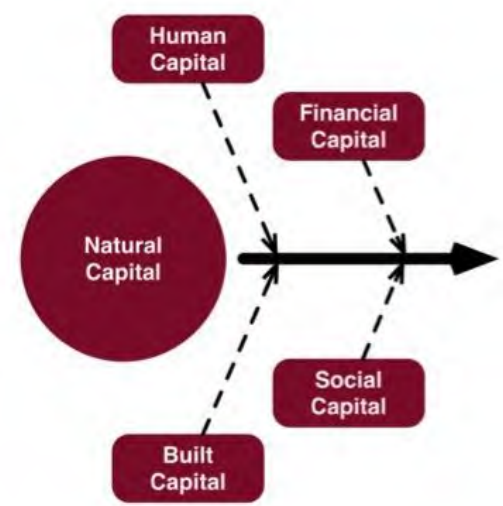
- What are the investment options?
- How do costs and benefits differ from baseline?
- What are the risks, timing, distribution?
- What are the budget constraints?



Where are disruptions in production?



- Where is the disruption?
- How sudden?
- How severe?
- How long?
- Are there available internal substitutes?
- Are there available external substitutes?



Concentrated vs. diffuse effects

- Concentrated costs/benefits
  - strong incentives exist to motivate action
  - markets/individual self-interested behavior can lead to socially-optimal outcomes
- Diffuse costs/benefits
  - weak incentives exist
  - coordination/information/transaction costs can overwhelm cooperative efforts

What are the key scarcities?

- Demand and value of uses
- Total supply available and its characteristics
  - Quality, regularity, predictability
- Availability of substitutes, complements
- Number of potential beneficiaries
- Concentration of benefits and costs

Preparation costs and risk matrix

	High Risk	Low Risk
High Preparation Costs	**Funding Challenges** •Unknown/expensive controls •Likely negative effects	**Low Priority** •Unknown/expensive controls •Negative effects low probability or low consequence
Low Preparation Costs	**Top Priority** •Known control strategies •Likely negative effects	**Address Opportunistically** •Known control strategies •Negative effects low probability or low consequence

- **Risk aversion equates decreasing information certainty with increasing risk**

Example: preventative medicine

- Some preventative care is highly cost-effective (child immunizations, smoking prevention, screenings, etc.)
- Much is not; benefit based on improved quality of life, not financial savings.
- Expensive to treat many who would not have become sick regardless.

smchealth.org

Cost-Effectiveness of Selected Preventive Measures and Treatments for Existing Conditions (2006 Dollars).*

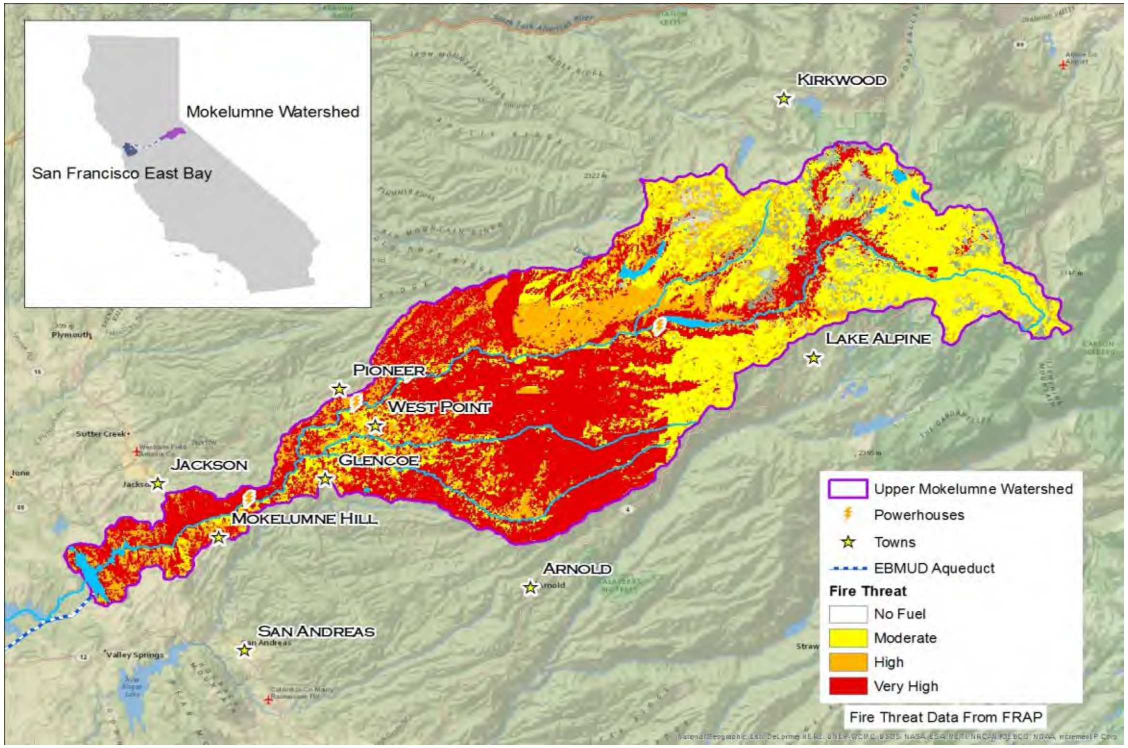
Intervention	Cost-Effectiveness Ratio
Preventive measures	
Haemophilus influenzae type b vaccination of toddlers	Cost-saving
One-time colonoscopy screening for colorectal cancer in men 60–64 years old	Cost-saving
Newborn screening for medium-chain acyl-coenzyme A dehydrogenase deficiency	\$160/QALY
High-intensity smoking-relapse prevention program, as compared with a low-intensity program	\$190/QALY
Intensive tobacco-use prevention program for seventh- and eighth-graders	\$23,000/QALY
Screening all 65-year-olds for diabetes as compared with screening 65-year-olds with hypertension for diabetes	\$590,000/QALY
Antibiotic prophylaxis (amoxicillin) for children with moderate cardiac lesions who are undergoing urinary catheterization	Increases cost and worsens health
Treatments for existing conditions	
Cognitive-behavioral family intervention for patients with Alzheimer's disease	Cost-saving
Cochlear implants in profoundly deaf children	Cost-saving
Combination antiretroviral therapy for HIV-infected patients	\$29,000/QALY
Liver transplantation in patients with primary sclerosing cholangitis	\$41,000/QALY
Implantation of cardioverter–defibrillators in appropriate populations, as compared with medical management alone	\$52,000/QALY
Left ventricular assist device, as compared with optimal medical management, in patients with heart failure who are not candidates for transplantation	\$900,000/QALY
Surgery in 70-year-old men with a new diagnosis of prostate cancer, as compared with watchful waiting	Increases cost and worsens health

* The cost-effectiveness ratio is the incremental costs divided by the incremental benefits, relative to a comparator. The comparator is omitted from the intervention's description if it was no treatment or current treatment or if the intervention was added to, rather than substituted for, another treatment. The cost-effectiveness estimates listed are point-estimate values from the original articles (a more detailed table appears in the Supplementary Appendix, available with the full text of this article at www.nejm.org). Preventive measures are those designed to avert the development of a condition. Treatments for existing conditions include both those designed to prevent the progression of a condition and those designed to ameliorate the effects of a disease or condition. QALY denotes quality-adjusted life-year. For more information see www.tufts-nemc.org/cearegistry.

Joshua T. Cohen, Ph.D.,
Peter J. Neumann, Sc.D.,
and Milton C. Weinstein, Ph.D.
N Engl J Med 2008; 358:661-663

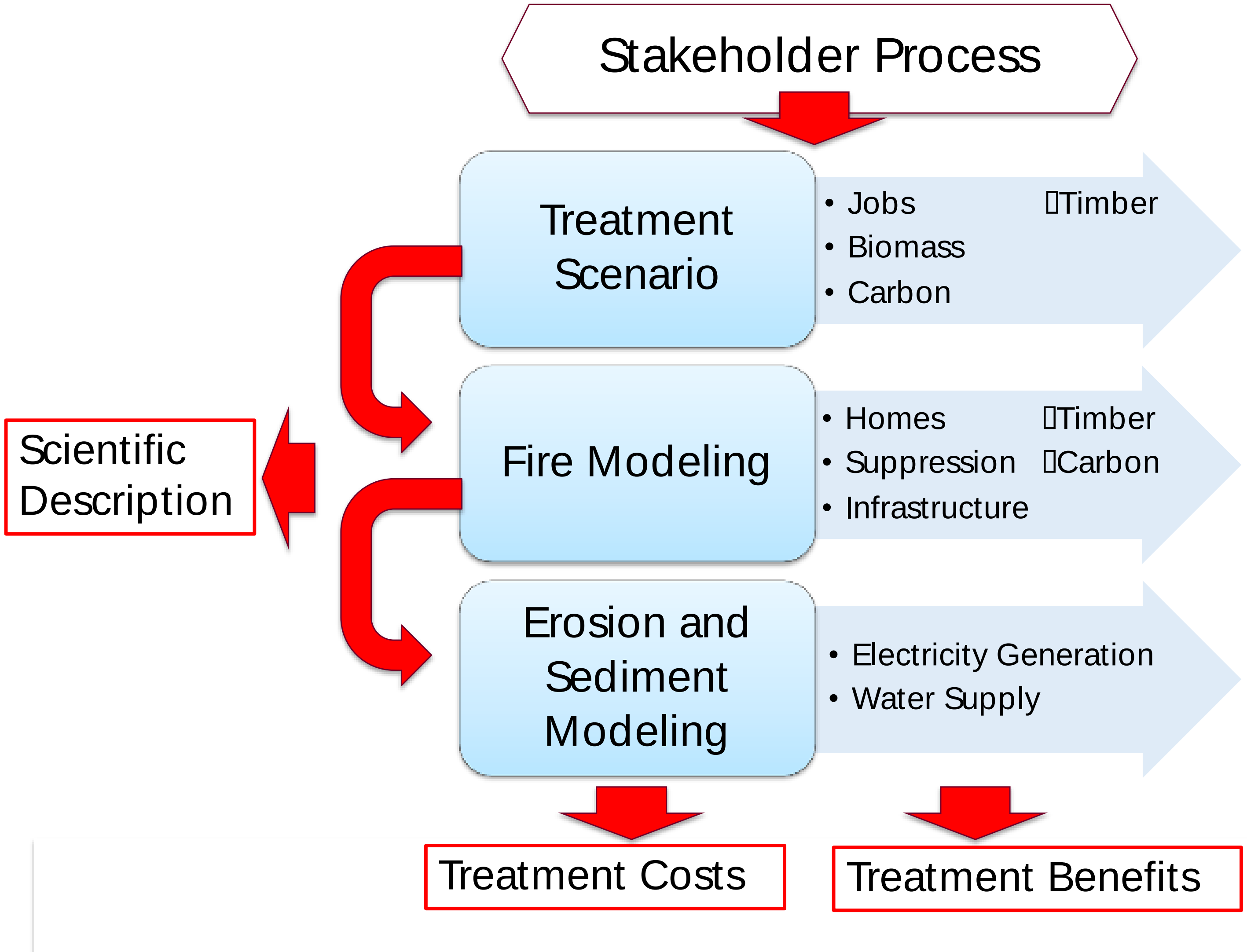
Example: wildfire risk (Mokelumne Basin)

- Mokelumnne River Basin in Sierra Nevada
- Important water supply source for EBMUD
- Hydropower for PG&E
- Timber for Sierra Pacific
- USFS, BLM, Local land



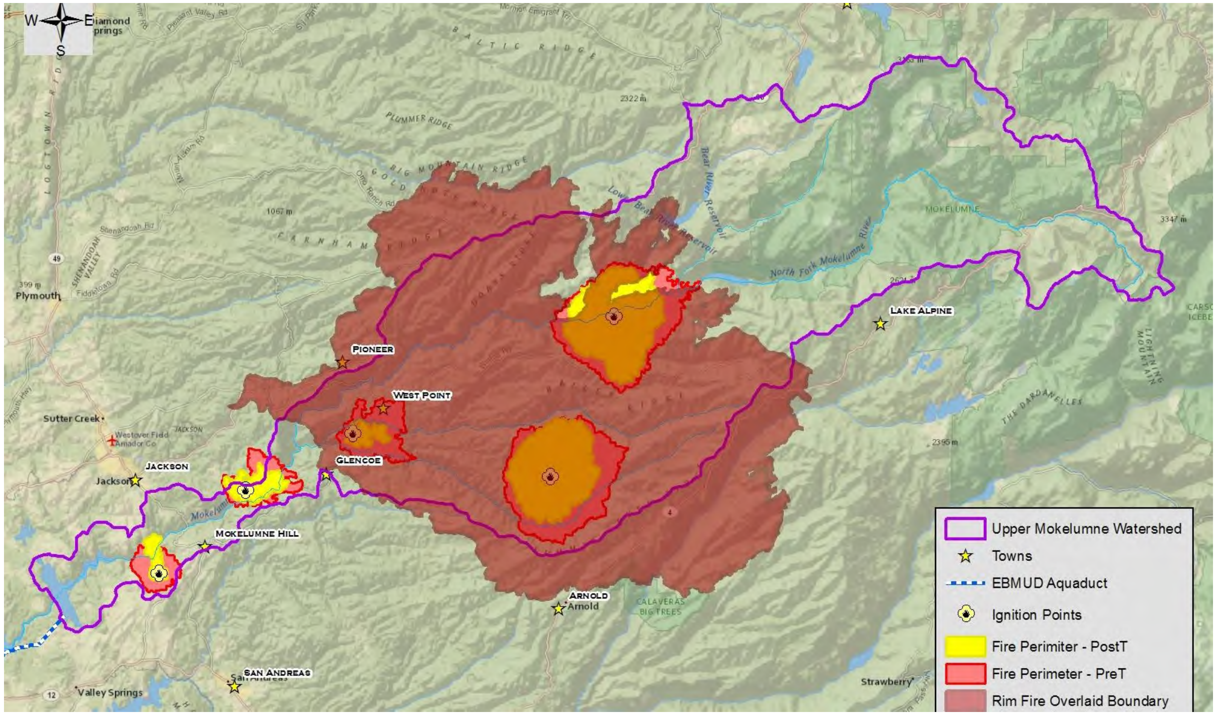
Can stakeholders coordinate investments to reduce wildfire risk?

Scientific/economic modeling of fire effects



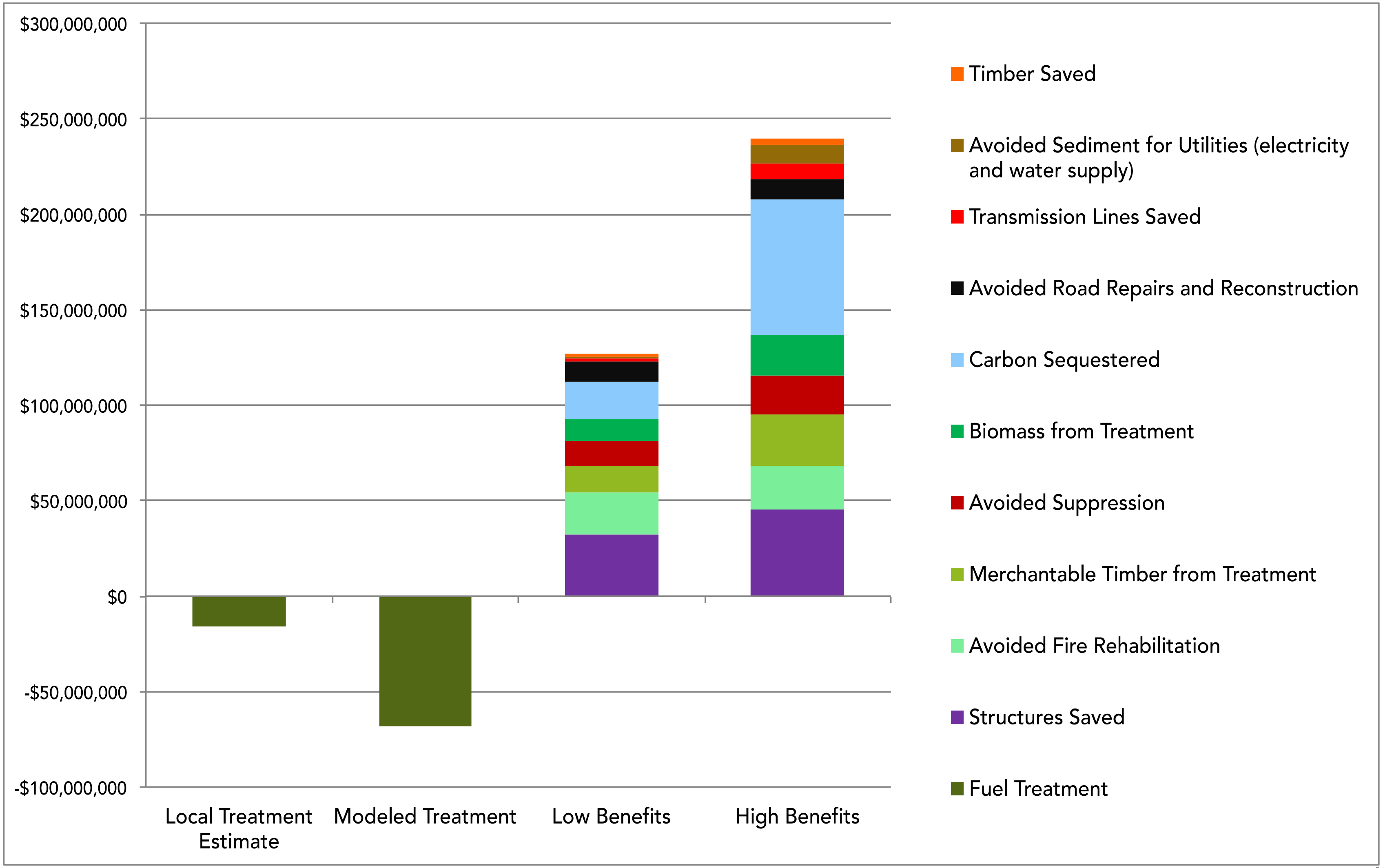
Probability-weighted modeling didn't show value

Rim Fire new Yosemite was 236,000 acres. Our 5 modeled fires totaled 45,000 acres.

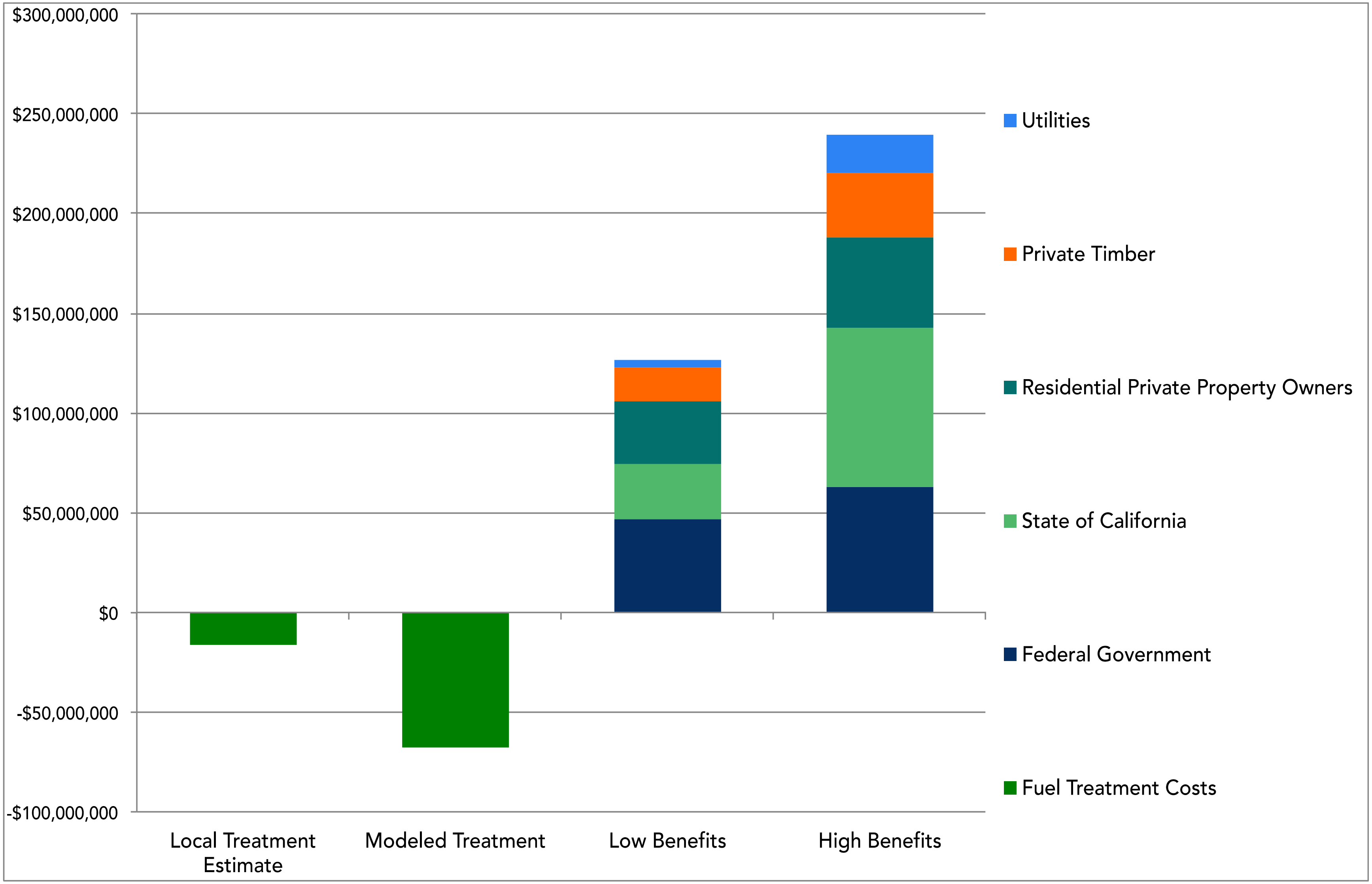


Treatment would reduce the mean fire per-acre return interval in the drainage by approximately 53 years from 308 years given existing conditions to 361 years post fuels treatment.

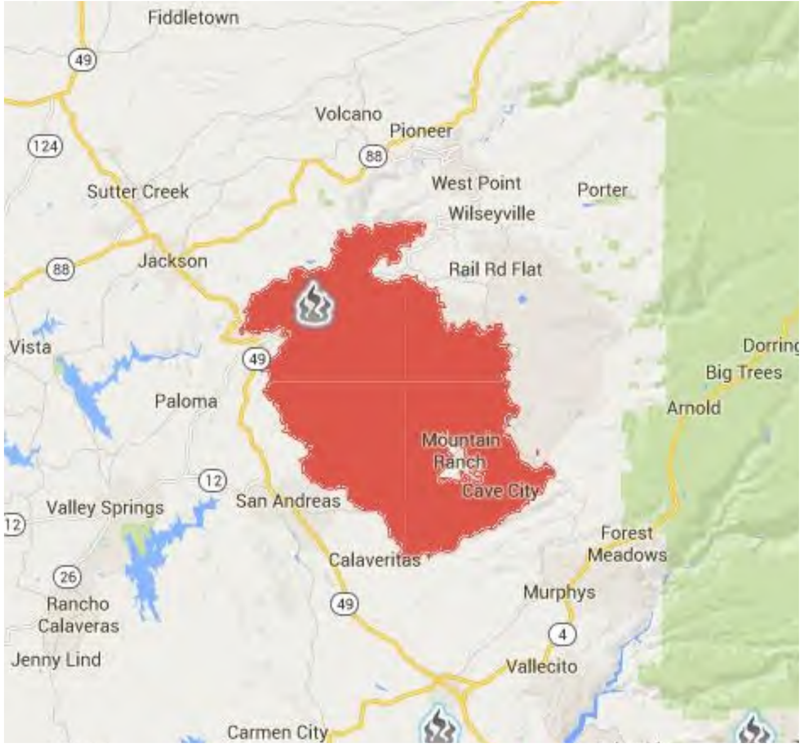
Fuel treatment avoided costs



Distribution of avoided costs



Butte Fire, 2015



- $60+ million for suppression
- $450 million total private value loss (insurance company estimate)
- At least half of costs uninsured

- 70,868 acres (our model 45,366 acres)
- 2 deaths
- 80 miles of roads ($60 million)
- $54 million property values
  - 549 homes, 368 outbuildings, and 4 commercial properties lost. 44 more structures damaged.
- 2579 parcels burned (reduced property tax roll)
- 20,000 acres of rangeland, 13,000 acres of Williamson Act Contract lands and 7,000 acres of smaller private ranches
- 20 million board feet of timber ($3.4 million)
- 80 cattle, uncounted other animals
- Extensive farming infrastructure loss
- Transmission lines, power outages

Wildfire costs increasing

- PG&E liability over $20 billion for 2017 & 2018 fires.
- Filed for bankruptcy in 2019.
- 2015-2018: Costs deep into the tens of billions $ damages, not counting loss and disruption of life.
- Still, is more preventative spending worthwhile? Behavior change? More suppression?
- EBMUD: earthquakes teach us to invest for a level of potential damage, not worried about probability

Property Right Challenges

- Fiji struggling to prepare for climate change
- Already face climate refugees
- Insecure land tenure, farmland nationalization
- No investment in soil, irrigation, roads, coastal protection
- Secure property rights and governance key to successful climate adaptation


Ecosystem & Socio-economic Resilience Analysis & Mapping (ESRAM) for Macuata Province, Fiji:

PEBACC: Pacific Ecosystem-Based Adaptation to Climate Change Project

Prepared For:

Herman Timmermans
PEBACC Project Leader, SPREP

Proactive vs. Reactive

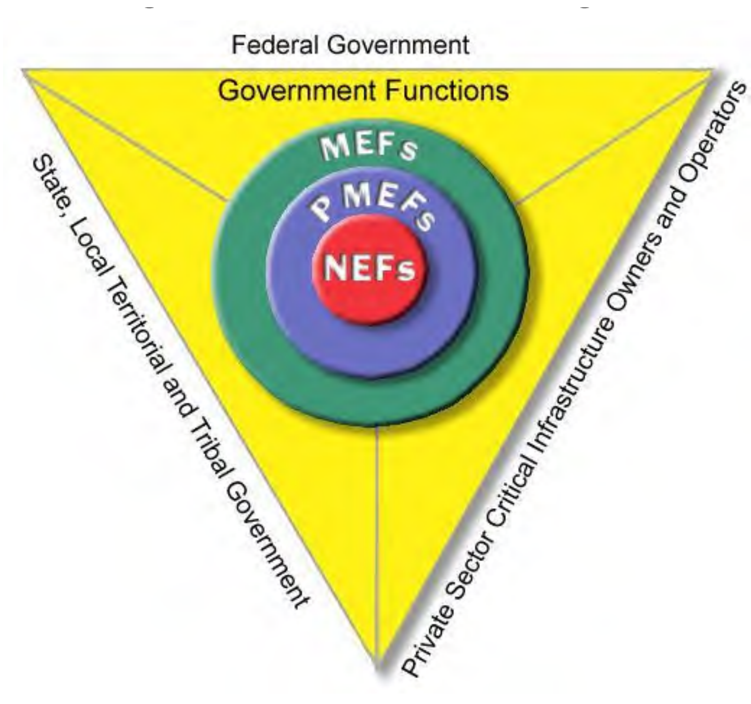
- Costs, benefits, probabilities and timing can make proactive or reactive strategies correct
- E.g. fire suppression effort vs. forest fuel treatments
- Drought investments for cities and irrigation districts
- Earthquake preparation

Continuity of Operations Plan (COOP)

- A COOP is a pre-emptive effort to ensure the stability of critical business functions during a range of potential emergency events.
  - Safety of employees
  - Mission essential functions
  - Management structure for emergency response
  - Communication procedures
  - Succession plan
  - Plan maintenance

COOP Federal Guidance

- Essential Functions
- Orders of Succession
- Delegations of Authority
- Continuity/Alternate Facilities
- Continuity Communications
- Reconstitution
- Others



Federal Emergency Mgmt Agency, Dept. of Homeland Security

ECONW example objectives (short term)

- Ensure the safety of ECO employees;
- Ensure the continuation of critical business functions;
- Maintain command, control and communication during emergencies;
- Reduce disruptions to operations;
- Protect critical equipment, records, and other assets;
- Assess and minimize damages and losses.

ECONW example objectives (medium term)

- Provide organizational and operational stability;
- Facilitate decision-making during an emergency;
- Achieve an orderly recovery from a disruption or emergency;
- Assist affected employees and their families;
- Provide a line of succession for critical management and technical positions; and
- Provide necessary resources to restore critical functions based on the scope, severity, and nature of the incident.

COOP Activation Types

- Known Threats and Emergencies (With Warning)
  - Seasonal flooding, storms, public health events
- Unanticipated Threats and Emergencies (No Warning) - Non-Business Hours
  - Earthquake, fire, hazardous materials, terrorist
- Unanticipated Threats and Emergencies (No Warning) - Business Hours
  - same

Changes due to COOP at ECONW

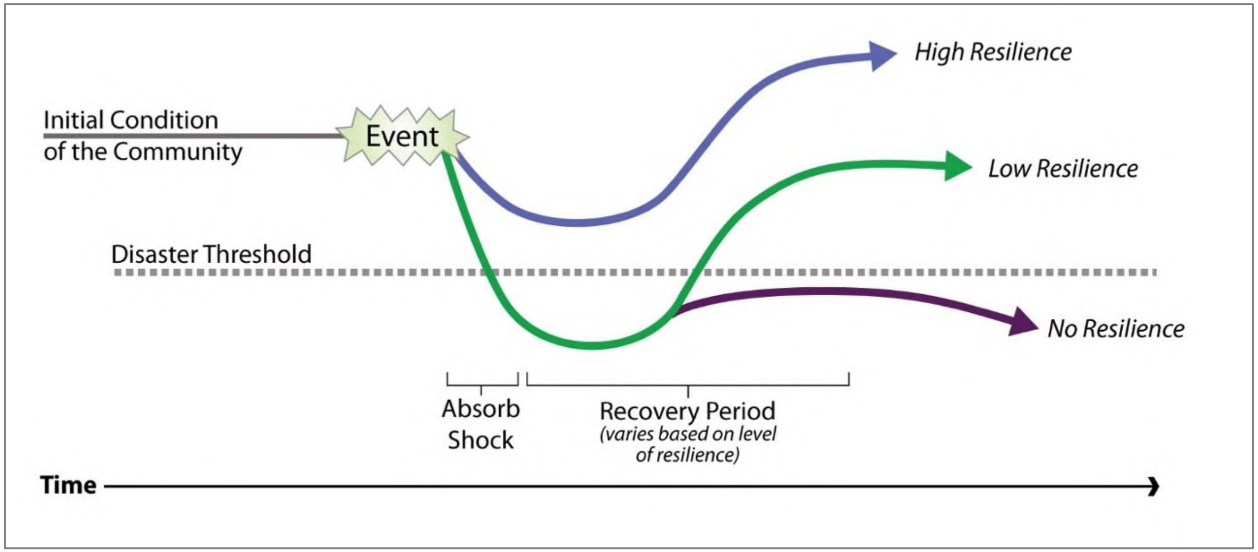
- Importance of satellite offices and redundancies for staff
- Internal and external communication plans and messages
- Annual practice, decision familiarity
- Coordination with key suppliers (e.g. payroll, banks)
- Cloud storage of important information
- Improved communication with external partners
- Office investments, supplies

Society-scale considerations

- Disaster preparation costs and effectiveness?
- Uncertain future need?
- US 2019 GDP: $21 trillion
  - China: $27 trillion
  - One month of serious disruption is consequential
- Potential return on investment from risk reduction is huge

Community, institutional resiliency

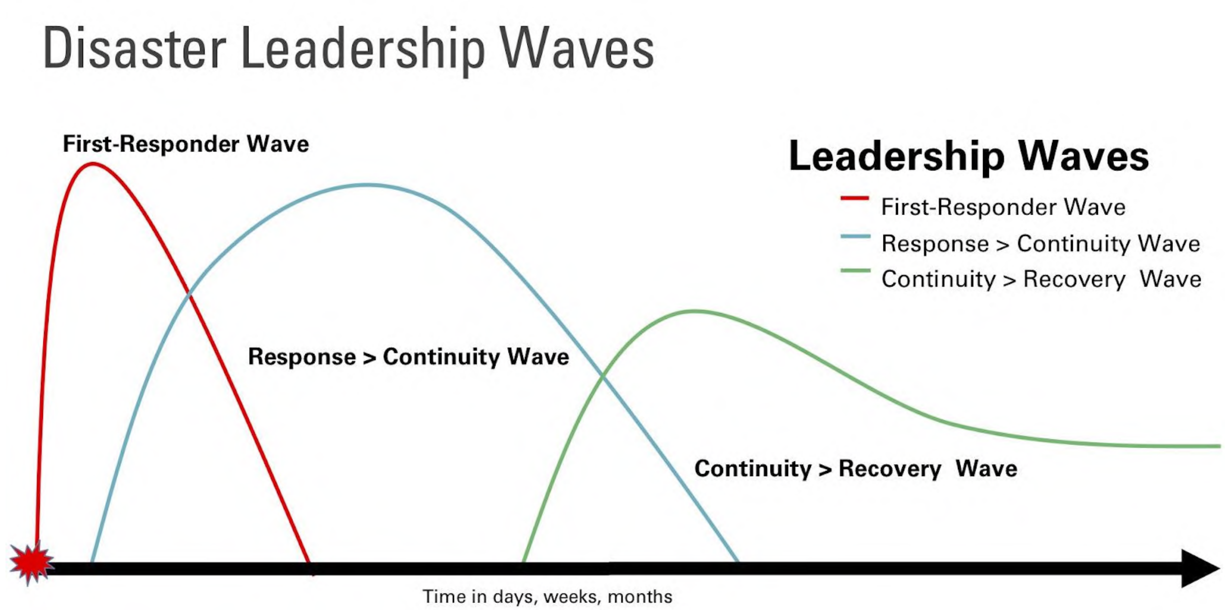
- **Economic resilience:** reduce vulnerabilities and increase adaptive capacities (shorten recovery period)
- Impacts of a disaster will vary within a community
- Resiliency can vary from short run to long run



Source: Oregon Partnership for Disaster Resilience

Recovery comes in waves

- Roles in recovery from a disaster vary across the timeframe.
- Recovery can take years.



Source: Oregon Partnership for Disaster Resilience

Key Points on Disaster and Disruption

- Predictability, pace, disruption length and severity of critical importance
- Substitutability of inputs by type, geography, time matters
- Insurance costs relative to level of risk drive importance of investment and preparation
- Go after low-hanging fruit
- Understand opportunities to react, needs to prepare

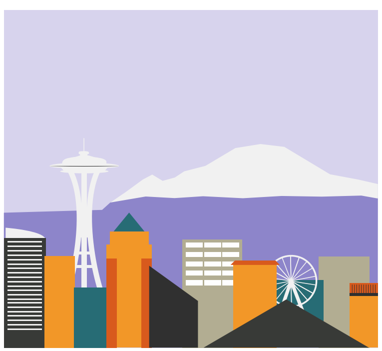
Questions?

ECONorthwest

ECONOMICS • FINANCE • PLANNING

Eugene

Portland



Seattle

Boise