

Economic Impacts of Large Fires



Cassandra Moseley, Director
Ecosystem Workforce Program
Institute for a Sustainable Environment
University of Oregon



UNIVERSITY OF OREGON



Wildfire Research Funding

- Joint Fire Sciences Program
- Forest Service R&D
- National Science Foundation (Natural hazards)
- AFRI/NIFA (Natural hazards)

Wildfire social science

- Public acceptance of fire/fuels
- Fire risk perception
- Homeowner & community preparedness
- Community-agency interactions
- Community reactions to fire
- Trust
- Outreach & communications
- Fire suppression costs & drivers of cost
- Fuels reduction costs and benefits
- Social networks and incident command effectiveness
- Etc.

Project Team

University of Oregon

- Cassandra Moseley
- Max Nielsen-Pincus
- Emily Jane Davis
- Laura Leete
- Autumn Ellison
- Cody Evers

US Forest Service

Northern Station

- Pam Jakes

Rocky Mountain Station

- Krista Gebert

Impacts on local economies

- Potential negative impacts on tourism, natural resource, service sectors
 - People leave and visitors avoid visiting
 - Can't work in the woods
- Potential positive impacts of suppression spending
 - Federal employees
 - Contractors, lodging, etc



Research Questions



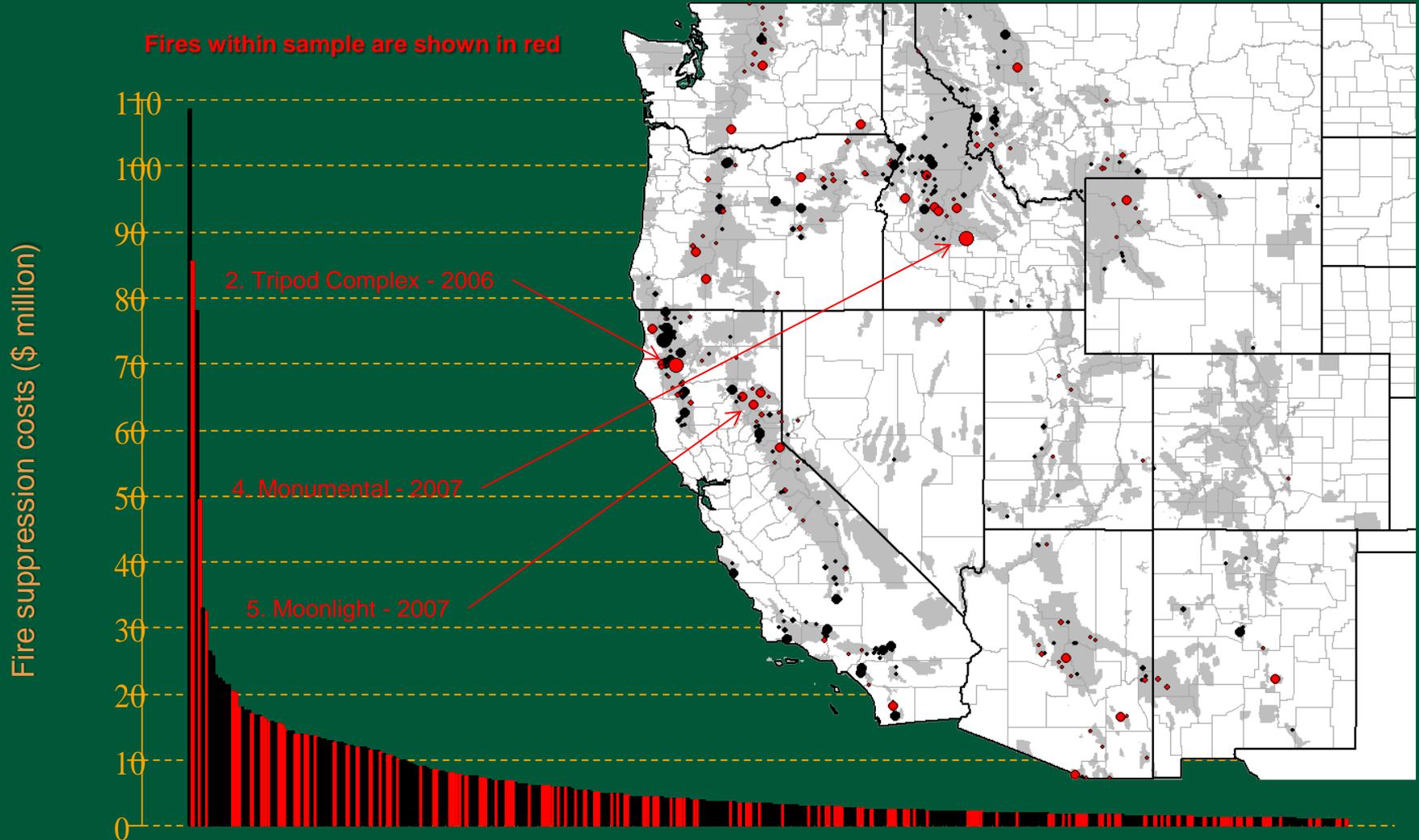
- How do large wildfires affect labor markets in local communities?
- How does suppression spending affect labor market impacts?
- What influences local ability to capture suppression spending?

Approach

- Large fires in the West, 2004-2008
 - Forest Service lead agency; > \$1 million
 - Examine county wages and employment during and after the fire (n=346)
 - Examine the effect of local spending on sample (135 fires)
 - Examine how business capacity and economic specialization affect local contract capture rates (135 fires)



Large western fires 2004-2008



Expenditure on these fires (between 2004 and 2008): \$2.41 billion

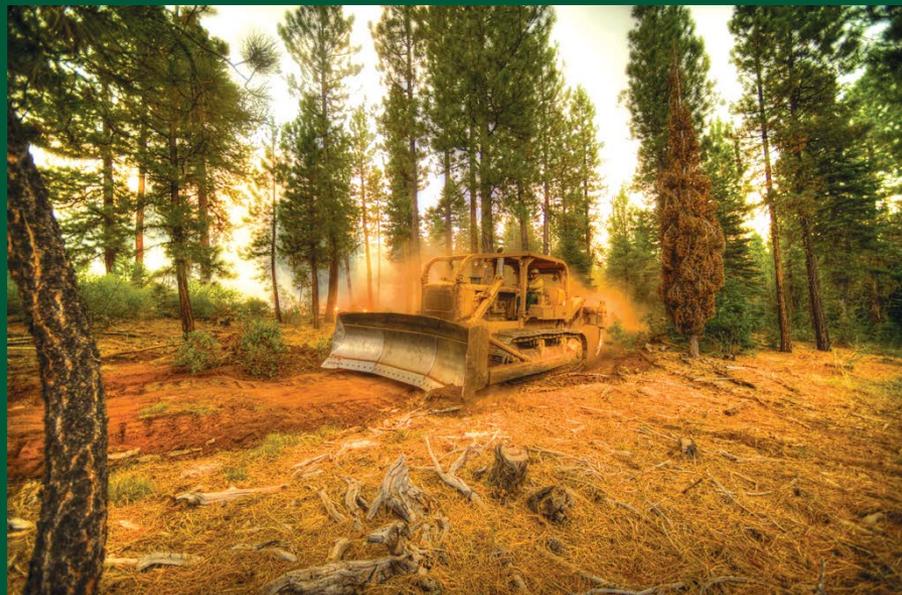
Labor market impacts: during fire

- Employment and wages increase (1.5%, .90%)
- Government dependent and frequent fire counties: even greater employment effects



The effect of local spending

- Total cost of fire = negligible impact
- Amount spent locally = large impact
 - During fire: For every \$1 million spent in the county of the fire, employment rate increases approx. 1%



Labor market impacts: After fire

Increased Volatility:

- Greater seasonal variation: up to 5 quarters



Wildfires and volatility

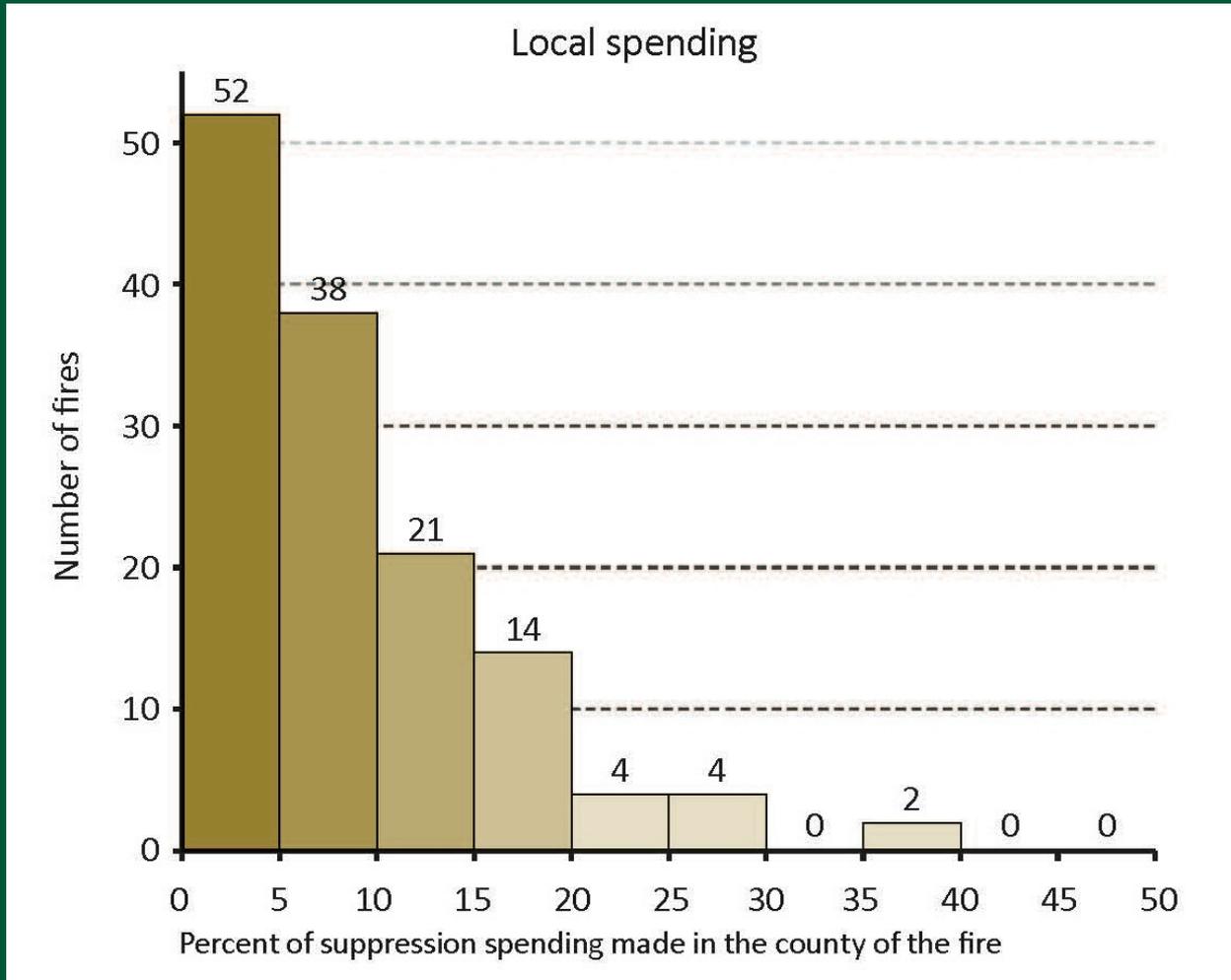
- Wildfires tend to occur in places that already have greater than average seasonal volatility
- Further increases in labor market volatility = greater economic instability



Local spending matters. So, what influences local capture?



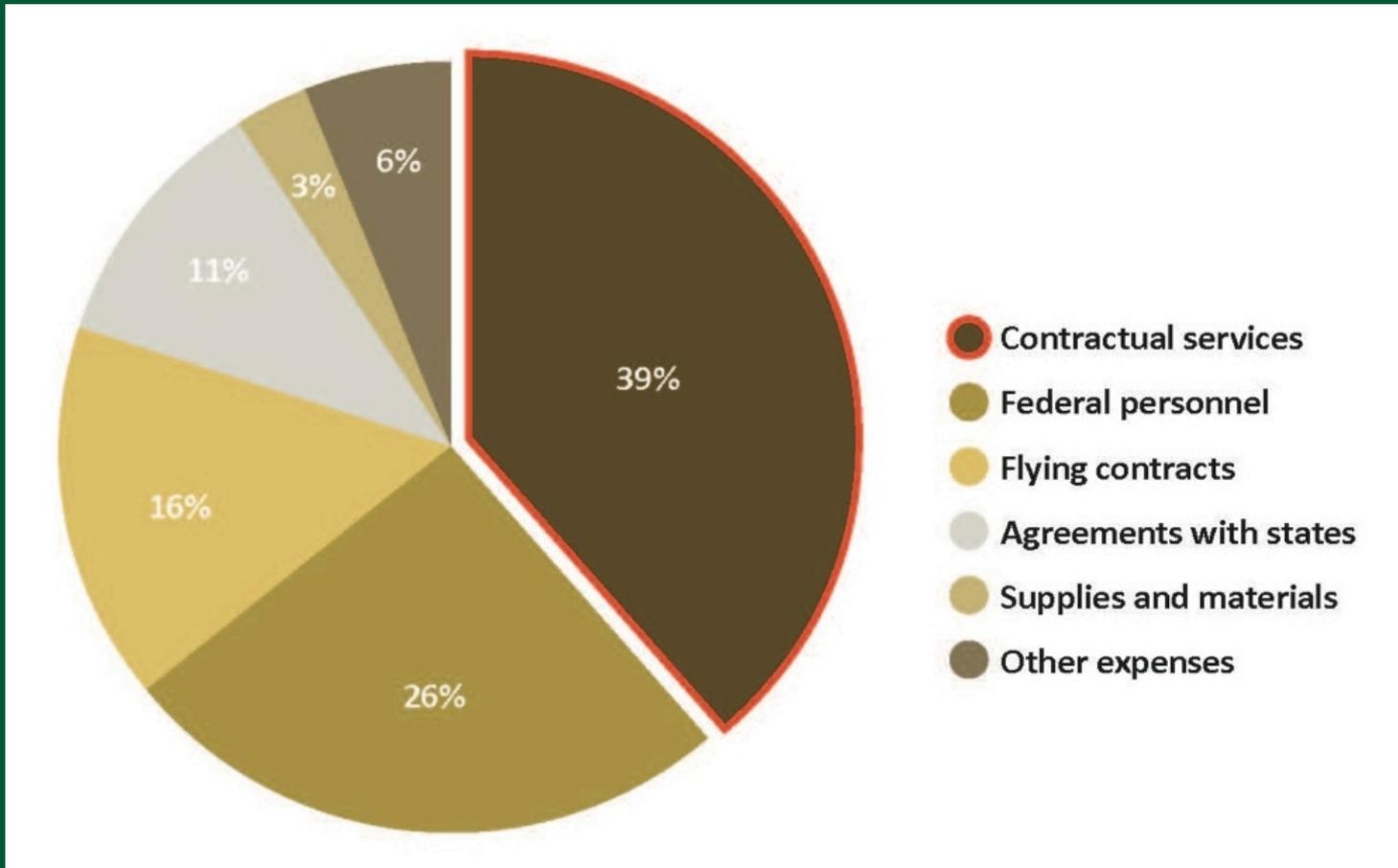
Variability in local capture



- Between fires: 0-39%
- Average: 9%
- What predicts local capture?

Suppression contracting

- 39% of total suppression costs: greater than the cost of federal personnel and state agreements combined



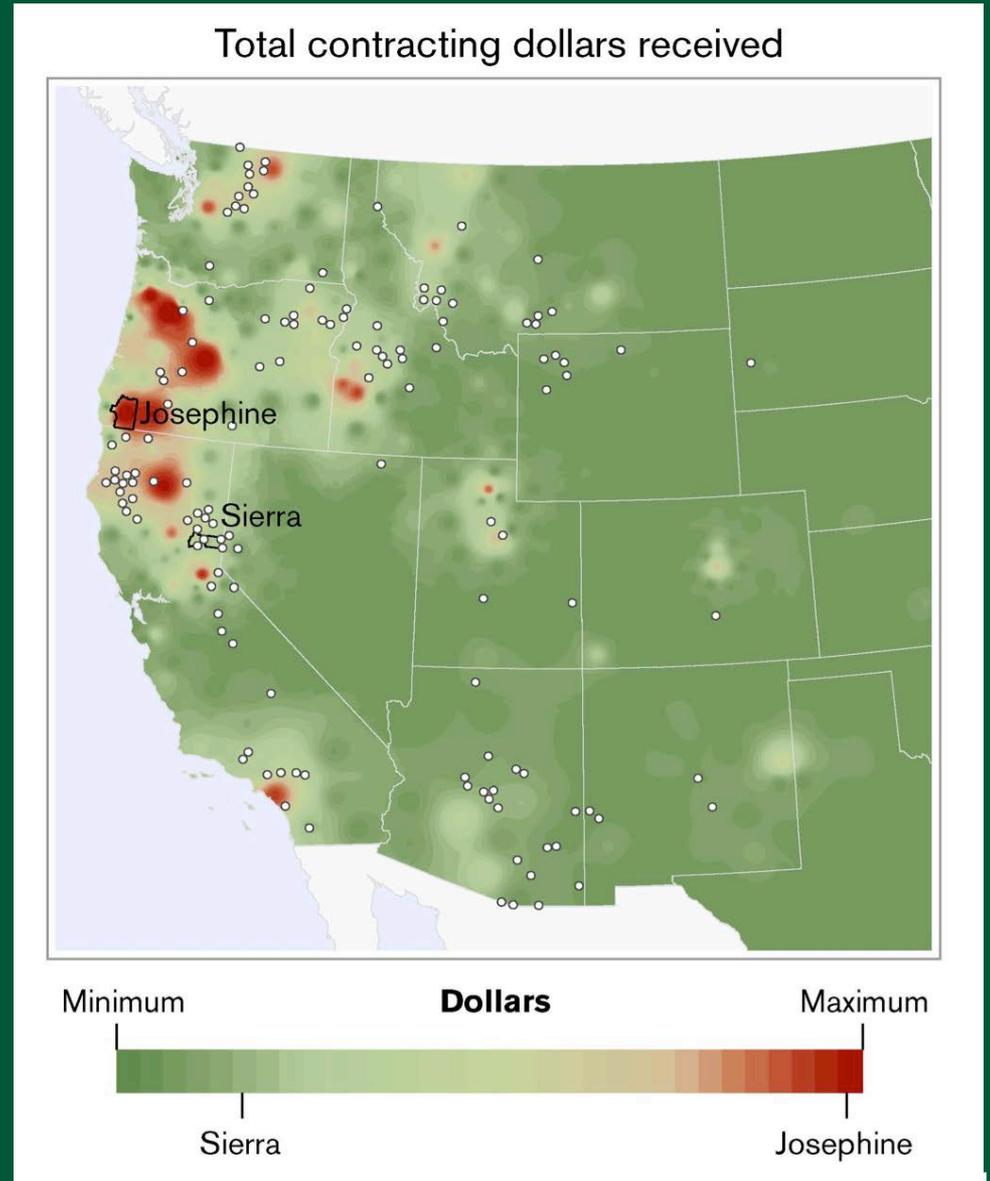
What are contracted suppression services?

- Direct suppression services: fire crews, engines, etc
- Support services: food catering, medical, basecamp setup, laundry, etc.

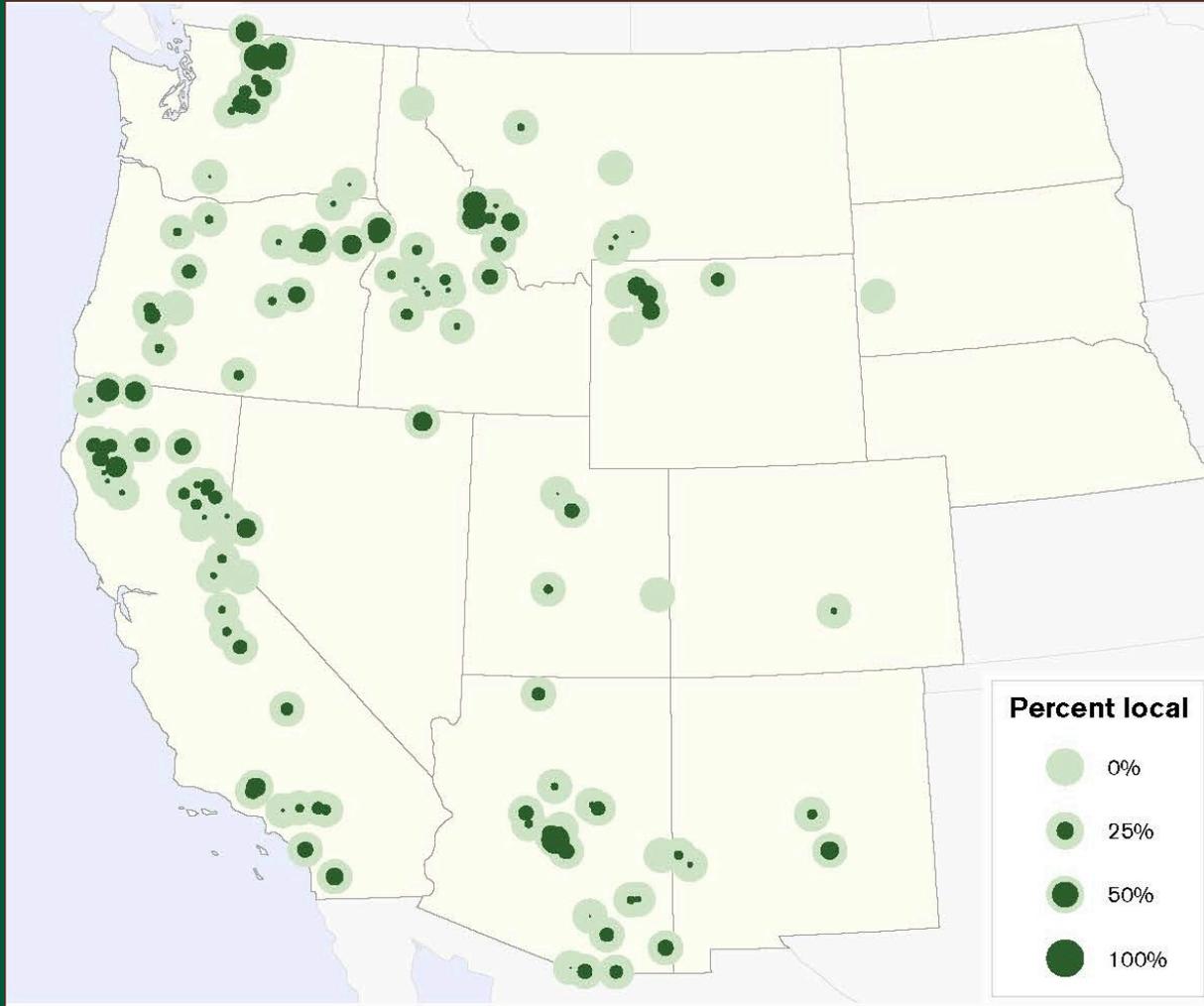


Suppression contract capture

Shading indicates where the money was spent. Large fires are the white dots where the suppression activity occurred.



Variation between fires



- 0-62% of contract spending captured locally per fire
- Average capture: 12%

How does local business capacity factor?

Measures:

- Number of local vendors engaged in wildfire-correlated activities prior to a wildfire
- Number of local vendors engaged in natural resource management activities prior to wildfire

Federal Procurement Data System



Local capture of suppression contracts

- Counties with more federal fire and natural resource vendors prior to a fire capture greater % of spending when fire comes
- More diverse economies capture more \$



Understanding the model

*Assume a median fire contracting expense: \$1.3 million

**For all specializations,
different vendor #'s:**



# of related federal vendors in county	Local capture of contract expenditures during the fire
5	\$72,000 (5%)
38 (average)	\$112,000 (8%)
96	\$244,000 (17%)

**For different specializations,
(avg. vendor #):**

# of related federal vendors in county	Economic specialization	Local capture of contract expenditures during the fire
38	Unspecialized	\$168,610 (12%)
38	Government-specialized	\$88,022 (6%)
38	Service-specialized	\$73,522 (5%)
38	Farming-specialized	\$54,467 (4%)
38	Manufacturing-specialized	\$66,526 (5%)
38	Mining-specialized	\$104,333 (7%) *NS*

Conclusions

- Large fires increases local employment during fires
 - But, fires are more likely to happen in places with large seasonal swings in employment
 - And, this volatility increases in the year following a fire



Conclusions

- Large fires increases local employment during fires
 - The more local capture of suppression spending, the more employment increases
 - The more vendors you have before the fire, the larger your local capture during large wildfires.
 - (But, having lots of vendors doesn't guarantee local capture)



Policy Questions/Implications

- If pre-existing capacity influences local capture
 - What is the right amount of local capacity?
 - To mitigate the economic disruptions of wildfire?
 - To efficiently deploy suppression resources?
 - How does one create/sustain capacity?
 - Role of non-suppression contracting practices?
 - Role of suppression contracting/dispatch practices?
 - Role of direct federal employment?

Thank you

Cass Moseley

Ecosystem Workforce Program

University of Oregon

cmoseley@uoregon.edu

<http://ewp.uoregon.edu/largefires/context>

