Local Economic Effects of Large Wildfires

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JOINT FIRE SCIENCE PROGRAM

Project team

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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

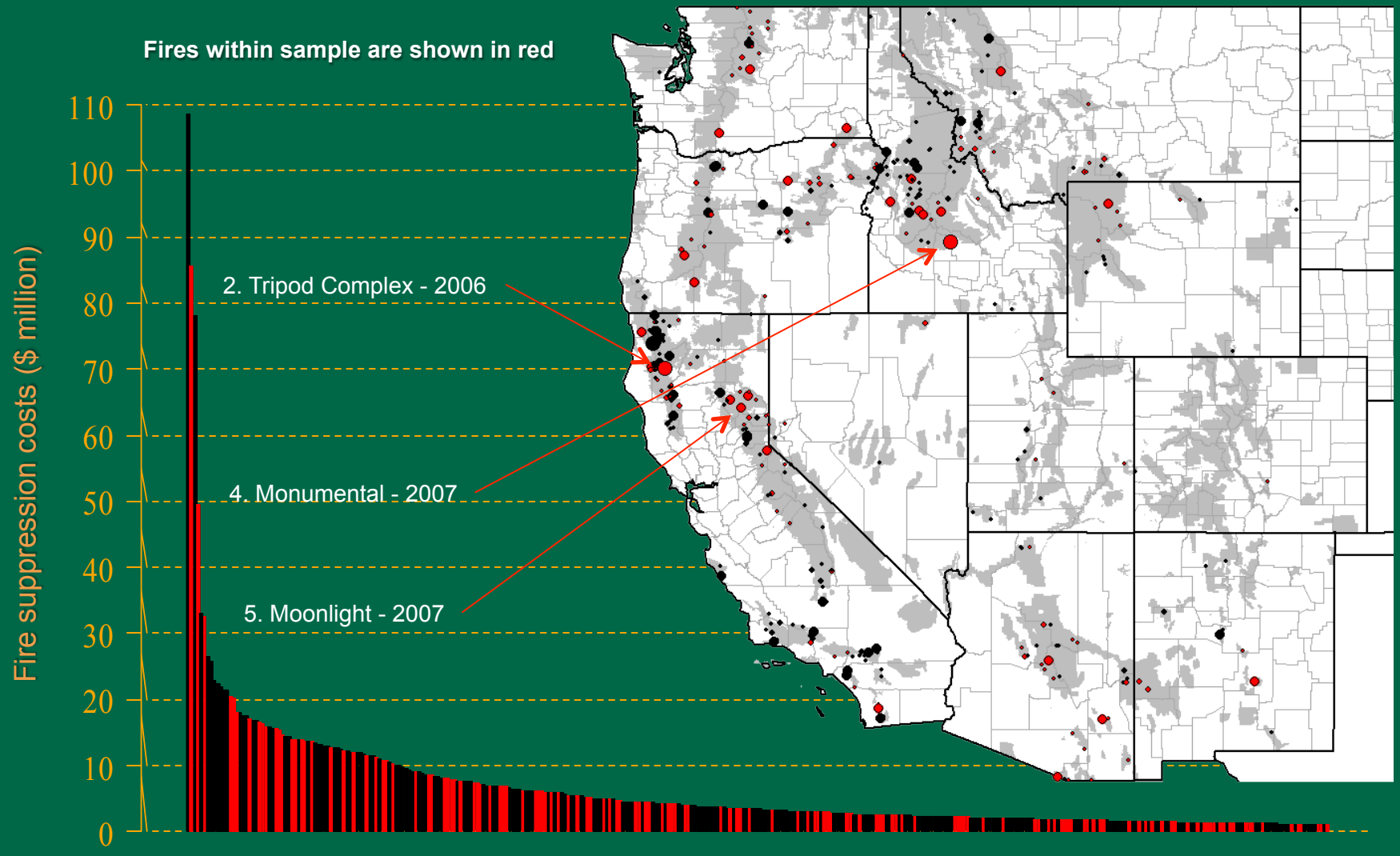
Research questions

- 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 (346 fires)
  - 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 (.70%, .84%)
- Government dependent and frequent fire counties: even greater employment effects

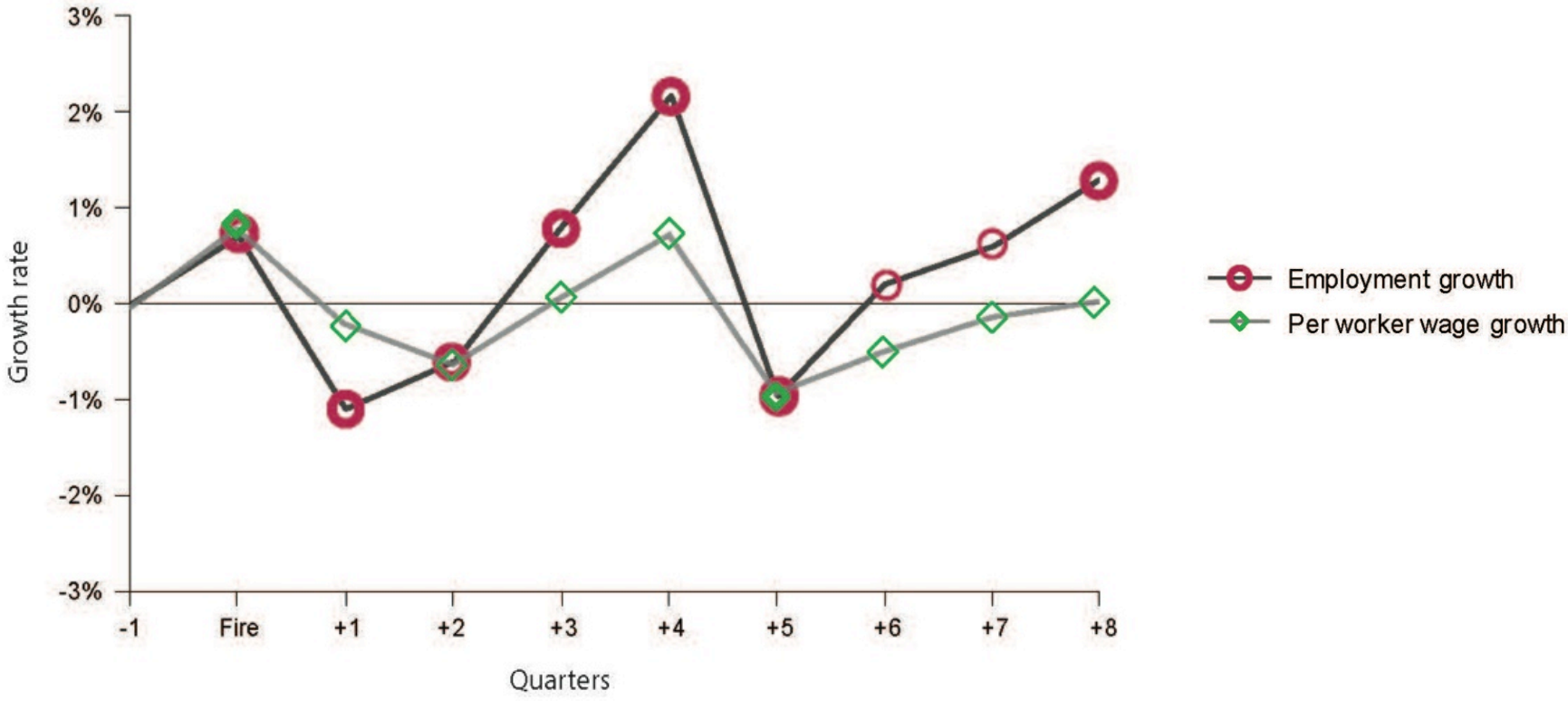
The effect of local spending

- 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



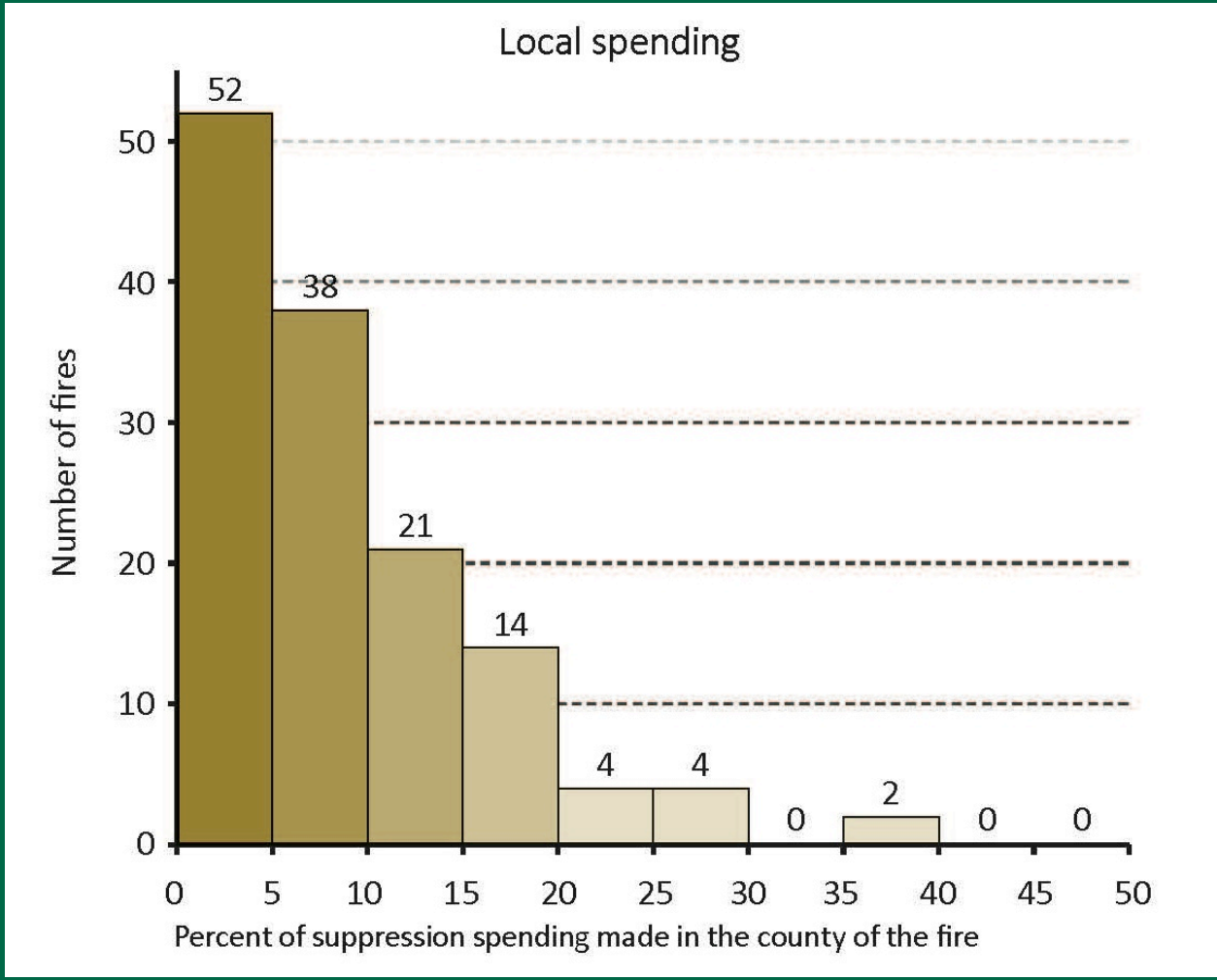
Percent change in average employment and per-worker wage growth rates during and after large wildfires

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?

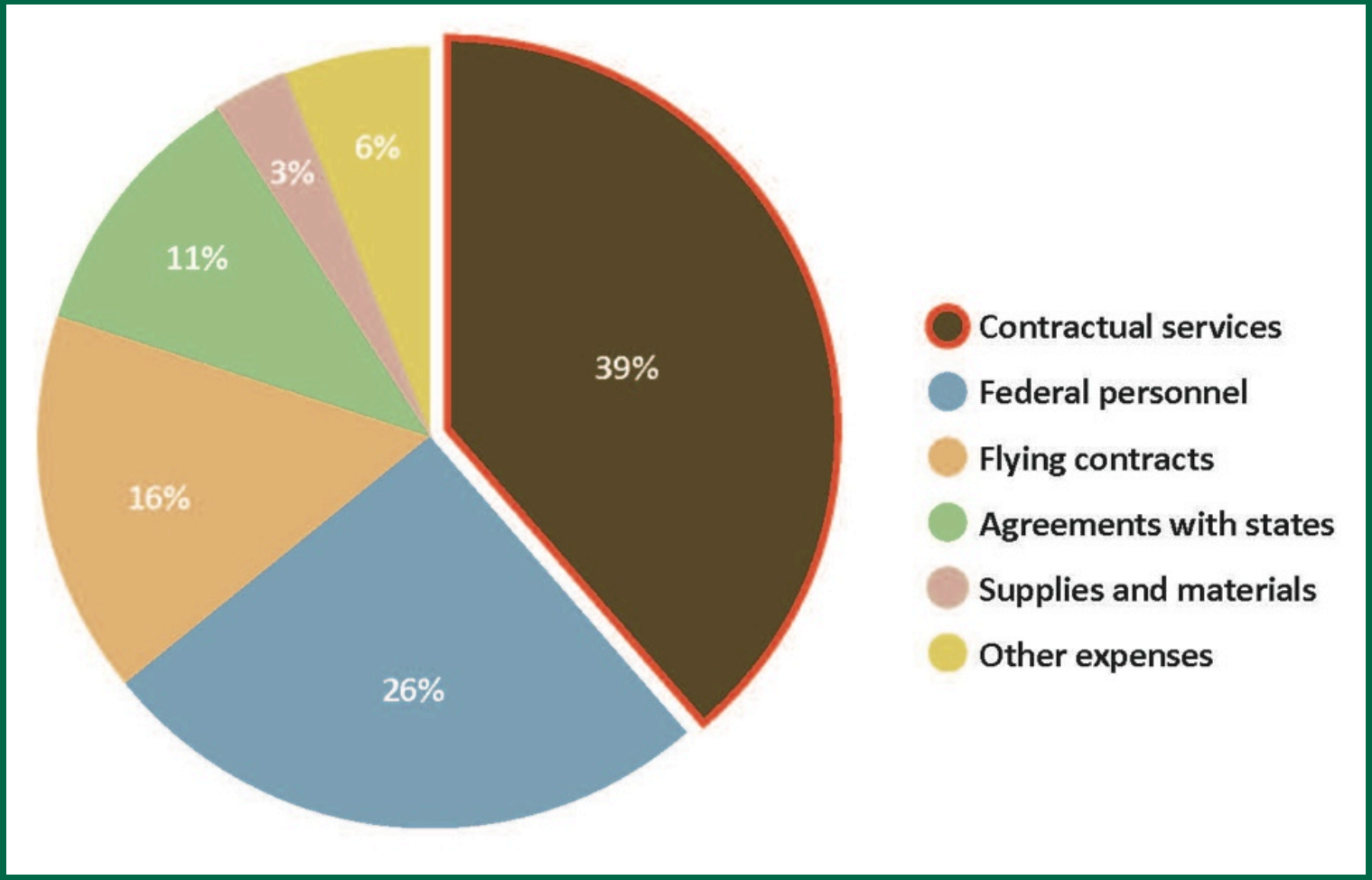
Variability in local capture



- 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

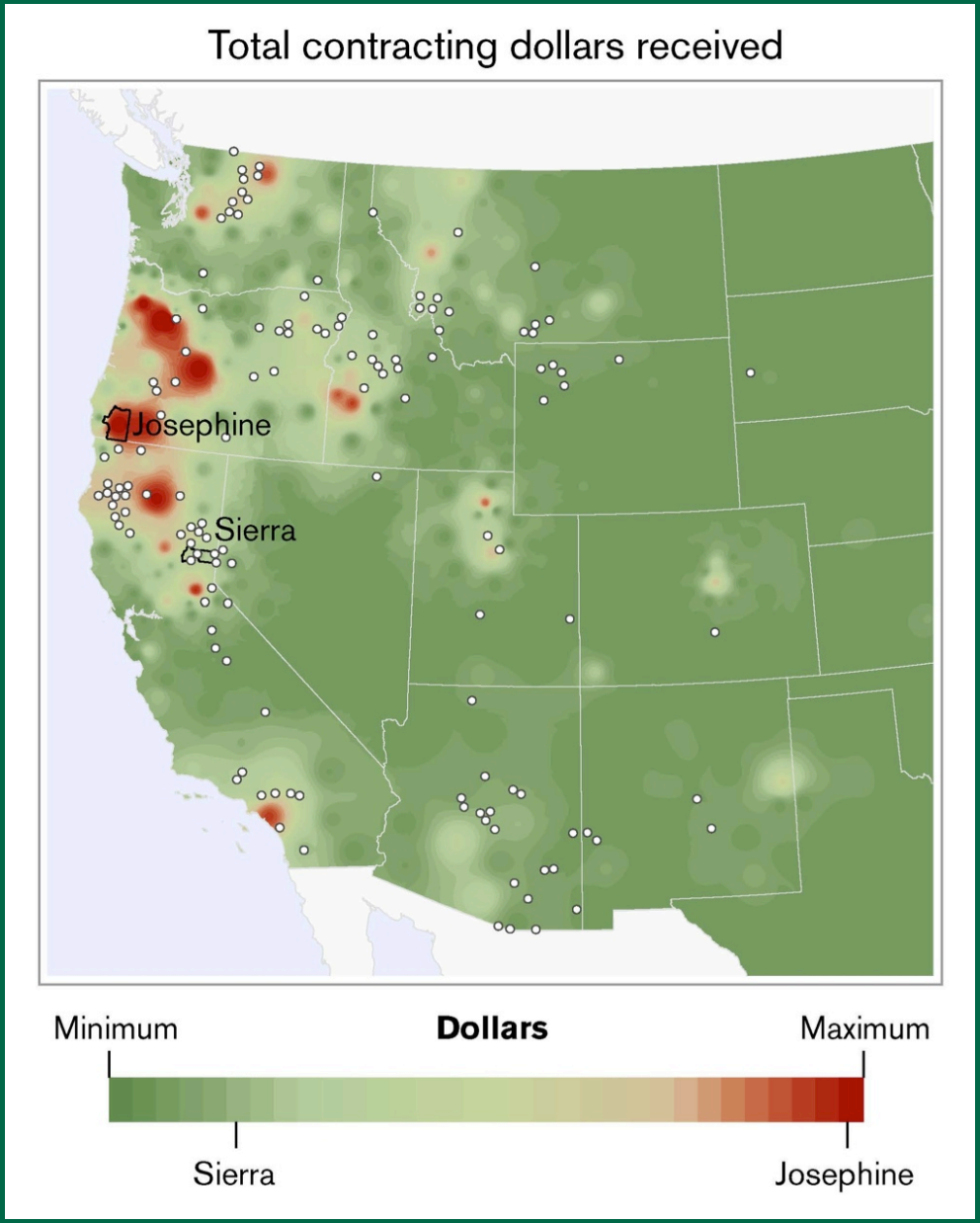


What are contracted suppression services?

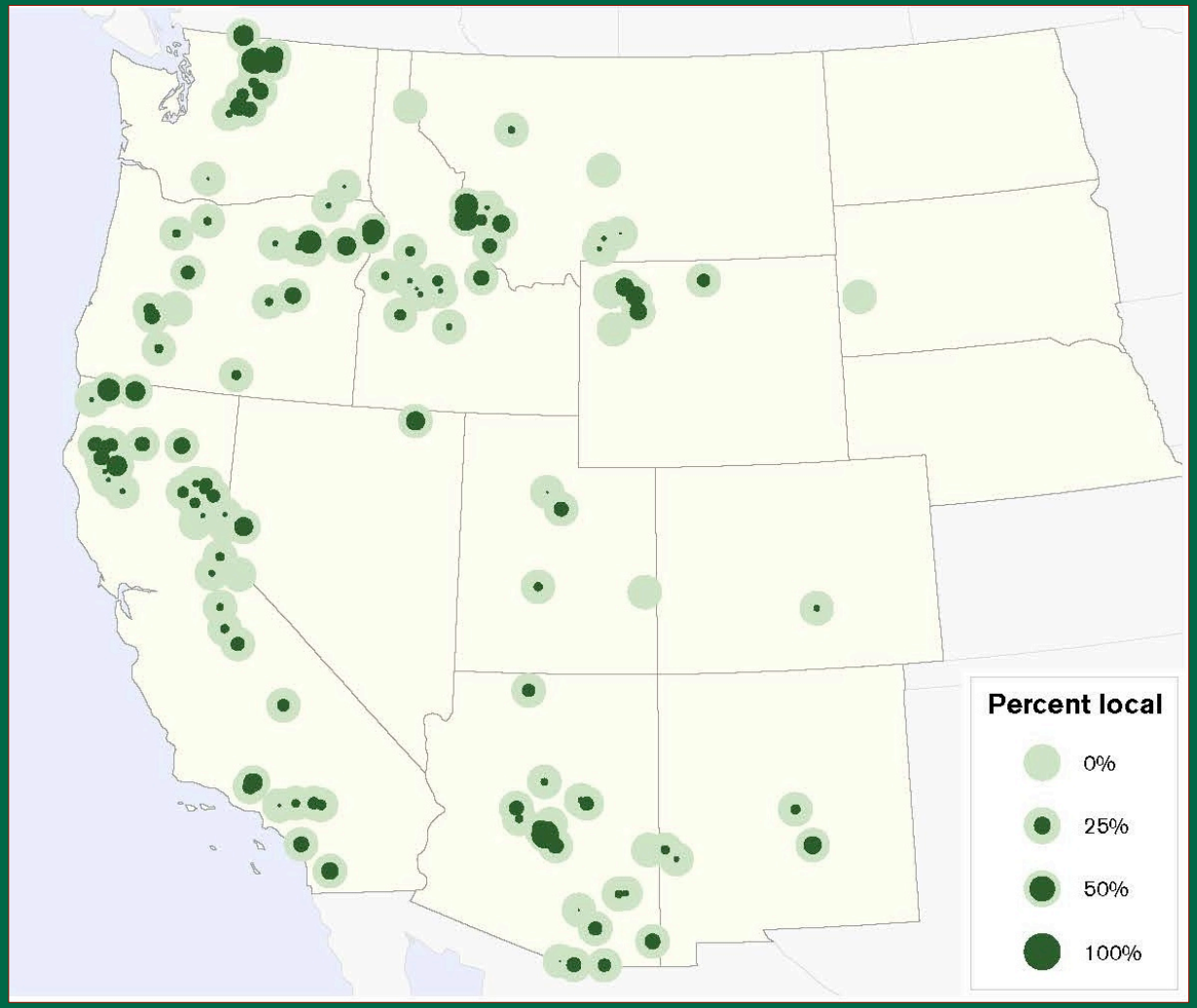
- Direct suppression services: fire crews, engines, etc
- Support services: food catering, medical, basecamp setup, laundry, etc.

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 # of vendors:

# 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 increase 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 increase local employment during fires
  - The more local capture of suppression spending, the more employment increases during the fire
  - The more vendors before the fire, the larger local capture during the fire.
  - (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

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