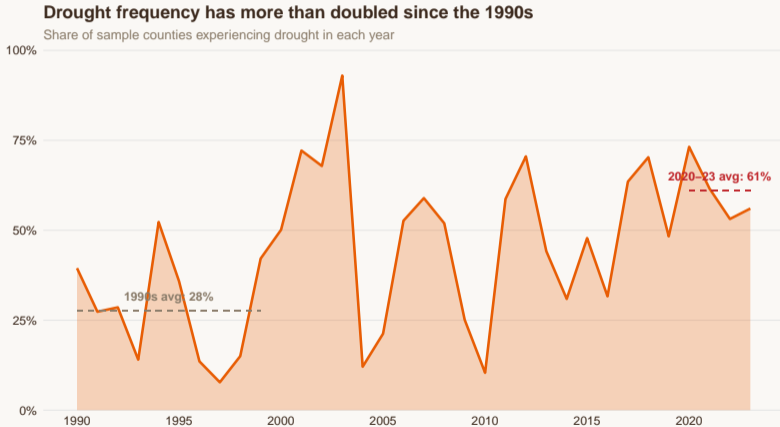


# **How Federal Crop Insurance Absorbs Persistent Drought**

Evidence from the Western United States

Charles S. Wassell, Jr. | Central Washington University

# 61% of Western US counties were in drought by 2020



414 counties, 11 Western states, 1990–2023.

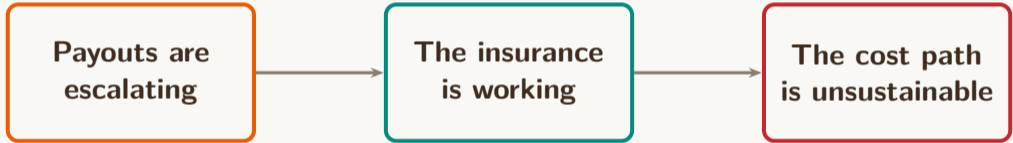
**Crop insurance protects, but costs are accelerating**

**Does federal crop insurance actually protect communities during persistent drought?**

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**And what is it costing?**

## The insurance works, but the cost path is unsustainable



414 counties · 34 years · \$10.8 billion in drought-related indemnities

# The Fiscal Response

How much is the program paying out?

**\$10.8 billion in drought payouts since 1990**

**\$10.8B**

in drought-related crop insurance indemnities

That is 40% of all crop insurance payouts in the Western US

Includes drought, heat, and irrigation failure. USDA Risk Management Agency Cause of Loss files.

# Year 3 of drought costs nearly 7× year 1

## Indemnities escalate sharply in prolonged drought

Mean drought-adjusted indemnity per county-year, by drought duration



Mean drought-adjusted indemnity per county-year, 414 Western US counties.

## Bigger payouts per farm, not more farms claiming

**\$30,100**

mean payout per policy  
in year 3+ of drought

vs. \$9,600 in non-drought years

**flat**

number of policies  
receiving indemnities

not more farms filing claims

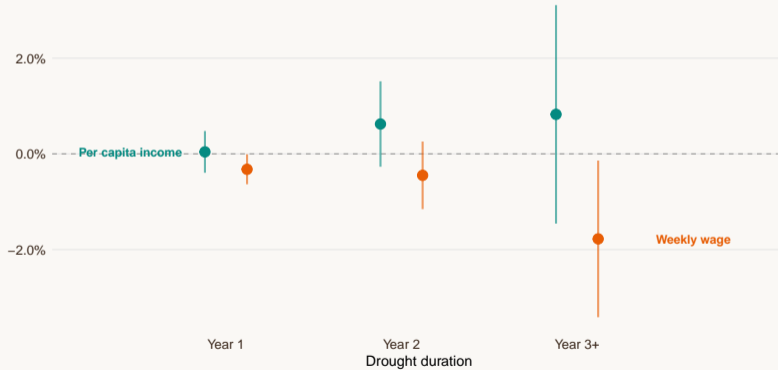
# Does the Insurance Work?

What happens to communities during persistent drought?

# Income holds steady while wages decline

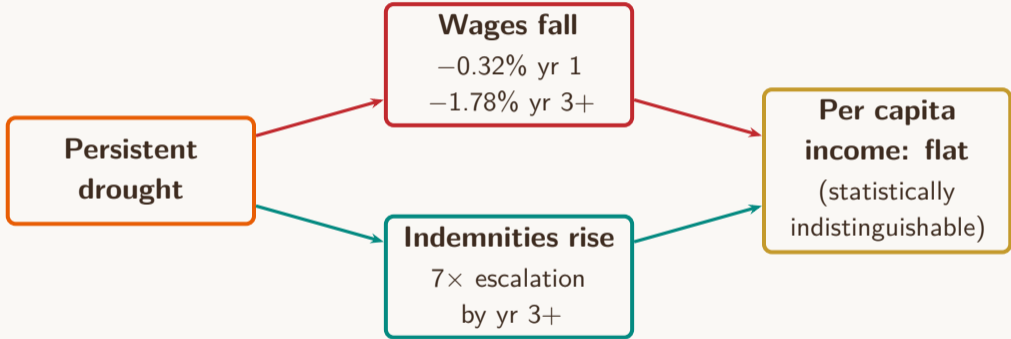
## Income holds steady while wages decline

Coefficients relative to non-drought years, 95% CIs



Panel regressions, county + year + state-trend FE. Climate division clustering.

## Indemnities offset wage losses dollar for dollar



The divergence between wages and income *is* the insurance at work.

# Drought damage hits ag-dependent counties hardest

**-3.4%**

wage decline in  
**low-irrigation**  
counties at yr 3+

**0.0%**

wage change in  
**high-irrigation**  
counties at yr 3+

**-0.75 pp**

extra decline  
per SD of  
**ag share**

## The safety net has a hole where the ground is driest

### High-irrigation counties

**+2.6%**

per capita income  
during year 3+ drought

Insurance overcompensates

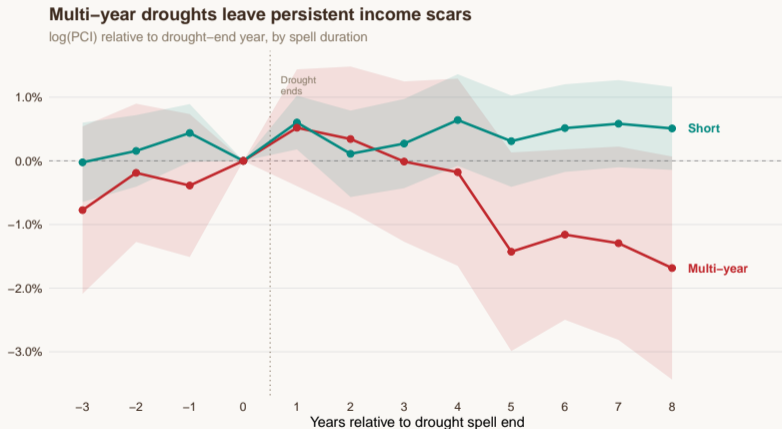
### Low-irrigation counties

**-1.4%**

per capita income  
during year 3+ drought

Coverage too thin  
to offset damage

# After drought ends, the masked damage emerges



Event study at drought termination. 2,495 spells (368 multi-year). Climate division clustering.

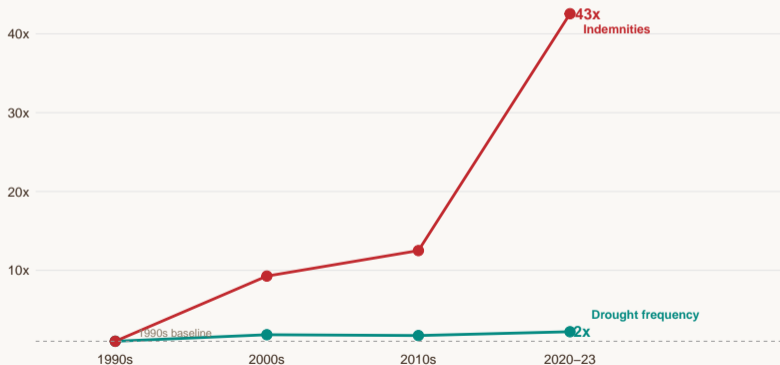
# The Cost Trajectory

Can we afford the current design?

# Indemnities grew 43× while drought only doubled

## Indemnity growth vastly outpaces drought frequency

Growth relative to 1990s baseline (1.0x = 1990s level)



Indexed to 1990s = 1.0x. Drought frequency: share of county-years in drought.

## Program expansion drove the cost — not climate

	1990s	2000s	2010s	2020–23
Insured liability	\$0.4B/yr	\$1.2B	\$2.4B	<b>\$6.4B</b>
Annual premium	\$31M	\$152M	\$310M	<b>\$935M</b>
Drought payout	\$27M	\$252M	\$340M	<b>\$1.16B</b>
Drought freq.	1.0×	1.8×	1.7×	<b>2.2×</b>
<b>Indemnity growth</b>	<b>1.0×</b>	<b>9.3×</b>	<b>12.5×</b>	<b>43×</b>

Higher coverage, premium subsidies (2000, 2014 Farm Bills), commodity prices.

## A skeptic would say: scale it back

*"If costs are growing 20× faster than the risk, the program is too generous. Cut the subsidies."*

**The program works.** Incomes are protected. But:

- The *design* is the lever — coverage levels, subsidy rates
- Workers losing wages may not be the farmers getting checks
- Yes, the design needs reform — but the reform is coverage equity, not cuts

The program works — do not gut it

# Per capita income: flat

across all drought duration bins

Joint test:  $p = 0.41$

## The cost problem is design, not climate

**43** × cost growth

**2.2** × drought growth

Subsidy rates are the lever.

## The coverage gap in dryland areas needs attention

**-1.4%** income in low-irrigation counties

**+2.6%** income in high-irrigation counties

The safety net fails where the ground is driest.

## Climate change doubles the bill without redesign

**\$1.2B**

current annual  
drought payouts

+

**\$100–200M**

incremental annual cost  
if drought doubles

A modest change in subsidy rates could bend the curve more than the projected change in drought frequency.

Federal crop insurance keeps drought-hit communities whole — but the program's cost is growing twenty times faster than the drought itself, and the communities hit hardest have the least coverage.

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