NATIONAL CDBG-DR EVIDENCE | 18 DISASTER COHORTS | 2001–2025 Q2

State and Local CDBG-DR Implementation Capacity in Disaster Recovery: A Workload-Sensitive and Spatial Analysis

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Workload is the most consistent correlate of disaster recovery performance; observed resource effects depend on local data quality, while spatial diagnostics help target technical assistance.

INTRODUCTION: THE CHALLENGE

CDBG-DR converts federal appropriations into long-term housing and community recovery. Grantees differ in staffing systems, program portfolios, vulnerability, and implementation histories.

Capacity is defined as a workload-sensitive resource-workload balance specific to CDBG-DR, referring to CDBG-DR Fund Implementation Capacity – not as a ranking of government competence.

RESEARCH QUESTIONS

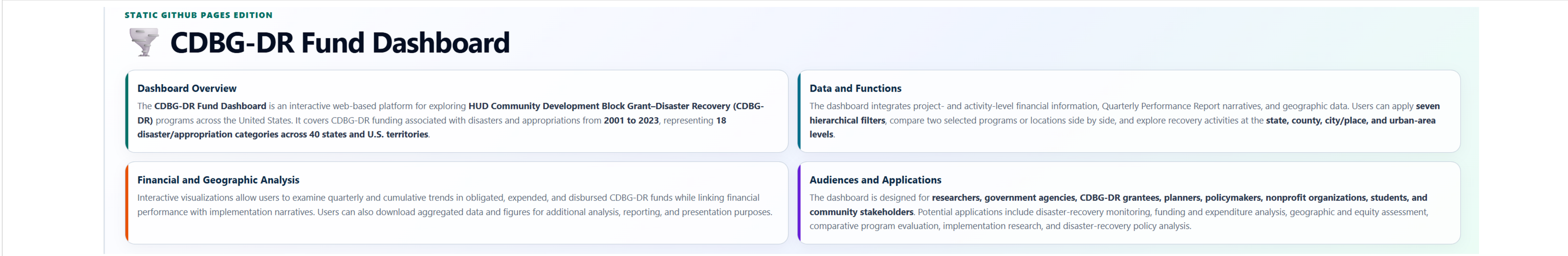
1. How can implementation capacity be measured without conflating resources, workload, recovery need, and outcomes?
2. How are resources and workload associated with performance and timeliness – and how sensitive are results to missing-data treatment?
3. Where are capacity, implementation, and performance gaps spatially concentrated?

NATIONAL DATA FOUNDATION

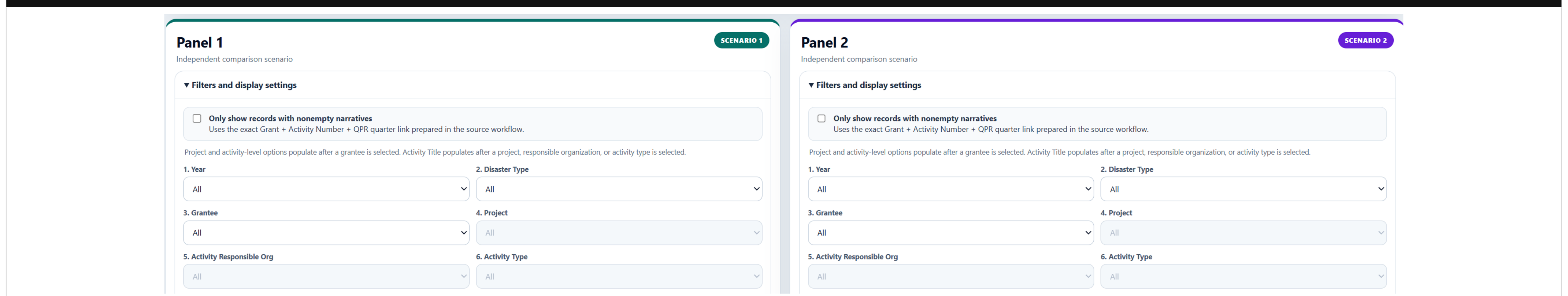
130,605 raw DRGR/QPR records	**128,382** valid activity-quarter records
14,825 eligible program profiles	**590 / 119** final jurisdictions / directly observed primary sample

DATA & INTERACTIVE DASHBOARD

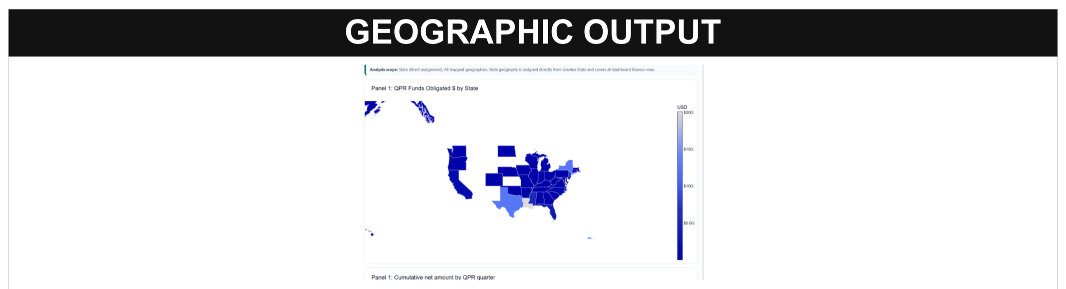
The dashboard organizes the national financial, narrative, and geographic data used throughout the subsequent analysis.



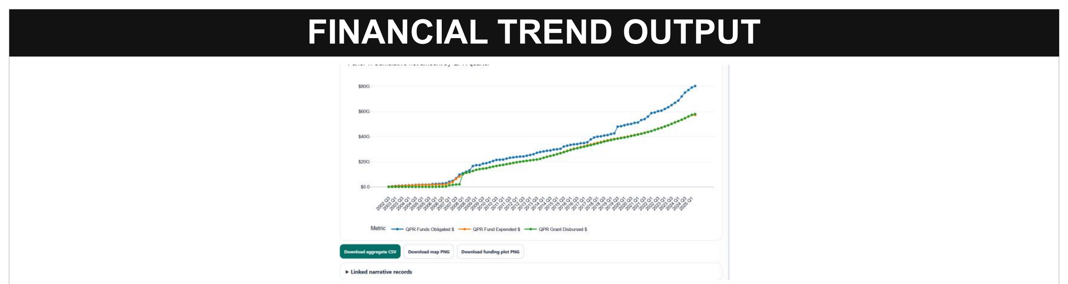
SEVEN-LEVEL FILTERING AND SIDE-BY-SIDE COMPARISON



GEOGRAPHIC OUTPUT



FINANCIAL TREND OUTPUT



Accessible monitoring and comparison → reproducible exports → workload-sensitive modeling and spatial analysis

DASHBOARD AT A GLANCE

A Dashboard overview

2001–2023 appropriations; 18 disaster categories; 40 states and U.S. territories.

B Data and functions

Project/activity finance, QPR narratives, and geography; seven filters; side-by-side comparison; four geographic levels.

C Financial & geographic analysis

Quarterly and cumulative obligated, expended, and disbursed trends linked with narratives; downloadable data, maps, and figures.

D Audience & applications

For researchers, agencies, grantees, planners, policymakers, nonprofits, students, and communities; monitoring, equity, comparison, and policy analysis.

SCAN THE LIVE DASHBOARD FOR DATA, MAPS, AND COMPARISON

PROGRAM-SPECIFIC FRAMEWORK

Administrative resources – Employment and real payroll per 10,000 residents

Workload intensity – Programs and disaster cohorts per active year

→ **Workload-adjusted capacity** – Resources minus workload. Descriptive balance measure. Not causal or predictive

→ **Recovery performance** – Disbursement • expenditure • completion

→ **Recovery timeliness** – Censoring-aware hazards; unfinished programs retained

Context – Government level • population • obligations • four SVI themes

SAMPLE CONSTRUCTION

130,605	raw QPR records
128,382	valid activity-quarter records
128,264 / 671	records/jurisdictions after match & ≥4-quarter
14,825 / 1,082	eligible programs / disaster portfolios
657	jurisdiction outcome profiles
590 / 119	completed-data screening / observed-QCEW primary sample

ANALYTIC WORKFLOW

1 LINK THE NATIONAL DATA

Clean QPR finance and narratives; merge QCEW, population, and SVI.

2 BUILD TRANSPARENT MEASURES

Resources, workload, workload-adjusted capacity, performance, and timeliness.

3 ESTIMATE ASSOCIATIONS

HC3 path models and censoring-aware Cox models; report associations, not causal effects.

4 TEST SPATIAL PATTERNS

Moran's I, LISA, capacity/implementation/performance gaps, and governance-risk screening.

MEASUREMENT DISCIPLINE: explicitly separate resources, workload, outcomes, missingness, censoring, and spatial dependence.

KEY FINDINGS: SHORT, SUPPORTED, AND SPATIALLY TESTED

+0.170
Resources → performance
Observed local data; p = .037. The association disappears after population scaling.

−0.626
Workload → performance
Observed-QCEW sample; p < .001. Largest and most stable result.

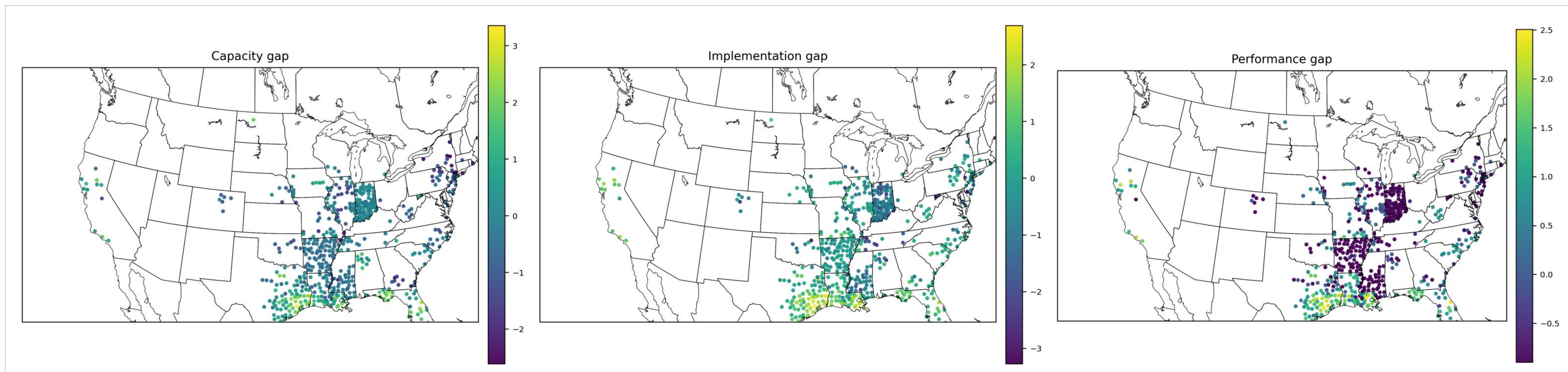
−0.289
Workload → timeliness
Observed-QCEW sample; p = .002. Higher workload tracks slower progress.

0.633
Governance-risk Moran's I
Permutation p = .001. Implementation conditions are geographically patterned.

Predictor	Outcome / sample	Estimate	p	What the estimate means
Administrative resources	Performance – observed QCEW	β = +0.170	.037	Positive association only when local administrative data are directly observed.
Workload intensity	Performance – observed QCEW	β = −0.626	<.001	Greater portfolio demand is associated with substantially weaker financial execution.
Workload intensity	Timeliness – observed QCEW	β = −0.289	.002	Higher workload is associated with slower aggregate progress relative to follow-up time.
Administrative resources	Performance – completed data	β = −0.007	.841	The resource result is not reproduced after deterministic population scaling.
Log program obligation	95% completion – observed Cox	HR = 0.740	<.001	Larger programs have lower completion hazards, consistent with greater scale and complexity.

Additional completion result: greater household-composition/disability vulnerability is associated with lower completion hazards (SVI Theme 2, HR = 0.746, p = .028).

SPATIAL GAPS, DEPENDENCE, AND TEXAS RELEVANCE



Measure	Moran's I	Permutation p
Capacity balance	0.628	.001
Recovery performance	0.584	.001
Recovery timeliness	0.422	.001
Governance risk	0.633	.001

WHAT STANDS OUT

94 of 558 counties exceed +1 standard deviation on the sample-relative governance-risk screen.

Texas accounts for 11 of the 20 highest county scores, including Harris, Hidalgo, Cameron, Jasper, and Jefferson.

Interpretation: spatial dependence identifies regional patterning, but the screen should prompt closer program review – not automatic ranking or funding decisions.

PRACTICAL IMPLICATIONS

1 MONITOR

Use tiered monitoring rather than one resource threshold.

2 DIAGNOSE

Show resources, workload, completion, and vulnerability separately.

3 MATCH SUPPORT

Target surge staffing, procurement, environmental review, peer support, or technical assistance to the diagnosed bottleneck.

4 USE THE DASHBOARD

Support monitoring, geographic comparison, export, and decision communication.

Decision principle: match support to the diagnosed bottleneck – not to a single score.

THEORETICAL CONTRIBUTIONS

1 PROGRAM-SPECIFIC CAPACITY

Capacity is a resource-workload relationship specific to CDBG-DR.

2 INPUTS ≠ OUTCOMES

Administrative resources are separated from performance and timeliness.

3 MEASUREMENT DISCIPLINE

Missing data, right censoring, program scale, and spatial dependence are handled explicitly.

Capacity is not "more staff"; it is whether available resources are proportionate to the work being managed.

ACKNOWLEDGEMENTS & REFERENCES

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BEST USE: A TRANSPARENT SCREENING TOOL FOR TECHNICAL ASSISTANCE & NEW KNOWLEDGE OF GOVERNMENT COMPETENCE TO IMPLEMENT CDBG-DR FUNDS FOR DISASTER RECOVERY.