H1_fearxCCI_prereg.md ? generated 2025-09-29

Preregistration ? H1: Fear × CCI Moderation (Protective Effect)

Version: v2
Claim (directional): In city?week panels, higher CCI reduces the marginal effect of fear on aggression (negative Fear×CCI coefficient), controlling for seasonality and city fixed effects.

1) Hypothesis

H1: ?(Fear×CCI) < 0 in a confirmatory GLM panel with City and Week fixed effects.

2) Outcomes

- Primary: Weekly aggression rate per 100k (city?week panel).
- Secondary: Event-level aggression counts normalized by population.

3) Data

- Crime, events, search trends (fear terms), inequality proxy/CCI proxy.
- Weekly frequency, YYYY?YYYY window. Version raw files; record SHA256.

4) Confirmatory Model

AggressionRate_it ~ ?0 + ?1Fear_it + ?2CCI_it + ?3*(Fear_it×CCI_it) + City_i + Week_t + ?_it
- Test: H0: ?3 ? 0 vs H1: ?3 < 0 (one-sided).

5) Diagnostics & Robustness

- Placebo pre-trend checks; seasonality controls; seed-locked splits.
- Baselines: ARIMA/Prophet, regularized GLM, gradient boosting.

6) Decision Criteria

- Sign: ?3 < 0 with 95% CI not crossing 0 and predictive gain > baseline.

7) Deviations Policy

Any deviations logged in an Exploratory Addendum with timestamps.

8) Reproducibility

- Docker tag + seeds; `scripts/repro_v2.sh` entrypoint.
- Expected outputs: model table, CI plot, out-of-sample metrics.

H2_gini_collapse_prereg.md ? generated 2025-09-29

Preregistration ? H2: Inequality Predicts Collapse; Moderation by CCI

Version: v2
Claim (threshold): Collapse probability increases with Gini; CCI raises the threshold. Time-scale alignment is mandatory.

1) Hypothesis

H2a: ?1 > 0 in `Pr(Collapse_it=1) = logit^{-1}(?0 + ?1*Gini_it + ?2*CCI_it + ?3*(Gini×CCI)_it + City_i + Year_t)`.
H2b (threshold): Odds of collapse rise sharply above Gini ? 0.30; CCI shifts this boundary upward.

2) Outcomes

- Primary: Collapse flag (city?period), defined ex-ante (>90th percentile for ?3 consecutive periods).
- Secondary: Time-to-next-collapse.

3) Data & Time-Scale

- Annual Gini must be **resampled** to weekly (FFILL) *or* outcomes aggregated to annual before modeling. Document choice.

4) Confirmatory Model & Threshold Test

- Logistic with spline or segmented regression around 0.30.
- Interaction term ?3 to test moderation.

5) Diagnostics & Robustness

- Out-of-sample AUC vs. baselines; sensitivity to resampling method.

6) Decision Criteria

- ?1 > 0 (p<0.05); threshold test significant; interaction ?3 < 0 (protective).

7) Deviations Policy & 8) Reproducibility

As in H1; align time scales or fail fast.

H3_shock_recovery_prereg.md ? generated 2025-09-29

Preregistration ? H3: Constructive Shocks (<0.5) Improve Outcomes

Version: v2
Claim: Shocks with severity < 0.5 improve post-shock survival/efficiency vs. baseline; ?0.8 degrade. Regrowth effect explicitly ablated.

1) Hypothesis

H3a: Post-shock outcome (t=+8..+24) higher than pre-shock baseline for severity<0.5.
H3b: Outcome lower for severity?0.8.
H3c: Regrowth parameter has a measurable effect (or is documented invariant with CIs).

2) Outcomes & Window

- Survival fraction / efficiency index; event-study window [-12, +24].

3) Data & Design

- Pre-registered bins: {<0.5, ?0.5, ?0.8}; seeds fixed; population size fixed.

4) Confirmatory Analysis

- Event-study; DiD-style estimation with matched controls.
- Report CIs; include regrowth ablation grid {0.0, 0.05, 0.1, 0.2, 0.4}.

5) Diagnostics & Robustness

- Placebo shocks; shuffle timestamps (should fail).

6) Decision Criteria

- Directionally consistent CIs vs. baseline; placebo fails.

7?8) Deviations & Reproducibility

As in H1; publish artifact tree, seeds, and plots.