

PERFECTLY STILL: STABILITY AND POLICY RESPONSE CAPACITY

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WHAT IS THE ECONOMIC QUESTION?

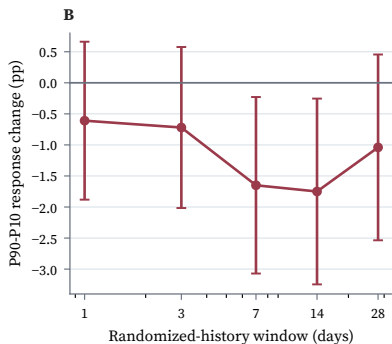
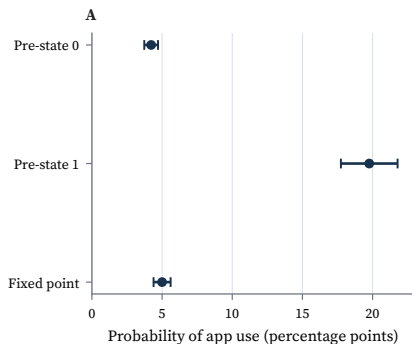
Can an earlier intervention change the response to a later policy even when the current state looks still?

- Current policy response is a map from instruments to future targets.
- Entry, exit, and within-unit adjustment change that map over time.
- The paper studies history and configuration contrasts under sequential and factorial designs.

WHAT IS CONDITIONED ON IN MYBPMYLIFE?

- Fourteen-day assigned history indexes the prior notification path.
- The current response is fitted conditional on the recorded pre-state and time controls.
- The reported contrast compares the 90th and 10th percentiles of assigned history.

HOW DOES ASSIGNED NOTIFICATION HISTORY SHIFT THE CURRENT RESPONSE?



Main-text app-use transition and response under randomized notification history.

WHY CAN A SUCCESSFUL PAST INTERVENTION REDUCE CURRENT CAPACITY?

- A campaign reaches the units that respond most readily.
- The remaining population contains fewer units on the current intervention margin.
- The observed target can approach a plateau while a residual gap remains outside the campaign's response span.

HOW CAN HISTORY CHANGE A LATER RESPONSE?

Earlier assignment



Adoption or effective cap



Current policy response

WHEN CAN AN OBSERVED TARGET STAY STILL WHILE CAPACITY MOVES?

Theorem (Stillness with a persistent target gap)

In the adoption model, campaign response capacity declines to zero while the reached share converges to $1 - e$. The limiting state is still for that campaign, yet the target gap e remains; additions drawn from the campaign's existing response span leave that gap unchanged.

A vanishing current response can coexist with a persistent target gap.

HOW DOES RESPONSE CAPACITY EVOLVE IN THE ADOPTION MODEL?

$$K_t = (1 - \alpha)^t r_0, \quad x_t \longrightarrow 1 - e$$

- r_0 is initially responsive mass and α is the conversion rate.
- K_t is the response to another campaign and converges to zero.
- e is the limiting target gap left outside the campaign's existing response span.

WHY SHOULD POLICY EVALUATION TRACK RESPONSE CAPACITY?

- Past interventions can change the population that remains on the current response margin.
- A target level can approach a plateau while the response to another intervention converges to zero and a residual gap remains.
- Sequential and factorial designs identify the history and configuration contrasts that govern this capacity.

WHAT IS RESPONSE CAPACITY?

- A recorded pre-state and policy history define the state presented to the current intervention.
- The current response operator maps assigned instruments into declared future targets and horizons.
- Rank measures the target directions available under the experiment's action support.

WHICH HISTORY CONTRASTS ARE IDENTIFIED BY SEQUENCE ASSIGNMENT?

Proposition (Sequential identification)

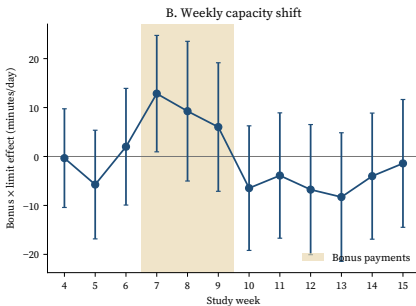
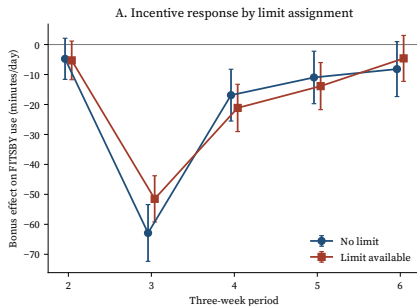
Under sequential assignment, overlap, and the stated smooth-support conditions, conditional response contrasts compare current instrument effects across assigned histories at a common recorded pre-state.

The conditioning set and support define the history contrast that the experiment identifies.

WHICH EXPERIMENTS ANSWER WHICH HISTORY QUESTIONS?

- myBPmyLife uses randomized notification history and a current diet-notification response.
- A digital-use factorial varies an app-limit assignment and a later temporary bonus.
- A bed-net subsidy exercise remains an appendix illustration of randomized capacity formation.

HOW DOES AN ASSIGNED APP LIMIT ALTER THE BONUS RESPONSE?



Main-text policy-overlap and incentive-response comparison.

HOW DOES A BINDING CAP RESHAPE THE CURRENT INCENTIVE RESPONSE?

Proposition (Capacity substitution under an effective cap)

A prior cap can change which units and margins remain responsive to a current incentive, shifting the response-capacity map across configurations.

The factorial design compares the response to the same current bonus under assigned enforcement rules.

HOW ARE HISTORY AND CONFIGURATION CONTRASTS SEPARATED?

- Sequential assignment varies earlier history before the current instrument.
- Factorial assignment varies configuration and current incentive in crossed cells.
- Finite-action calculations translate the supported cells into available target directions.

HOW DO THE TWO MAIN EXPERIMENTS MAP INTO THE FRAMEWORK?

- myBPmyLife maps randomized notification history into a later notification response.
- The digital-use factorial maps an assigned app limit into the response to a temporary bonus.
- Each design identifies its own conditional capacity contrast and support.

WHAT IS THE RANDOMIZED-HISTORY CONTRAST?

- The fitted current diet-notification response is 1.75 percentage points lower at the 90th than at the 10th percentile of assigned history.
- The contrast conditions on the recorded pre-state and time controls.
- The factorial experiment supplies a separate configuration contrast for the temporary bonus.

WHICH LITERATURES HELP PLACE THE QUESTION?

- Borusyak, Jaravel, and Spiess (2024): dynamic treatment paths and event-time identification.
- Hotz and Miller (1993): state-dependent responses in dynamic choice models.
- Rambachan and Roth (2023): sensitivity of dynamic conclusions to maintained trend restrictions.
- This paper makes the later policy-response map, rather than a level outcome alone, the object that history changes.

HOW FAR DO THE RESPONSE-CAPACITY CLAIMS TRAVEL?

- Each contrast is tied to its assignment design and support.
- Ranks refer to the targets, horizons, and actions represented in that experiment.
- The current conditional response and the total effect of past policy remain distinct estimands.

WHAT SHOULD THE READER CARRY FORWARD?

1. Policy history can move the response map while a current target remains still.
2. Sequential and factorial designs identify different capacity contrasts.
3. The experiment's action support determines the available target directions.

TECHNICAL APPENDIX

WHICH DEFINITIONS AND ASSUMPTIONS ORGANIZE THE PAPER?

- Assumption: Sequential assignment and smooth support
- Definition: Perfect stillness

HOW DO THE MAIN RESULTS BUILD ON ONE ANOTHER?

Stillness with a persistent target gap



Sequential identification



Capacity substitution under an effective cap

WHICH FORMAL RESULTS SUPPORT THE ARGUMENT?

- Theorem: Stillness with a persistent target gap
- Proposition: Finite-action policy choice
- Proposition: Transition accounting
- Proposition: Sequential identification
- Proposition: Randomized-history response
- Proposition: Factorial capacity contrast
- Proposition: Factorial identification across policy timing

WHICH SCOPE CONDITIONS GOVERN THE CLAIMS?

- Each contrast is tied to its assignment design and support.
- Ranks refer to the targets, horizons, and actions represented in that experiment.
- The current conditional response and the total effect of past policy remain distinct estimands.