Unemployment Insurance

230B Graduate Public Economics

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Unemployment Insurance

Unemployment insurance is a major social insurance program in the U.S.

Spending size: $50bn/year in normal times (up to $150bn/year during Great Recession, around $800bn from March 2020 to Sept 2021 due to COVID)

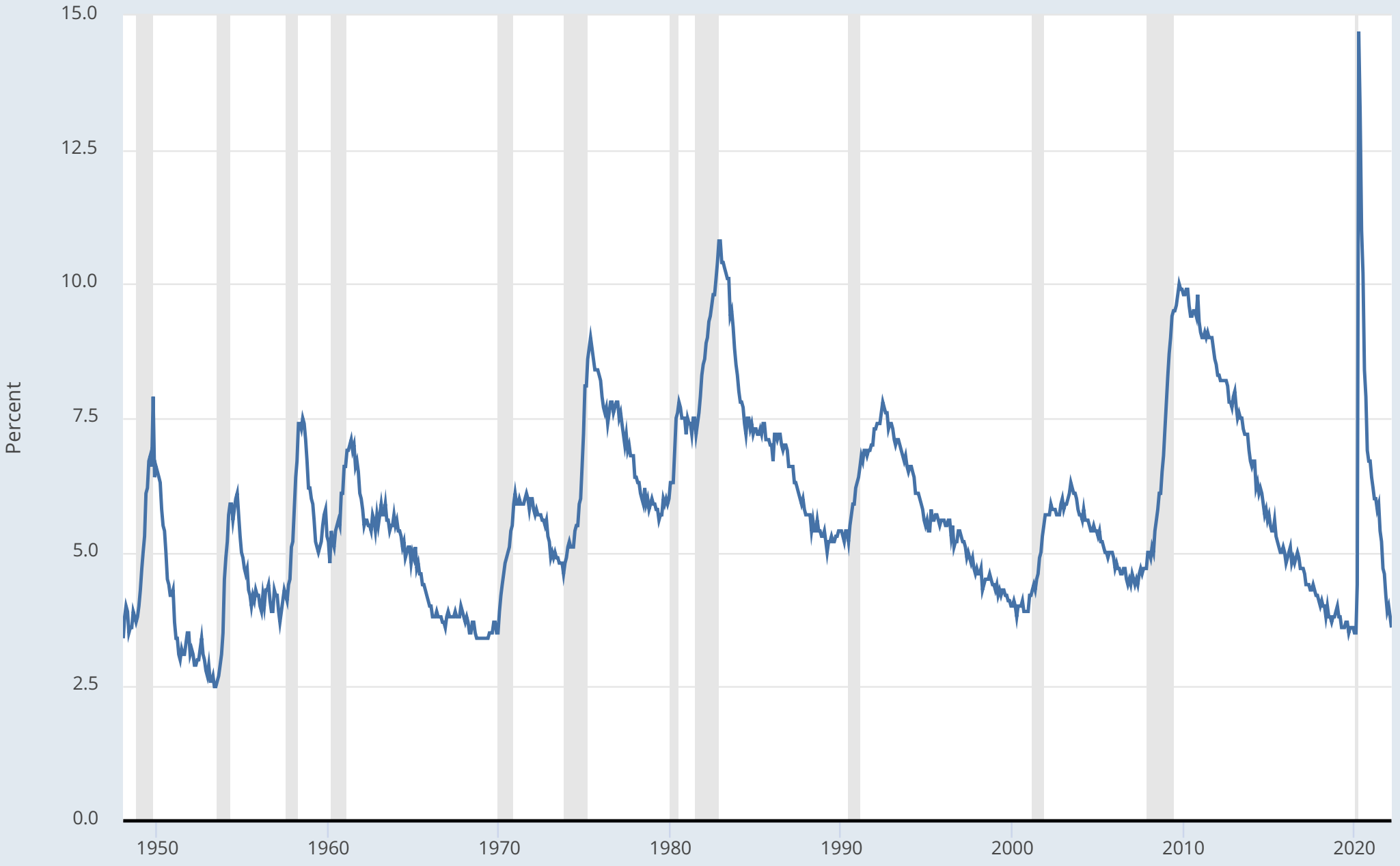Macroeconomic importance in stabilization/stimulus

Like other social programs, triggered by an event

In this case, involuntary job loss

Controversial debate about unemployment benefits

Benefit: helps people in a time of need

Cost: reduces incentive to search for work while unemployed

Shaded areas indicate U.S. recessions.
Source: U.S. Bureau of Labor Statistics
fred.stlouisfed.org

Institutional Features of Unemployment Insurance

UI is a federally mandated, state-run program

Although UI is federally-mandated, each state sets its own parameters on the program.

This creates a great deal of variation across states

Useful as a "laboratory" for empirical work

$\Rightarrow$ UI is a heavily studied program

In 2020 crisis, most state systems unable to cope with volume and new expanded rules $\Rightarrow$ Weakness of decentralized system

Financing of UI Benefits

1) UI is financed through a payroll tax on employers:

$\Rightarrow$ an employee will not see a deduction for UI on his or her paycheck

This payroll tax averages 1-2% of earnings (implemented by a percent tax up to earnings cap)

2) UI is partially experience-rated on firms

$\Rightarrow$ the tax that finances the UI program rises as firms have more layoffs, but not on a one-for-one basis

$\Rightarrow$ Industries with few layoffs (e.g. education) end up subsidizing some industries with many layoffs (e.g. construction)

Eligibility Requirements and Benefits

1) Individuals must have earned a minimum amount over the previous year

2) Unemployment spell must be a result of a layoff, rather than from quitting or getting fired for cause (easy to check)

3) Individual must be actively seeking work and willing to accept a job comparable to the one lost (hard to check)

These eligibility requirements mean that not all of the unemployed actually collect benefits

Even among eligible, 50% do not take-up the UI benefit (lack of information about eligibility, stigma from collecting a government handout, or transaction costs)

Take-up typically lower in good times and depends on how hard states make enrollment (e.g. Florida makes it hard)

Share of state's unemployed workers receiving unemployment benefits, March 2020

| 0-10% | 10.1-20% | 20.1-30% | 30.1-40% | 40.1-50% | 50.1%+ |
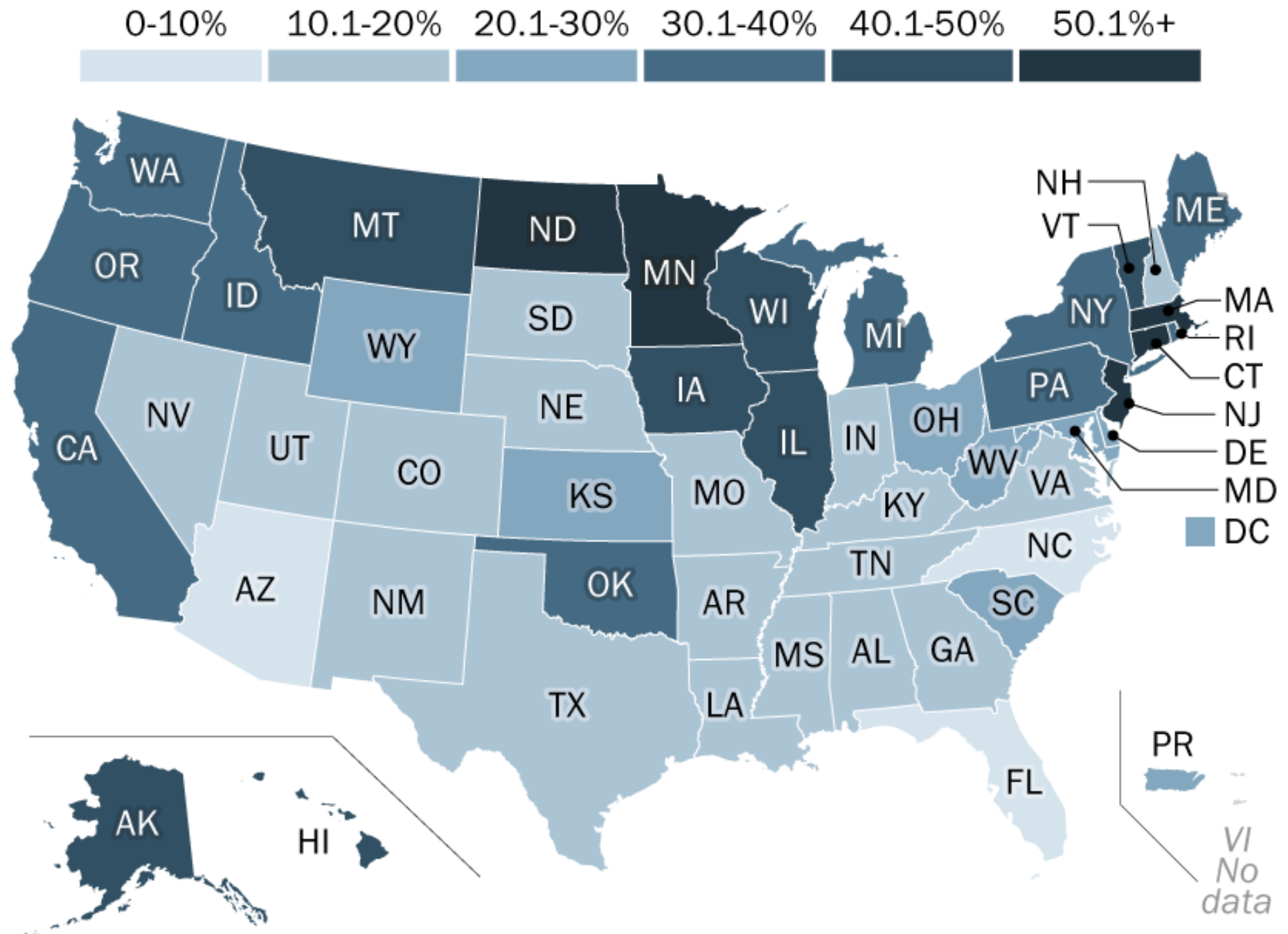
UI Benefits

UI benefits are a function of previous earnings

These benefits vary by state.

The replacement rate is the amount of previous earnings that is replaced by the UI system.

$R = B/W$

Replacement rates vary from 35% to 55% of earnings

In 2020 coronavirus crisis, CARES increased weekly benefits by $600 across the board for 4 months, and expands eligibility to self-employed and lower earners (+$300 in Jan-Sep 2021)

Average UI benefit jumped up from $400 to $1000/week. Person on $15/hour wage making $600/week made more on UI. Uniform $600/week done bc of admin simplicity

14.1

Unemployment Benefit Schedule for Michigan

UI Benefits Duration

In general, one can collect UI for 6 months.

In recessions, benefits are automatically extended to 9 months or 12 months

In deep recessions, benefits can be further extended (23 months in 2008-13)

Duration of UI benefits typically higher in European countries

In 2020 COVID crisis, UI extended to Sept 2021 for all the unemployed (including the previously self-employed).

EU countries tend to have more generous and longer benefits

Analysis of Optimal Unemployment Insurance

Optimal UI trades-off insurance value vs. efficiency costs

In principle, provide full insurance (perfect consumption smoothing) with 100% replacement rate if there is no moral hazard

With moral hazard, 100% replacement rate would eliminate incentives to find a job

$\Rightarrow$ Optimal replacement rate should be less than 100%

Optimal replacement rate depends negatively on the size of moral hazard and positively on how much people value insurance

Empirical work examines size of moral hazard and value of UI for consumption smoothing

Expected Utility Model

Individual's expected utility:

$$EU = (1 - p)u(c_e) + pu(c_u) = (1 - p)u(w - t) + pu(b)$$

p: probability of being unemployed

$c_e =$ consumption when employed,

$c_u =$ consumption when unemployed

$w =$ wage when working

$t =$ tax used to finance program,

$b =$ UI benefit

Government needs to balance budget (taxes fund benefits):

$$(1 - p) \cdot t = p \cdot b \quad \Rightarrow \quad t = (p/(1 - p)) \cdot b$$

Optimal UI with no moral hazard

No moral hazard means that p is not affected by UI

Plugging in govt. budget constraint, rewrite individual's expected utility as:

$$EU = (1 - p)u(w - (p/(1-p))b) + pu(b)$$

Government's problem: find b that maximizes EU:

FOC: $-(1-p)u'(c_e)p/(1-p) + pu'(c_u) = 0 \Rightarrow u'(c_e) = u'(c_u)$

Optimal benefit b^* will be b such that: $c_u = c_e$

This is **full insurance** (as in optimal tax theory)

Optimal UI with moral hazard

Moral hazard: individual spends effort to look for a job and reduce p:

$$EU = \max_{p} = (1 - p) \cdot u(w - t) + p \cdot u(b) - \psi(1 - p)$$

with $\psi(1 - p)$ increasing and convex in $1 - p$.

$$\text{FOC: } u(w - t) - u(b) = \psi'(1 - p)$$

With moral hazard, p increases with b as more generous benefits deter job search and hence increase unemployment

Government now chooses b to maximize EU but taking into account that p is a function of b in the budget constraint

$$EU = (1 - p) \cdot u(w - [p(b)/(1 - p(b))]b) + p \cdot u(b) - \psi(1 - p)$$

Note: envelope theorem: individual chooses p optimally

$$\text{FOC: } -pu'(c_e) + pu'(c_u) - (1 - p)u'(c_e)\frac{p'(b)b}{(1 - p)^2} = 0$$

Optimal UI with moral hazard

Get **Baily-Chetty** formula:

$$\frac{u'(c_u) - u'(c_e)}{u'(c_e)} = \frac{1}{1-p}\varepsilon_{p,b} \text{ with } \varepsilon_{p,b} = \frac{b}{p} \cdot \frac{dp}{db}$$

$\varepsilon_{p,b} > 0$ is the elasticity of unemployment rate with respect to benefits (captures size of moral hazard effects)

Now $0 < c_u < c_e < w$: partial insurance is optimum.

Insurance-efficiency tradeoff:

b increases with curvature of $u(.)$

b decreases with elasticity $\varepsilon_{p,b}$

Self-insurance vs. social insurance

Baily-Chetty model is static with no-self insurance but can be extended to dynamic model and self-insurance and same formula carries over

Theory: Unemployment shock is short relative to life-time
$\Rightarrow$ Intertemporal maximizers should self-insure with savings
$\Rightarrow$ Little need for UI program as c^u close to c^e even absent UI

Practice: Large fraction of population has no buffer stock
$\Rightarrow$ c^u and c^e differ substantially (see below)
$\Rightarrow$ Need for UI program

Optimal UI theory is based on individual risk aversion rather than social welfare weights (like optimal tax)

pro: no social objective necessary
cons: individuals don't self-insure like they are risk averse

Empirical Estimation of Effects of UI

Moral hazard in UI manifests itself in the duration of the unemployment spell

Economists ask whether the unemployed find jobs more slowly when benefits are higher

Key challenge: need to use quasi-experiments to identify these effects

One common empirical approach (Meyer 1990): difference-in-difference

Exploit changes in UI laws that affect a "treatment" group and compare to a "control" group

14.3

EVIDENCE: Moral Hazard Effects of Unemployment Insurance
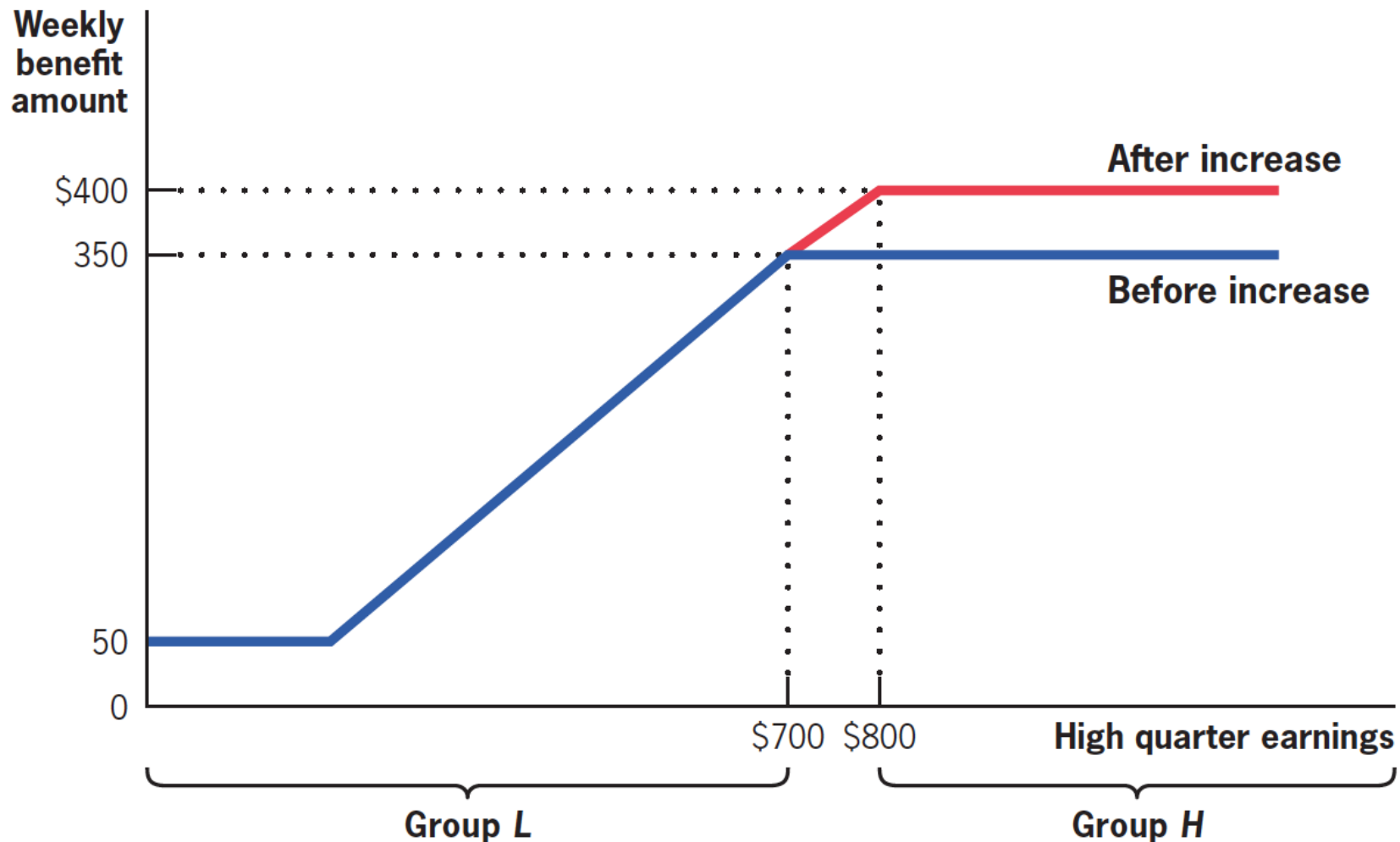
Empirical Estimation: UI Benefits Generosity

Meyer (1990) implements this method using data on unemployment durations in the U.S. and state-level reforms

General finding: benefit elasticity of 0.4-0.6

10% rise in unemployment benefits leads to about a 4-6% increase in unemployment durations.

More recent empirical approach **Regression Kink Design**: UI benefits max out based on previous earnings creating a kink

Card, Lee, Pei, Weber ECMA'15 pioneered RKD for UI in Austria: unemployment duration is also "kinky" based on previous earnings

RKD estimate: Change in slope of outcome at kink / Change in slope of benefits at kink $\Rightarrow$ Larger elasticity around 1 (but not super precise)
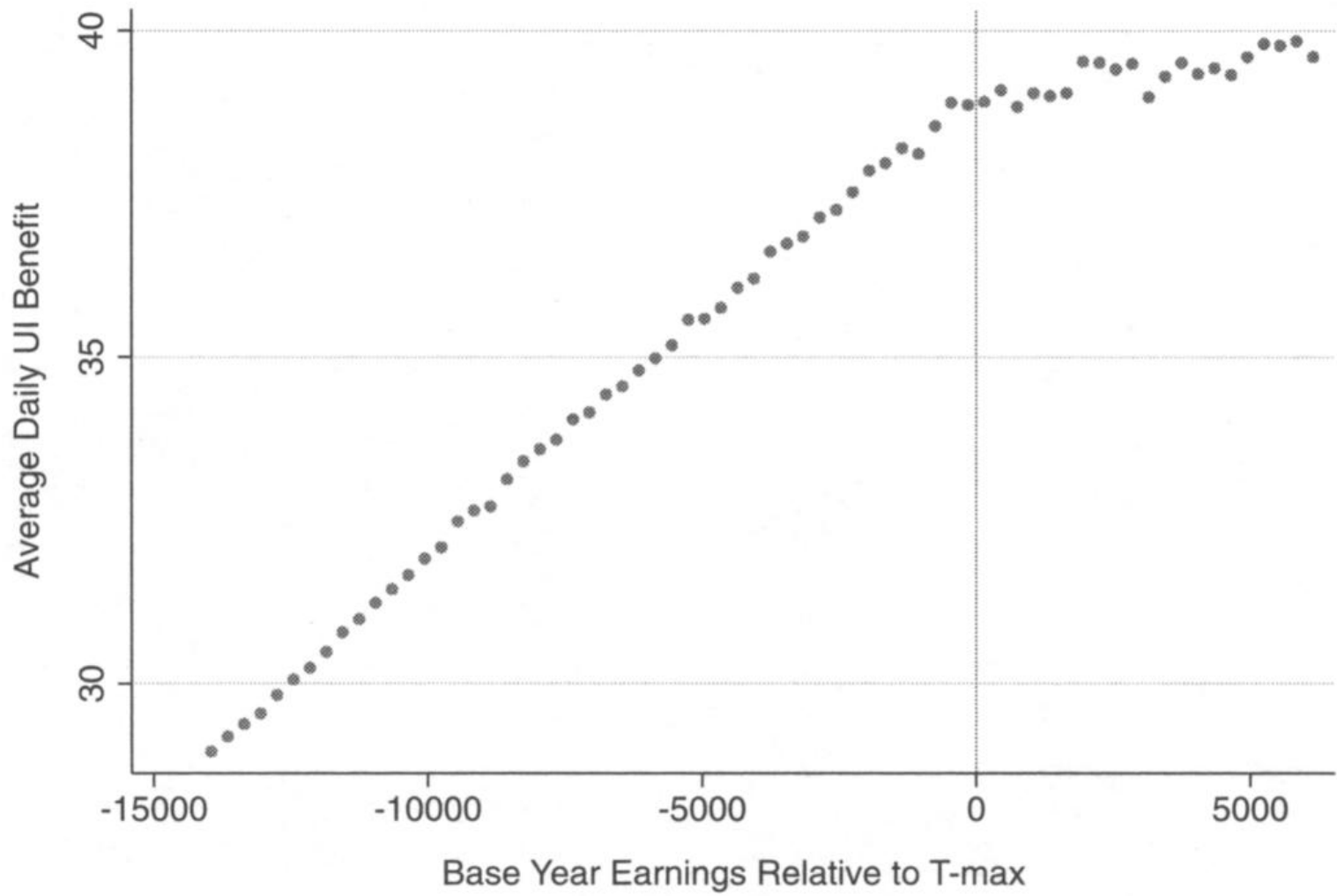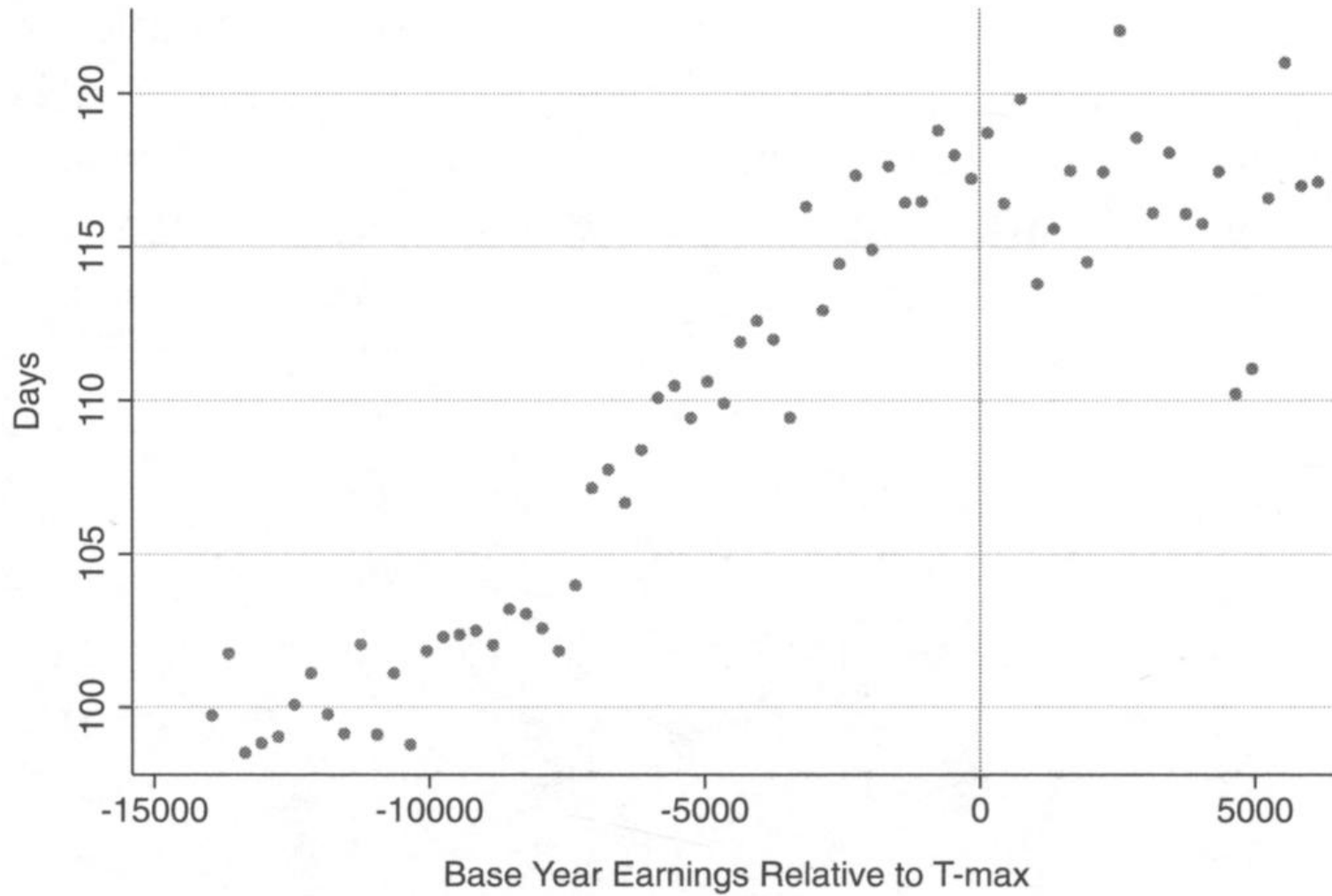
FIGURE 2.—Daily UI benefits.

FIGURE 3.—Unemployment duration.

Empirical Estimation of Effects of UI:
UI Potential Duration

Great interest in whether longer potential UI benefits lead to longer UI spells

More recent empirical approach: **regression discontinuity**

Card-Chetty-Weber (2007) use the fact that in Austria, you get up to 30 weeks of benefits when you have been employed for 36+ months in last 5 years (instead of up to 20 weeks)

Can look at duration of unemployment based on how long you have worked in last 5 years

$\Rightarrow$ Finds fairly small elasticity around 0.3

Card, Chetty, Weber (2007)

Effect of Benefit Extension on Unemployment Durations
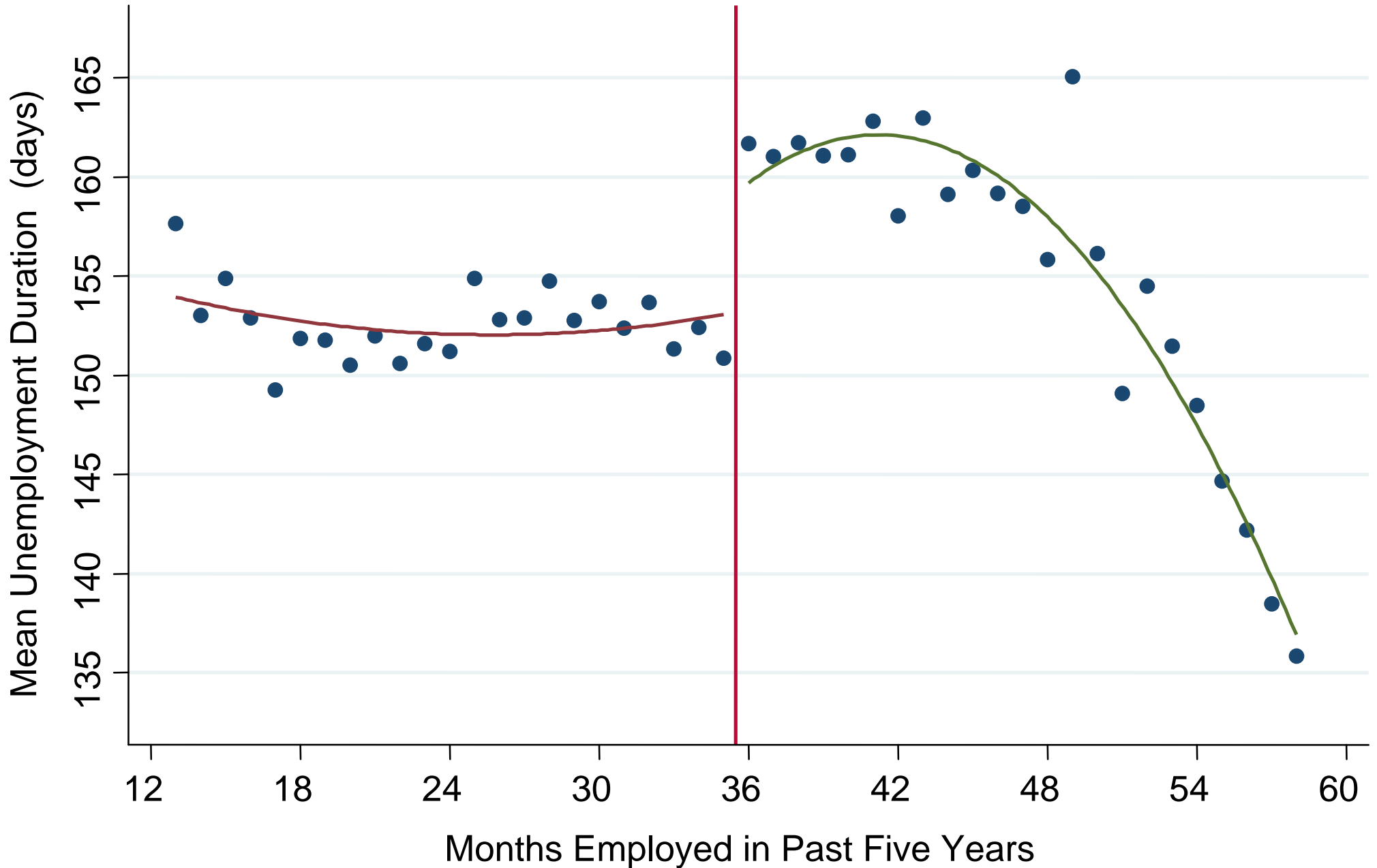
Effects of UI expansion during COVID

Ganong et al. (2021) analyze the impact of the huge UI expansion during COVID using JP Morgan bank data

They find that weekly exit rate from UI to new job:

a) jumps up from 1.8% to 2.6% when $600 supplement ends

b) jumps down from 2.6% to 2.0% when $300 suppl. starts

$\Rightarrow$ Negative moral hazard effects of UI

But quantitative effect is very small, indeed almost invisible in time series of unemployment rate decline during recovery

$\Rightarrow$ UI was an efficient way to help job losers during COVID

Figure 2: Effect of Expanded Benefits on Job-Finding: Interrupted Timeseries Design

(a) Interrupted Timeseries Estimate

Exit rate to new job from unemployment benefits

Expiration of
$600 supplement

Change:
0.76 p.p.

Onset of $300
supplement

Change:
−0.56 p.p.
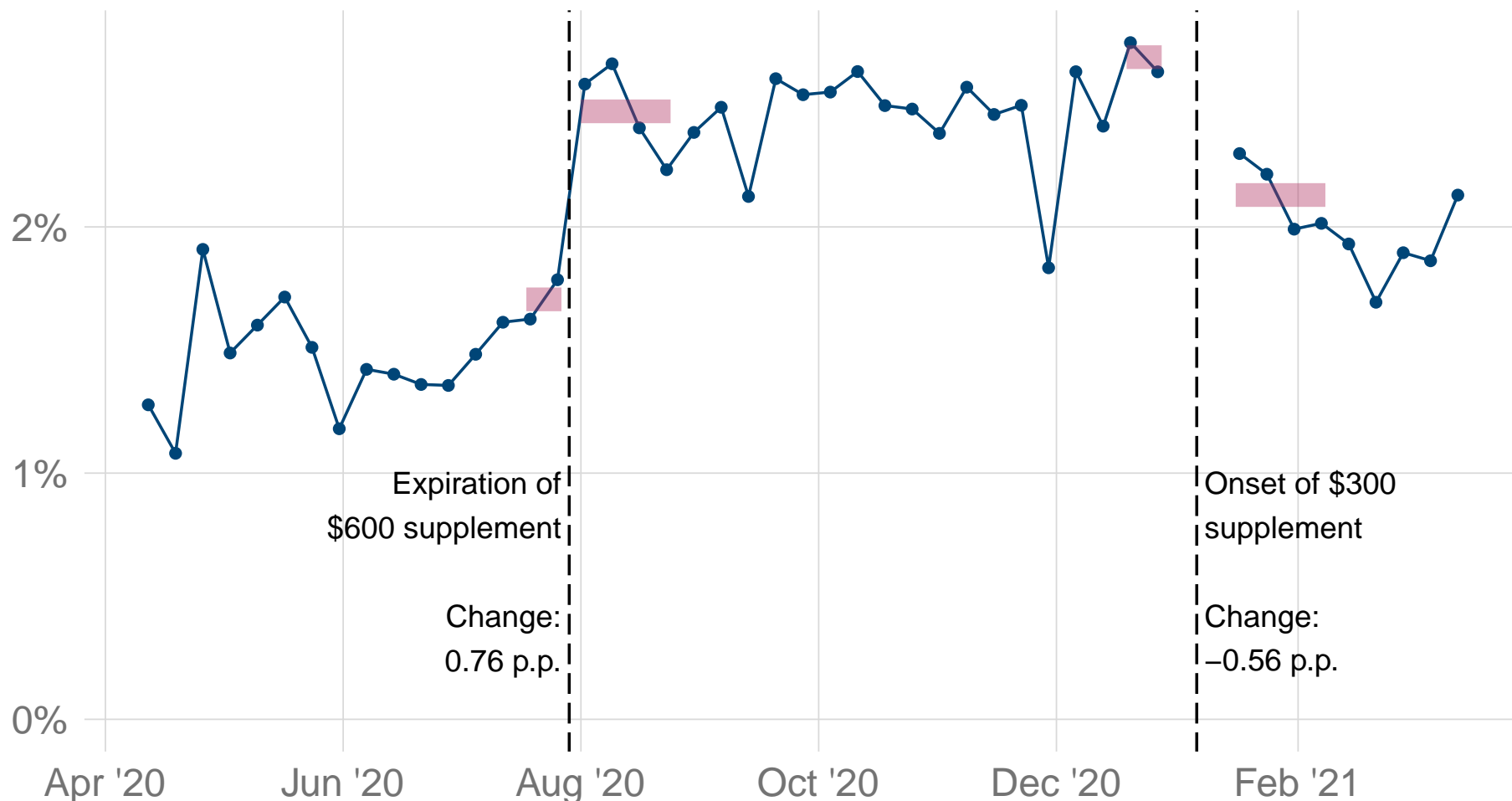
Source: Ganong et al. 2021

Reference-Dependent Job Search:
Two-step UI in Hungary

Dellavigna et al. QJE'17 study a reform of UI in Hungary which introduced a two-step level of UI benefits:

Before Nov 2005: same benefit for 270 days

After Nov 2005: higher benefit for 90 days, lower benefit from day 91-270

1) Job findings are very similar for first 60 days (inconsistent with standard model)

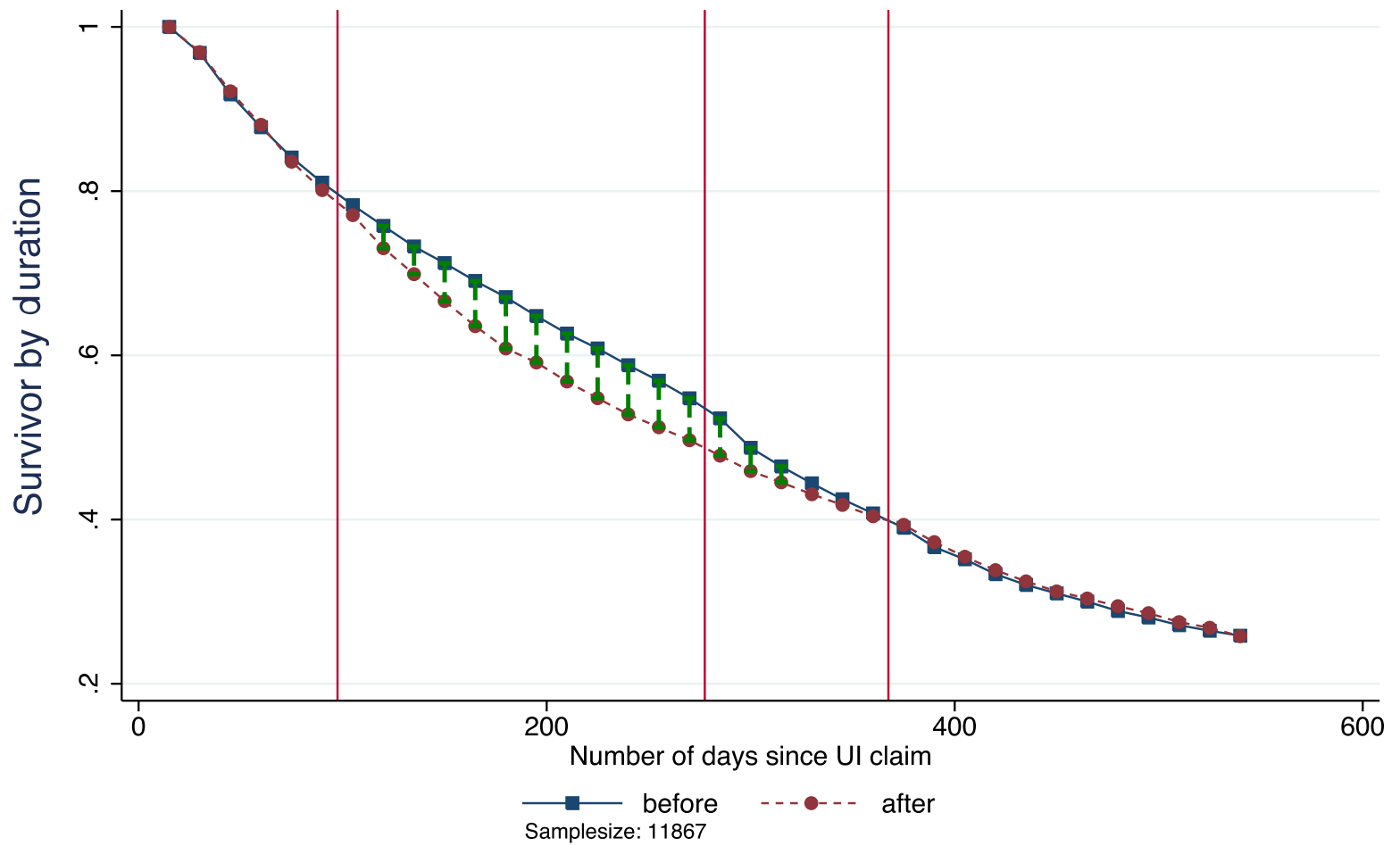2) Increase in job findings in anticipation of, and especially following, benefit cuts

Reference-Dependent model proposed: people get used to benefit level (and reduce search effort) and dislike a drop in benefits (and increase search effort)

REFERENCE-DEPENDENT JOB SEARCH
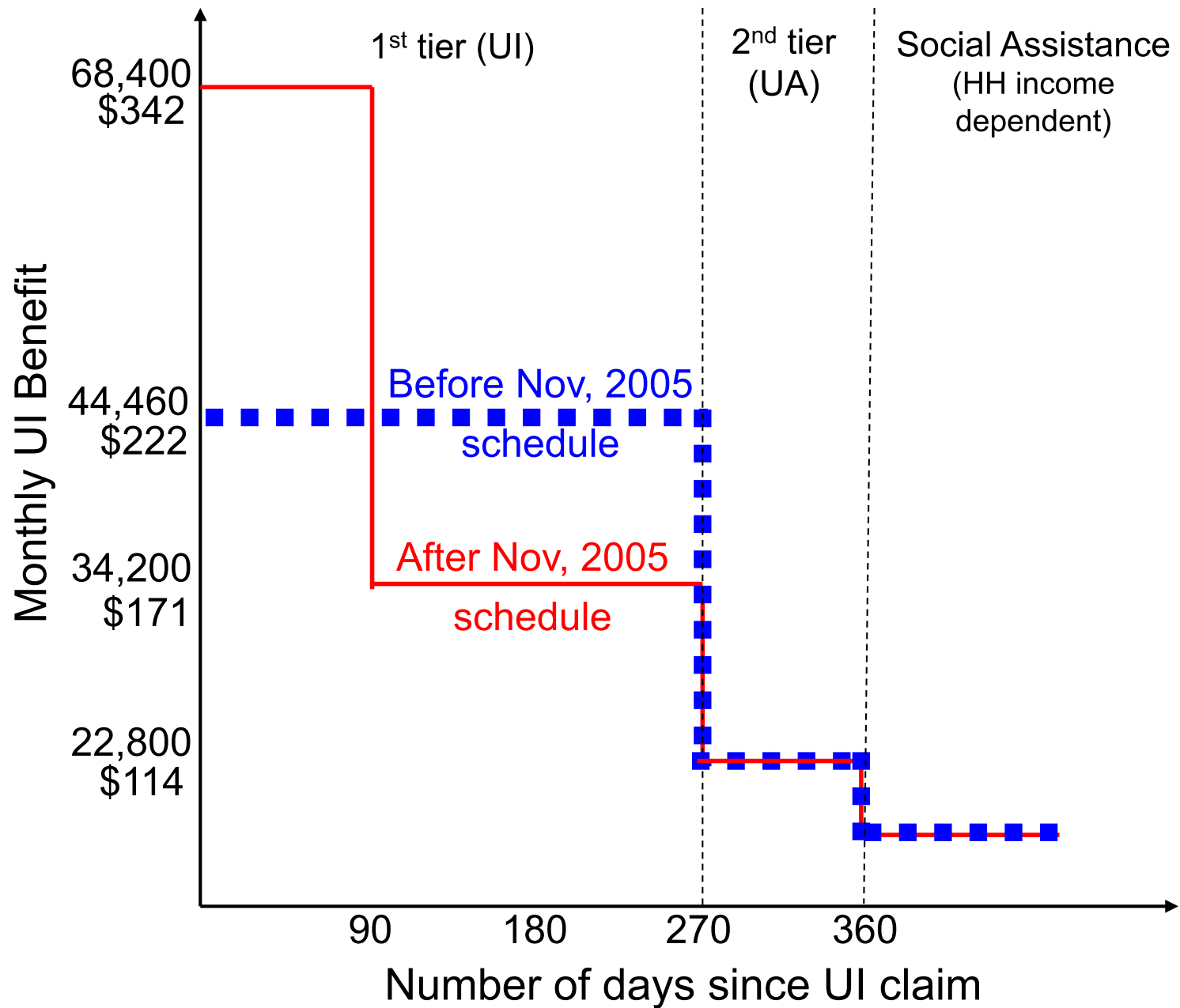
Source: Dellavigna et al. QJE '17

(A) Benefit Path Change, Main Sample

(B) Empirical survival rates

FIGURE III

Empirical Hazard and Survival Rates under the Old and the New Benefit Schedule

Evidence on Consumption-Smoothing

Difference-in-difference strategy has been used to examine how UI benefits affects consumption (Gruber 1997):

1) consumption falls on average when people lose their job by about 10-15%

2) Size of drop depends on UI: $1 increase in UI benefits increases consumption by 30 cents

Much less than 1-1 because savings behavior changes, spousal labor supply, borrowing from friends, etc. (self-insurance)

Recent study by Ganong-Noel AER'19 uses bank account data to follow people through UI spell

$\Rightarrow$ Finds big effects of UI benefit exhaustion on consumption especially for groups with high replacement rates or low wealth

Figure 2: Income and Spending If Stay Unemployed

Income (Labor + UI) If Stay Unemployed

Spending If Stay Unemployed
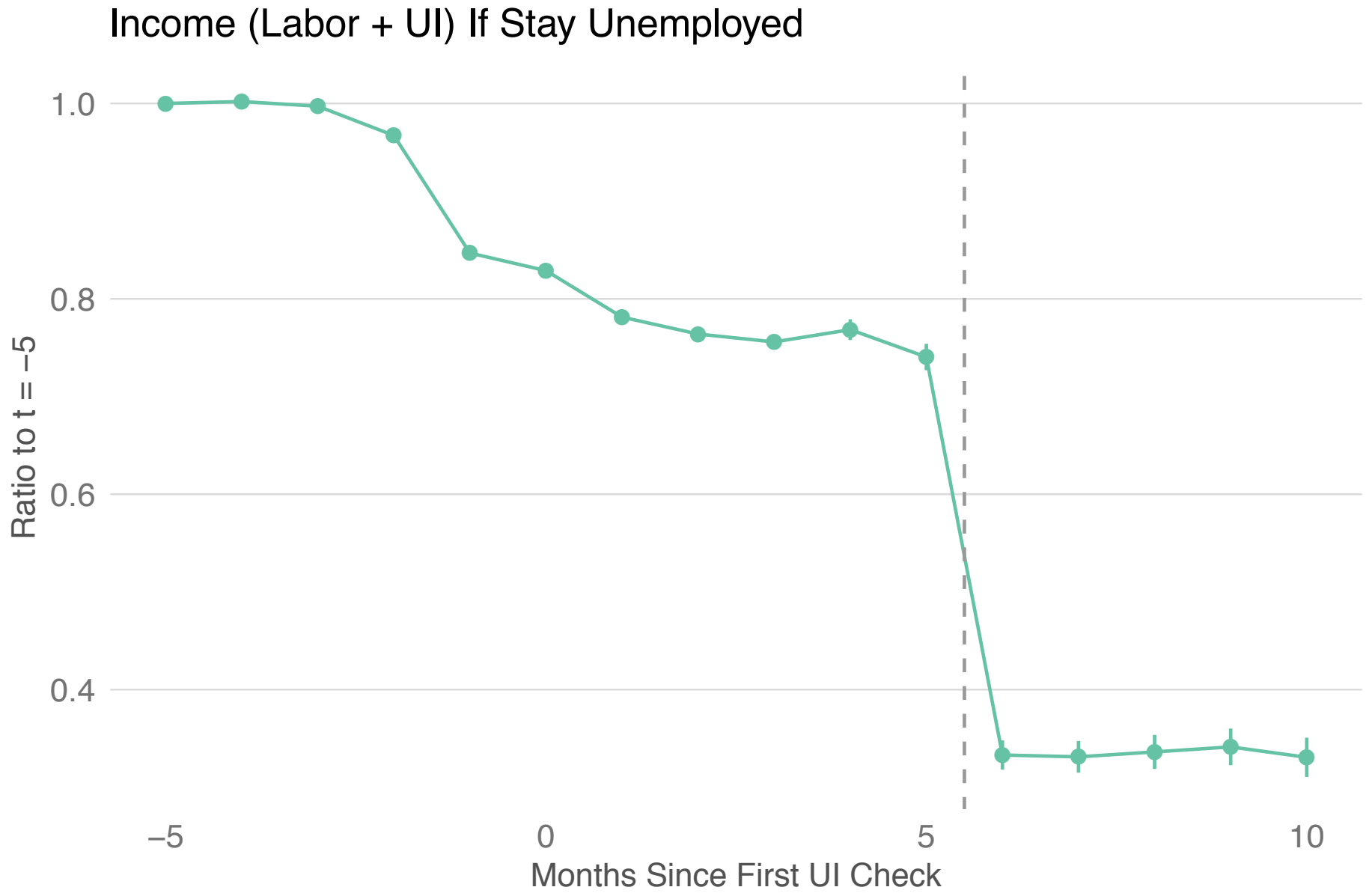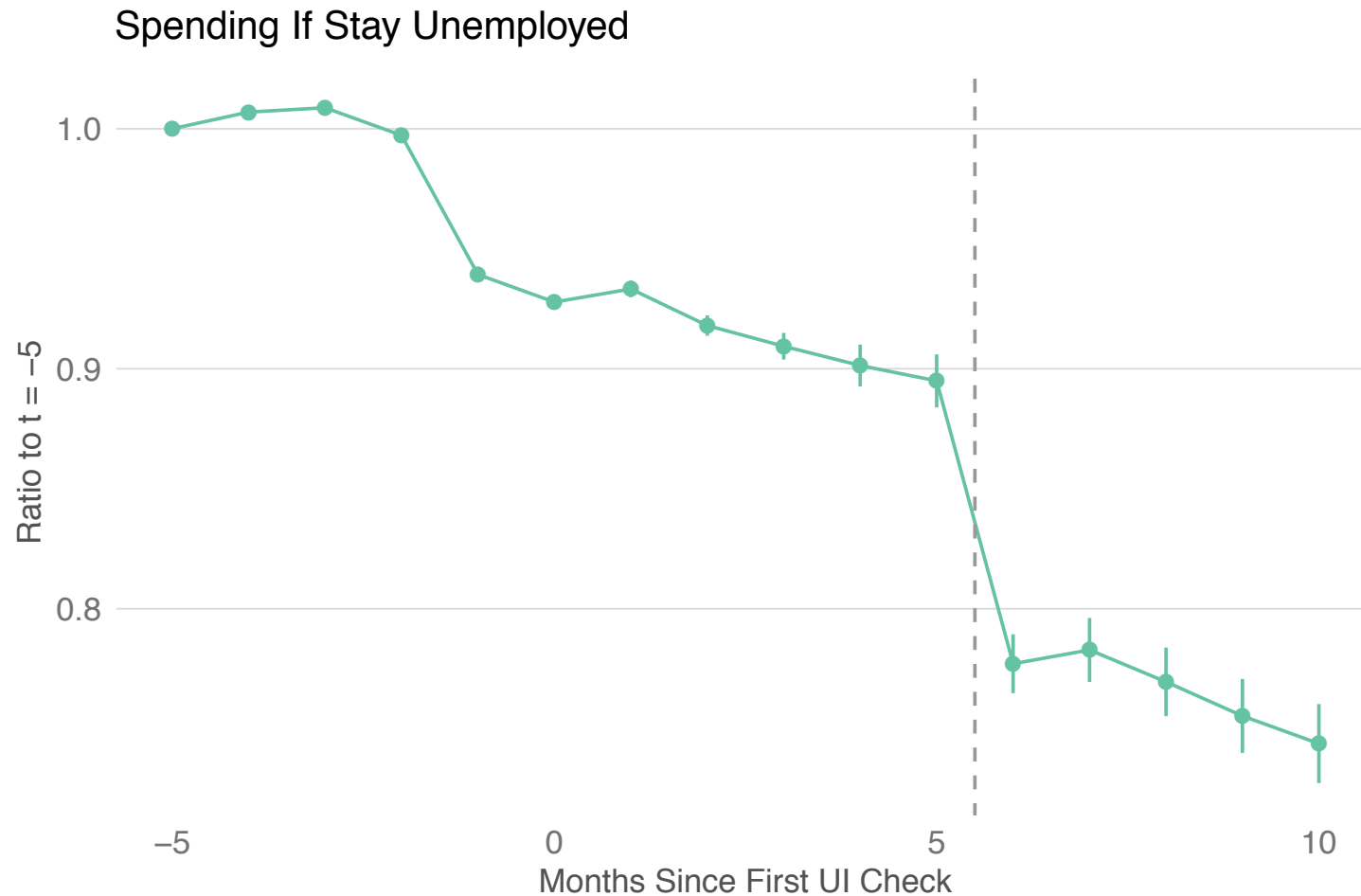
Notes: This figure plots income and spending for the sample that stays unemployed. In months $t = \{-5, -4, -3, -2, -1, 0\}$, this includes everyone who receives UI at date 0 and meets the sampling criteria described in Section 2.1. In month $t = 1$, this includes only households who continue to receive UI and excludes households who receive their last UI check in month 0. In month $t = 2$, this excludes households who receive their last UI check in month 0 or month 1, and so on. Employment status after UI exhaustion is measured using paycheck deposits. The vertical line marks UI benefit exhaustion. Income is positive after UI benefit exhaustion because of labor income of other household members. Vertical lines denote 95 percent confidence intervals for change from the prior month. See Section 3.1.1 for details.

Figure 3: Heterogeneity in Income and Spending If Stay Unemployed
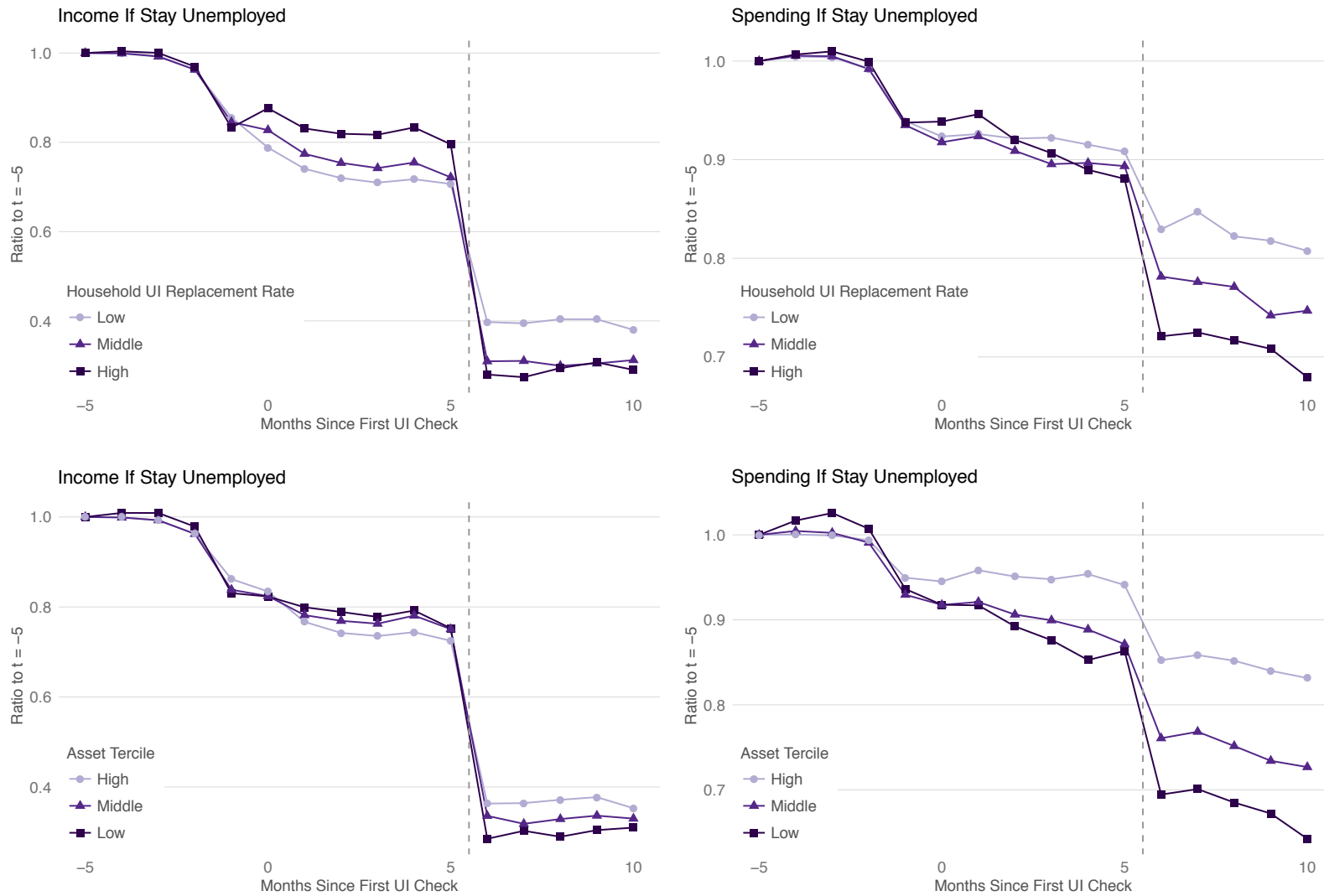
Notes: This figure shows heterogeneity in income and spending by the ratio of UI benefits to estimated household annual income and the ratio of estimated total liquid assets (a measure described in Section 2.2) to consumption prior to the onset of unemployment. The sample is households that receive UI and stay unemployed, as described in the note to Figure 2.

Does UI have Long-Term Benefits?

Another potential benefit of UI, neglected in simple model above: improvements in **match quality**

Are people forced to take worse jobs because they have to rush back to work to put food on the table?
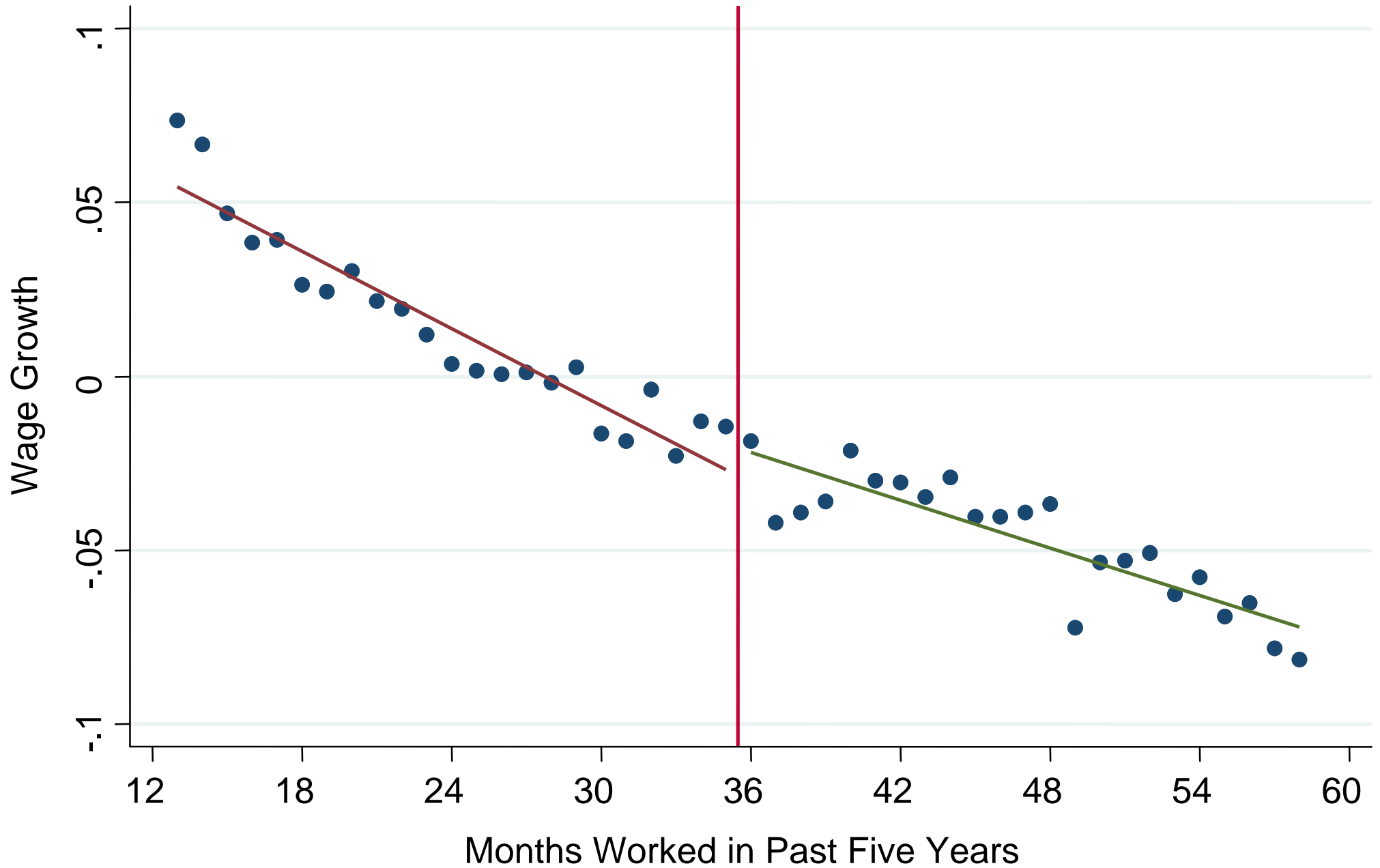
Can examine this using similar data

Look at whether people who got higher benefits and took longer to find a job are better off years later

Card-Chetty-Weber (2007) exploit again the **regression discontinuity** and find no long-term match benefit on subsequent wage or subsequent job duration

More recent work suggests that scarring effect of unemployment spell length and being more choosy cancel out (Schmieder, von Wachter, Bender AER16)
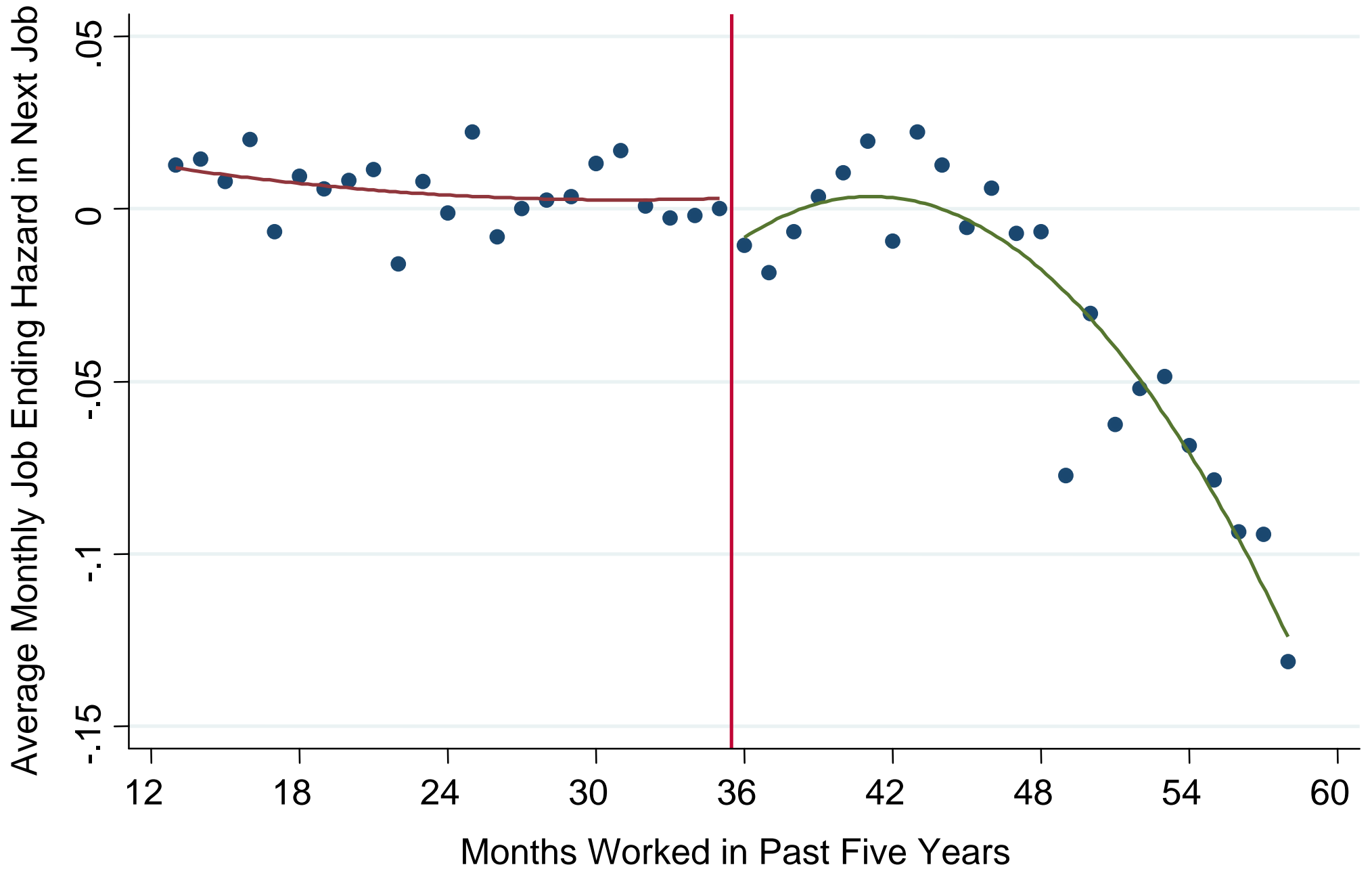
Card, Chetty, Weber (2007)

Effect of Extended Benefits on Subsequent Wages

Figure axes: Wage Growth (y-axis, from -.1 to .1) versus Months Worked in Past Five Years (x-axis, from 12 to 60).

Card, Chetty, Weber (2007)

Effect of Extended Benefits on Subsequent Job Duration

Summary of Empirical Findings on UI

1. Higher benefit level $\Rightarrow$ longer unemployment durations (moral hazard cost)

2. Higher benefit level $\Rightarrow$ more consumption while unemployed (consumption smoothing benefit)

3. UI benefits have no beneficial effects on long-term job outcomes

$\Rightarrow$ Model implies that providing some UI is desirable but UI replacement rate should be only around 50% based on those empirical findings

Moral hazard cost during deep recessions (such as COVID) seems smaller $\Rightarrow$ it makes sense to make UI more generous in recessions

Should UI Benefits be Extended during Recessions?

US extends UI benefits during recessions. Extensions ended in 2014 (controversial policy debate)

1) Social Justice: Harder to find jobs in recessions $\Rightarrow$ being unemployed is less of a choice

$\Rightarrow$ Extending benefits is desirable for fairness

2) Efficiency: In recessions, the job market is too slack [harder to find jobs, easier for firms to find workers] $\Rightarrow$ discouraging search effort in recessions is not as problematic.

Furthermore, UI benefits support spending and hence the economy (through short-term macro effects)

$\Rightarrow$ Extending benefits is desirable for efficiency

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