Unemployment Insurance Generosity and Healthcare Use: Evidence from Sweden

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Terveystaloustieteen päivä 2026
January 30, 2026

Motivation

- Unemployment is harmful to mental and physical health. Why?
  (e.g., Brand 2015; Wanberg 2012; Picchio and Ubaldi 2023)
  - Liquidity constraints due to income loss (e.g., Cutler et al. 2012; Lleras-Muney et al. 2025)
  - Stress, social stigma, loss of social contacts and social identity (e.g., Jahoda 1982)
  - → Latter affects health **independently of income loss**
- Adverse health effects matter because we care about the welfare of the unemployed...
- ...but they can also create **fiscal externalities** if healthcare use increases
- These fiscal externalities could be large since healthcare is highly subsidized

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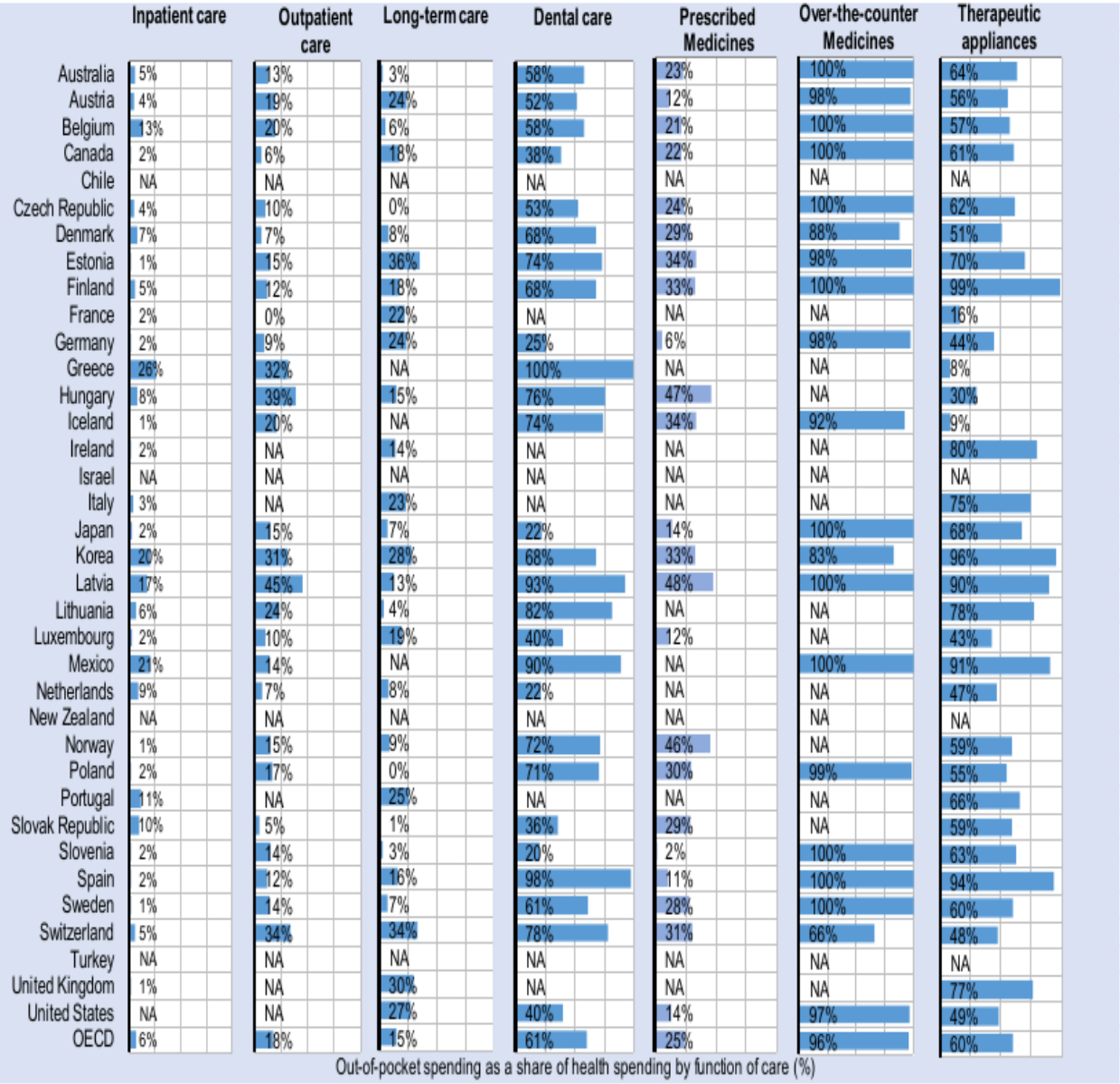

Source: OECD Health Statistics 2018 (Data refer to 2016).

Note: Shows the share of total healthcare spending covered by household out-of-pocket costs, separately by spending category.

This Paper

Research question:

How does the generosity of unemployment insurance affect the healthcare use of recipients?

What I do:

- Use Swedish register data on unemployment spells, UI payments, and healthcare use
- For identification, use a **regression kink design** exploiting caps in the benefit amount
- Study effects on
  - Hospital (inpatient) visits,
  - Specialist (outpatient) care, and
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- **Novelty:** Measure **total costs** of healthcare use, not just out-of-pocket costs

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What I find:

- Find little evidence that more generous UI affects healthcare use
- In response to a 1 SEK ↑ in unemployment benefits, my 95% CIs can rule out
  - Changes (↑ or ↓) in total healthcare costs > 0.08 SEK
  - Changes in hospital + specialist costs > 0.18 SEK
  - Changes in costs of drug purchases > 0.02 SEK

  during the first 40 weeks since the start of the unemployment spell
- Conclusion holds
  - across socioeconomic groups (men & women, young & old, singles & couples),
  - across different margins of use,
  - across types of hospital/specialist visits and drug purchases, and
  - when tracking healthcare use week-by-week over the spell
- My findings differ from U.S. evidence that ↑ UI generosity → ↑ healthcare use (Kuka 2020)
- ...and Austrian evidence that ↑ UI duration → ↑ health (Ahammer and Packham 2023)

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Context

Unemployment insurance:

- Two types of UI: basic benefits and income-based benefits ← this paper
- Eligible for income-based benefits if
  - (i) 20–65 years old,
  - (ii) fulfill work history requirement,
  - (iii) actively search for new job, and
  - (iv) contributed to UI fund (A-Kassa) continuously in the previous 12 months.
- Benefits replace a constant fraction of previous daily wage, up to a cap
- Benefit cap relatively low ($\sim$ 53–65% of median monthly wage)

Healthcare system: Highly subsidized national healthcare system

- Relatively low patient fees in inpatient and outpatient care (as well as primary care)
- Residents covered automatically by generous prescription drug insurance scheme
- Out-of-pocket costs accounted for 1% of inpatient, 14% of outpatient, and 28% of prescription drug expenses in 2016 (OECD 2019, Figure 2)

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Data & Sample

- Data on unemployment spells from Public Employment Service registers
- Data on weekly UI payments from the Unemployment Insurance Inspectorate (IAF)
- Data on socioeconomic background from Statistics Sweden
  - Form control variables, measured in calendar year before start of unemployment spell:
  - Age, gender, education, married/cohabiting, any children, county of res., employer industry (inc. missing)
- Measure healthcare use using registers of the National Board of Health and Welfare:
  - Inpatient care (hospital) visits + Outpatient care (specialist) visits
    - Measure visit's total costs using its MDC* and data on national avg. per-day costs of MDC
    - Covers resource (drugs, materials, operations, etc.) & underlying (staff, admin, etc.) costs
  - Prescription drug purchases from outpatient pharmacies
    - Observe disaggregated total costs (i.e., OOP costs & costs covered by insurance)
  - (Primary care and dental care visits not observed)

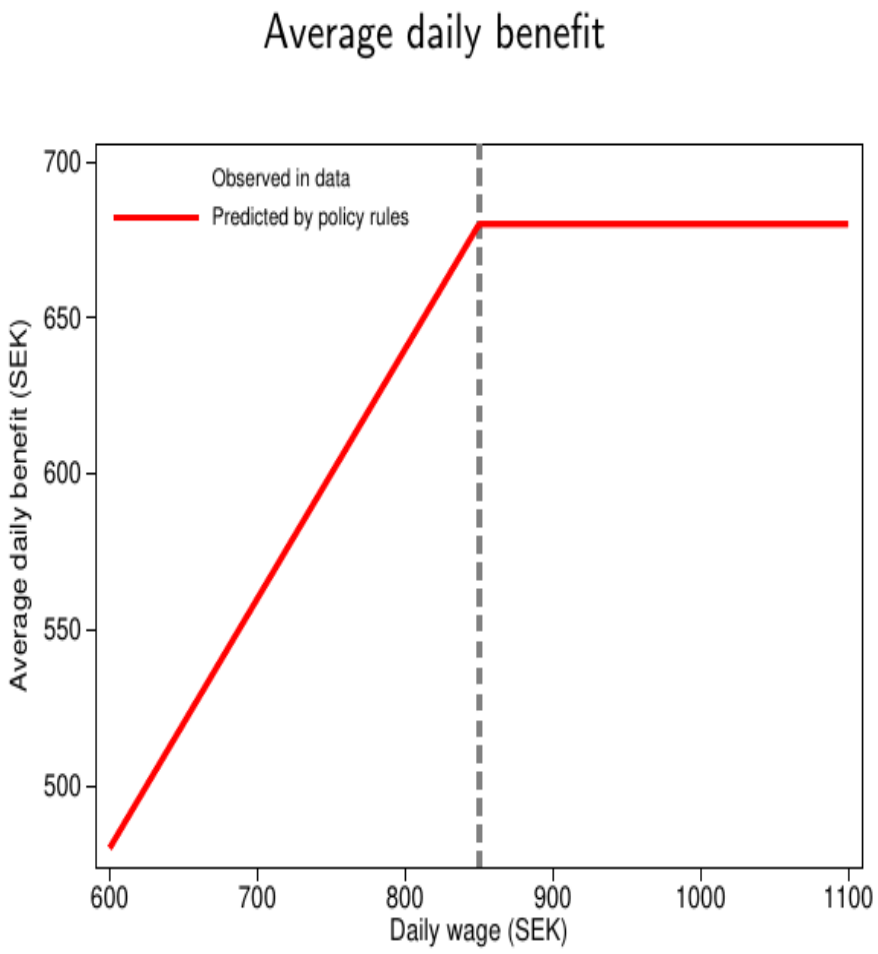
*MDC = Major Diagnostic Category

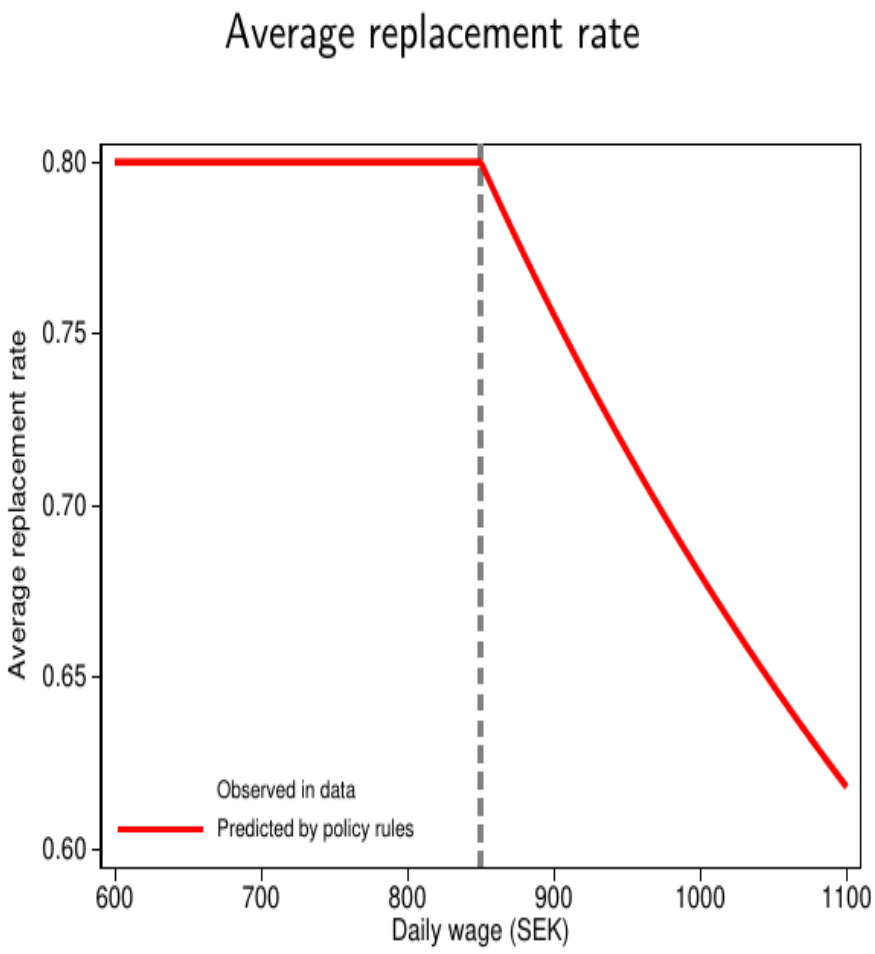
Measuring costs of in-/outpatient visits

Data & Sample

- Unemployment spells with a start date between 2007-03-07 – 2014-07-14
- UI scheme: Replaces 80% of previous daily wage, up to a cap of 680 SEK per day
  $\longrightarrow$ Reach benefit cap with a daily wage $\geq$ 850 SEK ($\leftarrow$ kink point)
- Analysis sample:
  - Individuals aged 20–64 in the year before start of spell, daily wage btw 150–1800 SEK
  - Measure healthcare use over first 40 weeks since start of unemployment spell
  - Sample contains 340,955 spells for 320,592 individuals

First Stage: Daily Benefits and Replacement Rate Around Kink





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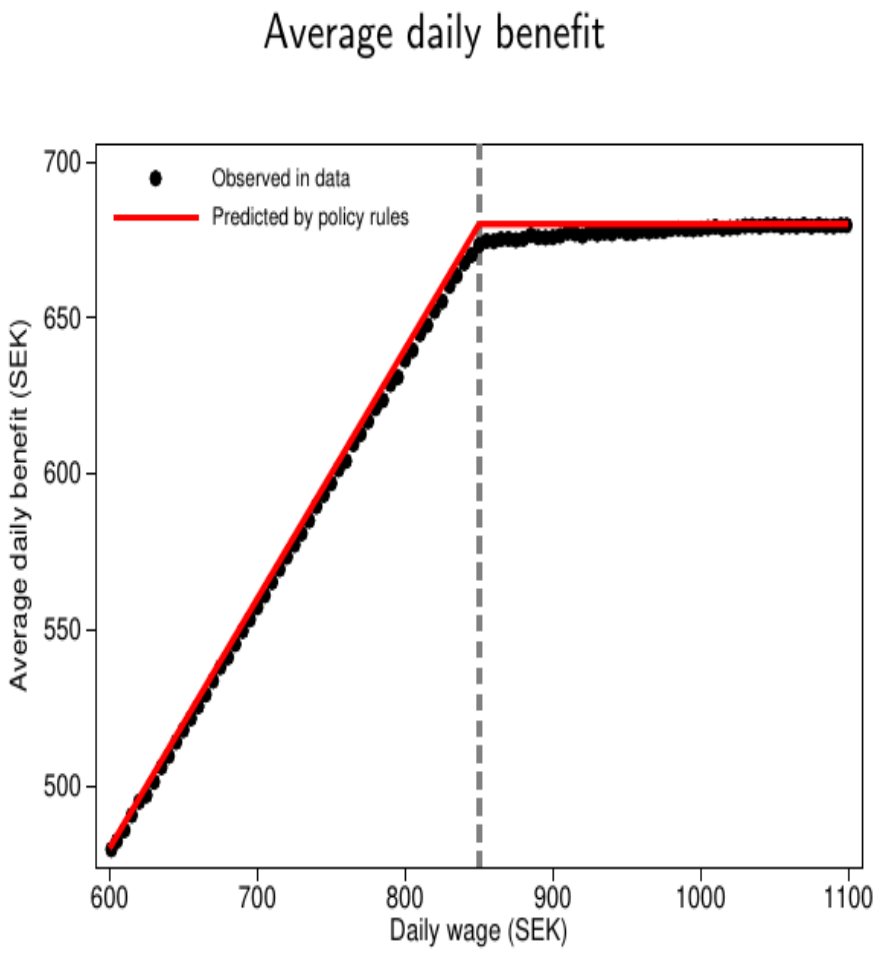
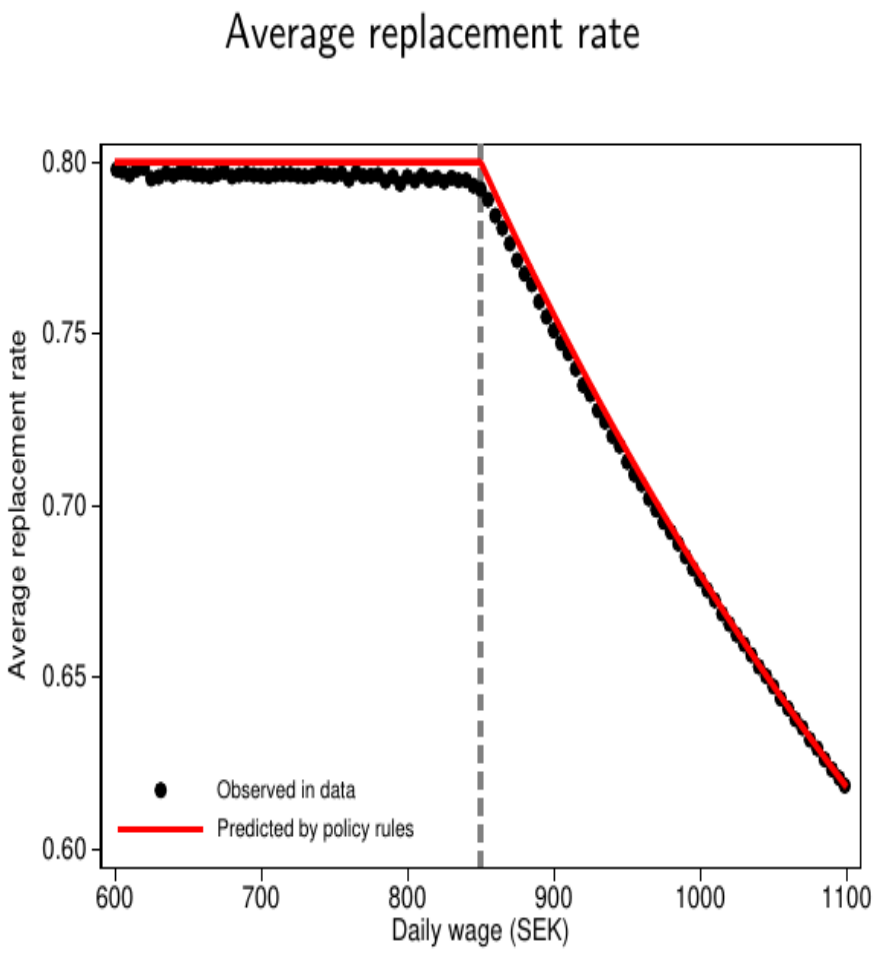
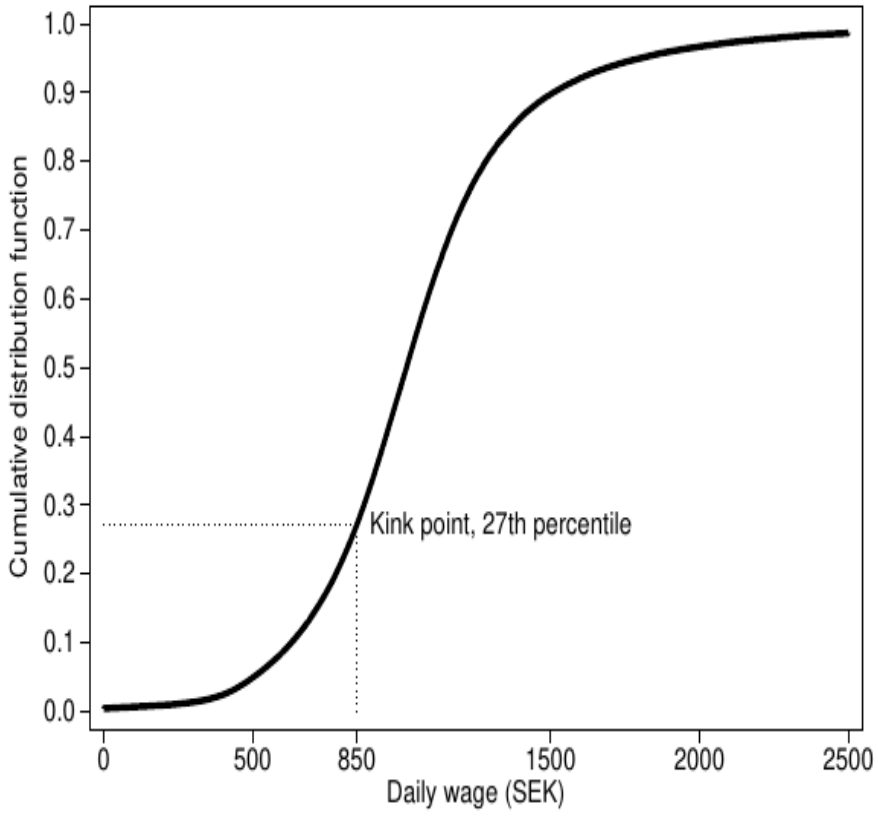




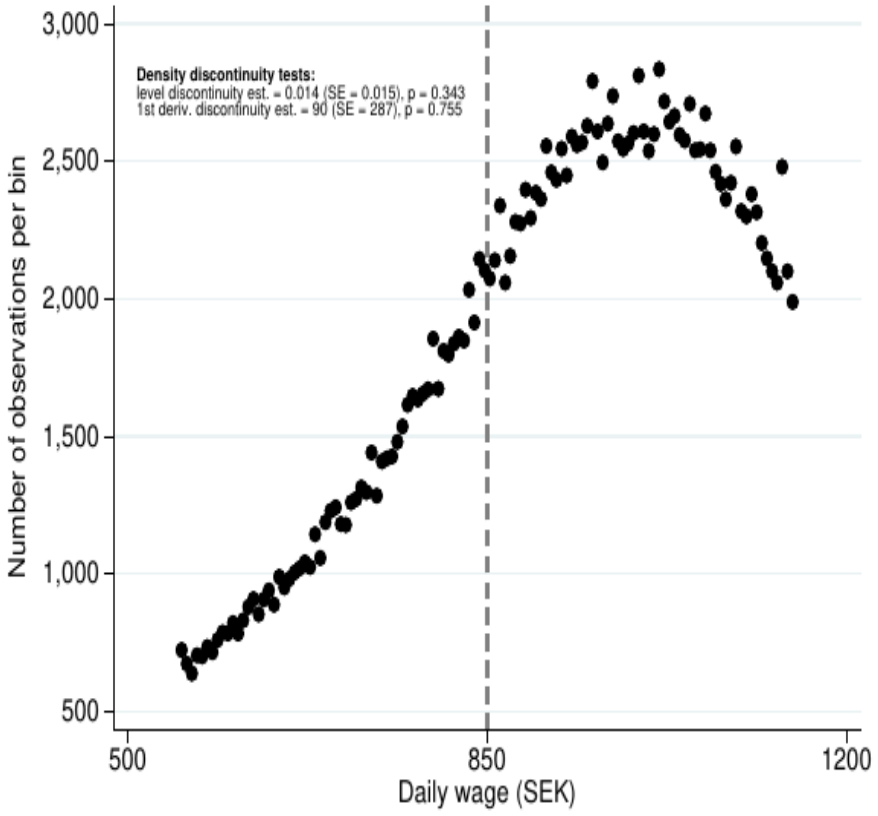
Distribution of Daily Wage

back

Kink point location



Density of daily wage



Estimation: Fuzzy Regression Design

Parameter of interest is the **fuzzy RK estimand**, or $\frac{\text{reduced form}}{\text{first stage}} = \frac{\Delta\text{slope of outcome at kink}}{\Delta\text{slope of benefits at kink}}$:

$$\tau = \frac{\beta^+ - \beta^-}{\kappa^+ - \kappa^-} = \frac{\lim_{w_0 \to \overline{w}^+} \left.\frac{d\mathbb{E}[Y|W=w]}{dw}\right|_{w=w_0} - \lim_{w_0 \to \overline{w}^-} \left.\frac{d\mathbb{E}[Y|W=w]}{dw}\right|_{w=w_0}}{\lim_{w_0 \to \overline{w}^+} \left.\frac{d\mathbb{E}[B|W=w]}{dw}\right|_{w=w_0} - \lim_{w_0 \to \overline{w}^-} \left.\frac{d\mathbb{E}[B|W=w]}{dw}\right|_{w=w_0}},$$

where W is daily wage, B is daily benefits, $\overline{w}$ is the kink point.

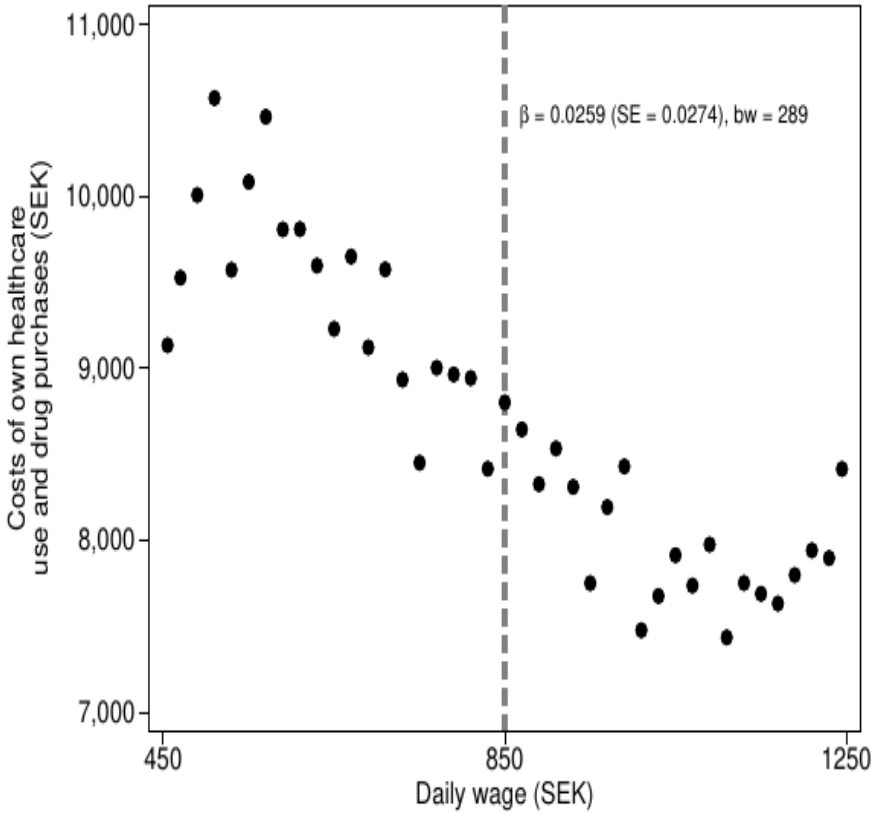
Preferred estimates based on a **local linear specification**:

- Linear estimator and uniform kernel
- Quadratic bias correction + robust standard errors (Calonico et al. 2014)
- MSE-optimal bandwidth (varies by outcome and specification), omit regularization term
- Control for pre-determined covariates locally (Calonico et al. 2019)

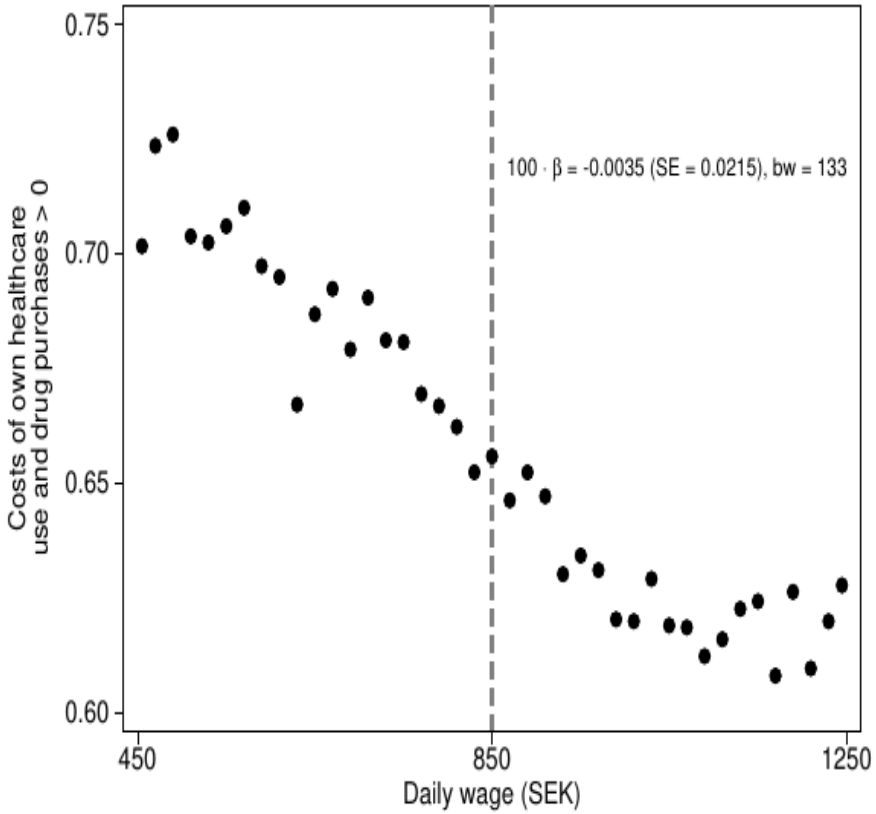
Covariates | Covariate indices

Overall Healthcare Use Around Kink

(i) Total costs



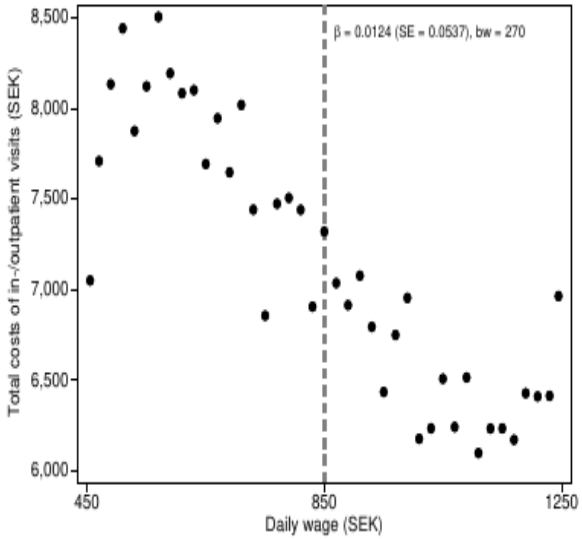
(ii) Any healthcare use



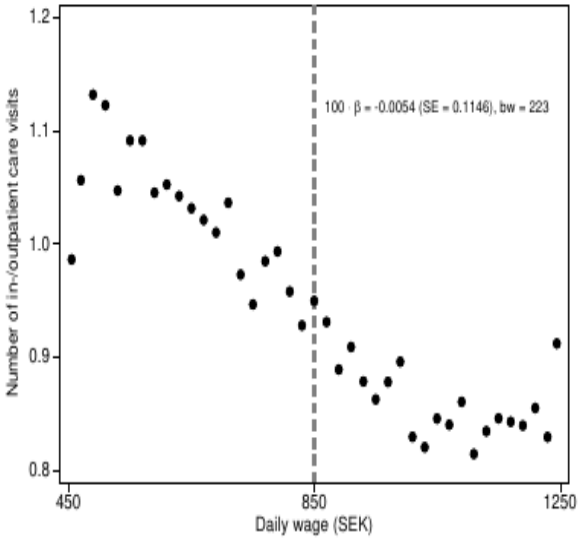
Outcomes are (i) the total costs of in- & outpatient care visits and drug purchases, and (ii) 1(Total costs > 0).

Inpatient and Outpatient Care Use Around Kink

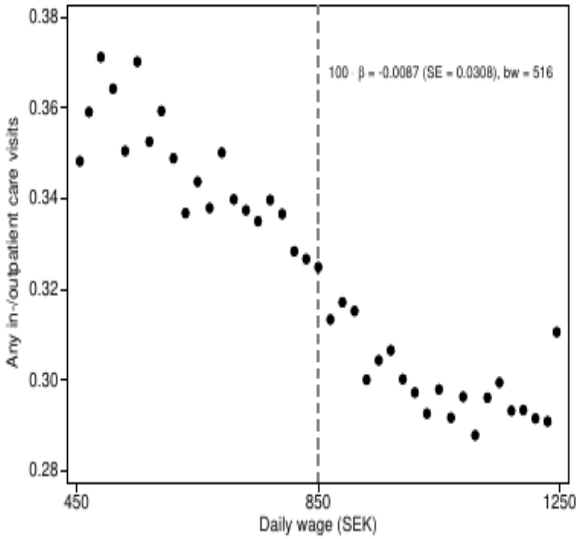
(i) Total costs of visits



(ii) Number of visits



(iii) Any visits



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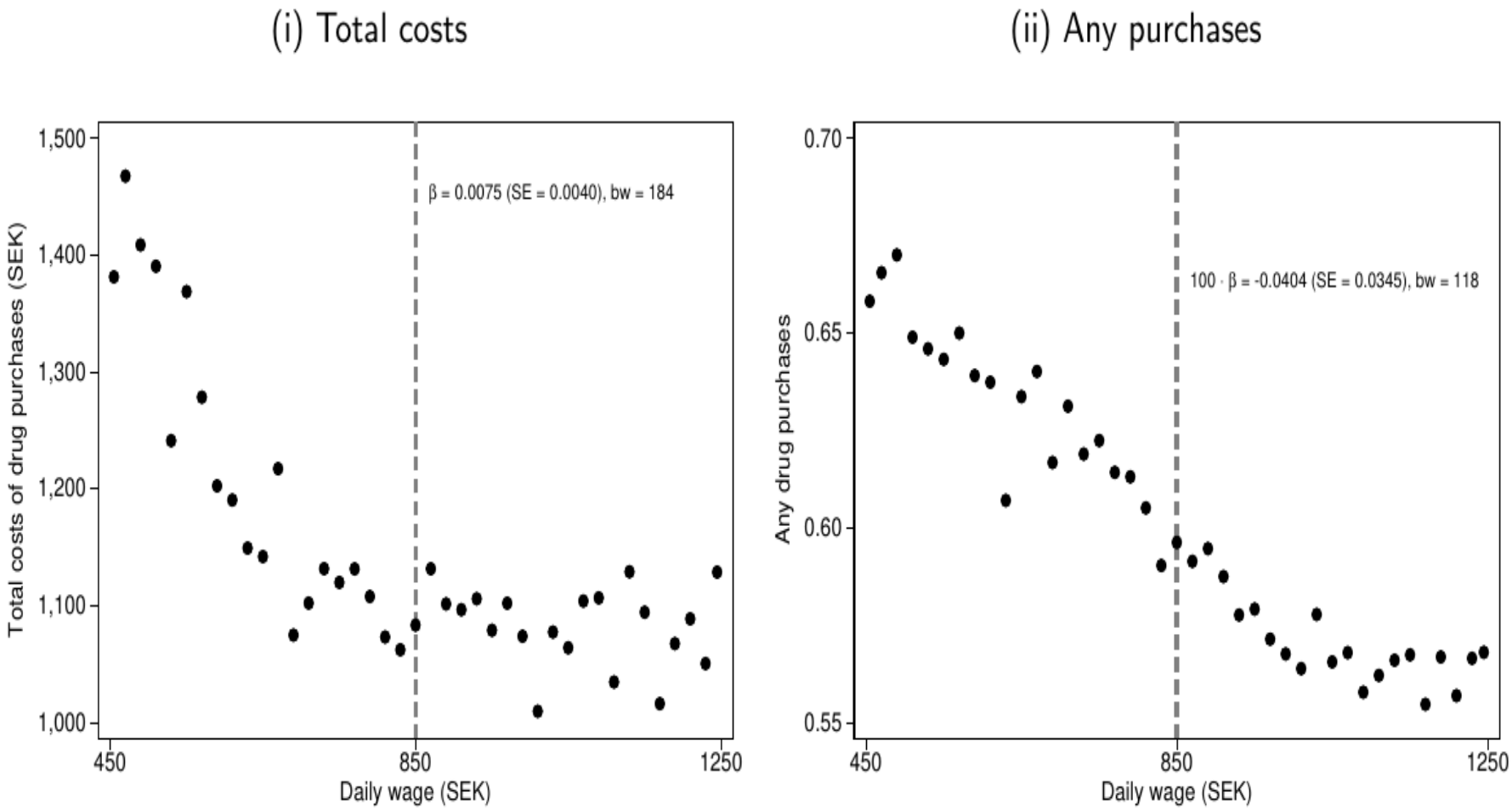
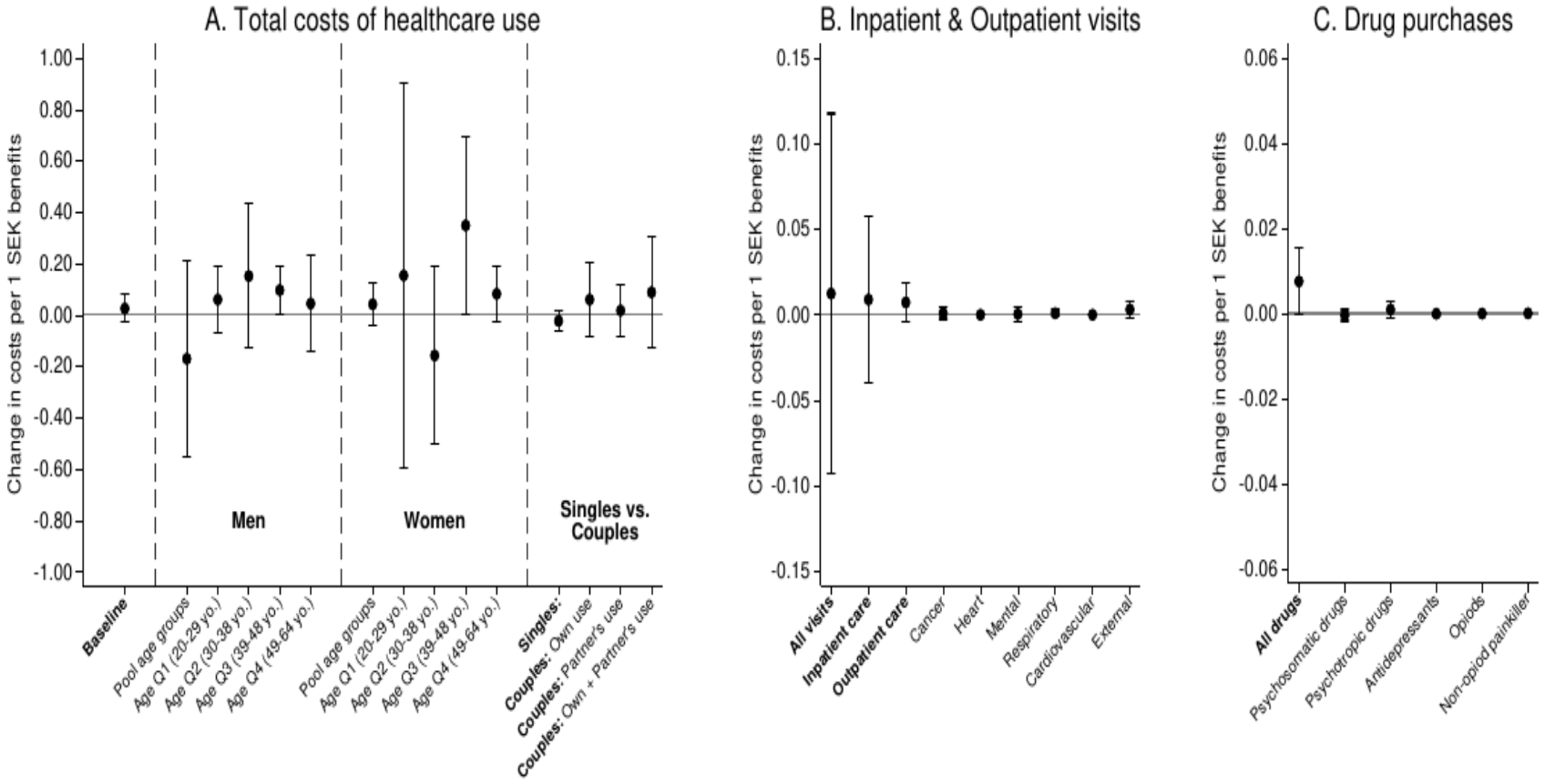
Drug Purchases Around Kink



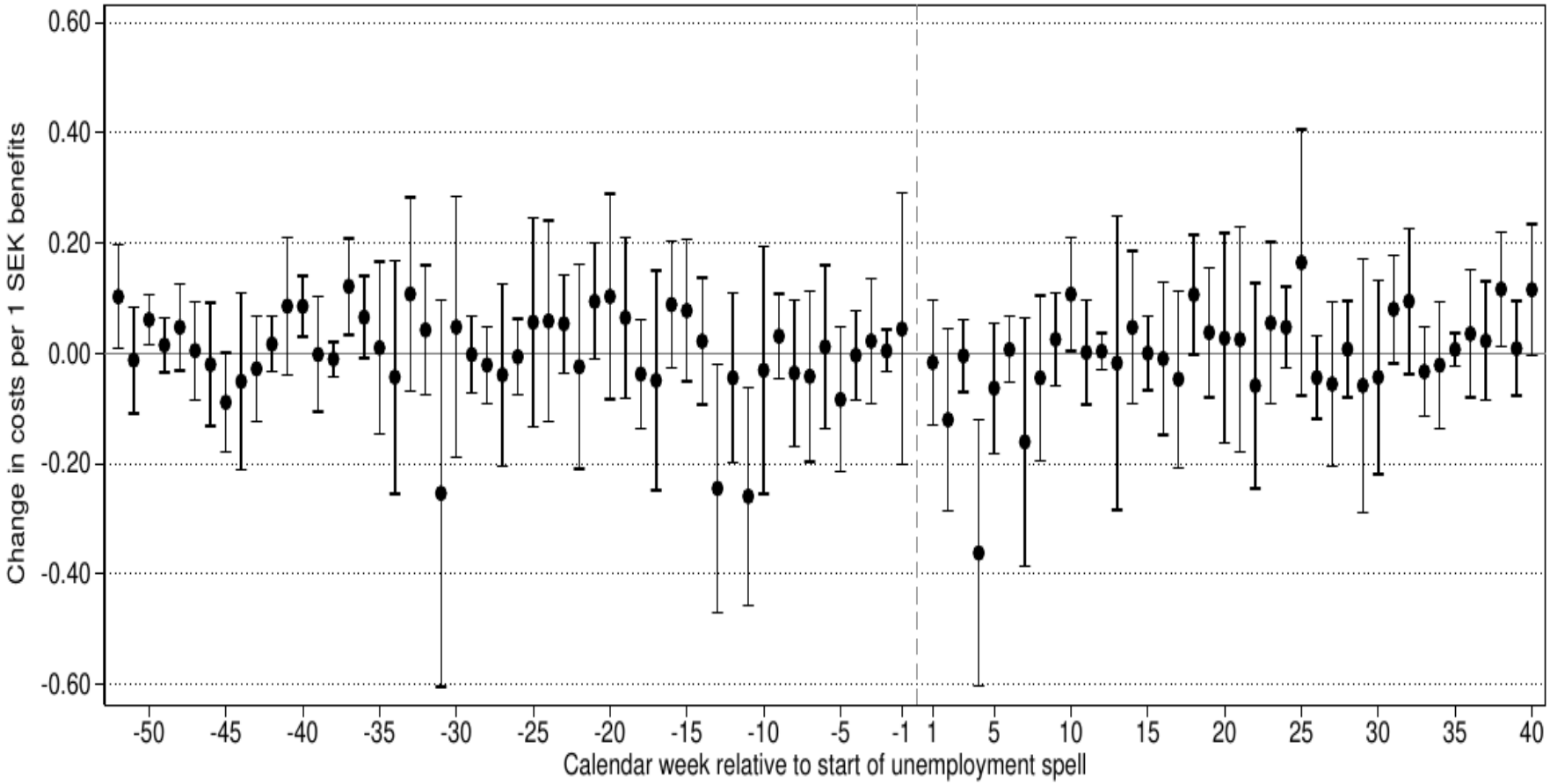
Outcomes are (i) the total costs (OOP + subsidy) of drug purchases, and (ii) 1(Number of purchases > 0).

Heterogeneity in the Effects on Healthcare Use



Estimates Over Unemployment Spell

Figure: Total costs of healthcare use



Conclusion

- I find little evidence that more generous UI affects healthcare use in Sweden
  - For a 1 SEK ↑ benefits, can rule out changes (↑ or ↓) in total costs > 0.08 SEK
  - True for men & women, young & old, across spending types, week-by-week over the spell
  - Findings contrast with previous evidence (Kuka 2020; Ahammer and Packham 2023)
  - Potential reasons: institutional differences, different policy variation (benefit level vs. PBD)

- Policy implications: Findings suggest that in a universal healthcare system...
  - ...healthcare-related fiscal externalities are not a first-order issue for optimal design of UI
  - ...factors independent of income loss drive health costs of unemployment
    - Such factors could include e.g. stress and loss of social contacts (Jahoda 1982)

- But healthcare-related fiscal externalities could matter when...
  - ...consumption smoothing is costly (Chetty and Looney 2006, 2007)
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References I

Ahammer, Alexander, and Analisa Packham. 2023. "Effects of Unemployment Insurance Duration on Mental and Physical Health." *Journal of Public Economics* 226:104996.

Brand, Jennie E. 2015. "The Far-Reaching Impact of Job Loss and Unemployment." *Annual Review of Sociology* 41:359–375.

Calonico, Sebastian, Matias D. Cattaneo, Max H. Farrell, and Rocio Titiunik. 2019. "Regression Discontinuity Designs using Covariates." *Review of Economics and Statistics* 101 (3): 442–451.

Calonico, Sebastian, Matias D. Cattaneo, and Rocio Titiunik. 2014. "Robust Data-driven Inference in the Regression-Discontinuity Design." *The Stata Journal* 14 (4): 909–946.

Chetty, Raj, and Adam Looney. 2006. "Consumption Smoothing and the Welfare Consequences of Social Insurance in Developing Economies." *Journal of Public Economics* 90 (12): 2351–2356.

References II

Chetty, Raj, and Adam Looney. 2007. "Income Risk and the Benefits of Social Insurance: Evidence from Indonesia and the United States." In *Fiscal Policy and Management in East Asia*, edited by Takatoshi Ito and Andrew K. Rose, 99–121. University of Chicago Press.

Cutler, David M., Adriana Lleras-Muney, and Tom Vogl. 2012. "Socioeconomic Status and Health: Dimensions and Mechanisms." In *The Oxford Handbook of Health Economics*, edited by Sherry Glied and Peter C. Smith. New York: Oxford University Press.

Jahoda, Marie. 1982. *Employment and Unemployment: A Social-Psychological Analysis.* Cambridge, United Kingdom: Cambridge University Press.

Kuka, Elira. 2020. "Quantifying the Benefits of Social Insurance: Unemployment Insurance and Health." *Review of Economics and Statistics* 102 (3): 490–505.

Lleras-Muney, Adriana, Hannes Schwandt, and Laura R. Wherry. 2025. "Poverty and Health." *Annual Review of Economics* 17 (1): 31–56.

References III

Organisation for Economic Co-operation and Development. 2019. "Out-of-Pocket Spending: Access to Care and Financial Protection." Accessed May 27, 2024. https://www.oecd.org/health/health-systems/OECD-Focus-on-Out-of-Pocket-Spending-April-2019.pdf.

Picchio, Matteo, and Michele Ubaldi. 2023. "Unemployment and Health: A Meta-Analysis." *Journal of Economic Surveys*, 1–36.

Wanberg, Connie R. 2012. "The Individual Experience of Unemployment." *Annual Review of Psychology* 63 (1): 369–396.

Appendix

Measuring Costs of Inpatient and Outpatient Visits

back

Denote inpatient ($i = 1$) and outpatient ($i = 0$) care DRG codes in MDC m by $D(m, i)$.
Fix a reference year t (I use $t = 2020$).

The avg. per-day costs of an inpatient/outpatient visit with MDC code m are then

$$c_{m,i} = \sum_{j \in D(m,i)} \underbrace{\left(\frac{N_j}{N_{m,i}} \right)}_{\substack{\text{DRG } j\text{'s share of all} \\ \text{in-/outpatient visits with MDC } m}} \times \underbrace{\left(w_j \times \frac{c}{d_j} \right)}_{\substack{\text{Average per-day} \\ \text{costs of DRG } j}},$$

where

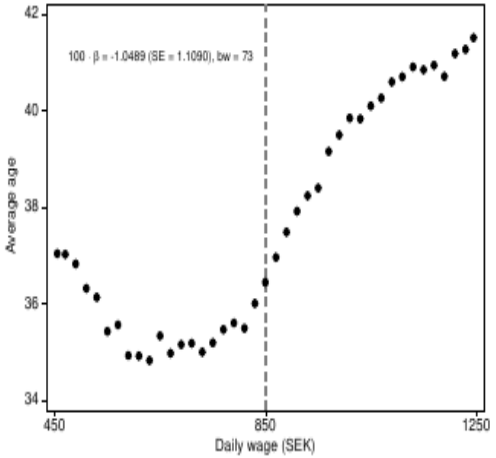
- N_j is the total number of visits with DRG code j,
- $N_{m,1}$ is the total number of in-/outpatient care visits with MDC code m,
- w_j is the weight for DRG j,
- d_j is the average duration (in days) of visits with DRG code j, and
- c is the cost per DRG point,

all measured in the reference year.

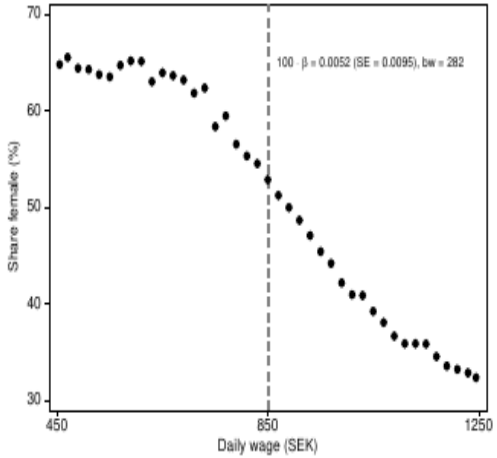
Covariates Around Kink

back

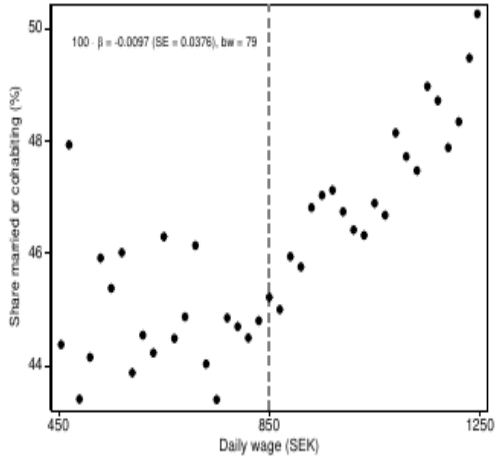
Age



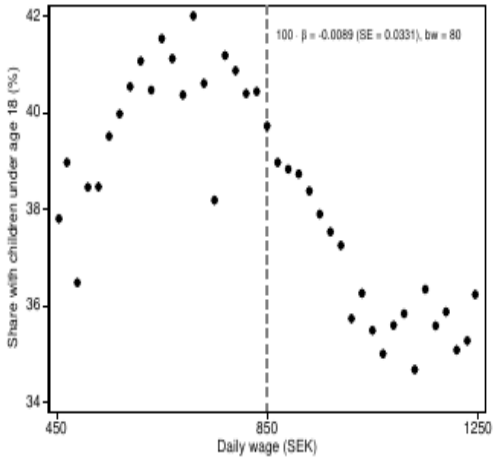
Share female



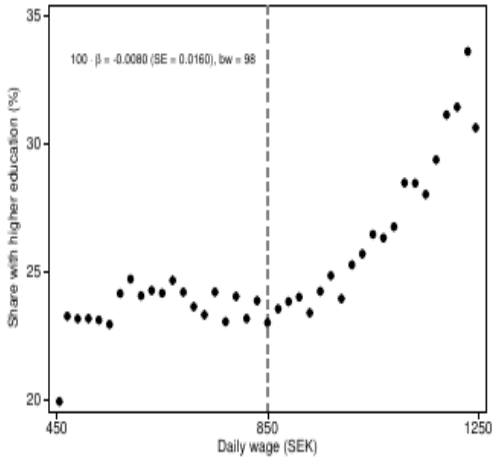
Share married/cohabiting



Share w/ u18 children

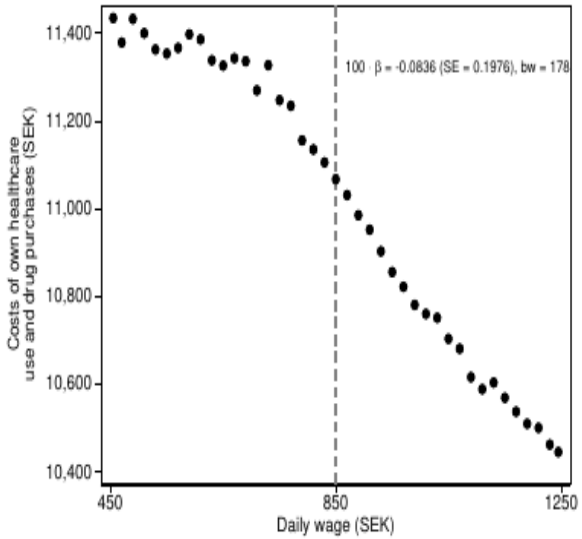


Share w/ higher educated

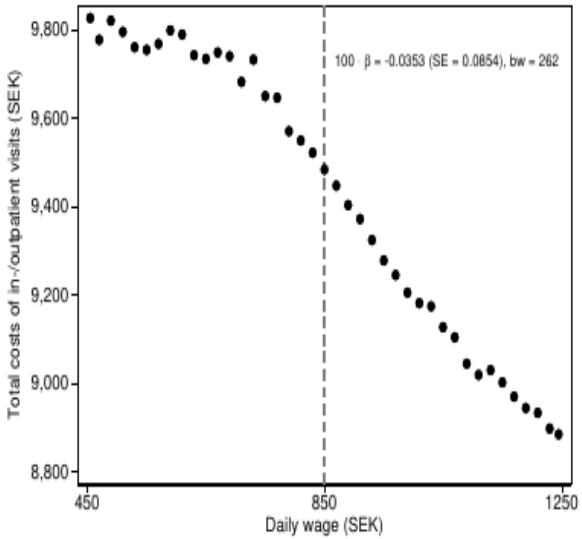


Predicted Healthcare Use Around Kink

(i) Total healthcare costs



(ii) In-/Outpatient costs



(iii) Costs of drug purchases