Lecture 8: Unemployment Insurance

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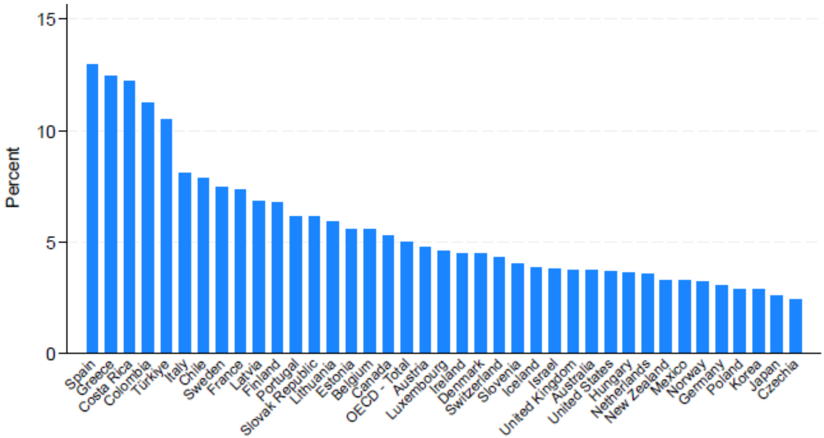
Introduction

- **Unemployment Insurance (UI)**
  - UI aims to support financially individuals while they look for a job
  - A social insurance generally created later than other social insurance schemes
  - Today widespread use of UI (72 countries, all OECD countries)
- **Causes of unemployment**
  - Job frictions (time to find job and fill vacancies)
  - Skill mismatch
  - Imbalances in the labor market
- **Key policy questions**
  - Do UI benefits increase unemployment ?
  - Do UI benefits help better job matches ?
  - How to design UI so that benefits from UI are maximum while costs limited ?

Figure 1 – Unemployment rate in OECD countries (2022)



SOURCE : Le Barbanchon et al. (2024), Fig. 1, p. 436, from OECD (2023).

Outline of the lecture

I. **Structure of Unemployment Insurance**
   1. Eligibility
   2. UI benefit schedule
   3. Active job search requirements

II. **Impact of Unemployment Insurance**
   1. Trade-offs of UI
   2. Impact of UI on unemployment duration
   3. Impact of UI on wage level
   4. Social value of UI
   5. Implication for optimal design of UI

I. Structure of Unemployment Insurance

1. Types of insurance systems
2. Eligibility
3. UI benefit schedule
4. Active job search requirements

Types of insurance systems

1. **Social benefits or comprehensive insurance**
    - All job-seekers entitled (no condition of previous contribution)
    - Benefits not linked to previous earnings (flat-rate)
    - Funded by general taxation, organised by government

    e.g., UK Jobseeker's Allowance (JSA)

2. **Social insurance systems**
    - Workers are eligible only if minimum contribution
    - Earnings-related schemes
    - Funded by employee and employer contributions

    e.g., Germany, France

Types of insurance systems

3. **Voluntary state-subsidized systems or ‘Ghent systems’**
   - Insurance organised by trade unions, and participation is voluntary
   - But subsidized by government

     e.g., Sweden, Denmark, Finland
4. **Means-tested benefit**
   - Targeted unemployment benefit conditional on income or asset held

     e.g., New Zealand, Australia
5. **Savings’ accounts**
   - Mandatory savings into unemployment accounts

     e.g., Chile

UI Eligibility

- **Coverage**
  - Generally mandatory programme covering all wage-earners in the private sector
  - Self-employed and public sector workers often excluded
  - Some cases of voluntary programmes with government subsidies (e.g., Sweden, Denmark and Finland)
- **UI benefit eligibility**
  - Certain minimal employment history requirements

    e.g., 20 weeks employment in the U.S., 6 months in France, 12 months in Germany
  - Reason for being unemployed

    e.g., usually being laid off due to economic or business reasons

    e.g., voluntarily quitting, or fired for misconduct, generally does not provide eligibility

UI Benefit schedule

- **Waiting period**
  - Period between job loss and start of the benefit
    e.g., 0 day (US, Germany, and Belgium)
    e.g., 7-8 days (France, Italy)
    e.g., 14 days (Canada)
  - A form of deductible to force individuals to bear some of the costs of unemployment
- **Potential benefit duration (PBD)**
  - Maximum duration of UI benefits. It varies across countries :
    e.g., 6 month in the U.S.
    e.g., 12 month in Germany, or Greece
    e.g., 24 month in Spain, Portgual, Norway
    e.g., unlimited in Belgium
  - Sometimes it varies within country
    e.g., In France, Germany, and South Korea PBD is a function of age and contribution durations

UI Benefit schedule

- **Replacement rate**
  - UI benefits are typically calculated as a percentage of pre-unemployment gross or net earnings
  - Most countries feature replacement rates between 50% and 65%
  - With exceptions :

    e.g., 90% (Denmark)

    e.g., 70% (Netherlands)

    e.g., fixed amount (UK, Ireland, Iceland)

- **Maximum benefit level**
  - On average of 77% of average wage among OECD countries
  - But large variations across countries

    e.g., 10% in the UK

    e.g., 61% in the U.S.

    e.g., 224% in France

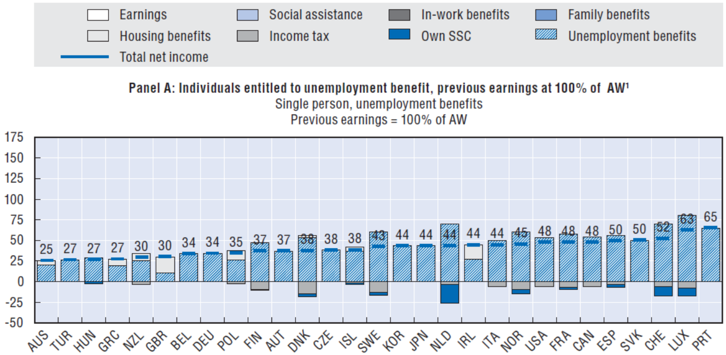
UI Benefit schedule

- **Benefit schedule overtime**
  - Often constant over time
  - But some countries have declining replacement rate

    e.g., Netherlands : drop from 75% to 70% after 2 months

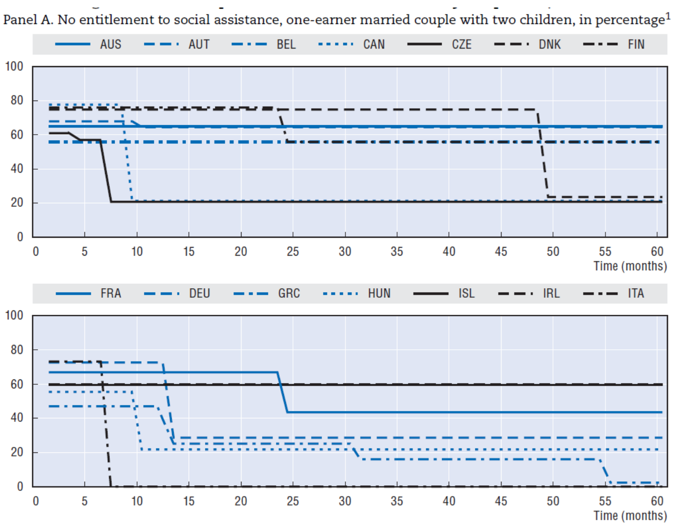
    e.g., Sweden : drop from 80% to 70% after 9 months

Figure 2 – Replacement rate of unemployed (singles, 2005)



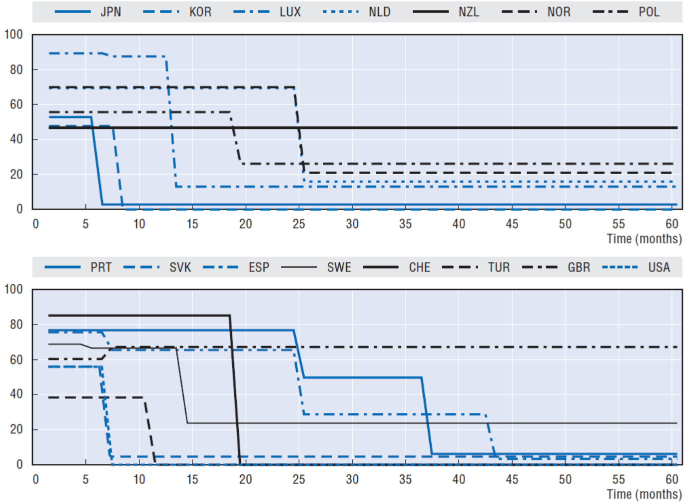
Source : OECD Benefits and Wages 2007.

Figure 3 – Replacement rate over time of unemployed (one earner married couple with kids, 2005)



Source : OECD Benefits and Wages 2007.

Figure 4 – Replacement rate over time of unemployed (one earner married couple with kids, 2005)



SOURCE : OECD Benefits and Wages 2007.

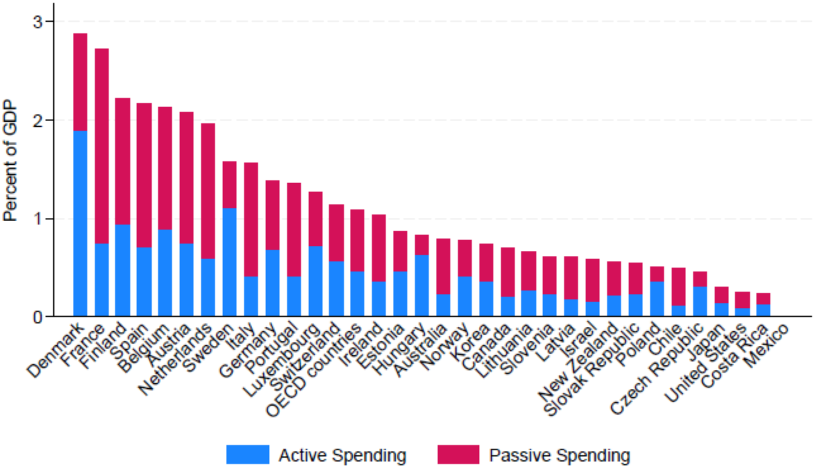
UI job search requirements

- **Conditionality on job search**
  - Monitoring of job search
  - Sanctions if rejection of job offers
  - But large variations in practices of UI agencies

- **Supports to help job seekers find jobs**
  - Training and education programs
  - Help to apply to job offers, find adequate jobs given skill levels
  - Cover costs for travel to interviews, moving costs

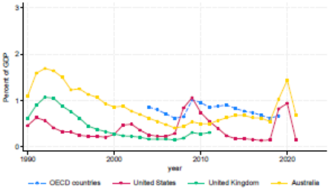
$\Rightarrow$ Large range of active labor market programs (ALMPs)

Figure 5 – Labour market policy spending (Percent of GDP, 2018)

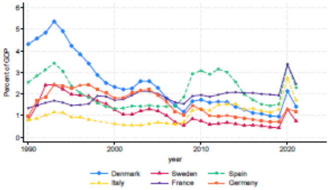


SOURCE : Le Barbanchon et al. (2024), Fig. 2, p. 439, from OECD (2023).

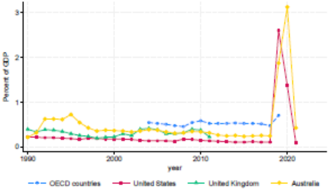
Figure 6 – Spending for passive vs active policy (Percent of GDP, 2018)



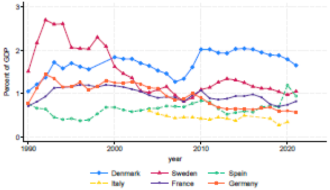
(a) Passive Spending Anglican Countries



(b) Passive Spending EU countries



(c) Active Spending Anglican Countries



(d) Active Spending EU countries

Source : Le Barbanchon et al. (2024), Fig. 3, OECD (2023).

II. Impact of Unemployment Insurance

1. Trade-offs of UI
2. Impact of UI on unemployment duration
3. Impact of UI on wage level
4. Social value of UI
5. Implication for optimal design of UI

Two main recent surveys :

- Le Barbanchon, T., Schmieder, J. and Weber, A. (2024) *Handbook of Labor Economics*
- Schmieder, J. and Till von Wachter, T. (2016) *Annual Review of Economics*

Trade-offs of UI

- **Benefits of UI**
  - Income smoothing for unemployed individuals
    - impact on consumption drop at job loss
  - Economic stabilizer during recessions
  - Incentive to search for better job matches
    - impact on re-employment wages
- **Costs of UI**
  - Direct costs to public finance through taxes or contributions
  - Indirect costs through labour supply effects
    - impact on covered unemployment duration
    - impact on non-employment duration

Trade-offs of UI : modelling

- **Baily-Chetty model optimal UI model**
  - Baily (JPubE, 1978) and Chetty (JPubE, 2006) develop a model for
  - Introduce both welfare gains to consumption smoothing and moral hazard through job search efforts

  ⇒ trade-off between reducing market failure inefficiency and increasing moral hazard inefficiency

- **Baily-Chetty optimal formula**
  - The optimal UI benefit should be such that :
  - Benefits from transferring €1 from employment to unemployment
  - should be higher than cost of benefits including behavioural costs

  ⇒ need empirical estimates of both behavioural costs and consumption smoothing value

The impact of UI on unemployment

- **Estimating labour supply effects of UI**
  - Need estimates of impact of benefit level and PBD
  - Large literature with credible identification strategies (RDD, DiD, RKD)
  - Good administrative data from UI insurance in Europe
  - Recent surveys and meta-analysis (Krueger and Meyer, 2002 ; Meyer, 2002 ; Schmieder and von Wachter, 2016 ; Cohen and Ganong, 2024 ; Barbanchon et al. 2024)

- **Identification issues**
  - UI benefits and employment outcomes are related to earnings, employment histories, and conditions in the labour market
  - Need changes in UI unrelated to individual's characteristics and labour market conditions

    e.g., in the US, variation across States in UI duration

    e.g., in Europe, discontinuities in UI by age or job tenure

Schmieder, von Wachter and Bender (AER, 2016)

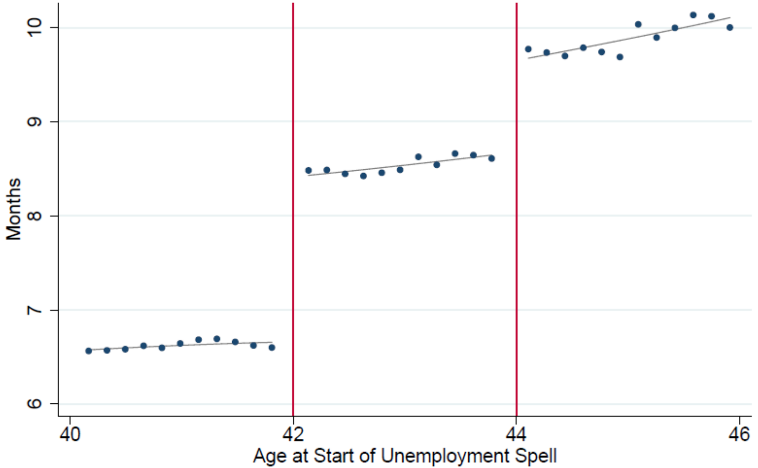
- **UI in Germany (1987-1999)**
  - 63% replacement rate
  - Increasing PBD by age :
    - 12 months if younger than 42
    - 18 month if aged 42 and 43
    - 22 months if aged 44 up to 48

- **Estimation by RDD at age cut-off**
  - Data from the universe of social security records in Germany
  - RDD estimation :

$$y_i = \beta + \gamma \triangle P.D_{a_i > a^*} + f(a_i) + \varepsilon$$

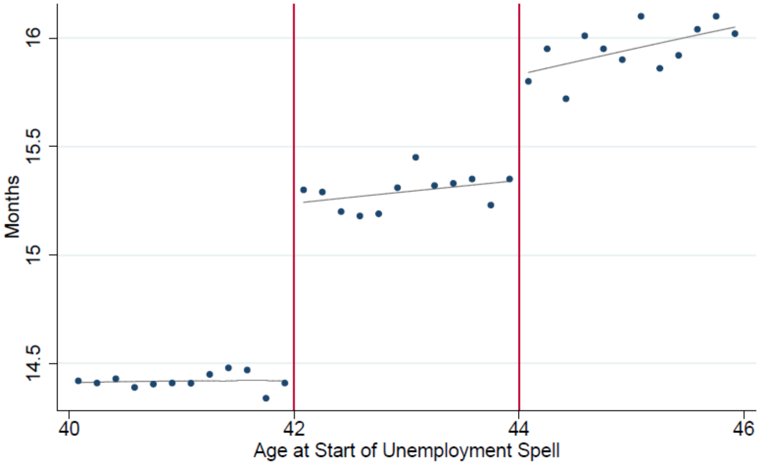
  - with $D_{a_i > a^*}$ a dummy for being above the age cut-off
  - P potential UI duration

Figure 7 – Number of months receiving UI benefits



Source : Schmieder et al. (2016), Fig. 2.A, p. 749.

Figure 8 – Number of months unemployed



SOURCE : Schmieder et al. (2016), Fig. 2.B, p. 749.

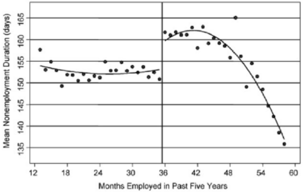
Schmieder, von Wachter and Bender (AER, 2016)

- **Results**
  - Marginal effects of 1 month increase in PBD :
    - 0.3 month additional covered unemployment benefit
    - 0.15 month additional time unemployed
    - probability of ever working again decrease by 0.16 ppt

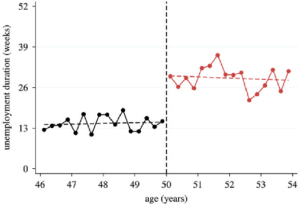
  $\Rightarrow$ Small but precisely estimated negative effects of increased UI duration

- **Very consistent result in the literature**
  - Austria discontinuity by work history (Card et al., 2007)
  - Austria discontinuity by age (Lalive, 2008) : PBD from 39 to 209 weeks at 50
  - U.S. discontinuity in UI eligibility (Leung and O'Leary, 2020) : PBD 26 weeks
  - Meta-analysis :
    - the average PBD elasticity is 0.41 (Schmieder and von Wachter, 2016)
    - the average PBD elasticity is 0.49 (Cohen and Ganong, 2024)

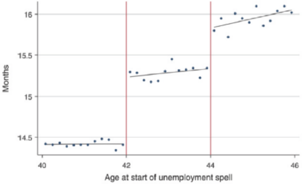
Figure 9 – The effects of UI on nonemployment duration (RDD studies)



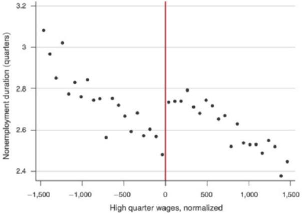
(A) Card, Chetty, and Weber 2007, PBD=20 vs. 30 weeks



(B) Lalive 2008, PBD=39 vs. 209 weeks



(C) Schmieder, von Wachter, and Bender 2016, PBD=12 vs. 18 months



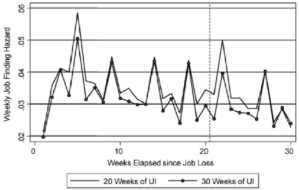
(D) Leung and O'Leary 2020, PBD=0 vs.26 weeks

Source : Le Barbanchon et al. (2024), Fig. 6, p. 452.

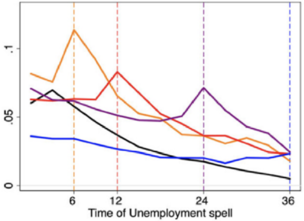
The impact of UI on the job finding hazard rate

- **Declining job finding hazard rate by unemployment duration**
  - Hazard rate : probability to find a job from unemployed looking for a job
  - Declining rate by duration of unemployment
  - Spike before exhaustion of UI benefits
- **Impact of PBD on hazard rate**
  - Comparison of individuals with different PBD
  - Extending PBD moves the spike and reduces job finding rates up to the new exhaustion point

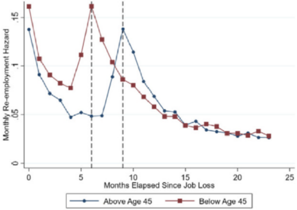
Figure 10 – The effects of UI on the job finding hazard (RDD studies)



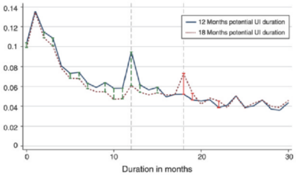
(A) Card, Chetty, and Weber 2007, PBD=20 vs. 30 weeks, Austria



(B) Marinescu and Skandalis 2021, France



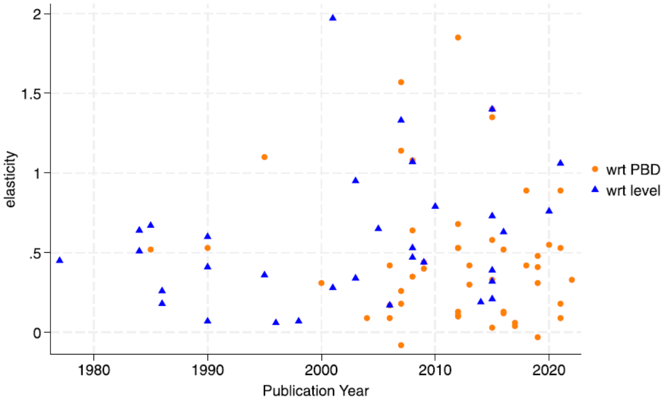
(C) Huang and Yang 2021, PBD=6 vs. 9 months, Taiwan



(D) Schmieder, von Wachter and Bender 2016, PBD=12 vs. 18 months, Germany

Source : Le Barbanchon et al. (2024), Fig. 7, p. 454.

Figure 11 – Elasticity estimates of unemployment duration w.r.t. potential benefit duration or benefit level



Source : Le Barbanchon et al. (2024), Fig. 10, pp. 504, based on meta-analysis by Cohen and Ganong, 2024.

The behavioral costs of providing UI

- **Sizeable effects in increasing unemployment duration**
  - Systematic positive impact on UI duration of UI PBD
  - Systematic positive impact on UI duration of UI benefit level
    - average elasticity wrt replacement is 0.6 (Schmieder and von Wachter, 2016)
    - average elasticity wrt replacement is 0.4 (Cohen and Ganong, 2024)

- **Cost of providing €1 of UI benefit**
  - Median behavioral cost for each additional €1 UI benefits is €0.35

  ⇒ for every euro of mechanical transfer to UI claimants, €1.35 has to be raised in taxes (Schmieder and von Wachter, 2016)
  - Median behavioral cost for each additional €1 extension from PBD is €0.60

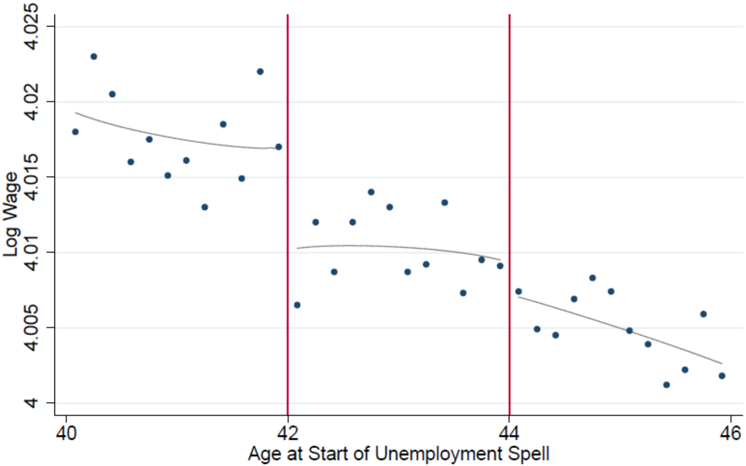
  ⇒ for every euro of increased PBD, €1.60 has to be raised in taxes

⇒ The behavioral costs of providing UI are substantial

Impact of UI on job outcomes

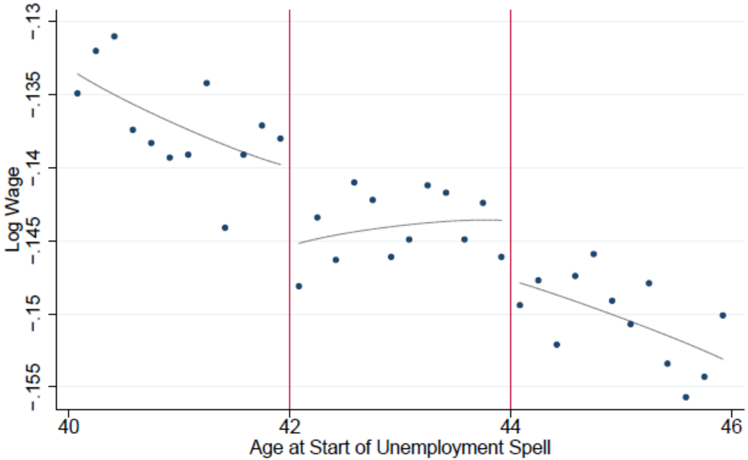
- **Theoretically ambiguous effects**
  - Duration in unemployment could cause decrease in wage (e.g., due to skill depreciation)
  - UI benefit could help workers to search for good job matches (i.e., better wage)
  - They could be discrimination from employers against long-term unemployed
- **Schmieder, von Wachter and Bender (AER, 2016)**
  - Same identification strategy (discontinuities by age in Germany)
  - Small negative impact of re-employment wage : -0.8%
  - 1-month increase in PBD implies a drop by 0.1% of re-employment wage
  - Negative impact on wage difference (pre-unemployment - post-unemployment wage)

Figure 12 – Impact of extended UI benefit duration on log re-employment wage



SOURCE : Schmieder et al. (2016), Fig. 3.A, p. 751.

Figure 13 – Impact on log wage difference (pre-unemp. - post-unemp. wage)

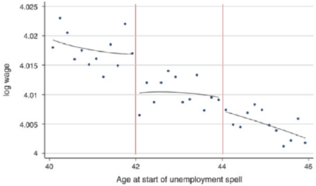


SOURCE : Schmieder et al. (2016), Fig. 3.B, p. 751.

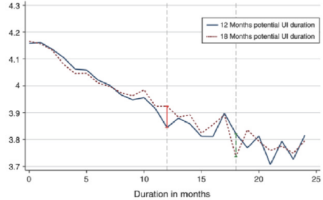
Impact of UI on job outcomes

- **Other evidence**
  - Increase of PBD by 9 weeks in Austria leads to slight positive increase in wage (Nekoei and Weber, 2017)
  - No impact of increase in PBD on wage (Huang and Yang, 2021)
- **Overall rather mixed empirical evidence**
  - Evidence that reemployment wages decline with unemployment duration
  - But mixed evidence of impact of UI benefit on wages
    "Many estimates in the literature are close to 0 and when they are statistically significant they are still estimated with sizable standard errors" (Le Barbanchon et al. 2024)

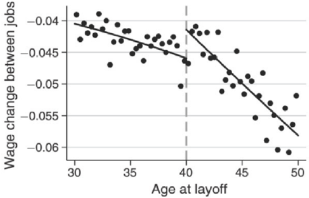
Figure 14 – Impact of UI change in benefits on re-employment wage



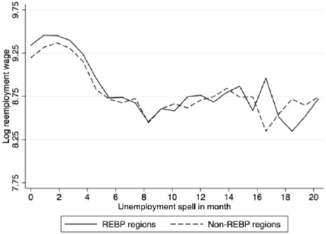
(A) Schmieder, von Wachter and Bender 2016, PBD = 12, 18 and 24 months



(B) Schmieder, von Wachter and Bender 2016



(C) Nekoei and Weber 2017, PBD = 30 vs. 39 weeks



(D) Lalive et al 2015

SOURCE : Le Barbanchon et al. (2024), Fig. 8, pp. 456.

How to quantify the social value of UI ?

- **Consumption-Based Approach**
  - Assuming same utility for unemployed and employed and some risk aversion
  - Social value of UI can be approximated as change in consumption (Gruber, 1997)
  - Gruber (1997) uses cross-state UI variation on consumption change :
  - without UI, consumption would drop by 23%

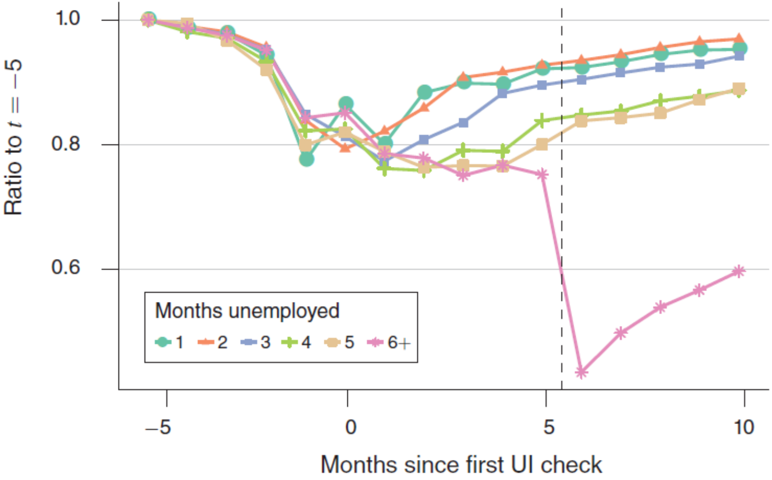
- **Marginal-Propensity-to-Consume Approach**
  - Marginal propensity to consume (MPC) of both employed and unemployed out of extra income (Landais and Spinnewijn, 2021)

- **The Revealed-Preference Approach**
  - Study workers' choices to buy insurance to estimate social value of UI
  - Swedish workers have income-related UI benefits (instead of a flat benefit level) if they pay a uniform premium (Landais and Spinnewijn, 2021)

Ganong and Noel (AER 2019)

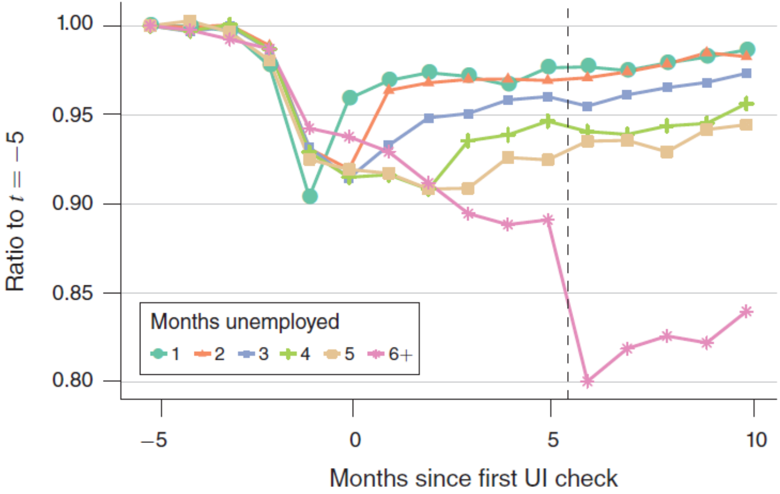
- **High-frequency consumption and income data**
  - Estimates consumption path throughout UI spell
  - Use data from linked account information from major US financial institution
  - 182,000 households who received UI benefits between Jan. 2014 and June 2016
- **Key stylised facts**
  - Spending is highly sensitive to income (excess sensitivity)
  - Drop of spending at unemployment onset : -6%
  - Minor drop of spending during UI benefit : -1% per month
  - Large drop at the exhaustion of UI benefits : -12%
  - Spending drops sharply on necessities such as groceries, medical co-payments, and drugstores

Figure 15 – Event study by UI duration : income



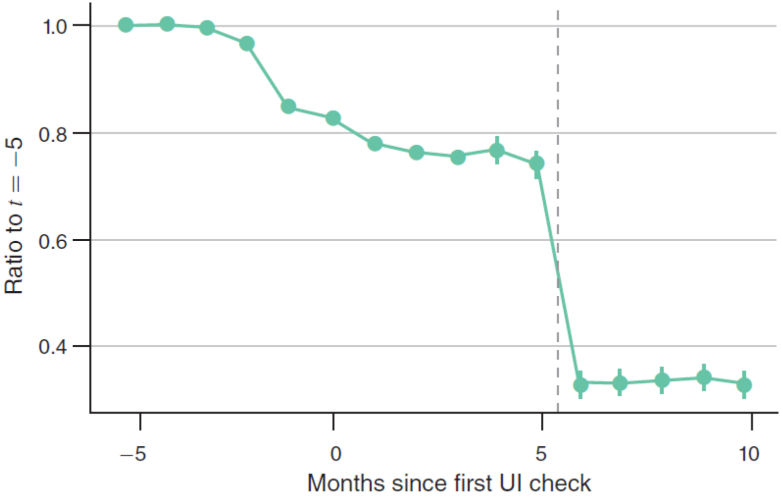
Source : Ganong and Noel (2019), Fig. 1.A, pp. 2394.

Figure 16 – Event study by UI duration : spending on non-durables



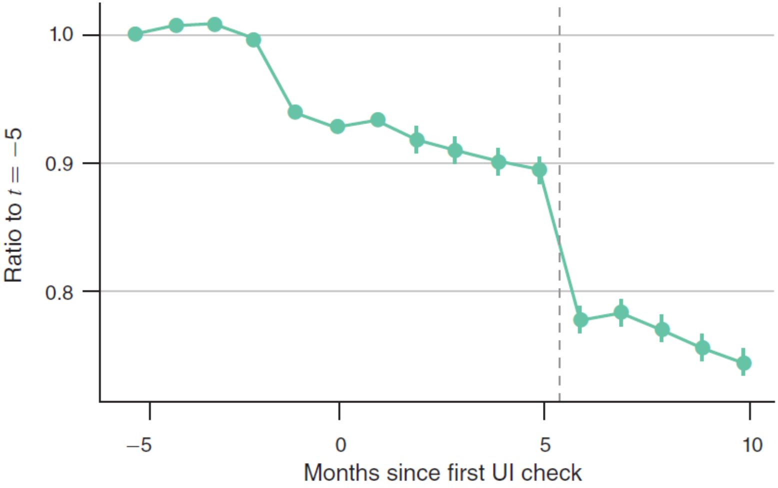
SOURCE : Ganong and Noel (2019), Fig. 1.B, pp. 2394.

Figure 17 – Income (labour and UI benefit) for those who stay unemployed



SOURCE : Ganong and Noel (2019), Fig. 2.A, pp. 2395.

Figure 18 – Spending on non-durables for those who stay unemployed



SOURCE : Ganong and Noel (2019), Fig. 2.B, pp. 2395.

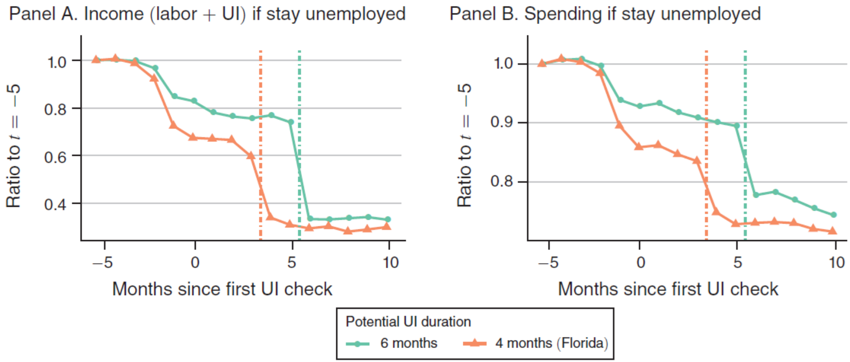
Ganong and Noel (AER 2019)

- **Cross-state UI policy variation**
  - Florida has unusually limited UI benefits (4 month vs 6 months in the U.S.)
  - New Jersey has unusually generous UI benefits for the U.S. (49% of replacement rate + no waiting period)

- **Results**
  - Bigger drop in spending in Florida at onset of unemployment
  - Timing of biggest drop matches the UI benefit exhaustion
  - New Jersey no waiting period leads to 1-month increase in income/spending at receipt of UI benefit
  - Drop in spending much less marked in New Jersey

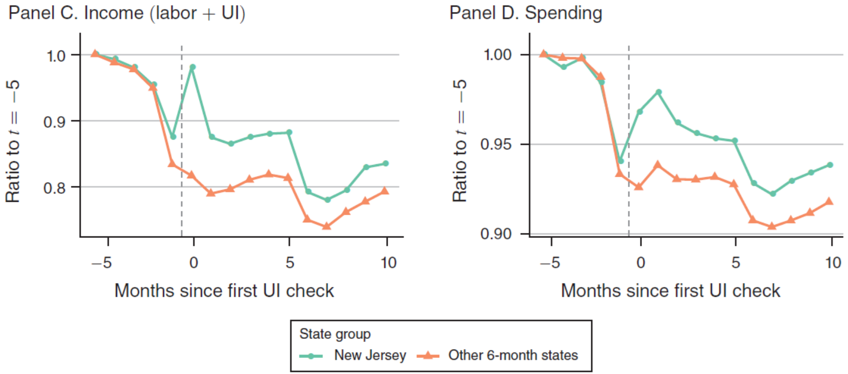
  $\Rightarrow$ very clear sensitivity of spending to current income

Figure 19 – Income and spending for those unemployed : Florida vs other States



SOURCE : Ganong and Noel (2019), Fig. 4.A and 4.B, pp. 2402.

Figure 20 – Income and spending for those unemployed : New Jersey vs other States



Source : Ganong and Noel (2019), Fig. 4.C and 4.D, pp. 2402.

Ganong and Noel (AER 2019)

- **Implications for model of consumption smoothing**
  - Drop of spending at UI exhaustion even if the drop of income is large and predictable
  - Hard to rationalize results with rational models of consumption
  - More in line with models with a mix of present-biased agents (spenders) and forward-looking agents (savers)
- **Implications for UI design**
  - Consumption-smoothing gains from extending UI benefits are four times greater than from increasing the level of UI benefits
  - This counteracts the higher labour supply cost of extending UI PBD

Implications for optimal design of UI

- **Meta-analysis of social value of UI**
  - Very large heterogeneity across methods
  - Estimates range from 0.12 (lower than behavioural costs) to 2 (larger than behavioural costs)
  - The most recent methods which are robust to risk-aversion assumptions yield significantly higher estimates
- **Implications for UI design**
  - There are large costs and large benefits of UI benefits
  - There are still large uncertainties about social benefits with different contexts
  - MVPF of UI is generally lower than education policies in the US (Hendren and Sprung-Keyser, 2020)

Figure 21 – Meta-analysis of studies measuring social value of UI

Study	Range of years	Country	Data source	Key moment	Social value
Panel A: Consumption-Based Approach				**Consumption Loss**	
Gruber (1997)	1968–1987	United States	PSID, food only	At job loss: 6.8 %	0.136
Rothstein and Valletta (2017)	2001 panel	United States	SIPP	At job loss: 10.0 %	0.2
Rothstein and Valletta (2017)	2008 panel	United States	SIPP	At job loss: 20.0 %	0.4
Ganong and Noel (2019)	2012–2015	United States	JPMCI checking account	At job loss: 6.1 %	0.122
Landais and Spinnewijn (2021)	2000–2007	Sweden	Tax records	At job loss: 12.9 %	0.258
Ganong and Noel (2019)	2012–2015	United States	JPMCI checking account	UI exhaustees: 25 %	0.5
Gerard and Naritomi (2021)	2010–2015	Brazil	VAT receipts, RAIS registry	UI exhaustees: 17 %	0.34
Hendren (2017)	1992–2013	United States	HRS-PSID	29 % after future job loss news	0.58

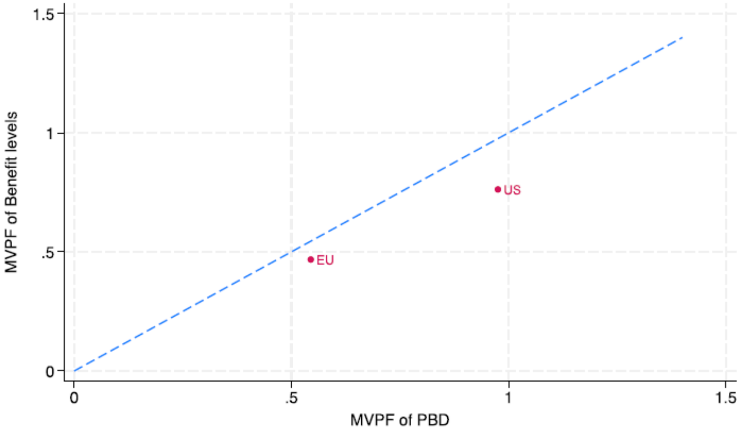
Source : Le Barbanchon et al. (2024), Tab. 4, pp. 514.

Figure 22 – Meta-analysis of studies measuring social value of UI (2/2)

Study	Range of years	Country	Data source	Key moment	Social value
Panel B: Liquidity to Moral Hazard Approach				**Job Finding Response to**	
Card et al. (2007)	1981–2001	Austria	Social Security Registry	Severance pay, RD	1.4
Chetty (2008)	1985–2000	United States	SIPP	Severance pay, OLS	1.5
Landais (2015)	1970s–1984	United States	CWBH	Time profile of benefits, RKD	0.88
Huang and Yang (2021)	2001–2011	Taiwan	Admin. registers	Reemployment bonus, RKD	0.5–1.5
Panel C: Marginal Propensity to Consume Approach					
Landais and Spinnewijn (2021)	2000–2007	Sweden	Tax records	Consumption response to welfare benefits	≥0.59
Panel D: Revealed Preference Approach					
Landais and Spinnewijn (2021)	2000–2007	Sweden	Tax records, survey on Unemp	Choice of UI scheme	1.13, 2.13

SOURCE : Le Barbanchon et al. (2024), Tab. 4, pp. 514.

Figure 23 – The marginal value of public funds of UI benefits (PBD vs benefits level)



SOURCE : Le Barbanchon et al. (2024), Fig. 11.C, pp. 521.

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