

14.472 Public Finance II

Topic III: Optimal Provision of Social Insurance Benefits

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Introduction

- Transition now from potential motivation for government intervention in social insurance market to questions of design of government policy
- Descriptive: what is the impact of alternative design
- Normative: what are the welfare consequences of alternative designs?
what is the optimal design?

Optimal Level and Structure of Benefits (~6 lectures)

- Theory: Optimal level and duration of benefits:
 - Baily (1978)/ Chetty (2006) formula
 - Schmeider and von Wachter (2017) overview
- Empirics: How to implement theory
 - Note: Requires estimating value of additional insurance
 - Closely related to estimating welfare in insurance markets (Section II)
 - Except now we are focusing on markets where we don't observe insurance choices! (Recall II.d "When markets don't exist").

- ① Brief background on UI
 - ① Rationales and evidence for government intervention:
 - ② Typical form of government intervention
- ② Theory: Optimal benefit and duration level (Baily/Chetty)
- ③ Empirics: Taking Baily / Chetty to Data

Comment: Applications

- General question: Optimal level or duration of benefits / value of a given level of social insurance program
- Most of the work has been in UI
 - Need for similar work in other applications
- Once again an emphasis on welfare:
 - Previous lectures on asymmetric information: from testing to welfare (or from applied contract theory to public finance)
 - Optimal UI: from program evaluation to welfare analysis

Comment: Welfare Analysis of Social Insurance

- Welfare analysis is another key area where economic theory is an important complement to reduced form empirical analysis
- Welfare analysis of social insurance is particularly challenging because the good in question is typically not traded in a well-functioning market
 - So cannot use estimates of ex-ante willingness to pay derived from contract choices, as we have seen with either private health insurance analysis
 - Classic problem of valuing non-market good whose prices are not observed (Samuelson 1954)
- Two views on welfare analysis (some truth to both):
 - Important and defining feature of public economics
 - Very hard to get traction

UI: What is the Risk Being Insured?

- The risk being insured: consumption losses when temporarily out of work and looking for a new job
 - For workers with attachment to labor force
 - Not for permanently displaced workers (see e.g. disability insurance)
- Note: not obvious this is a major source of risk exposure
 - e.g. Lucas (1987) calculates that optimizing agents would pay less than 1% of lifetime consumption to entirely eliminate business cycle fluctuations in the absence of any private or public insurance
 - Implications:
 - Motivation to pursue additional applications?
 - Motivation to rethink Lucas (1987) - e.g. permanent consequences of UE and/or behavioral biases?

Structure of UI systems

- Many countries (and all OECD countries) have some form of UI
 - Nice aspect of this literature in last decade is that it has expanded to many non US studies!
 - Other countries offer: interesting design alternatives, rich administration data, useful variation
- Eligibility when enter unemployment depends on
 - employment history (minimum work experience)
 - reason for being unemployed (voluntary quit or fired for misconduct usually not covered)
 - actively searching for jobs
- Coverage duration
 - Waiting period before receiving benefits (deductible)
 - potential benefit duration (may vary with work experience, age, or economic conditions)

Structure of UI systems (con't)

- Eligibility when enter unemployment depends on
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 - actively searching for jobs
- Coverage duration
 - Waiting period before receiving benefits (deductable)
 - potential benefit duration (may vary with work experience, age, or economic conditions)
- Benefit level
 - "Replacement rate": Benefits as a percentage of pre-unemployment earnings (coinsurance)
 - Typically have a maximum replacement rate (progressivity)

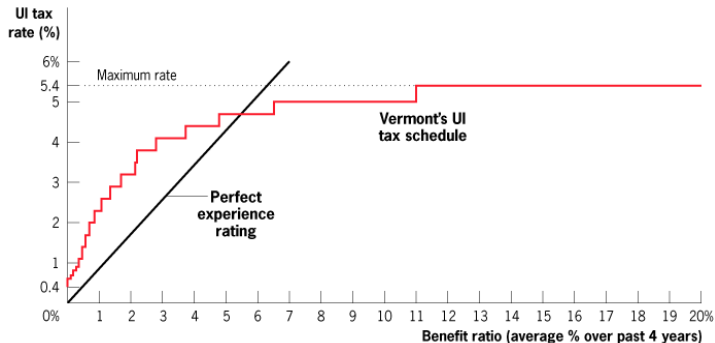
Design questions

- Focus has been on level and duration of benefits
- But note other policy instruments worth exploring theoretically and empirically
 - Eligibility requirements (monetary and non-monetary)
 - Take up in US is highly incomplete (enrollment not automatic. Why not? Will return to later in course)
 - Financing / level of experience rating

- Financed by payroll tax on firms
- Experience rating: dynamic payroll tax
 - Firm's tax rate increases as firm's workers are laid off / claim UI benefits (and decreases when they don't)
- Experience rating reduces moral hazard.
 - with full experience rating firms internalize the fiscal externality of their layoffs (i.e. pay full marginal cost of laying off a work)
 - can reduce e.g. firm-worker collusion
- Potential costs of experience rating:
 - Insurance-incentive tradeoff: experience rating reduces insurance to firm (and implicitly to worker if incidence is on work)
 - May discourage hiring in times and industries when unemployment is high and firms are understrain
- Partially experience rating:
 - Worker UI claims increase firm tax rates but less than 1 for 1
 - Optimal level of experience rating involves tradeoff between incentives and insurance.

Partial experience rating for UI

■ FIGURE 14-7



Experience-Rating Schedule for Vermont • In Vermont, as in most states, the unemployment insurance tax rate paid by employers rises as past layoffs rise, as measured by the benefit ratio, which is the ratio of unemployment insurance benefits paid to the firm's workers relative to the firm's payroll. This rise is not on the one-for-one basis, however, that would follow the perfect experience rating line. As a result, high-layoff (high-benefit ratio) employers are relatively subsidized by the system.

Ripe for empirical work

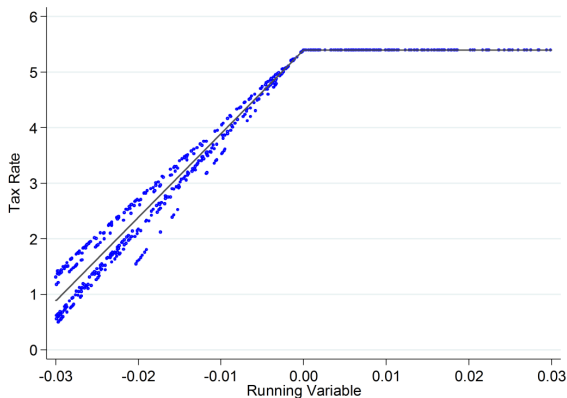
- "Optimal experience rating" is conceptually very similar to "optimal benefit level" but little empirical work
- Johnston (2019) studies "overhang" effect
 - Do higher UI taxes reduce firm hiring (given nominally downward rigid wages)

- Data

- linked administrative data on universe of workers and firms in FL (2003-2012)
- Observe employee earnings, hiring and layoffs
- observe firm's tax rate and benefit ratio (UI benefits charged to firm over past three years / taxable wage base over past 3 years)
- RK design: kink in tax schedule as a function of firms' benefit ratio
 - Running variable: firms' benefit ratio minus the kink location

First stage

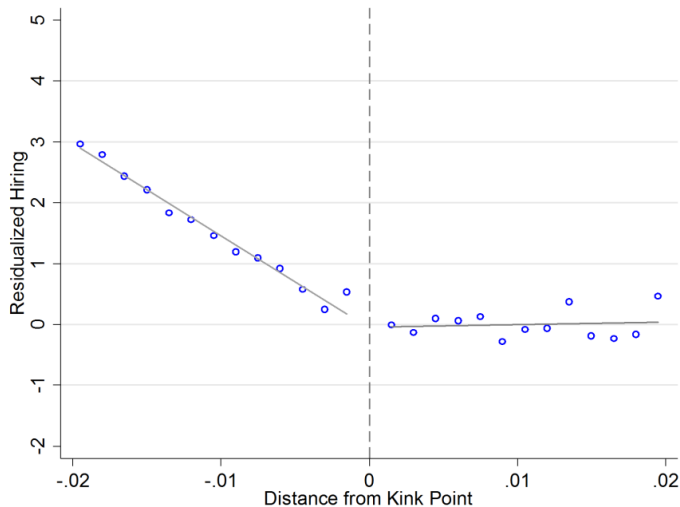
FIGURE 2. FIRST STAGE IN FLORIDA TAX FORMULA



NOTE.— The figure plots a small random sample of firms around the tax kink to demonstrate the first stage. The dispersion in this figure reflects the fact that the tax formula changes slightly from year to year. To see how the parameters of the tax function evolved over time, consult online Appendix table 1. Administrative data are from the Florida Department of Economic Opportunity (DEO).

Example of results: Effect on hiring

Panel A: Effect on hires



Institutional summary

- Literature focuses on benefit level and duration
- Many other interesting design elements to explore

Why have government intervention into UI?

- Credit market failures
 - why not improve credit markets for ue directly?
 - Will discuss ui accounts. . .
- Moral hazard
 - no comparative advantage of government
- Aggregate shocks (e.g. business cycles) are difficult for private insurance markets to diversify cross-sectionally
 - potential role for capital markets? relatively little work.
- Adverse selection
 - finally have some evidence!

Evidence of adverse selection in private UI

- Large empirical literature on public unemployment insurance (costs and benefits)
 - Focus primarily on question of optimal benefit level and duration
- Until recently, little analysis of existence of rationale for government intervention!
- Two recent papers
 - Landais et al. (2017 working paper) "Risk-based Selection in Unemployment Insurance: Evidence and Implications"
 - Hendren (2017 AER): Knowledge of Future Job Loss and Implications for Unemployment Insurance
 - Example of II.d (Studying selection in markets that don't exist - using behavioral responses to risk)

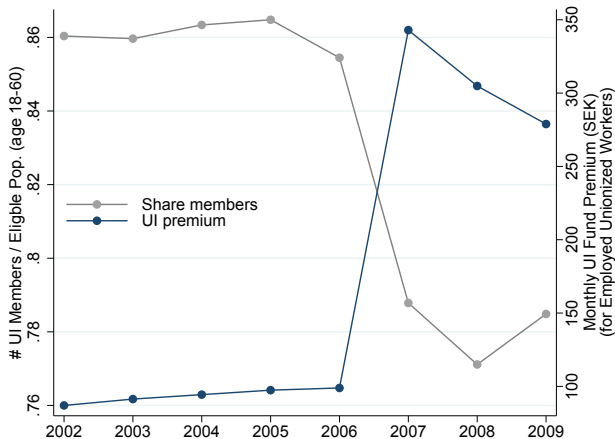
- Landais, Nekoei, Nilsson, Seim and Spinnewijn (2017)
- Study demand for (optional, public) supplemental UI in Sweden
 - All Swedish workers are entitled to a minimum benefit financed by payroll tax
 - Option to buy a more comprehensive policy (same duration etc, just higher payouts) at a (uniform) premium set by government
- Administrative data on worker choices and outcomes
- Implement a panoply of tests: positive correlation, uninsured observables, cost curve

Tests for asymmetric information in Swedish UI

- Positive correlation test: correlation between probability of buying supplemental UI coverage in year t and unemployment outcomes in year $t+1$
 - Importantly: control for individual characteristics that affect UI contracts available to each individual
 - Find those buy supplemental coverage more likely to subsequently experience ue
- Unused observables test: characteristics correlated with ue risk but not priced (e.g. firm-specific risk)
 - Look at how it correlates with supplemental UI coverage and subsequent UE outcomes
- Cost curve test: exogenous variation in prices from sudden and unanticipated increase in the premia for supplemental coverage in 2007

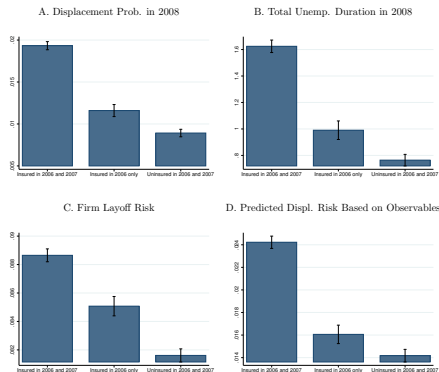
Price variation

Figure 11: PRICE VARIATION: EVOLUTION OF PREMIA p AND OF THE FRACTION OF WORKERS INSURED AROUND THE 2007 REFORM



How does WTP correlate with risk?

Figure 12: PRICE VARIATION: UNEMPLOYMENT RISK BY WILLINGNESS-TO-PAY v



Notes: The Figure uses the 2007 price reform to rank individuals according to their willingness-to-pay for the supplemental coverage v , and then uses this ranking to correlate willingness-to-pay with various measures of unemployment risk. In each panel, individuals are ranked by decreasing order of their willingness-to-pay. The group on the left (I) are individuals who are insured with the supplemental coverage both in 2006 and 2007 and have the highest level of v . The middle group corresponds to the marginals (M): individuals who were insured with the supplemental coverage in 2006 but switch out in 2007 when the premium increases. They have a lower level of v than the always insured (I), but a higher level of v than the last group on the right (U), of individuals who neither buy the supplemental coverage in 2006, nor in 2007. Using this ranking, we perform direct non-parametric tests for risk-based selection, by correlating willingness-to-pay with various measures of unemployment risk Y . For each risk outcome, we report the average risk outcome of each group controlling for the same vector of characteristics X affecting contract differentiation, that we use in the positive correlation tests. Panel A reports the average displacement rate in 2008 for each group. Panel B reports the average number of days spent unemployed in 2008 for each group. Panel C and D report for each group the average firm layoff risk and the predicted layoff risk using our risk shifters, as defined in Section 4.2.

- Landais et al detect adverse selection in more comprehensive UI
 - Also find that if (counterfactually) prices were set based on all current observables, would not eliminate selection
- Use estimated demand and cost curves to compare welfare under mandated supplemental coverage vs current choice
 - Find most workers not buying comprehensive coverage value it at less than the cost of covering them.
 - Question: why would that be?
 - Therefore mandate for comprehensive coverage is welfare decreasing
 - Consider choice-based policies such as subsidy for comprehensive coverage

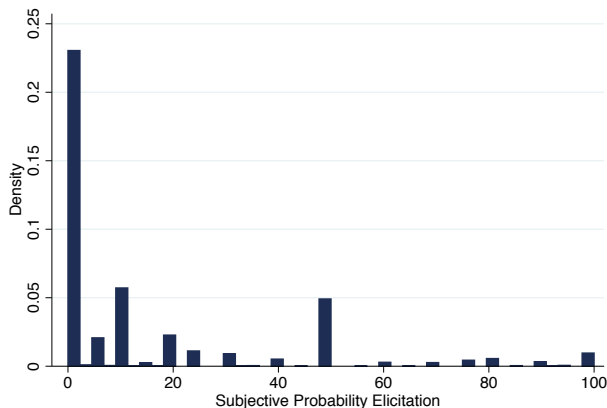
- Paper has 3 main components
 - Test for private information and potential adverse selection in unemployment insurance
 - tricky when market doesn't exist!
 - Estimate willingness to pay for additional UI (on top of government program)
 - again, tricky when market doesn't exist!
 - Ask whether adverse selection can explain lack of private supplemental UI market
- Will discuss only the first part now, then return to the latter two parts after we develop some more of the theory and background on empirics

Testing for private information and adverse selection in US UI

- Unlike Sweden, cannot observe individual choices over UI
- Looks in HRS at whether subjective probabilities of future job loss predict future job loss conditional on observables that could be used in pricing (Yes)
- Look at whether private information about probability of job loss affects individual behavior (Yes)
 - Can't look at insurance demand (a la Finkelstein and McGarry 2006) because private UI doesn't exist...

Self-reports of probability of job loss within 12 months

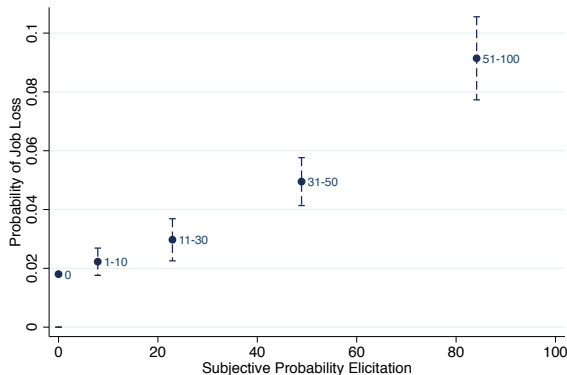
FIGURE I: Histogram of Subjective Probability Elicitations



Notes: This figure presents a histogram of responses to the question “What is the percent chance (0-100) that you will lose your job in the next 12 months?”. The figure reports the histogram of responses for the baseline sample (corresponding to Column (1) in Table 1)). As noted in previous literature, responses tend to concentrate on focal point values, especially $Z = 0$.

Private information about probability of job loss

FIGURE II: Predictive Content of Subjective Probability Elicitations: Binned Scatterplot of U versus Z , conditional on X



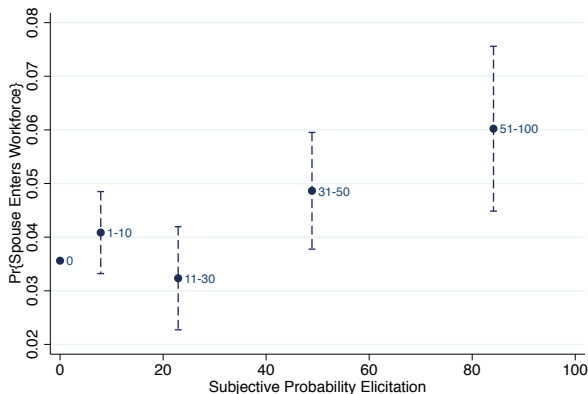
Notes: This figure reports mean unemployment rate in each elicitation category controlling for demographics, job characteristics, and year controls. To construct this figure, I run the regression in Equation (1). The figure plots the coefficients on bins of the elicitations. I omit the lowest bin (corresponding to $Z = 0$) and add back the mean job loss of 1.9% to all coefficients. The 5 / 95% confidence intervals are constructed using the standard errors of the regression coefficients, clustering by household.

Does private information predict behavior?

- Does private information about probability of job loss affects individual behavior?
 - Can't look at insurance demand (a la Finkelstein and McGarry 2006) because private UI doesn't exist
- Instead looks at two other tests:
 - Looks at whether private information about job loss probability (prior to job loss) predicts change in spousal labor supply (HRS)
 - Looks at whether individuals change consumption prior to job loss (PSID)
 - Idea: if individuals use private information in these behavioral decisions, presumably might in selecting an insurance contract if offered

Private information predicts behavior Part I: Spouses

FIGURE III: Relationship between Potential Job Loss and Spousal Labor Supply



Notes: The figure presents coefficients from a regression of an indicator for a spouse entering the labor force, defined as an indicator for not working in the previous wave and working in the current wave, on category indicators for the subjective probability elicitation, Z , controlling for demographics, job characteristics, and year controls. Figure reports 5/95% confidence intervals for each category indicator which are computed by clustering standard errors by household.

Private information predicts behavior (con't)

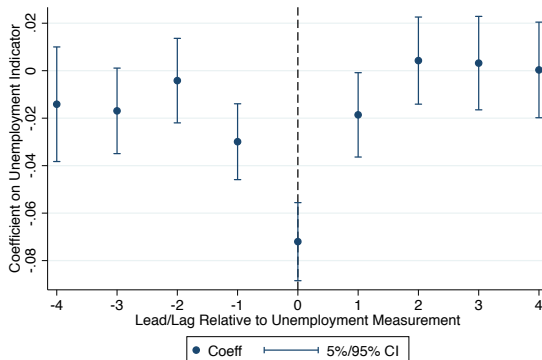
- If report higher subjective probability of job loss, spouse is more likely to enter workforce
- Concern I: maybe this is just the added worker effect
 - People who have higher subjective probability of job loss more likely to lose job, and job loss induces spousal labor market entry
 - But finds result holds even if restrict to those who (ex post) didn't lose their job
- Concern II: Could this be selection / OVB?
 - The types of people who are more likely to lose their job are also more likely to have spouses moving in/out of labor force
 - But finds that beliefs two years ago don't predict change in spousal current labor market activity, just current beliefs

Private information predicts behavior Part II: Consumption

- In PSID can look at changes in consumption relative to time of job loss
- Do not have subjective probabilities in PSID
 - Rather, using changes in behavior to reveal ex-ante information (anticipatory behavior)

Private information predicts behavior (con't)

FIGURE IV: Impact of Unemployment on Consumption Growth



Notes: These figures present coefficients from separate regressions of leads and lags of the log change in food expenditure on an indicator of unemployment, along with controls for year indicators and a cubic in age. Data is from the PSID with one observation per household per year. Unemployment is defined as an indicator for the household head being unemployed. Following Gruber (1997) and Chetty et al. (2005), food expenditure is the sum of food in the home, food outside the home, and food stamps. The horizontal axis presents the years of the lead/lag for the consumption expenditure growth measurement (i.e. 0 corresponds to consumption growth in the year of the unemployment measurement relative to the year prior to the unemployment measurement). The sample is restricted to household heads who are employed in $t-1$ or $t-2$.

Private information predicts behavior (con't)

- Changes in consumption observed prior to event suggests event anticipated
 - Pre-trends as friend instead of foe!
 - Concern: perhaps declines in consumption prior to ue reflect declining income
 - But results robust to controlling for cubic in changes in income
- Summary: beliefs (conditional on what could be priced) predict unemployment and behavior (spousal labor supply, consumption) prior to unemployment
 - Suggests private information exists and would create adverse selection in a private UI market
 - Hendren then asks: Is private information "large enough" to explain lack of existence of private UI market? Will come back to later in this unit...

- ① Brief background on UI [Done]
 - ① Rationales and evidence for government intervention:
 - ② Typical form of government intervention
- ② Theory: Optimal benefit and duration level (Baily/Chetty) **[Up next]**
- ③ Empirics: Taking Baily / Chetty to Data

Theory: optimal structure of UI benefit levels and durations

- Schmeider and von Wachter (2017) provide a very nice overview model
 - Summarizes Baily-Chetty framework in terms of impacts for optimal level of UI benefits and optimal duration of UI benefits
- For simplicity / to fix ideas I am going to focus only on benefit level
 - But see their paper for how model naturally extends to benefit duration (and large empirical literature on impact of benefit duration)

Baily-Chetty optimal SI benefit level: Overview

- First best problem: set benefit rates to maximize utility subject to government break even constraint (benefits financed by tax)
 - Set benefits to equate MU of consumption across states (employed vs not)
- Constrained efficient problem:
 - Consumers choose search effort based on ue benefits (moral hazard)
 - Social planner chooses ue benefits to max utility subject to
 - Government breaks even (benefits financed by tax)
 - Consumers choose search given benefits
 - Generates first order condition for optimal level of benefits

Simplified model setup

- Simplified, static model (see Chetty (2006) for richer model(s))
- Key point: moral hazard
- The model
 - utility from consumption: additively separable and risk averse: $u(c)$
 - immediately: probability p of becoming unemployed
 - regains employment with probability q at cost $h(q)$
- simplify: assumed taxes paid only by employed, not by reemployed
- government budget constraint requires:

$$p(1 - q)b = (1 - p)\tau$$

First best

- Suppose can control q (e.g. monitor perfectly).
- Set benefits and taxes to maximize utility subject to the government break even constraint (benefits financed by tax)
- Solve:

$$\begin{aligned} \max_{q,b,t} \{ & (1-p)u(w-\tau) + p[(1-q)u(b) + qu(w) - h(q)] \} \\ & \text{subject to} \\ & p(1-q)b \leq (1-p)\tau \end{aligned}$$

- First order conditions:

$$\begin{aligned} \{\tau\}: \quad & (1-p)u'(w-\tau) = \lambda(1-p) \\ \{b\}: \quad & p(1-q)u'(b) = \lambda p(1-q) \\ \{q\}: \quad & h'(q) = u(w) - u(b) + \lambda(b) \end{aligned}$$

First best (con't)

- Interpretation

- FOC for q internalizes fiscal cost of benefit b . i.e. equates marginal cost of q with marginal benefit which is the private benefit (difference in utility between re-employment and unemployment) and the public benefit (the fiscal cost of the benefit)
- We get full insurance (perfect consumption smoothing). MU equated across states:

$$u'(w - \tau) = u'(b) \quad (1)$$

$$\rightarrow w - \tau = b$$

(note: here we can't do anything about the fact that consumption is not equalized with the reemployment state, due to our simplifying assumption)

Worker private optimization problem

- Key: social planner can't choose q, b, t . Can set parameters of social insurance (b, t) but then worker privately optimizes / chooses q
- Worker optimization:

$$V(b, \tau) = \max_q \{ (1-p)u(w-\tau) + p(1-q)u(b) + pqu(w) - ph(q) \}$$

- optimum yields $q^*(b)$ with first order condition

$$h'(q) = u(w) - u(b)$$

- Interpretation
 - Worker equates marginal cost of q with *private* marginal benefit (difference in utility between re-employment and unemployment). Unlike in the social optimum, he does not take account of the public benefit (fiscal cost of the benefit)
 - Note: if reemployed paid taxes we would have $q^*(b, \tau)$ [this is what we are buying in simplicity]

Second best (constrained efficient problem)

- Consumer chooses q (effort) given u_i benefits (moral hazard)
- Social planner chooses u_e benefits to maximize utility subject to (1) government break even (benefits financed by tax) and (2) consumers choose re-employment probability given benefits
- Optimum solves

$$\begin{aligned} & \max_{b, \tau} V(b, \tau) \\ & \text{subject to budget constraint:} \\ & 0 \leq (1 - p)\tau - p(1 - q^*(b))b \end{aligned}$$

- Define $\tau_B(b)$ from budget then want to maximize

$$V(b, \tau_B(b))$$

$$\text{First order condition: } V_b(b, \tau_B(b)) + V_\tau(b, \tau_B(b)) \frac{\partial \tau_B}{\partial b} = 0$$

Second best (constrained efficient problem)

- from budget constraint (differentiating wrt b):

$$(1-p)\frac{\partial \tau_B}{\partial b}(b) - p(1-q^*(b)) + pb\frac{\partial q^*}{\partial b}(b) = 0$$

- so that

$$\frac{\partial \tau_B}{\partial b}(b) = \frac{p(1-q^*(b))}{1-p} + \frac{p(1-q)}{1-p} \underbrace{\frac{b}{1-q} \frac{-\partial q^*}{\partial b}(b)}_{\text{elasticity}}$$

- note: elasticity of q wrt b comes from bc (see above). keep in mind...

Second best (constrained efficient problem)

- Use of envelope condition (bc worker is optimizing)

$$\begin{aligned}\max_b V(b, \tau) = \\ \max_b \{ (1-p)u(w-\tau) + p(1-q)u(b) + pqu(w) - ph(q) \} \\ V_b = p(1-q^*(b))u'(b) + p\frac{\partial q^*}{\partial b}[-u(b) + u(w) - h'(q)]\end{aligned}$$

- Recall worker optimization problem (wrt q) gave worker foc

$$h'(q) = u(w) - u(b)$$

- Therefore we get:

$$V_b(b, \tau) = p(1-q^*(b))u'(b)$$

- Key point: because at the margin worker indifferent between cost and benefit of additional unit of search effort, impact of benefit on search effort drops out (**envelope theorem**)

Second best (constrained efficient problem)

- Envelope conditions:

$$\begin{aligned}V_b(b, \tau) &= p(1 - q^*(b))u'(b) \\V_\tau(b, t) &= -(1 - p)u'(w - \tau)\end{aligned}$$

- Recall first order condition: $V_b(b, \tau_B(b)) + V_\tau(b, \tau_B(b)) \frac{\partial \tau_B}{\partial b} = 0$
- Substituting envelope conditions into first order condition we get Baily Chetty basic formula:

$$\frac{u'(b) - u'(w - \tau)}{u'(w - \tau)} = -\frac{b}{1 - q} \frac{\partial q^*}{\partial b}(b) \equiv \varepsilon_{1-q,b} \quad (2)$$

$$\frac{u'(b) - u'(w - \tau)}{u'(w - \tau)} = \varepsilon_{1-q,b} \quad (3)$$

- LHS: difference in marginal utilities across state (i.e. MU(c) when unemployed minus MU(c) when employed). = wedge in full consumption smoothing
 - quantifies social gain from transferring additional \$ to the ue state. (Gain comes from smoothing consumption)
- RHS: social cost of transferring a \$ to the ue state due to behavioral response – due to moral hazard (elasticity of ue (i.e. no re-employment) wrt benefit level)
 - Note moral hazard elasticity comes in bc of the government budget constraint: have to finance increase in benefits with taxation
 - This is a social cost not taken into account in the worker's optimization (choice of q) which introduces the wedge from the first best (i.e. full consumption smoothing)
 - If had zero elasticity, could equate mu (full insurance)

Key concept on benefit side: envelope theorem

$$\frac{u'(b) - u'(w - \tau)}{u'(w - \tau)} = \varepsilon_{1-q,b} \quad (4)$$

- Use of envelope theorem: impact of benefits on “effort” (q) only enters formula through government balanced budget constraint because agent already optimizing.
- So other effects (e.g. on match quality /wages) on worker utility similarly drop out by envelope argument.
 - Don't need to measure all effects on work - on margin worker is optimizing so can just measure summary effect on behavior through impact on government expenditures
 - See Hendren (2016) on "policy elasticity" - analogous to Feldstein (1999) on elasticity of taxable income

Robustness of formula

- Chetty (2006) shows that Baily is robust to several extensions:
 - E.g. improved match quality (wage gains) from more search
 - Leisure benefits of unemployment
 - Borrowing constraints
- (Common) Intuition: the behavioral elasticities that enter the formula are all functions of other aspects of the agent's behavior and preferences
 - Extra benefits from search (improved match quality) already internalized by agent – exploiting envelope condn
 - Borrowing constraints generate larger drop in consumption hence raise optimal benefit level
 - If u_e has large leisure benefits, agents elect longer duration and have larger consumption drop \rightarrow higher optimal benefit rate

Key concept on cost side: fiscal externalities

$$\frac{u'(b) - u'(w - \tau)}{u'(w - \tau)} = \varepsilon_{1-q,b} \quad (5)$$

- Optimal benefits equation social gain from transferring another dollar to the ue state (depends on difference in μ between unemployed and employed state) with social cost of this transfer (comes from behavioral response which affects government budget constraint since has to finance the increase in ue (and ue benefits) with taxes)
- In other words, costs come from the **fiscal externality** from individual behavioral response to policy on government budget
- Note that this requires causal estimate: Causal impact of increase in benefits (financed by increase in taxes) on government expenditure on unemployment benefits

- Causal impact of increase in benefits (financed by increase in taxes) on government expenditure on unemployment benefits
 - In this example, arises by impact of increased benefits on unemployment duration
- But there could be other behavioral responses to increase in ui benefits that generate additional fiscal externalities:
 - Increased wages
 - Increased entry into unemployment
 - Impacts on health and hence public health care expenditures?
- Lee et al. (2019) emphasizes the key cost measure is the (total) negative fiscal externality
 - the impact of behavioral responses to the policy on the government budget

Why uncompensated elasticity?

- Why does the uncompensated (Marshallian) elasticity of duration wrt benefits enter the formula?
 - Central insight from optimal taxation literature: efficiency consequences of taxation (and hence optimal tax rates) depend on substitution (compensation) elasticities
 - Income effects are not distortionary
 - Social insurance is a particular type of redistributive tax; why does optimal level depend on uncompensated elasticity?
- Note: Moral hazard enters Baily formula bc of government budget constraint / fiscal externalities
 - Moral hazard increases the break-even taxes

Aside: "Good" vs "bad" moral hazard?

- Nyman (1999 JHE) "The Value of Health Insurance: The Access Motive":
 - Health risk is not proportional to income
 - Costs of some illness may be greater than PDV lifetime resources so can only access it if have health insurance
- So is "good" moral hazard and shouldn't be considered part of "costs"?
 - No! This means you have high marginal utility of consumption in sick state of world if uninsured
 - So marginal utility varies a lot across states
 - Left hand side of Baily-Chetty formula may be large!
 - Moral hazard still needs to remain on right hand side!

Baily-Chetty is a local result

- Recall derivation: Baily formula is the FOC to a constrained optimization problem
- At optimum, Baily formula should be satisfied ($SMB = SMC$)
 - Because of concavity, inequality can tell you if current benefits too higher or too low (local result)
 - Does not tell you (globally) optimal level of benefits
 - Would need to know how to extrapolate from local condition
 - Full structural model?

An odd social insurance formula

- Formula derived assuming absence of private insurance
 - Not robust to having a private insurance market (which responds endogenously to change in social insurance program)
 - Intuition: recall use of envelope condition in deriving formula
 - Assumes choices within the private sector are constrained Pareto efficient (i.e. total surplus is maximized in the private sector s.t to the constraints)
 - Existence of adverse selection (and mh) \rightarrow private insurance market may not be constrained efficient \rightarrow envelope thm violated (externalities from own behavior on private insurance market / others)
 - Chetty and Saez (2010) try to extend Baily Chetty to cases w private market failures
 - Strange tension given motivation for social insurance!
- Paper has been (mis)interpreted as being about optimal social insurance
 - Really about optimal insurance
 - Except that it mandates participation (no selection margin)

Baily-Chetty Summary

- Welfare costs (RHS) from higher benefits are captured by the impact of households' behavioral responses to the policy on government's budget ("**fiscal externality**")
- Welfare gains (LHS) from higher benefits are captured by the gap in marginal utility of consumption across states of nature
 - This gap is zero in the first best allocation (marginal utilities are constant across states of nature)
 - Size of gap measures market inefficiency and quantifies potential benefit from additional benefits
- Empirical marching orders:
 - Measuring the RHS: Impact of higher UI benefits on government budget (via behavioral responses of individual)
 - Measuring the LHS: Gap in marginal utility of consumption between employed and unemployed state

- ① Brief background on UI [DONE]
 - ① Rationales and evidence for government intervention:
 - ② Typical form of government intervention
- ② Theory: Optimal benefit and duration level (Baily/Chetty) [DONE]
- ③ Empirics: Taking Baily / Chetty to Data
 - ① LHS: Gap in MUs across states [**UP NEXT**]
 - ② RHS: Fiscal externality from insurance on government budget