Web Appendix

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1 The German Social Security Data

The German Social Security Database contains employment records for full and part-time private sector employees, public sector workers who are not classified as permanent civil servants, and the individuals receiving unemployment insurance or unemployment assistance benefits. The data does not cover the self-employed, civil servants and before 1999 individuals in "minor" employment relationships below a very low income threshold.[1] The data covers about 80 percent of the total workforce at any given point in time. For each employment spell the dataset contains information on the day of spell begin and end, the identity of the employer, industry, occupation, education, gender, the county ("Kreis") where the employer is located, and the average daily gross wage. There is no information on hours apart from whether the job was full- or parttime. Wages are top-coded at the social security contribution limit which affects about 15 percent of the overall population but a much smaller fraction in our sample of unemployed workers. For unemployment insurance and assistance spells, the benefit payments and the start and end date are available.

In order to impute eligibility for UI we calculate the total number of months worked fulltime since either the last UI spell or the point in time 7 years before the start of the current UI spell, whichever occured last. For all results that pool individuals over several years (either the period before or after the 1999 reform) we restrict the sample to individuals who worked for at least 52 months by this measure, which assures that every individual is eligible for the maximum UI duration of her age group. When we estimate elasticities for each year separately (the first estimation step for the results in Table 6) we use a slightly larger sample to improve efficiency, since at lower maximum durations the experience requirements are also lower. Thus for calculations around the age 42 (age 45 for post 1999) we restrict the sample to having worked a minimum of 36 months, around the age 44 (age 47 cutoff) to having worked 44 months, and around the age 49 cutoff to having worked 52 months. While this increases our sample size and precision of the estimates it does not considerably affect the demographic composition of the analysis sample or the point estimates.

The data covers employment spells until 2008. For this reason there is less time to observe whether individuals return to work towards the end of the analysis period relative to non-employment spells early in the period. For the main outcome variable this paper therefore uses non-employment duration top-coded at 36 months, i.e. non-employment duration for individuals who do not find a job within 36 months is set to 36 months irrespective of whether or not they we observe them employed later on. We experimented with moving the cutoff to 48 or 60 months in Appendix Table W4. While the estimated marginal effects are larger for longer horizons, the elasticities are

[1] In 1996, the threshold was 590 Deutsche Mark (about 300 Euro) per month in West and 500 Deutsche Mark in East Germany.

virtually unchanged. Table W4 also shows results for time-to-job duration, which only includes individuals who eventually find a job before 2008, and time-to-job duration for individuals who find a job within 36 months. These measures make clear that the effect on non-employment duration is not only driven by an increase of individuals who are top-coded. The effect on time-to-job duration in Column (1) is nearly the same as for the main non-employment measure. Furthermore the marginal effect on time-to-job duration in Column (2) is around 50 percent of the effect in Column (3), indicating that the effect on our preferred non-employment duration measure is about half due to increases in time-to-job duration and half due to spells that are top-coded at 36 months. Table W4 also shows that there are relatively small increases at the thresholds in the fraction of individuals who do not find a job within 36, 48 or 60 months and that these increases are declining the further out the horizon.

The wage in our data is the average daily pre-tax wage over the employment spell and included bonus payments. We deflate the wage to prices in 2000. We calculate experience as the time worked in fulltime employment prior to the current employment spell, measured in years. Similarly employer tenure is calculated as total time worked fulltime with the current employer until the start of the current employment spell. Equivalently for occupation and industry tenure. It should be noted that this is a fairly conservative way of calculating tenure, since it only counts fulltime and would exclude breaks from the employer. A survey based measure would probably yield higher tenure levels. We translate the categorical education variable into a continuous years of education variable using the following assignment: Up to “Mittlere Reife” degree with or without apprenticeship training 10 years, “Abitur” with or without apprenticeship training 13 years, “Fachhochschule” - vocational college - degree 16 years, and “Hochschulabschluss” 18 years.

2 Methodology

2.1 Estimating the Effect of UI Extensions on Survival and Hazard Functions using a Regression Discontinuity Design

The main analysis of the paper focuses on effects of UI extensions on the mean. However, the RD approach can also be used to study how how the distribution of unemployment durations changes at the age cutoff by providing nonparametric estimates of the survival functions just before and just after the cutoff. RD estimates for the survival functions are created by estimating the following equation:

$$P(Dur \geqq x)_{ia} = \beta_{0,x} + \beta_{1,x} D_{a \geq a^*} + f(a) + \varepsilon_{ai}, \quad (1)$$

This equation is the same as the main RD estimation equation, except for the difference that in the regression the left hand side variable is a dummy for the duration being longer than x months, where we estimate this for $x = 1...25$. Since $F(x) = P(Dur \geqq x)$ is the survival function, the estimates for $\beta_{1,x}$are estimates for the shift of the survival function at the discontinuity, while $\beta_{0,x}$ are estimates for the survival function just to the left of the cutoff (with the right normalization of the age variable). Similarly, one can estimate the hazard function as a linear probability model for $P(Dur = x | Dur \geq x)$, within the same RD framework. Note that these survival and hazard functions should not be viewed as consistent estimates on the individual level, but rather as estimates of the average surival function in the population to the left and right of the cutoff. Consequently the RD strategy identifies the causal effect of UI extensions on the average survival function in the population, but it does not determine whether the shape of the survival function, and change thereof, is driven by behavioral responses (true duration dependence) or selection.

Figure W-3 (a) shows the results for duration of UI benefit receipt, Panel (b) shows the estimates for non-employment duration. The survival function for individuals eligible to 18 months of UI relative to individuals eligible to 12 months is already clearly shifted outward around 3-4 months after the beginning of the spell. Thus unemployed individuals adjust their search behavior a long time before running out of UI depending on whether they are eligible to longer durations. The figure also reveals that about 28 percent exhaust their UI benefits in the 12 month eligibility group, while only about 20 percent in the 18 month eligibility group.

2.2 Alternative Specifications for Estimating the Effect of UI Extensions over the Business Cycle

Tables W10 and W11 show alternative ways of estimating how the effect of UI extensions on Non-employment varies over the business cycle. In Table W11 we pool our data from 1987 to 2004 for all spells of individuals age 40 to 49. We then estimate a linear regression of non-employment duration on potential UI duration, and potential duration interacted with the change in the unemployment rate in that year. In the spirit of the RD methodology, we conrol for a flexible (quartic) age polynomial, so that the identification of the potential UI duration coefficient comes from the age discontinuities. Since the age profile may depend on the economic environment, we also interact the age polynomial with the change in the unemployment rate. Finally to allow for the possibility that the 1999 reform reduced the effect of UI on non-emloyment (and the timing of this may be correlated with the business cycle), we also interact the age polynomial and the age polynomial times change in unemployement with a dummy for post 1999 reform.

Column (1) shows the result for estimating the model without the interaction of potential UI duration and the change in the unemployment rate and Column (2) adds this interaction term. Columns (3) and (4) replicate the first two columns but controlling for additional observables: time of year, gender, education, west Germany, nationality, pre UI wage and UI benefit level. One additional month of UI benefits is estimated to increase non-employment durations by about 0.12

months before the 1999 reform. This is very similar to the range of estimates from the RD estimation (about 0.1 to 0.13 months). After 1999 the effect declines to only aobut 0.065 months. The interaction term of potential UI duration with the change in the unemployment rate is quite small and statistically insignificant (despite fairly precise standard errors). The bottom panel calculates implied elasticties from this model. For this the model is used to predict non-employment duration for everyone in the sample under the assumption that they receive 12 and 18 months of benefits. Comparing the difference in predicted non-employment durations allows computing the implied elastictiy with the standard elasticity formula from Table 1. The implied elasticity is with 0.093 (or 0.071 for the model with additional controls) slightly smaller than the average elasticity of 0.12 over all cutoffs in Table 4. Similarly the effect of changes in the unemployment rate on this elastictiy are somewhat smaller in Column (2) and virtually identical in Column (4) to the estimates from the 2 step procedure in Table 4.

Table W10 shows as another alternative a cox proportional hazard model, very similar to the models in Meyer 1990 and Katz and Meyer 1990. The dependent variable is the hazard of leaving non-employment in a given month. On the right hand side we control for age and the same demographics as in the pooled linear model. The effect of potential UI duration on the hazard is captured by a piecewise linear spline function of months of remaining UI benefits. This specification closely follows Meyer 1990, with the difference that we are looking at monthly rather than weekly hazard rates, which makes it impossible to directly compare the coefficients (but given that potential UI durations are considerably longer in our sample it is not feasible to use the same splines that Meyer is using).

As in Katz and Meyer (1990) one can simulate the model for different potential UI durations and from the predicted non-employment durations derive elasticities, which are reported at the bottom of the panel. The implied elasticities are again quite similar to the elasticities derived from the RD estimates.

2.3 Construction of Weights (Columns (5) and (6), Table 4) and Comparison with United States

To assess whether over-time changes in sample characteristics affect the correlation of labor supply elasticities with the business cycle, we re-weight the observations in each year to match the distribution of observable characteristics of our sample in 2002. To generate these weight, for each sample year we merge observations from that year with the sample from 2002. We then estimate a probit model of the probability that a given observation in this merged sample belongs to the year 2002. The predictors in this regression are gender, age, age squared, education in years, whether a person in a German citizen, and dummies for 5 main industries (see Appendix Table W12). Using predicted propensity score p, we then weighted each observation in the RD regressions underlying

Table 4 with the weight $\omega = p/(1-p)$.

In order to compare our sample of unemployed individuals with the U.S. we use the yearly March Current Population Survey (CPS) from 1987 to 2004 and the biyearly Displaced Worker Survey Supplement (DWS) to the CPS from 1988 to 2004. The March CPS does not have direct information on who is a UI recipient at the interview time, so we created two samples to compare with the German data: one containing all unemployed individuals at the time of the survey and another one containing all individuals who received any UI benefits during the previous year. While neither of them quite represents an inflow sample into UI (like the German data), they provide a useful benchmark to compare characteristics. Since tenure on the last job before unemployment is not available in the March CPS, we also use a sample of Job Losers from the DWS. We again created two samples, one with all individuals who lost a job in the last 3 years and one with the additional restriction of having received UI benefits after losing the job. While self identified job losers are not quite representative for the universe of unemployed workers, they are probably closer to our sample definition of unemployed invididuals with high attachment to the labor force prior to job loss. We aggregate industry codes up to the same 5 sectors used for the German data (the definition of the sectors was chosen to make them as comparable as possible across countries and time periods).

Table W12 shows summary statistics for the German UI sample and the 4 US samples. All five columns restrict the sample to the analysis age range of age 40 to 49. The CPS and DWS samples are very similar. Fraction female and years of education are slightly higher in the DWS. The main differences appear to be in the sectoral composition, with less construction and service workers in the DWS, but more manufacturing and trade. The main differences between the US and German samples are fewer women and lower levels of education in Germany with more emphasis on manufacturing.

Table W13 shows the correlation between labor supply elasticities and business cycle measures when the German UI sample is re-weighted to match the observable characteristics of the US samples. The methodology to create the weights is the same as for creating weights to match the 2002 distribution in each year.

2.4 Measuring the Welfare Components

The welfare equation in the text holds for marginal changes in the potential benefit duration. To estimate the components of $\frac{\partial B}{\partial P}\Big|_1$, $\frac{\partial B}{\partial P}{}_2\Big|$, and $\frac{\partial D}{\partial P}$ empirically given a discrete increase in P, we estimate the corresponding components by integrating numerically over the shifts in the survival function. Consider estimating $\frac{\partial D}{\partial P}$: An obvious estimate would be the change in D associated with an increase in P, e.g. from $P^1 = 12$ months to $P^2 = 18$ months: $\frac{\Delta D}{\Delta P}$. Note that since $D = \sum_{t=0}^{\infty} S(t)$, $\frac{\Delta D}{\Delta P}$ is the same as the area between the survival functions above and below the cutoff:

$\sum_{t=0}^{\infty} S_{P^2=18}(t) - S_{P^1=12}(t)dt\,/6$.

In principle one could also estimate $\left.\frac{\partial B}{\partial P}\right|_1 \approx \left.\frac{\Delta B}{\Delta P}\right|_1 = \left(\sum_{t=P^1}^{P^2} S_{P^1}(t)\right)/6$ and $\left.\frac{\partial B}{\partial P}\right|_2 \approx \left.\frac{\Delta B}{\Delta P}\right|_2 = \left(\sum_{t=0}^{P^2=18} S_{P^2}(t) - S_{P^1}(t)\right)/6$. One problem with this is that in practice a substantial fraction of people stop receiving UI benefits before the exhaustion date without exiting non-employment. This is partly due to people dropping out of the labor force and partly due to people losing eligibility (e.g. because they are sanctioned for refusing job offers). Thus the survival functions for remaining on UI benefits are not the same as for remaining in non-employment and the above approximations for $\left.\frac{\partial B}{\partial P}\right|_1$ and $\left.\frac{\partial B}{\partial P}\right|_2$ do not work very well when using the non-employment survival functions. It is natural to use the UI benefit survival functions $S_P^{UI}(t)$ instead in these calculations. The problem with this is that, for example in the case of $\left.\frac{\partial B}{\partial P}\right|_1 \approx \left.\frac{\Delta B}{\Delta P}\right|_1 = \left(\sum_{t=P^1}^{P^2} S_{P^1}^{UI}(t)\right)/6$ we would like to measure the increase in B that would have occurred if behavior hadn't changed. But of course we don't observe how fast people would have dropped out of UI at the lower threshold after the benefit expiration (i.e. $S_{P^1}^{UI}(t)$ is equal to 0 for $t \geq P^1$). We therefore use our estimate for $S_{P^1}^{UI}(t)$ up to P^1 and fit a flexible exponential function to extrapolate $S_{P^1}^{UI}(t)$ up to P^2.[2] Using this extrapolation we can implement our numerical estimates for $\left.\frac{\partial B}{\partial P}\right|_1$ and $\left.\frac{\partial B}{\partial P}\right|_2$.

Figure W5 shows the measurement of the three components at the age 42 cutoff for the 1987 to 1999 period. The figure presents the survival functions for remaining in non-employment above and below the age threshold at which UI benefit durations increase from 12 to 18 months. Similarly it shows the survival functions for remaining on UI benefits for both groups. These four survival functions are estimated pointwise at each point of support using regression discontinuity estimation (using the same methodology as described in section 2.1 of this appendix). Finally it shows the interpolated survival function for remaining on UI benefits for the people below the age threshold, which is used to create a counterfactual survival function beyond 12 months of UI benefits. The shaded areas mark the areas corresponding to the cost and benefit indexes: $X = \left.\frac{\partial B}{\partial P}\right|_1$, $Y = \left.\frac{\partial B}{\partial P}\right|_2$, and $Z = \frac{\partial D}{\partial P}$.

For columns (7) and (8) in Table 6 in the main text we replicate this methodology in each year and for each age threshold and then follow the methodology as for the other columns in the table.

3 Derivation of Theoretical Results

3.1 Derivation of Welfare Formula

To be able to work with derivatives with respect to P, we assume that P can be increased by a fraction of 1 and that if P is not an integer number, it means a fraction of the period $int(P)$ is covered by the higher benefit level b. In other words b_t can change within a period and the benefits

[2] We use the functional form: $S(t) = exp(\beta_1 t + \beta_2 t^2 + \beta_3 t^3 + \beta_4 t^4)$ which provides a very good fit.

in a period is the fraction that is covered time b.

In that case a marginal change in P can be analyzed. A marginal change in P normalized by b is the same as a marginal change in b_P in the next period (Since we start at time 0 the period after benefits are exhausted is period P).

Note that in period P by the first order condition of the individual we have:

$$\frac{\partial s_P}{\partial P}\frac{1}{b} = \frac{\partial s_P}{\partial b_P} = -\frac{u'(c_P^u)}{\psi''(s_P)}$$

Furthermore, let a_t be a one time payment of amount a_t in period t independent of whether the individual is employed or not:

$$\frac{\partial s_P}{\partial a_P} = \frac{v'(c_P^e) - u'(c_P^u)}{\psi''(s_P)}$$

And:

$$\frac{\partial s_P}{\partial w_P} = \frac{v'(c_P^e)}{\psi''(s_P)}$$

Combining this we can decompose the disincentive effect into the moral hazard and the liquidity effect:

$$\frac{\partial s_P}{\partial P}\frac{1}{b} = \frac{\partial s_P}{\partial b_P} = \frac{\partial s_P}{\partial a_P} - \frac{\partial s_P}{\partial w_P}$$

Looking at this from the perspective of the first period we get some useful relations:

For $x_P = w_P, b_P, a_P$:

$$\frac{\partial s_0}{\partial x_P} = \frac{1}{\psi''(s_0)}\left[\frac{\partial V_0}{\partial x_P} - \frac{\partial U_0}{\partial x_P}\right]$$

Using the envelope condition of the individual maximization problem we get:

$$\frac{\partial U_0}{\partial b_P} = \prod_{i=1}^{P}(1-s_i)u'(c_P^u)$$

$$\frac{\partial V_0}{\partial b_P} = 0$$

$$\frac{\partial U_0}{\partial w_P} = s_1 v'(c_1^e) + \sum_{t=2}^{P-1}\left[\prod_{i=1}^{t-1}(1-s_i)\right] s_t v'(c_t^e)$$

$$\frac{\partial V_0}{\partial w_P} = v'(c_0^e)$$

$$\frac{\partial U_0}{\partial a_P} = \frac{\partial U_0}{\partial b_P} + \frac{\partial U_0}{\partial w_P}$$

$$\frac{\partial V_0}{\partial a_P} = \frac{\partial V_0}{\partial w_P}$$

From this one can see that:

$$\frac{\partial s_0}{\partial P}\frac{1}{b} = \frac{\partial s_0}{\partial b_P} = \frac{1}{\psi''(s_0)}\left[-\frac{\partial U_0}{\partial b_P}\right]$$

$$\frac{\partial s_0}{\partial w_P} = \frac{1}{\psi''(s_0)}\left[\frac{\partial V_0}{\partial w_P} - \frac{\partial U_0}{\partial w_P}\right]$$

$$\frac{\partial s_0}{\partial P}\frac{1}{b} = \frac{\partial s_0}{\partial b_P} = \frac{\partial s_0}{\partial a_P} - \frac{\partial s_0}{\partial w_P} \tag{2}$$

Note that the unconditional average marginal utility of consumption while employed over the time horizon T is:

$$\begin{aligned} E_{0,T-1}v'(c_t^e) &= \frac{1}{T-D}\left\{s_0 T v'(c_0^e) + \sum_{t=1}^{T-1}\left[\prod_{i=1}^{t-1}(1-s_i)\right] s_t (T-t) v'(c_t^e)\right\} \\ &= \frac{1}{T-D}\left\{(1-s_0)\frac{\partial U_0}{\partial w} + s_0\frac{\partial V_0}{\partial w}\right\} \end{aligned} \tag{3}$$

The marginal welfare effect of increasing P, normalized by the UI benefit level is:

$$\begin{aligned} \frac{dW_0}{dP}\frac{1}{b} &= \frac{dW_0}{db_P} = (1-s_0)\left(\frac{\partial U_0}{\partial b_P} - \frac{\partial U_0}{\partial w}\frac{d\tau}{db_P}\right) - s_0\frac{\partial V_0}{\partial w} \\ &= (1-s_0)\frac{\partial U_0}{\partial b_P} - \left((1-s_0)\frac{\partial U_0}{\partial w} + s_0\frac{\partial V_0}{\partial w}\right)\frac{d\tau}{db_P} \end{aligned}$$

Using the results from before we obtain:

$$\frac{dW_0}{dP}\frac{1}{b} = S(P)\,u'(c_P^u) - \frac{d\tau}{db_P}(T-D)\,E_{0,T-1}v'(c_t^e) \tag{4}$$

where $S(\xi) = \prod_{i=0}^{\xi}(1-s_i)$, is the survivor function for staying in unemployment, or in other words $S(P)$ is the exhaustion rate.

Differentiating the government budget constraint we get:

$$\frac{d\tau}{db_P} = \frac{d\tau}{dP}\frac{1}{b} = \frac{1}{T-D}\left(\frac{dB}{dP} + \frac{B}{T-D}\frac{dD}{dP}\right) \tag{5}$$

Note that:

$$\frac{\partial B}{\partial P} = \sum_{t=0}^{P-1} \frac{\partial S(t)}{\partial P} + S(P) \text{ and } \frac{\partial D}{\partial P} = \sum_{t=0}^{T-1} \frac{\partial S(t)}{\partial P}$$

Define: $\left.\frac{\partial B}{\partial P}\right|_1 = S(P)$ and $\left.\frac{\partial B}{\partial P}\right|_2 = \sum_{t=0}^{P-1} \frac{dS_t}{dP}$. Combining these equations we get:

$$\frac{dW_0}{dP} = \left.\frac{\partial B}{\partial P}\right|_1 b\left[u'(c_P^u) - E_{0,T-1}v'(c_t^e)\right] - b\left(\left.\frac{\partial B}{\partial P}\right|_2 + \frac{B}{T-D}\frac{\partial D}{\partial P}\right) E_{0,T-1}v'(c_t^e) \quad (6)$$

Note that using the approximation that the hazard s is constant, we have that $D = \frac{1}{s}$. In this case one can show that: $\left.\frac{\partial B}{\partial P}\right|_2 = \frac{\partial D}{\partial P}\xi$, where $\xi \equiv \left(1 - Ps(1-s)^{P-1} - (1-s)^P\right)$.

We can then rewrite the welfare equation as:

$$\frac{dW_0}{dP} = \frac{\partial B}{\partial P} b\left[u'(c_P^u) - E_{0,T-1}v'(c_t^e)\right] - \frac{\partial D}{\partial P} b\Omega \quad (7)$$

where $\Omega \equiv \xi u'(c_P^u) + \frac{B}{T-D}E_{0,T-1}v'(c_t^e) > 0$.

Therefore for analyzing the welfare effects of UI extensions over the business cycle, it is sufficient to investigate the cyclicality of $\frac{\partial B}{\partial P}$ and $\frac{\partial D}{\partial P}$, as long as the relevant marginal utilities remain approximately constant over the cycle.

If we normalize the welfare gain by the expected marginal utility of an employed person $E_{0,T-1}v'(c_t^e)$ and if one uses the approximation that $E_{0,T-1}v'(c_t^e) \approx v'(c_P^e)$, which may be a reasonable approximation if unemployment durations are short relative to lifetime employment, or if the people with shorter durations than P who have lower $v'(c_t^e)$ are outweighed by individuals with longer durations then we can write the welfare equation as:

$$\frac{d\widetilde{W}}{dP} = \frac{dW_0}{dP} \Big/ E_{0,T-1}v'(c_t^e) = \left.\frac{\partial B}{\partial P}\right|_1 bR - b\left[\left.\frac{\partial B}{\partial P}\right|_2 + \frac{\partial D}{\partial P}\frac{B}{T-D}\right] \quad (8)$$

where $R = \frac{-\partial s_P/\partial a_P}{\partial s_P/\partial w_P}$ is the ratio of the liquidity to the moral hazard effect. For the case of a constant hazard, we can then rewrite the welfare equation based on sufficient statistics as:

$$\frac{d\widetilde{W}}{dP} = \frac{\partial B}{\partial P} bR - \frac{\partial D}{\partial P} b\widetilde{\Omega} \quad (9)$$

where $\widetilde{\Omega} \equiv \xi(1+R) + \frac{B}{T-D} > 0$.

3.2 Extension 1: Stochastic Wage Offers

This extension and the next two draw on Chetty (2008). Suppose individuals are offered jobs with a wage from a stochastic offer distribution: $w_t \sim w_m + F(w_t)$. Assume the offers are i.i.d. across periods and there is no recall of previous offers. Optimal search behaviour is described by a reservation wage (McCall 1970), where wages above the reservation wage $w_t \geq R_t$ are accepted.

$$V_t(w_t, A_t) = \max_{A_{t+1} \geqq L} \left(v\left(A_t - A_{t+1} + w_t - \tau\right) + V_{t+1}\left(A_{t+1}\right)\right) \tag{10}$$

Unemployed individuals receive UI benefits b_t. Thus the value for a person who does not find a job at the beginning of a period is:

$$U_t(A_t) = \max_{A_{t+1} \geqq L} \left(u\left(A_t - A_{t+1} + b_t\right) + J_{t+1}\left(A_{t+1}\right)\right) \tag{11}$$

At the beginning of a period a unemployed person has to chose a search intensity s_t and a reservation wage R_t. the value at the beginning of a period is:

$$J_t(A_t) = \max_{s_t, R_t} \left(s_t Prob(w_t \geq R_t) EV_t(A_t) + (1 - s_t Prob(w_t \geq R_t)) U_t(A_t) - \psi(s_t) \right), \tag{12}$$

where $p \equiv Prob(w_t \geq R_t)$ is the probability that an offer comes with a wage above the reservation wage and $EV_t(A_t)$ is the expected value of being employed conditional on receiving an acceptable offer.

$$EV_t(A_t) = E\left[V_t(w_t, A_t) | w_t \geq R_t\right] = \frac{1}{Prob(w_t \geq R_t)} \int_{R_t}^{\infty} V_t(w_t, A_t)\, dw_t$$

Using the envelope condition again, the marginal welfare gain from increasing P, normalized by the UI benefit level, is given as:

$$\frac{dW_0}{dP}\frac{1}{b} \quad = \quad \frac{dJ_0}{db_P} = (1 - ps_0)\frac{\partial U_0}{\partial b_P} - \left((1 - ps_0)\frac{\partial U_0}{\partial w} + ps_0 \frac{\partial EV_0}{\partial w} \right) \frac{d\tau}{db_P}$$

The marginal utility of consumption while employed is given as:

$$(T - D) E_{0,T-1} v'(c_t^e) = (1 - Ps_0)\frac{\partial U_0}{\partial w} + ps_0 \frac{\partial EV_0}{\partial w}$$

Therefore we can write the welfare gain as:

$$\frac{dW_0}{dP}\frac{1}{b} = \widetilde{S}(P)\,u'(c_P^u) - \frac{d\tau}{db_P}(T-D)\,E_{0,T-1}v'(c_t^e)$$

where $\widetilde{S}(t) = \prod_{i=0}^{t}(1-p_i s_i)$ is the survival function and $D = \sum_{t=0}^{T-1}\widetilde{S}(t)$ the expected non-employment probability. The government budget constraint is still given as before and therefore:

$$\frac{d\tau}{db_P} = \frac{d\tau}{dP}\frac{1}{b} = \frac{1}{T-D}\left(\frac{dB}{dP} + \frac{B}{T-D}\frac{dD}{dP}\right)$$

Therefore the marginal welfare gain from an increase in P is given as:

$$\frac{dW_0}{dP} = \widetilde{S}(P)\,b\left[u'(c_P^u) - E_{0,T-1}v'(c_t^e)\right] - \left(b\sum_{t=0}^{P-1}\frac{\partial\widetilde{S}(t)}{\partial P} + \frac{Bb}{T-D}\frac{\partial D}{\partial P}\right)E_{0,T-1}v'(c_t^e)$$

3.3 Extension 2: Heterogeneity

Suppose that the economy consists of N individuals, indexed by i, with utility functions u_i, v_i, and ψ_i. Let A_t^i and w_t^i denote the assets and wages of individual i at time t. Conditional on the benefit schedule, the individual choice problem is identical to the homogenous model. Social welfare is given by the sum of expected utilities subject to the constraint that total UI benefits paid equal total taxes collected in expectation:

$$W_0(P) = \sum_{i=1}^{N}\left(s_0^i V_{i,0}(A_0^i) + (1-s_0^i)U_{i,0}(A_0^i) - \psi_i(s_0^i)\right)$$

The marginal welfare effect of increasing P, normalized by the UI benefit level is

$$\begin{aligned}
\frac{dW_0}{dP}\frac{1}{b} &= \sum_{i=1}^{N}\left((1-s_0^i)\left(\frac{\partial U_{i,0}}{\partial b_P} - \frac{\partial U_{i,0}}{\partial w^i}\frac{d\tau}{db_P}\right) - s_0^i\frac{\partial V_{i,0}}{\partial w^i}\right) \\
&= \sum_{i=1}^{N}\left(S_i(P)\,u_i'(c_P^u) - \frac{d\tau}{db_P}(T-D_i)\,E_{0,T-1}v_i'(c_t^e)\right) \\
&= \overline{S}(P)\sum_{i=1}^{N}\left(\frac{1}{N}\frac{S_i(P)}{\overline{S}(P)}u'(c_P^u)\right) - \frac{d\tau}{db_P}(T-\bar{D})\sum_{i=1}^{N}\left(\frac{1}{N}\frac{T-D_i}{T-\bar{D}}E_{0,T-1}v'(c_t^e)\right) \qquad (13)
\end{aligned}$$

where $\overline{S}(t) = \sum_{i=1}^{N}S_i(t)$, $\bar{B} = \sum_{i=1}^{N}B_i = \sum_{i=1}^{N}\sum_{t=0}^{P-1}S_i(t)$ and $\bar{D} = \sum_{i=1}^{N}D_i = \sum_{i=1}^{N}\sum_{t=0}^{T-1}S_i(t)$.

Note that $\bar{E}u'(c_P^u) \equiv \sum_{i=1}^{N}\left(\frac{1}{N}\frac{S_i(P)}{S(P)}u'(c_P^u)\right)$ is the average expected marginal utility of an exhaustee in the population, while $\bar{E}_{0,T-1}v'(c_t^e) \equiv \sum_{i=1}^{N}\left(\frac{1}{N}\frac{T-D_i}{T-\bar{D}}E_{0,T-1}v'(c_t^e)\right)$ is the average expected marginal utility while employed weighted by the expected employment duration of the individual.

The government budget constraint is:

$$\tau = \frac{\overline{B}b}{T - \overline{\overline{D}}}$$

Differentiating the government budget constraint we get:

$$\frac{d\tau}{db_P} = \frac{1}{T - \overline{D}} \left(\frac{\partial \overline{B}}{\partial P} + \frac{\overline{B}}{T - \overline{D}} \frac{\partial \overline{D}}{\partial P} \right)$$

Plugging this into equation (13) and multiplying by b we get:

$$\frac{dW_0}{dP} = \overline{S}(P)\, b \left[\bar{E}u'(c_P^u) - \bar{E}_{0,T-1} v'(c_t^e) \right] - \left(b \sum_{t=0}^{P-1} \frac{\partial \overline{S}(t)}{\partial P} + \frac{Bb}{T-D} \frac{\partial \overline{D}}{\partial P} \right) \bar{E}_{0,T-1} v'(c_t^e)$$

3.4 Extension 3: Endogenous Ex-Ante Behavior

We again follow Chetty (2008) and model the possibility that individuals adjust their behavior prior to becoming unemployed, such as precautionary savings or buying alternative means of insurance, by adding an additional period $t = -1$ before the first unemployment period. In this period there is a probability of p of getting laid off at the end of the period and a probability of $1 - p$ of receiving tenure and remaining employed until T. The individual has access to an insurance policy that pays $\$z$ if he is laid off and charges a premium $\omega(z)$ if he remains employed. The value function in period -1 is:

$$J_{-1}(A_{-1}) = \max_{A_0, z} v(w_{-1} - \tau - A_0) + pJ_0(A_0 + z) + (1-p)Tv \left(w_t - \tau + \frac{A_0 - \omega(z)}{T} \right)$$

The budget constraint is given as:

$$pBb = (T + 1 - p(T - D))\tau$$

Defining social welfare as before, $W = J_{-1}$, and taking the derivative of J_{-1} with respect to b_P we get:

$$\frac{dW}{dP}\frac{1}{b} = \frac{dJ_{-1}}{db_p} = -v'(c_{-1}^e)\frac{d\tau}{db_p} - (1-p)Tv' \left(w_t - \tau + \frac{A_0 - \omega(z)}{T} \right) \frac{d\tau}{db_p} + p\frac{dJ_0}{db_p}$$

where

$$\frac{dJ_0}{db_p} = (1 - s_0)\frac{\partial U_0}{\partial b_P} - \left((1 - s_0)\frac{\partial U_0}{\partial w} + s_0 \frac{\partial V_0}{\partial w} \right) \frac{d\tau}{db_P}$$

Define the average marginal utility while being employed as:

$$
\begin{aligned}
E_{-1,T-1}v'(c_t^e) &= \frac{1}{T+1-p(T-D)}\Bigg\{(1-p)Tv'(c_{-1}^e) \\
&\quad +p\left(s_0Tv'(c_0^e)+\sum_{t=1}^{T-1}\left[\prod_{i=1}^{t-1}(1-s_i)\right]s_t(T-t)v'(c_t^e)\right)\Bigg\}
\end{aligned}
$$

Taking the derivative of the budget constraint yields:

$$
\frac{d\tau}{db_P}=\frac{p}{(T+1-p(T-D))}\left(\frac{dB}{dP}+\frac{pB}{(T+1-p(T-D))}\frac{dD}{dP}\right)
$$

Then rearranging yields the following equation:

$$
\begin{aligned}
\frac{dW}{dP}\frac{1}{b} &= pS(P)\,u'(c_P^u)-\frac{d\tau}{db_P}(T+1-p(T-D))\,E_{-1,T-1}v'(c_t^e) \\
&= pS(P)\,\left(u'(c_P^u)-E_{-1,T-1}v'(c_t^e)\right) \\
&\quad -p\left(\sum_{t=0}^{P-1}\frac{\partial S(t)}{\partial P}+\frac{pB}{(T+1-p(T-D))}\frac{dD}{dP}\right)E_{-1,T-1}v'(c_t^e)
\end{aligned}
$$

This equation has to be summed over every individual, employed and unemployed, to aggregate up to the population, while our main welfare equation only has to be summed up over the number of individuals that become unemployed. To get an equivalent expression divide by p. This yields the analogous welfare equation to the main text, where $\frac{pB}{(T+1-p(T-D))}$ is essentially the expected unemployment rate in the model. Therefore while ex ante behavior can mitigate the welfare loss from unemployment, it does so by changing the marginal utilities that are elements of the welfare formula, thus with some information about the marginal utilities, the formula can still be applied. Furthermore Chetty (2008) shows how this can be rewritten using a moral hazard and liquidity effect.

3.5 Simulating the Effect of UI Extensions on the Unemployment Rate: the Matching Function

This section briefly summarizes how the matching function can be used to anlayze the impact of UI extensions on the aggregate job exit hazard. We employ the standard matching function approach to describe the technology with which matches occur in the economy. Individuals can differ in their search intensity s, which we think of as being the number of applications an unemployed individual sends out.

The number of new job matches formed based on the number of vacancies v and the number of applications $\bar{u}$ can be written as

$$su = m(v, \bar{u})$$

where s is the baseline hazard of leaving unemployment (which will be affected by the duration of UI benefits), u is the total number of unemployed individuals and the function m is the matching function, often specified as a Cobb-Douglas production function.

Consider first the case when there are two groups indexed by $i \in \{1, 2\}$ in the economy, whose intensity of job search e is a function of potential UI durations. Let P_1 and P_2 be the potential UI durations of the two groups of unemployed workers and $e(P_1)$ and $e(P_2)$ be the respective search intensities. The numbers of individuals in each group are u_1 and u_2 and $u = u_1 + u_2$. The total number of applications is given as:

$$\bar{u} = e(P_1)u_1 + e(P_2)u_2$$

Assuming that each application has an equal probability of being matched, the fraction of all job matches for group i is given as: $\frac{e(P_i)u_i}{\bar{u}}$, the The hazard of leaving unemployment for group i is then given as:

$$s_i = \frac{e(P_i)u_i}{\bar{u}} \frac{m(v, \bar{u})}{u_i} = e(P_i)\frac{m(v, \bar{u})}{\bar{u}}$$

Defining labor market tightness θ as $\theta = \frac{v}{\bar{u}}$, and using the Cobb Douglas specification $m(v, \bar{u}) = m_0 v^{1-\alpha} \bar{u}^{\alpha}$ for the matching function, we get:

$$s_i(P_1, P_2) = e(P_i) m_0 v^{1-\alpha} \bar{u}^{\alpha - 1} = e(P_i)\theta^{1-\alpha}$$

Taking derivatives with respect to P_i yields:

$$\begin{aligned} \frac{\partial s_i}{\partial P_i} &= m_0 v^{1-\alpha} \left[\frac{\partial e}{\partial P_i} \bar{u}^{\alpha-1} + e(P_i) \frac{\partial e}{\partial P_i} u_i (\alpha - 1) \bar{u}^{\alpha-2} \right] \\ &= s_i \frac{\partial e}{\partial P_i} \left[\frac{1}{s(P_i)} + u_i (\alpha - 1) \bar{u}^{-1} \right] \end{aligned}$$

Similarly for the cross derivative:

$$\begin{aligned} \frac{\partial s_i}{\partial P_j} &= m_0 v^{1-\alpha} e(P_i) \frac{\partial e}{\partial P_j} u_j (\alpha - 1) \bar{u}^{\alpha-2} \\ &= s_i \frac{\partial e}{\partial P_j} u_j (\alpha - 1) \bar{u}^{-1} \end{aligned}$$

Thus as one group searches less for jobs due to longer UI durations, the other group is more likely to find one (assuming they do not adjust their search intensity correspondingly and firms do not respond by offering more vacancies, but this should be a second order effect and not be enough to offset the first order effect).

The regression discontinuity estimates for the effect of UI benefit extensions on non-employment durations in this paper provide an estimate for the difference in the hazard rate (using the approximation that the hazard rate is $\frac{1}{D}$ in the constant hazard case) between the two groups that is caused by the difference in the potential benefit durations. Let group 2 be the group with benefit durations being larger than in group 1 by:ΔP. As a response to a lowering of search intensity by Group 2, there is less overall search going on (the $\bar{u}$ in the matching function is smaller), thus raising the exit hazard for the untreated group since there is less crowding. Thus as s_2 goes down, s_1 goes up. This mechanism reduces the estimated effect of the extensions in UI. The larger the treated group relatively to the control group, the larger is this spillover effect. Thus the RD estimator (the difference in the hazard rates divided by the change in ΔP) provides an estimate for: $\beta_s^{RD} = \frac{s_1(P_1,P_1+\Delta P)-s_2(P_1,P_1+\Delta P)}{\Delta P}$

Using a Taylor approximation we have that:

$$\begin{aligned}\beta_s^{RD} &= \frac{1}{\Delta P}\left[s_1(P_1,P_1)+\frac{\partial s_1}{\partial P_2}\Delta P-\left(s_2(P_1,P_1)+\frac{\partial s_2}{\partial P_2}\Delta P\right)\right]\\ &= \frac{\partial s_1}{\partial P_2}(P_1,P_1)-\frac{\partial s_2}{\partial P_2}(P_1,P_1)\end{aligned}$$

where the second inequality comes from $s = s_1(P_1,P_1) = s_2(P_1,P_1)$.

From the expressions for the derivatives above we have that:

$$\beta_s^{RD} = \frac{\partial s_1}{\partial P_2}(P_1,P_1)-\frac{\partial s_2}{\partial P_2}(P_1,P_1) = \frac{s}{e(P)}\frac{\partial e}{\partial P}$$

Note that the RD effect always estimates the marginal effect on search intensity times the average hazard divided by the search intensity, irrpespective of the size of the group that is affected by the policy. The reason is that even though the spillover effects from one group to the other will depend on the group size, this will always exactly cancel with the second term in the effect on the own hazard.

Note that if $P_1 = P_2 = P$, and therefore $s = m_0 v^{1-\alpha}u^{\alpha-1}e(P)^{\alpha} = e\,\theta^{1-\alpha}$, then increasing P for everyone changes the hazard by:

$$
\begin{aligned}
\frac{ds}{dP} &= \frac{\partial e}{\partial P}\theta^{1-\alpha} + e(1-\alpha)\frac{\partial\theta}{\partial e}\frac{\partial e}{\partial P}\theta^{-\alpha} + e(1-\alpha)\frac{\partial\theta}{\partial v}\frac{\partial v}{\partial P}\theta^{-\alpha} \\
&= \frac{\partial e}{\partial P}\frac{s}{e} + (1-\alpha)\frac{\partial e}{\partial P}\frac{s}{e} + e(1-\alpha)\frac{\partial\theta}{\partial v}\frac{\partial v}{\partial P}\theta^{-\alpha} \\
&= \beta_s^{RD} - (1-\alpha)\beta_s^{RD} + \eta \\
&= \alpha\beta_s^{RD} + \eta
\end{aligned}
$$

Where η represents the effect that stems from of an increase in potential UI durations increasing firms incentives to create vacancies and thus lowering labor market tightness.

Suppose only a some workers take up UI benefits and therefore only this group is affected by the UI extension. The setup of the model can capture this as an extension to only a subgroup, e.g. group 1 in the previous notation. Defining ρ to be the take up rate $\frac{u_1}{u}$ we have that:

$$
\begin{aligned}
\frac{\partial s}{\partial P_1} &= m_0\theta^{1-\alpha}\alpha\frac{u_1}{u}\frac{\partial e}{\partial P} + +\rho e(1-\alpha)\frac{\partial\theta}{\partial v}\frac{\partial v}{\partial P}\theta^{-\alpha} \\
&= \alpha\rho\beta_s^{RD} + \rho\eta
\end{aligned}
$$

Using the fact that the RD coefficient for the effect on non-employment durations β_D^{RD} is given as: $\beta_D^{RD} = \frac{-1}{s^2}\beta_s^{RD}$ and that $\frac{\partial D}{\partial P} = \frac{-1}{s^2}\frac{\partial s}{\partial P}$ it is straightforward to show that $\beta_D^{RD} = \frac{-D}{e(P)}\frac{\partial e}{\partial P}$ and furthermore:

$$
\frac{\partial D}{\partial P} = \alpha\beta_D^{RD} + \eta' \text{ and } \frac{\partial D}{\partial P_1} = \alpha\rho\beta_D^{RD} + \rho\eta' \tag{14}
$$

Note that under the set up here we have that $\eta_{D,P}^{RD} \equiv \frac{P}{D}\beta_D^{RD} = \frac{-P}{e(P)}\frac{\partial e}{\partial P} \equiv \eta_{e,P}$, thus the RD estimate expressed as an elasticity is an estimation of the effor elasticity and does not depend on directly depend on the business cycle, through the average non-employment duration D. Therefore how $\eta_{D,P}^{RD}$ varies over the business cycle is how the direct behavioral response is varying, while β_D^{RD} varies both because the behavioral affect may vary over they cycle and because the effectiveness of effort varies over the cycle. As we show in the main text, for welfare purposes the variation of β_D^{RD} is the correct measure, but understanding how effort varies over the cycle is interesting in its own right. Of course this clear interpretation of the elasticity depends on the correct specification of the model and in particular the cobb-douglas matching function.

Given the results here, the general equilibrium effect, when extending the treatment to the whole group, is just α times the partial equilibrium effect measured as β_D^{RD} plus a possible effect from firms responding to lower search effort by creating fewer vacancies. If only part of the group is affected, then the effect on the overall average exit hazard is the RD coefficient times α times the relative size of the affected group. Thus, as long as the vacancy effect is small, which seems very likely in a recession, presence of search externalities through the matching function implies that the effect of reduction of search intensity has a reduced effect on the hazard of leaving unemployment. For the value of $\alpha = 0.5$, which Mortensen and Pissarides (1999) cite as a plausible level, it is about 50% of the partial equilibrium effect. Furthermore for the case of only 50% UI recipients the effect is about $0.5 \times 0.5 = 0.25$ times the partial equilibrium effect.

In our sample we have an increase in potential durations from about 14.7 to 15.5 Months for the increase in UI benefits from 12 to 18 months. Using the simplification of a constant exit hazard over the spell, this corresponds to a decrease in the monthly hazard from about 6.9% to 6.5%. If the increase in durations had applied to the full population, with $\alpha = 0.5$ the incorporation of search externalities would have implied a decrease in the hazard rate of half the size, or, an increase from 14.7 to only 15.1 months.

Web Appendix

Table W-1: Means and Standard Deviations of Main Variables by Age Groups

	(1) Analysis Sample Age 40-41 1987-1999	(2) Analysis Sample Age 42-43 1987-1999	(3) Analysis Sample Age 44-45 1987-1999	(4) Analysis Sample Age 47-48 1987-1999	(5) Analysis Sample Age 49 1987-1999	(6) Analysis Sample Age 43-44 1999-2004	(7) Analysis Sample Age 45-46 1999-2004	(8) Analysis Sample Age 47-48 1999-2004
Panel A: Unemployment Variables								
Maximum UI benefit duration (imputed)	12	18	22	22	26	12	18	22
	[0]	[0]	[0]	[0]	[0]	[0]	[0]	[0]
Duration of UI benefit receipt in months	6.8	8.8	10.4	11.3	13.2	6.4	8.6	10.2
	[4.9]	[7.1]	[8.6]	[8.8]	[10.4]	[4.6]	[6.7]	[8.2]
Non-employment duration in months	15.5	16.5	17.5	19.2	20.5	16.2	17.4	18.7
	[14.2]	[14.3]	[14.6]	[14.8]	[14.9]	[14.3]	[14.4]	[14.6]
Duration until next job	8.3	8.8	9.1	9.4	9.7	8.4	9.0	9.5
	[8.4]	[8.8]	[9.0]	[9.2]	[9.5]	[8.3]	[8.7]	[9.1]
Time between end of job and UI claim	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3
	[3.6]	[3.5]	[3.4]	[3.4]	[3.5]	[3.5]	[3.4]	[3.4]
Daily Post Unemployment Wage in Euro	64.0	63.6	63.4	63.1	63.3	60.8	59.8	58.7
	[29.1]	[28.7]	[28.8]	[29.2]	[29.8]	[30.3]	[29.7]	[29.4]
Post Wage - Pre Wage in Euro	-10.3	-10.8	-11.1	-11.7	-11.7	-11.5	-12.1	-12.7
	[28.6]	[28.5]	[27.9]	[29.7]	[28.9]	[27.2]	[26.9]	[27.1]
Log(Post Wage) - Log(Pre Wage)	-0.17	-0.17	-0.18	-0.19	-0.19	-0.19	-0.21	-0.22
	[0.47]	[0.48]	[0.48]	[0.49]	[0.48]	[0.52]	[0.52]	[0.53]
Switch industry after unemployment	0.72	0.71	0.71	0.69	0.69	0.68	0.67	0.66
	[0.45]	[0.45]	[0.45]	[0.46]	[0.46]	[0.47]	[0.47]	[0.47]
Switch occupation after unemployment	0.63	0.63	0.62	0.61	0.60	0.62	0.61	0.61
	[0.48]	[0.48]	[0.48]	[0.49]	[0.49]	[0.49]	[0.49]	[0.49]
Ever employed again	0.84	0.82	0.78	0.72	0.67	0.78	0.75	0.71
	[0.37]	[0.39]	[0.41]	[0.45]	[0.47]	[0.42]	[0.43]	[0.45]
Non-employment spell censored	0.26	0.28	0.31	0.37	0.41	0.28	0.31	0.35
	[0.44]	[0.45]	[0.46]	[0.48]	[0.49]	[0.45]	[0.46]	[0.48]
Next job is fulltime employment	0.90	0.90	0.89	0.89	0.88	0.89	0.88	0.88
	[0.30]	[0.31]	[0.31]	[0.32]	[0.32]	[0.31]	[0.32]	[0.33]
Log(Wage) 5 years after start of UI	4.18	4.16	4.15	4.13	4.12	4.06	4.02	4.00
	[0.46]	[0.47]	[0.47]	[0.49]	[0.49]	[0.52]	[0.53]	[0.53]
Employed 5 years after start of UI	0.52	0.50	0.47	0.42	0.38	0.29	0.27	0.25
	[0.50]	[0.50]	[0.50]	[0.49]	[0.49]	[0.45]	[0.44]	[0.43]
Unemployed 5 years after start of UI	0.14	0.16	0.17	0.18	0.19	0.042	0.045	0.048
	[0.35]	[0.36]	[0.37]	[0.38]	[0.40]	[0.20]	[0.21]	[0.21]
Panel B: Demographic Variables								
Daily Wage in Euro	75.4	75.4	75.4	75.6	76.0	73.4	73.0	72.5
	[32.3]	[32.9]	[32.7]	[34.6]	[33.8]	[34.0]	[33.8]	[33.9]
Education years	11.0	10.9	10.8	10.7	10.6	11.1	11.1	11.0
	[2.35]	[2.29]	[2.20]	[2.04]	[1.97]	[2.47]	[2.45]	[2.42]
Female	0.34	0.35	0.36	0.36	0.36	0.32	0.34	0.35
	[0.47]	[0.48]	[0.48]	[0.48]	[0.48]	[0.47]	[0.47]	[0.48]
Non-German	0.11	0.12	0.13	0.14	0.14	0.054	0.056	0.058
	[0.31]	[0.32]	[0.33]	[0.35]	[0.35]	[0.23]	[0.23]	[0.23]
Actual experience (censored 1975)	12.1	12.4	12.7	13.2	13.6	14.4	15.0	15.4
	[5.34]	[5.59]	[5.72]	[5.71]	[5.61]	[6.43]	[7.00]	[7.35]
Firm tenure	6.25	6.51	6.84	7.39	7.69	6.25	6.53	6.81
	[5.20]	[5.44]	[5.69]	[5.96]	[6.07]	[5.62]	[5.96]	[6.26]
Occupation tenure	8.10	8.43	8.78	9.38	9.73	9.24	9.73	10.1
	[5.41]	[5.64]	[5.84]	[5.99]	[6.04]	[6.32]	[6.76]	[7.06]
Industry tenure	7.74	8.06	8.44	9.05	9.42	5.37	5.67	5.96
	[5.52]	[5.76]	[5.98]	[6.15]	[6.21]	[6.18]	[6.54]	[6.85]
Number of Spells	228552	224666	225785	221325	108741	174019	167618	164394

Notes: The table shows means and standard deviations (in brackets) for the main variables used in the analysis. Wages are in prices of 2000. The sample for this table consists of individuals who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-2: Regression Disccontinuity Estimates of Effect Of Potential ALG Duration on Employment Outcomes - Excluding Observations within One Month of Age Threshold

	(1) UI Benefit Duration	(2) Non-Emp Duration	(3) Time until Claim	(4) Ever emp. again	(5) Emp. 5 years later	(6) UI 5 years later
D(age>=42)	1.80 [0.039]**	0.76 [0.094]**	0.0089 [0.022]	-0.011 [0.0024]**	-0.0047 [0.0032]	0.0052 [0.0022]*
Observations	433959	433959	433959	433959	433959	433959
D(age>=44)	1.01 [0.051]**	0.35 [0.097]**	0.0033 [0.022]	-0.0045 [0.0027]	-0.0075 [0.0032]*	0.0052 [0.0025]*
Observations	431416	431416	431416	431416	431416	431416
D(age>=49)	1.34 [0.089]**	0.37 [0.14]**	0.00078 [0.030]	-0.0078 [0.0040]	-0.0029 [0.0045]	0.0067 [0.0035]
Observations	311424	311424	311424	311424	311424	311424

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).
The sample consists of individuals starting unemployment spells between July 1987 and March 1999, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-3: Regression Discontinuity Estimates of Smoothness of Predetermined Variables around Age Discontinuities - Excluding Observations within One Month of Age Threshold

	(1) Years of Education	(2) Female	(3) Foreign Citizen	(4) Tenure Last Job	(5) Experience Last Job	(6) Occ Tenure Last Job	(7) Ind Tenure Last Job	(8) Pre Wage
D(age>=42)	0.014	0.0045	0.0018	-0.035	-0.013	-0.049	-0.026	0.12
	[0.015]	[0.0031]	[0.0024]	[0.030]	[0.056]	[0.040]	[0.018]	[0.22]
Observations	433959	433959	433959	433959	433959	433959	433959	401275
D(age>=44)	-0.019	-0.0015	0.000023	-0.040	-0.088	-0.071	-0.030	-0.067
	[0.014]	[0.0030]	[0.0026]	[0.031]	[0.053]	[0.040]	[0.019]	[0.22]
Observations	431416	431416	431416	431416	431416	431416	431416	396510
D(age>=49)	0.023	0.0091	0.00048	-0.041	-0.14	-0.029	-0.017	-0.39
	[0.016]	[0.0040]*	[0.0038]	[0.039]	[0.073]	[0.054]	[0.024]	[0.31]
Observations	311424	311424	311424	311424	311424	311424	311424	276592

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).
The sample consists of individuals starting unemployment spells between July 1987 and March 1999, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-4: The Effect of Extended UI Durations on Non-employment Durations – Different Duration Measures

	(1) **Main Meas.** Non-emp Dur Cutoff 36 mo	(2) Time-to-Job Dur Cens 2008	(3) Time-to-Job Dur within 36 mo	(4) Non-emp Dur Cutoff 48 mo	(5) Non-emp Dur Cutoff 60 mo	(6) Ever emp again	(7) Not empl. in 36 months	(8) Not empl. in 48 months	(9) Not empl. in 60 months
Age 42 cutoff: $\frac{dy}{dP}$	**0.13**	**0.13**	**0.073**	**0.16**	**0.18**	**-0.0017**	**0.0028**	**0.0021**	**0.0018**
	[0.014]**	[0.026]**	[0.010]**	[0.019]**	[0.023]**	[0.00037]	[0.00044]**	[0.00043]**	[0.00041]**
$\eta_{y,P}$	**0.12**	**0.12**	**0.13**	**0.12**	**0.12**	**-0.031**	**0.15**	**0.13**	**0.13**
	[0.013]**	[0.024]**	[0.017]**	[0.015]**	[0.016]**	[0.0066]	[0.024]**	[0.027]**	[0.028]**
Observations	452749	374487	329549	452749	452749	452749	452749	452749	452749
Age 44 cutoff: $\frac{dy}{dP}$	**0.10**	**0.13**	**0.028**	**0.13**	**0.16**	**-0.0014**	**0.0031**	**0.0022**	**0.0017**
	[0.022]**	[0.040]**	[0.016]*	[0.029]**	[0.036]**	[0.00061]	[0.00070]**	[0.00066]**	[0.00065]**
$\eta_{y,P}$	**0.12**	**0.16**	**0.062**	**0.13**	**0.14**	**-0.035**	**0.21**	**0.17**	**0.14**
	[0.026]**	[0.050]**	[0.036]*	[0.029]**	[0.031]**	[0.015]	[0.047]**	[0.051]**	[0.054]**
Observations	450280	359778	315880	450280	450280	450280	450280	450280	450280
Age 49 cutoff: $\frac{dy}{dP}$	**0.11**	**0.065**	**0.056**	**0.14**	**0.15**	**-0.0019**	**0.0028**	**0.0019**	**0.0015**
	[0.029]**	[0.043]	[0.022]**	[0.039]**	[0.049]**	[0.00089]	[0.00098]**	[0.00095]**	[0.00093]
$\eta_{y,P}$	**0.13**	**0.099**	**0.14**	**0.13**	**0.13**	**-0.067**	**0.17**	**0.12**	**0.10**
	[0.034]**	[0.066]	[0.056]**	[0.038]**	[0.041]**	[0.031]	[0.059]**	[0.062]**	[0.064]
Observations	329680	230838	203982	329680	329680	329680	329680	329680	329680

Notes: Table shows estimated marginal effects of one additional month of UI eligibility (i.e. coefficients from RD regressions rescaled by the increase in potential benefit durations). RD estimates from local linear regressions with different slopes on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).
The sample for this table consists of individuals starting unemployment spells between July 1987 and March 1999, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-5: Effect of Extended UI Durations – Pooling All Unemployment Spells (No Experience Restrictions)

	(1) UI Benefit Duration	(2) Non-Emp Duration	(3) Time until Claim	(4) Ever emp. again	(5) Emp. 5 years later	(6) UI 5 years later
D(age>=42)	0.98	0.45	-0.023	-0.0022	0.0024	0.0020
	[0.016]**	[0.036]**	[0.020]	[0.00072]**	[0.0012]	[0.00095]*
Observations	2467954	2467954	2186734	2467954	2467954	2467954
D(age>=44)	0.46	0.21	0.0079	-0.00056	-0.0041	0.0029
	[0.019]**	[0.036]**	[0.020]	[0.00078]	[0.0013]**	[0.0011]**
Observations	2293865	2293865	2068431	2293865	2293865	2293865
D(age>=49)	0.76	0.40	0.0042	-0.0047	0.0010	0.0028
	[0.032]**	[0.050]**	[0.022]	[0.0013]**	[0.0017]	[0.0014]
Observations	1550099	1550099	1377439	1550099	1550099	1550099

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).

Table W-6: Regression Discontinuity Estimates of Effect of Potential ALG - Period April 1999 to December 2004

	(1) ALG Duration	(2) Non-Emp Duration	(3) Time until Claim	(4) Ever emp. again	(5) Emp. 5 years later	(6) UI 5 years later	(7) Log Wage Difference	(8) Log Post Wage
Panel A: All observations								
D(age>=45)	1.74	0.44	-0.044	-0.0020	-0.00038	-0.0014	-0.0022	0.0010
	[0.044]**	[0.11]**	[0.025]	[0.0032]	[0.0034]	[0.0016]	[0.0046]	[0.0048]
$\frac{dy}{dP}$	**0.29**	**0.073**	**-0.0074**	**-0.00033**	**-0.000063**	**-0.00023**	**-0.00036**	**0.00017**
	[0.0073]**	[0.018]**	[0.0042]	[0.00053]	[0.00057]	[0.00026]	[0.00076]	[0.00079]
$\eta_{y,P}$	**0.59**	**0.065**	**-0.086**	**-0.0064**	**-0.0035**	**-0.078**	**0.027**	**0.00065**
	[0.015]**	[0.017]**	[0.049]	[0.010]	[0.031]	[0.089]	[-0.057]	[0.0030]
Observations	326887	326887	326887	326887	326887	326887	237698	248322
D(age>=47)	0.98	0.26	-0.030	-0.0022	0.0024	0.0014	0.0036	0.00068
	[0.059]**	[0.11]*	[0.026]	[0.0035]	[0.0033]	[0.0016]	[0.0049]	[0.0050]
$\frac{dy}{dP}$	**0.25**	**0.066**	**-0.0075**	**-0.00055**	**0.00060**	**0.00034**	**0.00091**	**0.00017**
	[0.015]**	[0.028]**	[0.0064]	[0.00087]	[0.00083]	[0.00040]	[0.0012]	[0.0013]
$\eta_{y,P}$	**0.53**	**0.073**	**-0.12**	**-0.015**	**0.045**	**0.15**	**-0.088**	**0.00086**
	[0.031]**	[0.031]**	[0.098]	[0.024]	[0.063]	[0.17]	[-0.12]	[0.0064]
Observations	317781	317781	317781	317781	317781	317781	221053	231246
Panel B: Excluding observations within 1 month of discontinuity								
D(age>=45)	1.73	0.47	-0.029	-0.0027	-0.0020	-0.00062	-0.0043	0.00042
	[0.040]**	[0.10]**	[0.023]	[0.0029]	[0.0031]	[0.0014]	[0.0042]	[0.0043]
$\frac{dy}{dP}$	**0.29**	**0.078**	**-0.0049**	**-0.00045**	**-0.00034**	**-0.00010**	**-0.00072**	**0.000069**
	[0.0066]**	[0.017]**	[0.0039]	[0.00049]	[0.00052]	[0.00023]	[0.00070]	[0.00072]
$\eta_{y,P}$	**0.58**	**0.070**	**-0.058**	**-0.0089**	**-0.019**	**-0.036**	**0.054**	**0.00026**
	[0.013]**	[0.015]**	[0.045]	[0.0095]	[0.028]	[0.080]	[-0.052]	[0.0027]
Observations	341248	341248	341248	341248	341248	341248	248148	259278
D(age>=47)	1.02	0.29	-0.041	-0.0018	0.0013	0.00092	0.0031	0.00025
	[0.053]**	[0.10]**	[0.023]	[0.0031]	[0.0031]	[0.0015]	[0.0045]	[0.0046]
$\frac{dy}{dP}$	**0.25**	**0.072**	**-0.010**	**-0.00046**	**0.00033**	**0.00023**	**0.00077**	**0.000063**
	[0.013]**	[0.025]**	[0.0059]	[0.00078]	[0.00078]	[0.00037]	[0.0011]	[0.0011]
$\eta_{y,P}$	**0.55**	**0.080**	**-0.16**	**-0.012**	**0.025**	**0.097**	**-0.074**	**0.00032**
	[0.029]**	[0.028]**	[0.090]	[0.021]	[0.059]	[0.16]	[-0.11]	[0.0058]
Observations	331584	331584	331584	331584	331584	331584	230664	241263

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).
The sample for this table consists of individuals starting unemployment spells between April 1999 and December 2004, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-7: Table: Regression Discontinuity Estimates of Potential UI durations on Escape Hazards from Non-employment during Different Periods of the Non-employment Spell

	(1) Month 0-11	(2) Month 12	(3) Month 13-17	(4) Month 18	(5) Month 19-21	(6) Month 22	(7) Month 23-36
D(age>=42)	-0.027	-0.021	-0.0089	0.012	0.0033	0.0033	0.0061
	[0.0030]**	[0.0019]**	[0.0030]**	[0.0017]**	[0.0026]	[0.0015]*	[0.0040]
Elasticity	-0.13	-1.09	-0.16	0.88	0.12	0.39	0.081
Observations	452749	216220	205610	175033	169047	156784	153364
D(age>=44)	-0.0089	-0.0013	-0.013	-0.013	-0.0073	0.0095	0.0023
	[0.0031]**	[0.0015]	[0.0030]**	[0.0017]**	[0.0023]**	[0.0016]**	[0.0040]
Elasticity	-0.091	-0.19	-0.48	-1.91	-0.50	1.83	0.061
Observations	450280	228378	220369	190672	184531	171299	166754
D(age>=49)	-0.012	0.0021	-0.00046	-0.0021	-0.0098	-0.013	0.013
	[0.0037]**	[0.0016]	[0.0028]	[0.0015]	[0.0022]**	[0.0015]**	[0.0041]**
Elasticity	-0.18	0.48	-0.029	-0.66	-1.11	-3.52	0.52
Observations	329680	191107	185996	166832	163349	154109	150335

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)). The sample for this table consists of individuals starting unemployment spells between July 1987 and April 1999, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-8: Table: The effect of characteristics of unemployed workers on entering ALH at the ALG exhaustion points

	(1) Age 40-41	(2) Age 42-43	(3) Age 44-48	(4) Age 49
Education years	-0.020	-0.026	-0.027	-0.029
	[0.0010]**	[0.0012]**	[0.00082]**	[0.0020]**
Tenure	-0.000059	-0.00071	-0.00057	-0.0014
	[0.00048]	[0.00051]	[0.00030]	[0.00063]*
Female	-0.19	-0.19	-0.23	-0.24
	[0.0056]**	[0.0062]**	[0.0039]**	[0.0087]**
Log Pre UI Wage	-0.15	-0.13	-0.12	-0.10
	[0.0100]**	[0.011]**	[0.0065]**	[0.014]**
Log UI Benefit Lev	0.19	0.16	0.15	0.14
	[0.012]**	[0.013]**	[0.0077]**	[0.017]**
West Germany	-0.11	-0.085	-0.084	-0.089
	[0.0087]**	[0.0097]**	[0.0064]**	[0.016]**
Non-German	0.15	0.16	0.21	0.24
	[0.0073]**	[0.0077]**	[0.0045]**	[0.0097]**
Observations	38434	31084	78386	15767
Mean of Dep. Var.	0.53	0.50	0.50	0.50

Notes: The sample for this table consists of individuals starting unemployment spells between July 1987 and April 1999, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-9: Regression Discontinuity Estimates of Effect of Potential UI durations by Periods with Declining and Rising Unemployment Rates (UER)

	(1) ALG Duration	(2) Non-Emp Duration	(3) Time until Claim	(4) Ever emp. again	(5) Emp. 5 years later	(6) UI 5 years later	(7) Log Wage Difference	(8) Post UI Log Wage
Panel A: Declining UER (1987-1991)								
D(age>=42)	1.74	1.01	0.048	-0.020	-0.016	-0.0016	-0.0077	-0.0029
	[0.089]**	[0.21]**	[0.048]	[0.0056]**	[0.0071]*	[0.0044]	[0.010]	[0.011]
Elasticity	0.64	0.18	0.086	-0.066	-0.084	-0.037	0.10	-0.0018
Observations	89427	89427	89427	89427	89427	89427	48363	49635
D(age>=44)	1.03	0.61	0.066	-0.011	-0.0091	0.0033	0.0053	0.0084
	[0.11]**	[0.21]**	[0.050]	[0.0058]	[0.0071]	[0.0050]	[0.010]	[0.012]
Elasticity	0.50	0.16	0.20	-0.061	-0.083	0.12	-0.14	0.010
Observations	85847	85847	85847	85847	85847	85847	45192	46417
D(age>=49)	0.97	0.23	0.0065	-0.0037	-0.021	0.0061	-0.0041	-0.0021
	[0.18]**	[0.27]	[0.056]	[0.0081]	[0.0084]*	[0.0063]	[0.013]	[0.015]
Elasticity	0.52	0.075	0.028	-0.033	-0.30	0.26	0.11	-0.0031
Observations	76973	76973	76973	76973	76973	76973	38080	39037
Panel B: Growing UER (1992-1997)								
D(age>=42)	1.95	0.70	0.010	-0.0089	-0.00083	0.0072	-0.0073	-0.0039
	[0.050]**	[0.12]**	[0.028]	[0.0030]**	[0.0039]	[0.0029]*	[0.0067]	[0.0073]
Elasticity	0.61	0.11	0.020	-0.027	-0.0041	0.12	0.065	-0.0025
Observations	267711	267711	267711	267711	267711	267711	157209	160598
D(age>=44)	1.11	0.33	0.0020	-0.0034	-0.0064	0.0060	-0.0011	-0.0054
	[0.066]**	[0.12]**	[0.028]	[0.0034]	[0.0042]	[0.0032]	[0.0068]	[0.0076]
Elasticity	0.61	0.10	0.0085	-0.023	-0.072	0.20	0.019	-0.0068
Observations	269821	269821	269821	269821	269821	269821	155595	158859
D(age>=49)	1.59	0.47	-0.034	-0.010	0.0025	0.0079	-0.011	-0.022
	[0.11]**	[0.17]**	[0.040]	[0.0054]	[0.0056]	[0.0050]	[0.012]	[0.013]
Elasticity	0.75	0.14	-0.15	-0.097	0.041	0.25	0.18	-0.034
Observations	180693	180693	180693	180693	180693	180693	92254	94407

Notes: Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff. Standard errors clustered on day level (* P<.05, ** P<.01)).
The sample consists of individuals starting unemployment spells between July 1987 and March 1999, who had worked for 52 months in the last 7 years without intermittent UI spell. Observations within 1 month of discontinuity are excluded.

Table W-10: Hazard Model, Age 40-49, Period 1987-2004

	(1) Hazard	(2) Hazard	(3) Hazard
Female	-0.19	-0.19	-0.19
	[0.0075]**	[0.0075]**	[0.0075]**
November/January/February	0.16	0.16	0.16
	[0.0069]**	[0.0069]**	[0.0069]**
December	0.15	0.15	0.15
	[0.012]**	[0.012]**	[0.012]**
Education years	-0.013	-0.013	-0.013
	[0.0014]**	[0.0014]**	[0.0014]**
west	-0.17	-0.17	-0.17
	[0.0077]**	[0.0077]**	[0.0077]**
Non-German	-0.42	-0.42	-0.42
	[0.013]**	[0.013]**	[0.013]**
Log Pre UI Wage	-0.087	-0.087	-0.087
	[0.011]**	[0.011]**	[0.011]**
Log UI Benefit Lev	-0.038	-0.038	-0.038
	[0.014]**	[0.014]**	[0.014]**
Chg. Unemp Rate	0.012	0.015	0.018
	[0.029]	[0.024]	[0.025]
NoUI	-0.090	-0.096	-0.16
	[0.024]**	[0.024]**	[0.031]**
UI0	0.24	0.23	0.17
	[0.034]**	[0.034]**	[0.039]**
NoUI X Change UR	-0.067	-0.067	-0.046
	[0.024]**	[0.024]**	[0.030]
UI0 X Change UR	-0.049	-0.049	-0.028
	[0.035]	[0.035]	[0.040]
UI_1_5	0.046	0.049	
	[0.0050]**	[0.0048]**	
UI1_5 X Change UR	0.0011	0.00077	
	[0.0054]	[0.0051]	
UI_1_2			0.11
			[0.018]**
UI_3_5			0.027
			[0.0080]**
UI1_2 X Change UR			-0.021
			[0.020]
UI3_5 X Change UR			0.0091
			[0.0088]
UI_6_15	0.015		
	[0.0022]**		
UI_16_25	0.0069		
	[0.0028]*		
UI6_15 X Change UR	-0.0042		
	[0.0019]*		
UI16_25 X Change UR	-0.0033		
	[0.0029]		
UI_6_25		0.012	0.012
		[0.0018]**	[0.0018]**
UI6_25 X Change UR		-0.0039	-0.0041
		[0.0011]**	[0.0011]**
Cubic Age Polynomial	Yes	Yes	Yes
Interactions Age Poly., Change UR, and Post 1999	Yes	Yes	Yes
E[Nonemp Dur | ALG=12 mon]	14.6	14.5	14.6
E[Nonemp Dur | ALG=18 mon]	15.6	15.5	15.5
Elasticity at av. UR	0.17	0.16	0.15
Elasticity at ChgUR = -1	0.25	0.23	0.23
Elasticity at ChgUR = +1	0.12	0.11	0.11
Months at Risk	2028572	2028572	2028572
Subjects	132763	132763	132763

Notes: Cox Proportional Hazard Model Regressions. Coefficients are the coefficients on the covariates (not Hazard Ratios). Sample: Unemployed workers between age 40 and 49 with maximum potential UI Duration. For definition of UI Splines see Meyer 1990 (though here numbers refer to months instead of weeks).
Implied Non-emp. Duration elasticities are calculated for a person with average sample characteristics. Confidence Levels: * P<.05, ** P<.01).
The sample for this table consists of individuals starting unemployment spells between July 1987 and December 2004, who had worked for 52 months in the last 7 years without intermittent UI spell.

Table W-11: Pooled Linear Regression Model of the Effect of Potential UI Duration on Non-employment Duration, Unemployed Individuals Age 40-49 during 1987 to 2004

	(1) Non-employment Duration	(2) Non-employment Duration	(3) Non-employment Duration	(4) Non-employment Duration
Pot. UI Duration in months	0.12	0.12	0.11	0.12
	[0.013]**	[0.014]**	[0.013]**	[0.014]**
Pot. UI Dur X Post 1999	-0.052	-0.055	-0.087	-0.092
	[0.022]*	[0.023]*	[0.022]**	[0.023]**
Pot. UI Duration X Change UR		-0.0070		-0.014
		[0.013]		[0.013]
Female			2.69	2.69
			[0.028]**	[0.028]**
November/January/February			-2.00	-2.00
			[0.026]**	[0.026]**
December			-2.36	-2.36
			[0.047]**	[0.047]**
Education years			0.17	0.17
			[0.0051]**	[0.0051]**
West Germany			1.81	1.81
			[0.030]**	[0.030]**
Non-German			5.02	5.02
			[0.044]**	[0.044]**
Log Pre UI Wage			1.37	1.37
			[0.044]**	[0.044]**
Log UI Benefit Lev			0.37	0.37
			[0.053]**	[0.053]**
Age Polynomial (1-4th Power)	Yes	Yes	Yes	Yes
Interactions Age Poly., Change UR, and Post 1999	Yes	Yes	Yes	Yes
Observations	1372307	1372307	1327027	1327027
Implied Non-employment Duration Elasticity for Increase in Pot UI Dur from 12 to 18 Months				
Elasticity at avg. ChgUR	**0.093**	**0.093**	**0.071**	**0.071**
Elasticity at ChgUR = -1		**0.10**		**0.087**
Elasticity at ChgUR = +1		**0.088**		**0.061**

Notes: Dependent variable is non-employment duration in months. Sample: Unemployed workers age 40 to 49 with maximum potential UI Duration. Implied Non-emp. Duration elasticities are calculated for a person with average sample characteristics over entire period. Confidence Levels: * P<.05, ** P<.01).

Table W-12: Comparing German UI Analysis Sample with Unemployed Workers in US

	(1) Germany UI Spells Jul 1987-2004 Max Pot Duration Age 40-49	(2) United States CPS March 1987-2004 All Unemployed Individuals Age 40-49	(3) United States CPS March 1987-2004 Individ. who received UI Ben in prev year	(4) United States DWS 1988-2004 All Job Losers Age 40-49	(5) United States DWS 1988-2004 received UI ben. Age 40-49
Female	0.34	0.43	0.41	0.45	0.44
	[0.47]	[0.50]	[0.49]	[0.50]	[0.50]
Age	44.4	44.1	44.2	44.2	44.2
	[2.87]	[2.84]	[2.85]	[2.86]	[2.86]
Age Squared	1979.2	1954.0	1961.5	1959.1	1966.1
	[255.1]	[252.2]	[252.9]	[253.5]	[254.3]
Education years	11.1	12.8	12.9	13.3	13.2
	[2.45]	[2.15]	[2.06]	[2.46]	[2.40]
Tenure at previous / lost job	6.65	.	.	6.10	6.67
	[5.69]	.	.	[6.59]	[6.70]
Citizen	0.92	0.88	0.92	.	.
	[0.28]	[0.32]	[0.27]	.	.
Sector: Mining and Logging	0.0078	0.020	0.020	0.017	0.022
	[0.088]	[0.14]	[0.14]	[0.13]	[0.15]
Sector: Construction	0.16	0.18	0.18	0.10	0.11
	[0.37]	[0.39]	[0.38]	[0.31]	[0.31]
Sector: Manufacturing	0.38	0.21	0.29	0.26	0.32
	[0.48]	[0.40]	[0.45]	[0.44]	[0.46]
Sector: Trade; Transportation; Utilities; Information	0.22	0.24	0.21	0.33	0.31
	[0.41]	[0.43]	[0.41]	[0.47]	[0.46]
Sector: All Services, Government	0.24	0.35	0.31	0.30	0.25
	[0.42]	[0.48]	[0.46]	[0.46]	[0.43]
Exhausted unemployment benefits	0.38	.	.	0.22	0.42
	[0.49]	.	.	[0.41]	[0.49]
Number of Spells	1399618	14140	17459	9720	4825

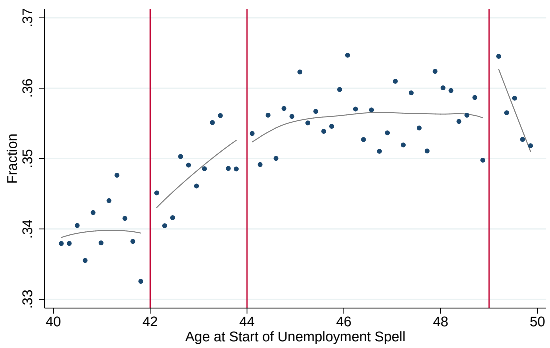
Notes: Table shows variable means with corresponding standard deviations in brackets. Column (1) shows characteristics of our main analysis sample of unemployed individuals between 1987 and 2004. Column (2) shows average chracteristics for all unemployed individuals age 40 to 49 in the March CPS, pooling years 1987 to 2004. Column (3) report characteristics of individuals age 40 to 49 in the March CPS who identified themselves as having received some UI benefits during the preceding year. Column 4 shows characteristics of displaced workers in the Displaced Worker Supplement to the CPS between 1988 and 2004 who idetified themselves as having lost a job in the previous 3 years and who are age 40 to 49. Column (5) shows the sample sample but restricted to individuals who also received UI benefits after losing their job.

Table W-13: The Correlation of Labor Supply Elasticities from Regression Discontinuity Estimates with the Economic Environment

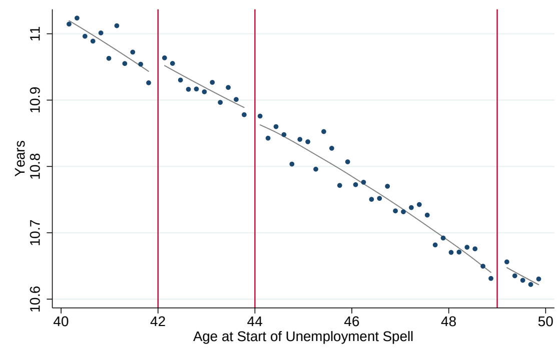
	(1) Mean & SE	(2) Non-Emp Duration Elasticity	(3) Non-Emp Duration Elasticity Reweigthed to CPS March Unemp	(4) Non-Emp Duration Elasticity Reweigthed to CPS March UI Ben in prev. year	(5) Non-Emp Duration Elasticity Reweigthed to DWS Job Losers	(6) Non-Emp Duration Elasticity Reweigthed to DWS Job Losers who received UIB
Unemployment Rate in Percent	9.09	-0.013	-0.017	-0.012	-0.019	-0.017
	[1.63]	[0.0071]	[0.017]	[0.017]	[0.018]	[0.018]
Change in Unemployment Rate	0.13	-0.018	0.017	0.0057	0.0054	-0.00074
	[0.77]	[0.014]	[0.035]	[0.035]	[0.037]	[0.037]
Real GDP Growth	3.07	0.014	0.0069	0.0056	0.0077	0.0068
	[1.66]	[0.0075]	[0.019]	[0.019]	[0.020]	[0.020]
Mass Layoff Rate	1.31	-0.039	-0.059	-0.046	-0.053	-0.055
	[0.52]	[0.022]	[0.056]	[0.057]	[0.058]	[0.059]
Average Log Wage Loss	-0.14	0.090	0.10	0.12	0.13	0.17
in Year-Quintile Cell	[0.14]	[0.17]	[0.29]	[0.29]	[0.31]	[0.31]
Mean of Dep Var		0.12	0.11	0.097	0.082	0.083
Observations in Row 1-4		51	51	51	51	51
Observations in Row 5		238	238	238	238	238

Notes: Columns (2)-(6) report coeffients from a 2 step regression. In the first step the effect of Extended UI durations on non-employment durations are estimated separately for all years and age thresholds using the regression discontinuity estimator. In the second step the resulting elasticities/marginal effects are regressed on measures of the economic environment. Each reported coefficient represents the coefficient on those measures, given in the row names. The second step regressions also include a dummy for elasticities measured after the 1999 reform. is from a separate regression. Coefficients from RD regressions. Local linear regressions (different slopes) on each side of cutoff.
Stars indicate confidence levels: * P<.05, ** P<.01.

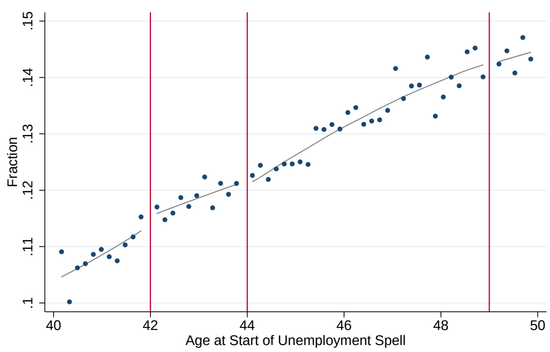
Figure W-1: Baseline Characteristics around Age Discontinuities



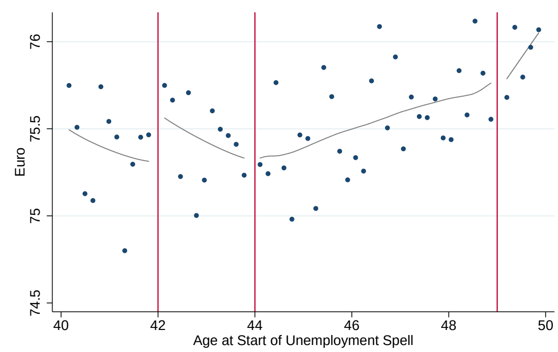
(a) Female



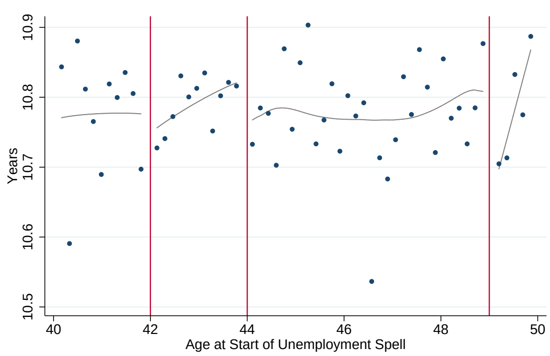
(b) Education in Years



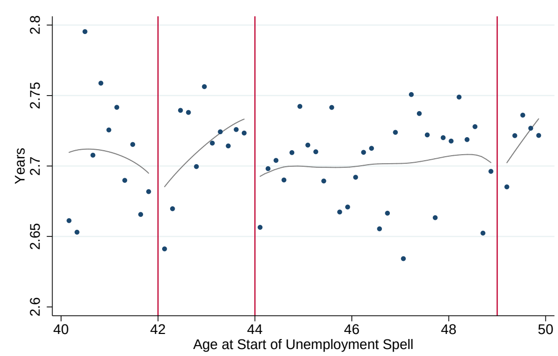
(c) Foreign Citizenship



(d) Previous Wage



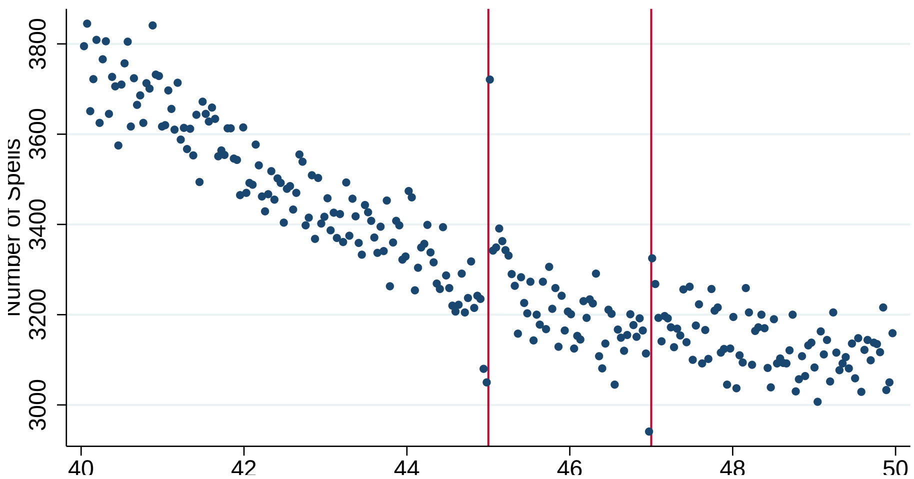
(e) Actual Experience



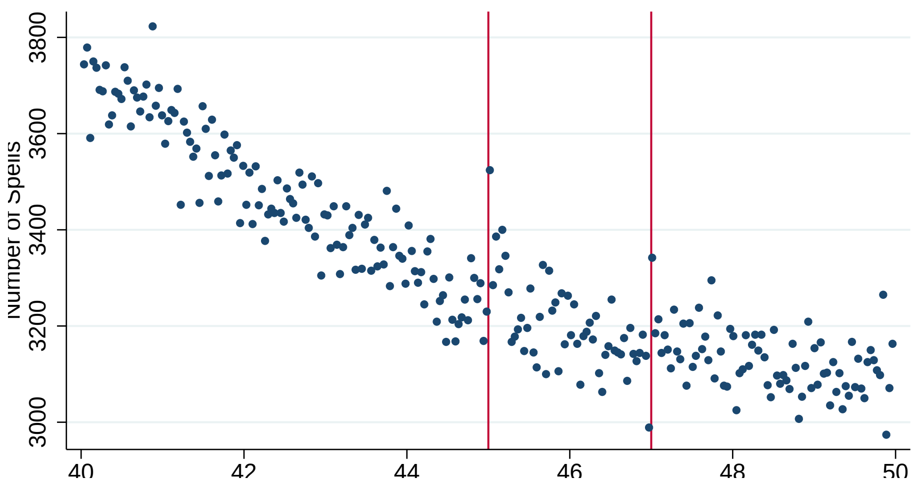
(f) Employer Tenure

Notes: For sample description see Figure 1.

Figure W-2: Density around Age Cutoffs for Potential UI Durations - Period March 1999 to December 2004



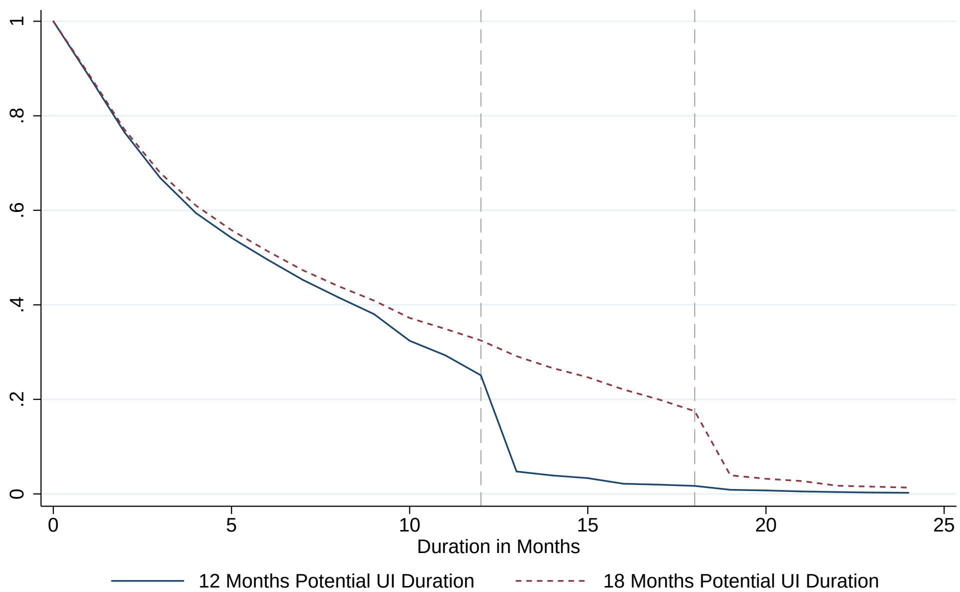
(a) Age on date of UI claim



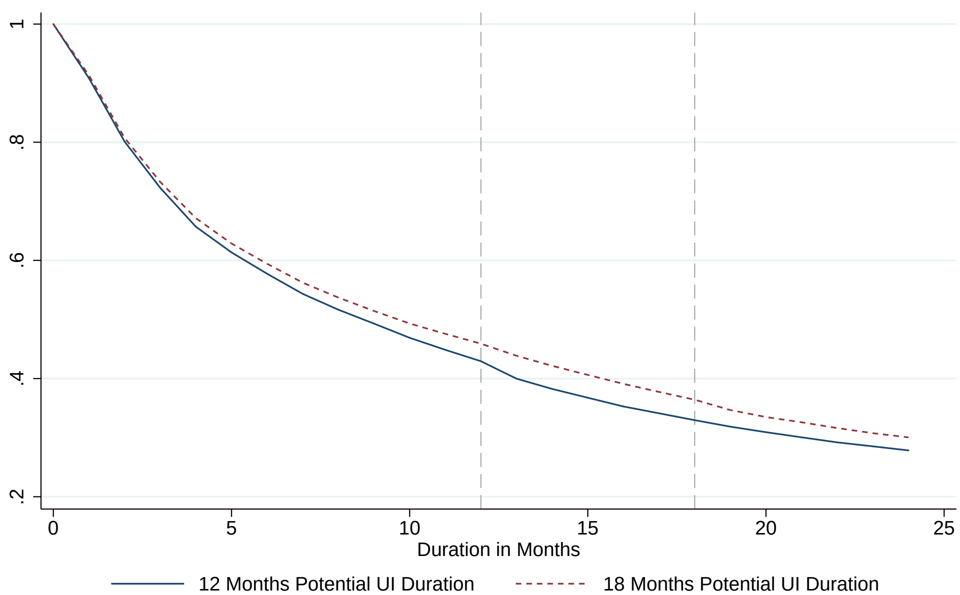
(b) Age at Job Loss

Notes: The top figure shows density of spells by age at the start of receiving unemployment insurance (i.e. the number of spells in 2 week interval age bins). The bottom figure shows the density by age at the end of the last job before the UI spell. The vertical lines mark age cutoffs for increases in potential UI durations at age 45 (12 to 18 months) and 47 (18 to 22 months). The sample are unemployed worker who had worked for at least 6 out of the last 7 years (and did not receive UI benefits in that time).

Figure W-3: Effect of Increasing Potential UI Durations from 12 to 18 Months on the Survival Functions - Regression Discontinuity Estimate at Age 42 Discontinuity



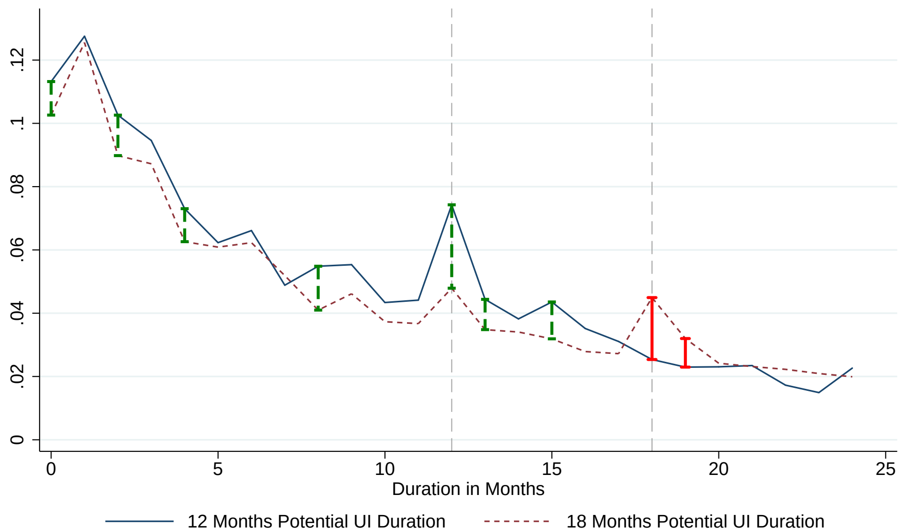
(a) Survival functions for staying in UI (ALG) built up from RD estimates



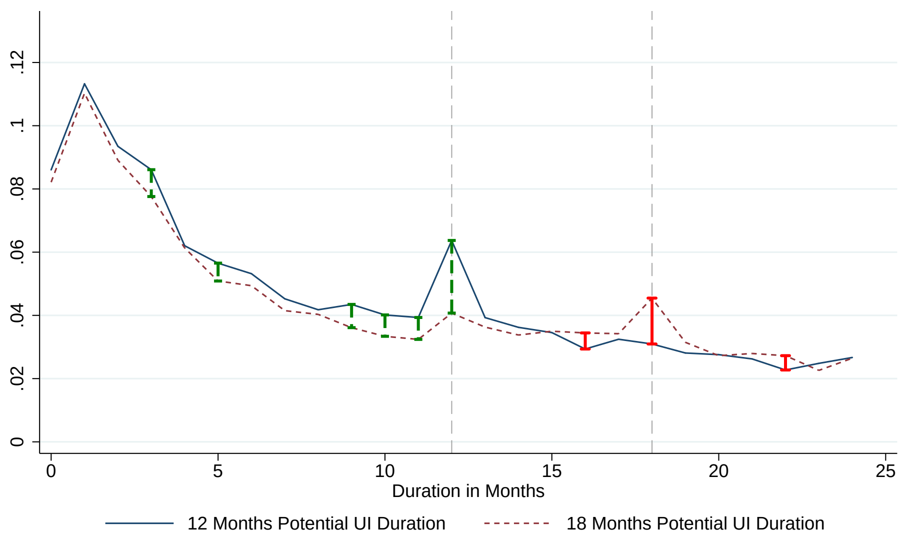
(b) Survival functions for staying in non-employment built up from RD estimates

Notes: The survival functions in both figures are estimated pointwise at each point of support using regression discontinuity estimation. For details see text.

Figure W-4: Effect of Increasing Potential UI Durations from 12 to 18 Months on the Monthly Hazard Functions - Regression Discontinuity Estimate at Age 42 Discontinuity



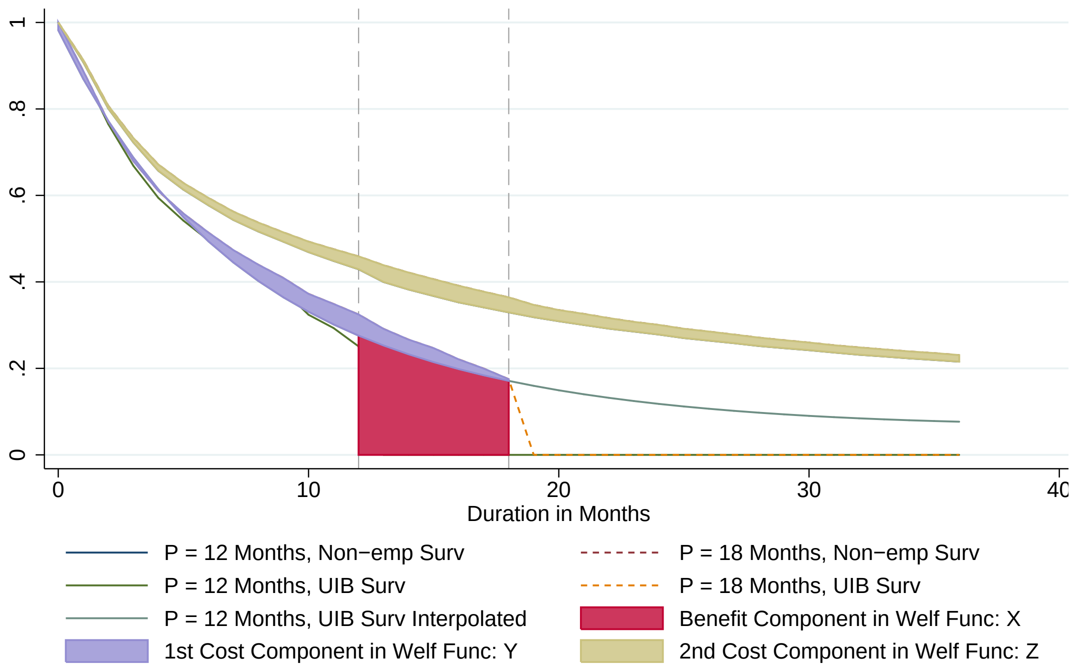
(a) Empirical Hazard of Leaving Non-employment during Period of Falling Unemployment 1987-1991



(b) Empirical Hazard of Leaving Non-employment during Period of Rising Unemployment 1992-1997

Notes: The hazard functions in both figures are estimated pointwise at each point of support using regression discontinuity estimation. Vertical bars indicate that the hazard rates are statistically significant form each other on the 5 percent level. For details see text.

Figure W-5: Measuring the Cost and Benefit Indexes of the Welfare Equation using the Regression Discontinuity Design



Notes: The figure shows survival functions for remaining in non-employment above and below the age threshold at which UI benefit durations increase from 12 to 18 months. Similarly it shows the survival functions for remaining on UI benefits for both groups. These four survival functions are estimated pointwise at each point of support using regression discontinuity estimation. Finally it shows the interpolated survival function for remaining on UI benefits for the people below the age threshold, which is used to create a counterfactual survival function beyond 12 months of UI benefits. The shaded areas mark the areas corresponding to the cost and benefit indexes of the welfare equation in the main text: $X = \frac{\partial B}{\partial P}\Big|_1$, $Y = \frac{\partial B}{\partial P}\Big|_2$, and $Z = \frac{\partial D}{\partial P}$. For more details see text.