

The Heterogeneous Effects of Social Assistance and Unemployment Insurance: Evidence from a Life-Cycle Model of Family Labor Supply and Savings

Online Appendix

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In this web appendix, we provide further details that were omitted from the main text to conserve space. Online Appendix A describes the additional transfer programs that are included in the model. Online Appendix B shows the parameters of the marriage, divorce, fertility and assortative mating process. Online Appendix C describes how taxes and benefits changed during the sample period 1991–2004 and shows that the behavioral effects of these changes are modest. Online Appendix D describes how we solve the model to derive optimal behavior over the life cycle. Online Appendix E demonstrates the comparability of our SOEP and EVS samples. Online Appendix F includes tables that provide further details about results in the main text. Online Appendix G reports robustness checks where we vary ancillary policy parameters or modify the life-cycle model. Online Appendix H shows that our main findings on unemployment insurance and social assistance are robust to including equilibrium effects.

Online Appendix A Additional Programs

Child-care Costs

We assume that a married household with one or more pre-school-aged children must pay for full-time childcare if both spouses work full-time. A married household incurs part-time childcare costs if the wife works part-time and the husband works full-time. A single woman with one or more pre-school-aged children must pay childcare costs reflecting her hours of work. Based on Wrohlich (2011), we estimate monthly childcare costs for a child younger than 3 years of 183 euros for part-time care and 397 euros for full-time care. The corresponding figures for a child aged between 3 and 6 years are 90 euros and 167 euros.

Child Benefits and Parental Leave Benefits

A household receives child benefits of 138 euros per month for each dependent child. A household also receives parental leave benefits of 306 euros per month if the youngest child in the household is aged under 24 months and the mother is not employed. Parental leave benefits are restricted to households whose net annual income, excluding social assistance, is below a threshold that depends on marital status and the number of children in the household. Additionally, if the youngest child is older than 6 months then the monthly parental leave benefit is withdrawn at a rate of 3.3% against the household's net annual income, excluding social assistance, above an allowance.¹

Pensions

A retired individual's annual pension is proportional to his or her lifetime earnings:

$$\text{Pension}_{g,t} = \Xi \times \text{Exp}_{g,t} \times W_g(\text{HiEduc}_g, 0.5 \times \text{Exp}_{g,t}, \bar{\kappa}) \quad \text{for } g \in \{i, j\}. \quad (\text{A1})$$

In the above, $W_g()$ denotes the gender-specific market wage function (18) evaluated at the individual's education, average experience over the life-cycle, and the population average of the wage unobservable, $\bar{\kappa}$. Reflecting the pension system that was effective during the sample period, we set Ξ to 20.

¹The net annual income thresholds for the first means test are as follows: 51,129 euros for a married household with one child; 53,277 euros for a married household with two children; 38,347 euros for a single household with one child; and 40,494 euros for a single household with two children. The annual allowances for the second means test are equal to: 15,032 euros for a married household with one child; 17,179 euros for a married household with two children; 12,118 euros for a single household with one child; and 14,265 for a single household with two children.

Online Appendix B Marriage, Divorce, Fertility, & Assortative Mating

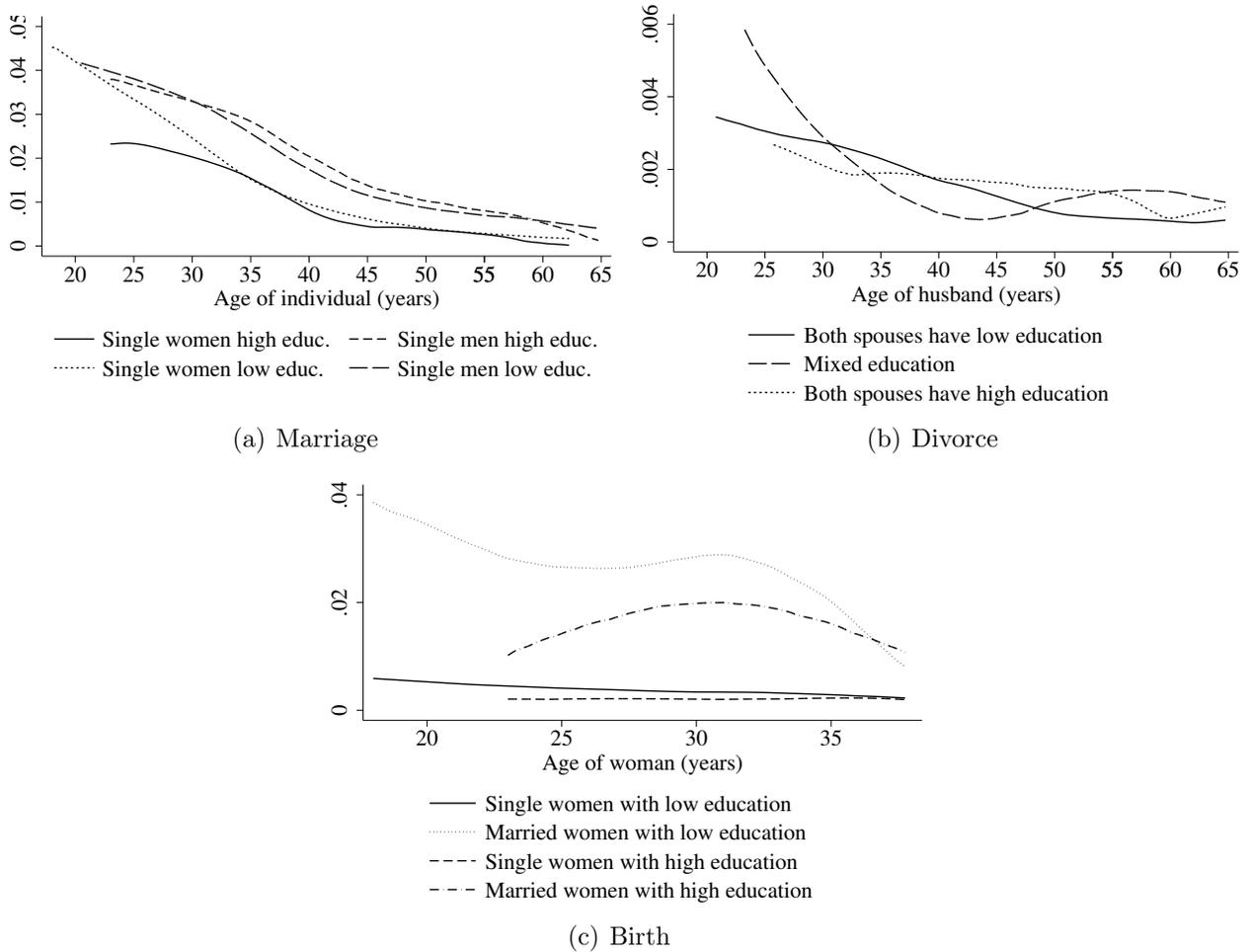


Figure A.1: Quarterly marriage, divorce, and birth probabilities

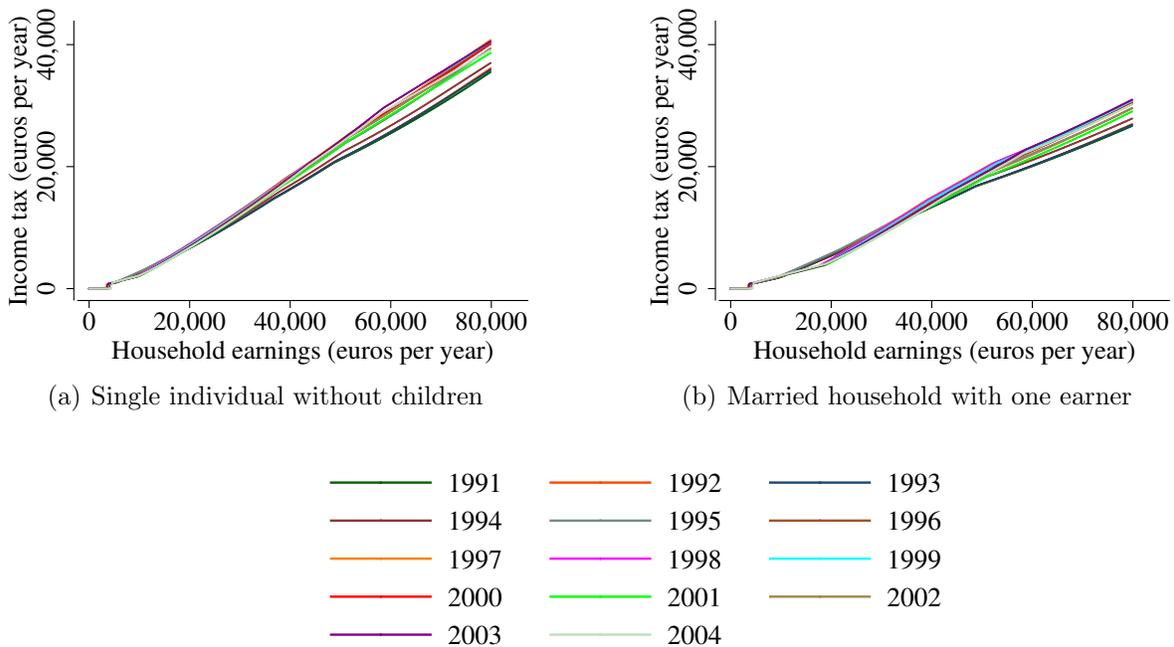
Women		Men	
Low education	High education	Low education	High education
0.118	0.627	0.069	0.412

Table A.1: Probability that an individual's spouse has high education

Online Appendix C Taxes and Benefits 1991–2004

Online Appendix C.I Income Tax

Figure A.2 shows the income tax schedules for single households without children and married households over the sample period 1991–2004. Income tax varied little across years for individuals earning below the average level of individual earnings of 30,608 euros per year. At high levels of earnings, there were larger changes in taxation. Five factors account for the illustrated changes. First, an income tax reform in 1996 reduced the average income tax rates faced by very low-earning households. Second, an income tax reform in 2000 reduced average income tax rates for high-earning households. Third, the solidarity surcharge fluctuated between 0% and 7.5% of income tax (excluding social security contributions). Fourth, the contribution rates for health and retirement benefits increased and the threshold above which earnings are exempt from social security contributions also increased (these increases partly offset the effects of the year 2000 tax reform). Fifth, there were incremental changes in the parameters of the tax system that did not match exactly the rate of inflation.

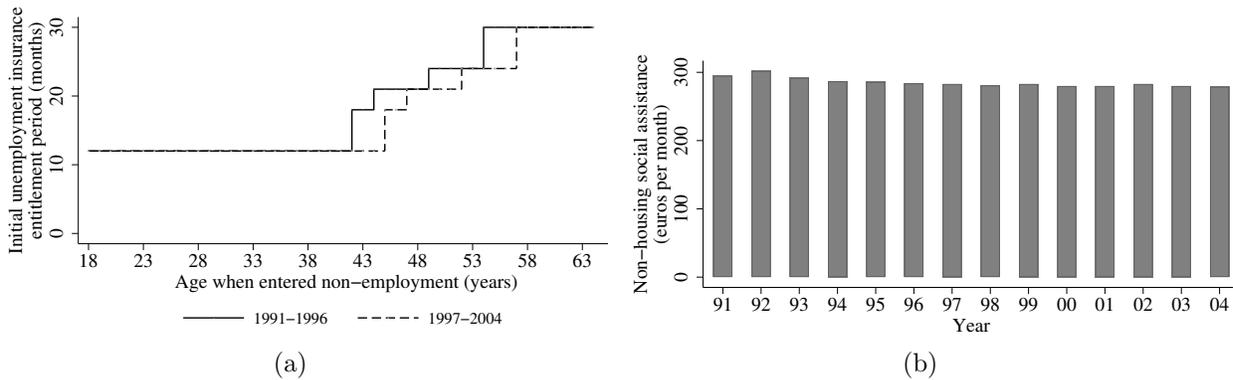


Notes: Income tax and household earnings are in year 2000 prices. Income tax includes social security contributions.

Figure A.2: Income tax schedules 1991–2004

Online Appendix C.II Unemployment Insurance & Social Assistance

From 1994 onwards, the unemployment insurance replacement rate from the year 2000 was in effect, and the year 2000 unemployment insurance entitlement period was implemented starting in 1997. Between 1991 and 1993, marginally higher replacement rates were in effect: 63% for individuals with no children in their household and 68% for those with one or more children residing in their household. Before 1997, the initial unemployment insurance entitlement period was somewhat longer for individuals who began employment at ages 42–46, 49–52, and 54–57 years (see Figure A.3(a)).



Notes: Initial entitlement periods are rounded down to the nearest integer multiple of three months. Social assistance benefits are expressed in year 2000 prices.

Figure A.3: Initial unemployment insurance entitlement period and non-housing social assistance 1991–2004

Regarding social assistance, recall from Section I.C.2 that the social assistance income floor is equal to the product of a generosity parameter and a household equivalence scale. The generosity parameter, in turn, comprises a component for non-housing assistance and a component for housing (see footnote 20). The policy on support for housing costs did not change during the sample period and, therefore, we assume that this component of the social assistance income floor increased with inflation. Figure A.3(b) illustrates the evolution of the non-housing component of the social assistance income floor during the sample period. The changes in non-housing benefits were modest, reflecting that throughout the sample period, non-housing benefits were calculated to ensure that all households could obtain a basic standard of living. Furthermore, the equivalence scale did not change during the sample period. In summary, during the sample period, there were no major changes to social assistance and only modest changes to unemployment insurance.

Online Appendix C.III Behavioral Effects of Tax & Benefit Changes

We explore the behavioral effects of the changes in taxes and benefits that occurred during the sample period by simulating behavior from the life-cycle model under each of the fourteen year-specific tax and benefit systems. Throughout this exercise, we use the parameter estimates reported in Section V.A. Table A.2 shows that the predicted voluntary quit rate, transition rate into employment, saving rate, and social assistance receipt rate vary little with the year-specific rules. This supports using the year 2000 rules for the entire sample period.

	Year													
	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Voluntary quit rate at age<50 years														
Single women	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Single men	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Married women	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01
Married men	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Transition rate into employment at age<50 years														
Single women	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Single men	0.15	0.15	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Married women	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Married Men	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10
Saving rate at age<50 years														
Single women	0.10	0.10	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.10	0.11	0.10	0.10	0.10
Single men	0.17	0.17	0.20	0.19	0.19	0.16	0.16	0.16	0.17	0.16	0.17	0.16	0.16	0.17
Social assistance receipt rate														
Single women (non-emp.)	0.24	0.24	0.21	0.22	0.23	0.24	0.25	0.24	0.23	0.23	0.20	0.22	0.22	0.21
Single women (emp)	0.09	0.08	0.07	0.07	0.07	0.04	0.03	0.03	0.03	0.02	0.01	0.01	0.01	0.01
Single men	0.03	0.03	0.02	0.02	0.02	0.03	0.04	0.03	0.03	0.03	0.02	0.03	0.03	0.03
Married households (non-emp.)	0.07	0.07	0.05	0.05	0.06	0.08	0.09	0.09	0.08	0.08	0.05	0.08	0.08	0.06
Married households (emp)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.00

Notes: Each column summarizes behavior simulated from the life-cycle model with the year-specific tax and benefit rules and the parameter estimates reported in Section V.A.

Table A.2: Robustness of behavior to changes in the tax and benefit rules

Online Appendix D Optimal Life-cycle Behavior

We solve the model by characterizing optimal life-cycle behavior using the value functions for single and married women and men. Recall a household's choice problem ends when the

youngest household member reaches the compulsory retirement age of 65 years. From this time onward, the household members cannot search or work, and the household consumes pension and social assistance benefits plus the actuarially fair annuity value of household wealth at the compulsory retirement age. In each period prior to the compulsory retirement age, a household's optimization problem proceeds in two stages. First, the search intensity of each household member is optimized. Second, job offers arrive and the household optimizes household consumption, household social assistance claiming behavior, and labor supply behavior and unemployment insurance claiming behavior of each household member. This within-period problem is solved backwards: we determine optimal consumption, unemployment insurance and social assistance claiming, and labor supply behavior for each possible set of feasible labor supply choices, and then solve for the optimal search intensity, taking into account the effect of search on the probability of employment constraints.

Before proceeding, we define the state variables for women and men. A woman's state space, $\Phi_{i,t}$, contains the following individual characteristics: age; education; experience; persistent wage type; unemployment insurance eligibility; unemployment insurance entitlement period; hours of work in previous employment; labor supply state in the previous period; job destruction status; household wealth; current period preference shocks; and the age of the first-born child. A man's state space, $\Phi_{j,t}$, contains the same variables that appear in a woman's state space except for hours of work in previous employment and the age of the first-born child.

Online Appendix D.I Single Households

We first consider the problem facing a single woman. A single woman's choice problem ends when she reaches the compulsory retirement age of 65 years. We denote this time by \tilde{T} . The terminal value function for single woman i is given by:

$$V_{\tilde{T}}^{Fs}(\Phi_{i,\tilde{T}}) = \mathbb{E} \left[\sum_{\tau=\tilde{T}}^{T^F} \delta^{\tau-t} U^F(m_{i,\emptyset,\tilde{T}}, d_{i,\tilde{T}}, s_{i,\tilde{T}}, \text{SAClaim}_{i,\emptyset,\tilde{T}}^*) \middle| \Phi_{i,\tilde{T}} \right]. \quad (\text{A2})$$

In (A2), $m_{i,\emptyset,\tilde{T}}$ denotes the woman's consumption in retirement, $d_{i,\tilde{T}}$ takes the value RT , indicating that the woman is retired, $s_{i,\tilde{T}}$ is equal to zero, reflecting that retired individuals cannot search, $\text{SAClaim}_{i,\emptyset,\tilde{T}}^*$ denotes the social assistance claiming choice that maximizes the woman's remaining lifetime utility (unemployment benefits are not available in retirement), $\Phi_{i,\tilde{T}}$ denotes the values of the woman's state variables at the compulsory retirement age, and T^F denotes the last period of the woman's life.

Prior to the compulsory retirement age, the labor supply-specific value functions for single

woman i at time t are given by:

$$V_t^{Fs}(d|s, \Phi_{i,t}) = \max_{m, \text{SACclaim}, \text{UIclaim}} \left\{ U^F(m, d, s, \text{SACclaim}, \text{UIclaim}) + \delta \mathbb{E} \left[(1 - \phi_{i,t+1}^{Fs}) V_{t+1}^{Fs}(\Phi_{i,t+1}) + \phi_{i,t+1}^{Fs} V_{t+1}^{Fc}(\Phi_{i,t+1}, \Phi_{j,t+1}) \middle| \Phi_{i,t}, d \right] \right\} \text{ for } d \in \mathcal{D}^F. \quad (\text{A3})$$

In the above, $\phi_{i,t+1}^{Fs}$ is the woman's probability of marrying at time $t+1$, and $V_{t+1}^{Fc}(\Phi_{i,t+1}, \Phi_{j,t+1})$ is woman's value function in the next period if she marries (the value functions for married individuals are defined below in Online Appendix D.II). Note, for each labor supply-specific value function, consumption, m , and social assistance claiming, SACclaim, are optimized conditional on the woman's labor supply state. The optimization of consumption is subject to the intertemporal budget constraint and the non-negativity constraint on household wealth. The expectation in (A3) is evaluated assuming that individuals' expectations about the observable characteristics of future spouses reflect the modal in-sample pattern of marriage-matching: an individual expects that his or her future spouse will enter the marriage with the same education, employment status, and unemployment insurance entitlement and eligibility as him or herself; individuals expect that the husband will enter the marriage with 7% more experience and 5% more wealth than the wife. We also assume individuals expect any future spouse to enter the marriage with the same wage unobservable as themselves.

We now characterize a single woman's optimal labor supply behavior given the set of feasible choices, as determined by the outcome of search activities, job destructions, and the age-based restrictions on retirement eligibility. Let D_k^F for $k = 1, \dots, K^F$ denote all possible sets of feasible labor supply choices. Given the set of feasible choices D_k^F , the single woman chooses the labor supply alternative with the highest choice-specific value function:

$$d_{i,t}^*(D_k^F) = \operatorname{argmax}_{d \in D_k^F} \{ V_t^{Fs}(d|s, \Phi_{i,t}) \}. \quad (\text{A4})$$

The single woman's optimal search intensity, $s_{i,t}^*$, is given by:

$$s_{i,t}^* = \operatorname{argmax}_{s \in [0, 1/\chi_{i,t}]} \left\{ \sum_{k=1}^{K^F} P(D_k^F|s, \Phi_{i,t}) V_t^{Fs}(d_{i,t}^*(D_k^F)|s, \Phi_{i,t}) \right\}, \quad (\text{A5})$$

where $P(D_k^F|s, \Phi_{i,t})$ is the probability of the set D_k^F of feasible labor supply choices given search intensity s . Note, as search intensity, s , varies $P(D_k^F|s, \Phi_{i,t})$ changes according to the effect of search on the probability of receiving a job offer as described by (15). Evaluating the term in braces in (A5) at the optimal search intensity, $s_{i,t}^*$, obtains the single woman's value function, $V_t^{Fs}(\Phi_{i,t})$.

A single man's value function, $V_t^{Ms}(\Phi_{j,t})$, is obtained in the same way as shown here for a

single woman. We assume than a single man expects his any future wife to enter the marriage without preexisting children.

Online Appendix D.II Married Households

We now turn to the problem facing a married household. A married household's choice problem ends when the wife reaches the compulsory retirement age, i.e., at time \tilde{T} . The terminal value function for woman i in married household (i, j) is given by:

$$V_{\tilde{T}}^{Fc}(\Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}}) = \mathbb{E} \left[\sum_{\tau=\tilde{T}}^{T^F} \delta^{\tau-\tilde{T}} U^F(m_{i,j,\tilde{T}}, d_{i,\tilde{T}}, s_{i,\tilde{T}}, \text{SACClaim}_{i,j,\tilde{T}}^*) \middle| \Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}} \right], \quad (\text{A6})$$

and the terminal value function for man j in married household (i, j) is given by:

$$V_{\tilde{T}}^{Mc}(\Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}}) = \mathbb{E} \left[\sum_{\tau=\tilde{T}}^{T^M} \delta^{\tau-\tilde{T}} U^M(m_{i,j,\tilde{T}}, d_{j,\tilde{T}}, s_{j,\tilde{T}}, \text{SACClaim}_{i,j,\tilde{T}}^*) \middle| \Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}} \right]. \quad (\text{A7})$$

In the two above equations, $m_{i,j,\tilde{T}}$ denotes the household's consumption in retirement, $d_{i,\tilde{T}}$ and $d_{j,\tilde{T}}$ take the value RT , indicating that both spouses are retired, $s_{i,\tilde{T}}$ and $s_{j,\tilde{T}}$ are equal to zero, reflecting that retired individuals do not search, and $\text{SACClaim}_{i,j,\tilde{T}}^*$ denotes the social assistance claiming choice that maximizes the household's remaining lifetime utility (unemployment benefits are not available in retirement). The married household's objective function is an α -weighted average of the spouses' payoffs and, therefore, the terminal value function for the married household is given by:

$$V^{FM}(\Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}}) = \alpha V_{\tilde{T}}^{Fc}(\Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}}) + (1 - \alpha) V_{\tilde{T}}^{Mc}(\Phi_{i,\tilde{T}}, \Phi_{j,\tilde{T}}). \quad (\text{A8})$$

The labor supply-specific value functions for the married household prior to the wife reaching the compulsory retirement age are given by:

$$\begin{aligned} V_t^{FM}(d^F, d^M | s^F, s^M, \Phi_{i,t}, \Phi_{j,t}) &= \max_{\substack{m, \text{SACClaim}, \\ \text{UIClaim}^F, \text{UIClaim}^M}} \left\{ \alpha U^F(m, d^F, d^M, s^F, \text{SAClaim}, \text{UIClaim}^F) \right. \\ &+ (1 - \alpha) U^M(m, d^F, d^M, s^M, \text{SAClaim}, \text{UIClaim}^M) \\ &+ \delta \mathbb{E} \left[(1 - \phi_{i,j,t+1}^c) (\alpha V_{t+1}^{Fs}(\Phi_{i,t+1}) + (1 - \alpha) V_{t+1}^{Ms}(\Phi_{j,t+1})) \right. \\ &\left. \left. + \phi_{i,j,t+1}^c V_{t+1}^{FM}(\Phi_{i,t+1}, \Phi_{j,t+1}) \middle| \Phi_{i,t}, \Phi_{j,t}, d^F, d^M \right] \right\} \\ &\text{for } d^F \in \mathcal{D}^F \text{ and } d^M \in \mathcal{D}^M. \end{aligned} \quad (\text{A9})$$

In the above, $\phi_{i,j,t+1}^c$ is the probability that the spouses remain married between periods t and

$t + 1$. Similar to single households, consumption, m , and social assistance claiming, SAClaim, are optimized conditional on household labor supply. $V_{t+1}^{Fs}(\Phi_{i,t+1})$ and $V_{t+1}^{Ms}(\Phi_{j,t+1})$ are the wife's and husband's value functions in the next period if they divorce (the value function for single individuals were defined above in Online Appendix D.I). van der Klaauw and Wolpin (2008) and Fernández and Wong (2014) use similar preference specifications for couples in studies of, respectively, the effect of Social Security on household retirement behavior and the effect of divorce risk on female labor force participation.

Let D_k^c for $k = 1, \dots, K^c$ denote all possible sets of feasible labor supply choices for a married household. Given the set of feasible labor supply choices D_k^c , the household chooses the labor supply alternative with the highest choice-specific value function:

$$(d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c)) = \underset{(d^F, d^M) \in D_k^c}{\operatorname{argmax}} V_t^{FM}(d^F, d^M | s^F, s^M, \Phi_{i,t}, \Phi_{j,t}). \quad (\text{A10})$$

The wife's and husband's optimal search intensities are given by:

$$(s_{i,t}^*, s_{j,t}^*) = \underset{\substack{s^F \in [0, 1/\chi_{i,t}] \\ s^M \in [0, 1/\chi_{j,t}]}}{\operatorname{argmax}} \left\{ \sum_{k=1}^{K^c} P(D_k^c | s^F, s^M) V_t^{FM}(d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c) | s^F, s^M, \Phi_{i,t}, \Phi_{j,t}) \right\}, \quad (\text{A11})$$

where $P(D_k^c | s^F, s^M)$ is the probability of choice set D_k^c , given search intensities s^F for the wife and s^M for the husband. Last, we split the married household's value function into the value functions for the wife and husband that appear in the single household's optimization problem.

For a married woman:

$$V_t^{Fc}(\Phi_{i,t}, \Phi_{j,t}) = \sum_{k=1}^{K^c} P(D_k^c | s_{i,t}^*, s_{j,t}^*) V_t^{Fc}(d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c) | s_{i,t}^*, s_{j,t}^*, \Phi_{i,t}, \Phi_{j,t}), \quad (\text{A12})$$

where

$$V_t^{Fc}(d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c) | s_{i,t}^*, s_{j,t}^*, \Phi_{i,t}, \Phi_{j,t}) = U^F(m^*, d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c), s_{i,t}^*, \text{SAClaim}^*) + \delta \mathbb{E} \left[(1 - \phi_{t+1}^c) V_{t+1}^{Fs}(\Phi_{i,t+1}) + \phi_{t+1}^c V_{t+1}^{Fc}(\Phi_{i,t+1}, \Phi_{j,t+1}) \middle| \Phi_{i,t}, \Phi_{j,t}, d_{i,t}^*(D_k^c), d_{j,t}^*(D_k^c) \right] \quad (\text{A13})$$

and m^* and SAClaim^* denote optimal household consumption and optimal social assistance claiming from (A9). The value function for a married man is derived in the same way as shown here for a married woman.

Online Appendix E Sample Comparability & Savings Rates

We examine the comparability of the SOEP and EVS samples described in Section III by comparing the average values of demographic characteristics, employment and retirement outcomes, and wealth across the two samples. Table A.3 shows that the EVS and SOEP samples are highly comparable. In particular, the rates of employment, non-employment, and retirement are similar across the two samples, both overall and when we split by gender and marital status. The same is true for age, education, the age category of the youngest child, and wealth. Table A.4 summarizes savings rates in the EVS sample.

Variable	All individuals		Single women		Single men		Married women		Married men	
	SOEP	EVS	SOEP	EVS	SOEP	EVS	SOEP	EVS	SOEP	EVS
Share			0.17	0.17	0.12	0.10	0.35	0.37	0.35	0.37
Age (years)	44.71	44.09	43.38	43.64	41.18	40.64	44.28	43.30	47.03	46.01
High education	0.14	0.15	0.13	0.18	0.22	0.22	0.08	0.11	0.16	0.17
Child 0–3	0.07	0.09	0.04	0.02	-	-	0.09	0.11	0.09	0.11
Child 3–6	0.06	0.08	0.04	0.03	-	-	0.08	0.10	0.08	0.10
Wealth (Euros)	119,986	126,147	52,775	59,579	56,445	70,826	147,955	149,845	147,955	149,845
Part-time employed	0.15	0.15	0.18	0.21	-	-	0.33	0.33	-	-
Full-time employed	0.53	0.54	0.51	0.50	0.78	0.79	0.26	0.24	0.74	0.78
Retired	0.08	0.06	0.12	0.10	0.04	0.03	0.07	0.04	0.09	0.07
Non Employed	0.24	0.25	0.19	0.19	0.18	0.18	0.35	0.40	0.17	0.15

Notes: For all variables except wealth, we use the full EVS sample, which covers the years 1998 and 2003, and a SOEP sub-sample that includes only observations from the years 1998 and 2003. For wealth, we use the EVS sub-sample that includes only observations from the year 2003 and a SOEP sub-sample that includes only observations from the year 2002 (since wealth was only observed in the SOEP in 2002). Wealth comprises financial, housing, and durable assets, is measured at the household level, and is expressed in year 2000 prices using the Consumer Price Index. See the notes to Table 1 for further variable definitions. All statistics are weighted using the household weights supplied by the SOEP or EVS.

Table A.3: Comparison of the SOEP and EVS samples

	Single women	Single men	Married households
All	0.09	0.16	0.14
Age < 50 years	0.10	0.16	0.15
Age ≥ 50 years	0.08	0.13	0.11
High education	0.11	0.17	0.15
Low education	0.09	0.15	0.13
Number of households	8,748	4,033	26,512

Notes: The saving rate is defined as household savings during a quarter divided by net household income during the same quarter. Household saving is the difference between a household's spending on financial and tangible assets (including housing) and its revenue from sales of the same asset classes (household saving includes loan repayments and revenue from new loans). Net household income is reported in the EVS and accounts for all components of household income, including transfers, social security contributions, and income taxation. All statistics are for non-retired households. Statistics by age and education for married households are based on the characteristics of the husband.

Table A.4: Saving rates in the EVS sample

Online Appendix F Further Policy Analysis Tables

This Appendix includes tables that provide further details about results in Section VI. Table A.5 reports the fiscally-equalized effects of the cuts in social assistance and unemployment insurance on search costs and reemployment wages. Table A.6 and Table A.7 show how heterogeneous incentive, insurance, redistributive, and cost effects of social assistance and unemployment insurance. Table A.8 shows the heterogeneous behavioral effects of the revenue-neutral rebalancing reform. Table A.9 and Table A.10 show the heterogeneous effects of social assistance and unemployment insurance and the heterogeneous effects of a revenue neutral rebalancing reform for demographic groups defined by characteristics determined before labor force entry (i.e., sex and education).

	Social assistance				Unemployment insurance				Difference			
	Single		Married		Single		Married		Single		Married	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Panel A: Demographic groups based on sex, marital status and wealth												
<u>Low wealth:</u>												
Wealth (1000s€)	0.6	0.2	1.8	1.6	1.1	-0.1	0.0	0.0	-0.5	0.3	1.8	1.6
Low wealth rate (wealth<5,000€)	-3.0	-0.7	-11.1	-9.9	-4.4	1.6	1.6	1.6	1.4	-2.3	-12.7	-11.5
Unemployment insurance receipt rate	-0.1	0.0	0.1	0.0	-5.8	-4.2	-2.1	-4.1	5.8	4.2	2.2	4.1
Social assistance receipt rate	-1.0	-0.8	-2.0	-1.8	2.0	3.0	1.4	1.4	-3.0	-3.8	-3.3	-3.1
Log reemployment wage ×100	-0.1	0.1	-0.5	0.4	0.0	0.2	0.1	0.1	-0.1	-0.1	-0.6	0.3
Search costs (non-emp. individuals)	1.5	1.9	0.6	2.1	0.1	0.5	0.2	1.2	1.4	1.4	0.5	0.8
Search costs (non-emp. w/ emp. spouse)			0.3	1.6			0.1	1.1			0.2	0.6
Search costs (non-emp. w/ non-emp. sp.)			5.3	5.5			1.1	2.3			4.2	3.2
<u>High wealth:</u>												
Wealth (1000s€)	4.7	1.9	18.3	15.0	1.0	0.2	0.9	0.9	3.6	1.7	17.3	14.1
Low wealth rate (wealth<5,000€)	-0.9	-0.5	-3.4	-2.8	0.7	0.4	0.8	0.8	-1.6	-0.9	-4.2	-3.6
Unemployment insurance receipt rate	-0.1	0.0	0.3	0.0	-3.3	-1.5	-0.9	-3.4	3.3	1.4	1.1	3.3
Social assistance receipt rate	-0.7	-0.5	-0.3	-0.3	0.3	0.2	0.1	0.1	-1.0	-0.7	-0.4	-0.4
Log reemployment wage ×100	-0.5	0.0	-1.9	0.0	-0.1	0.1	0.3	-0.2	-0.4	-0.1	-2.2	0.2
Search costs (non-emp. individuals)	1.9	1.4	0.4	0.1	0.3	0.3	0.2	0.6	1.6	1.2	0.3	-0.5
Search costs (non-emp. w/ emp. spouse)			0.2	0.0			0.1	0.5			0.1	-0.5
Search costs (non-emp. w/ non-emp. sp.)			2.1	0.3			0.5	1.3			1.6	-1.0
Panel B: Demographic groups based on sex, marital status and education												
<u>Low education:</u>												
Wealth (1000s€)	2.2	1.0	9.9	8.3	0.9	0.1	0.6	0.4	1.3	0.9	9.2	7.9
Low wealth rate (wealth<5,000€)	-2.4	-0.7	-7.3	-5.9	-0.6	0.6	1.1	1.4	-1.7	-1.3	-8.4	-7.3
Unemployment insurance receipt rate	-0.1	0.0	0.2	0.0	-4.1	-2.0	-1.2	-3.5	4.1	2.0	1.4	3.5
Social assistance receipt rate	-0.9	-0.7	-1.2	-1.1	0.7	0.7	0.5	0.5	-1.7	-1.3	-1.7	-1.6
Log reemployment wage ×100	-0.4	0.0	-1.3	-0.1	-0.1	0.1	0.2	-0.1	-0.3	-0.2	-1.5	0.1
Search costs (non-emp. individuals)	1.7	1.6	0.5	1.1	0.2	0.3	0.1	0.8	1.4	1.3	0.3	0.3
Search costs (non-emp. w/ emp. spouse)			0.3	0.9			0.1	0.7			0.1	0.3
Search costs (non-emp. w/ non-emp. sp.)			2.5	1.7			0.6	1.4			2.0	0.3
<u>High education:</u>												
Wealth (1000s€)	3.3	1.3	15.2	10.9	2.1	0.3	1.6	3.4	1.2	1.0	13.6	7.5
Low wealth rate (wealth<5,000€)	-1.1	-0.5	-6.9	-8.5	0.4	0.0	-0.2	-3.5	-1.4	-0.5	-6.7	-5.1
Unemployment insurance receipt rate	-0.1	-0.1	0.3	0.0	-1.8	-0.8	-1.3	-4.1	1.8	0.8	1.6	4.0
Social assistance receipt rate	-0.6	-0.4	-0.2	-0.4	0.1	0.1	0.1	0.2	-0.7	-0.4	-0.3	-0.6
Log reemployment wage ×100	-0.1	0.0	0.0	0.3	-0.1	0.1	0.1	0.0	-0.1	-0.1	-0.1	0.3
Search costs (non-emp. individuals)	2.7	1.7	0.3	-0.6	0.7	0.4	0.2	0.7	2.0	1.2	0.1	-1.3
Search costs (non-emp. w/ emp. spouse)			0.0	-1.1			0.0	0.4			0.0	-1.6
Search costs (non-emp. w/ non-emp. sp.)			2.2	-0.1			1.2	1.7			1.0	-1.8
Panel C: Demographic groups based on sex and marital status												
Wealth (1000s€)	2.2	1.0	10.1	8.6	1.0	0.2	0.7	0.7	1.2	0.9	9.4	8.0
Low wealth rate (wealth<5,000€)	-2.3	-0.6	-7.3	-6.2	-0.5	0.5	1.0	1.0	-1.8	-1.1	-8.3	-7.2
Unemployment insurance receipt rate	-0.1	0.0	0.2	0.0	-3.9	-1.8	-1.2	-3.6	3.8	1.8	1.4	3.6
Social assistance receipt rate	-0.9	-0.6	-1.1	-1.0	0.7	0.6	0.5	0.5	-1.6	-1.2	-1.6	-1.4
Log reemployment wage ×100	-0.4	-0.1	-1.3	-0.1	-0.1	0.1	0.2	-0.2	-0.3	-0.2	-1.5	0.1
Search costs (non-emp. individuals)	1.7	1.6	0.5	0.9	0.2	0.3	0.2	0.8	1.5	1.3	0.3	0.1
Search costs (non-emp. w/ emp. spouse)			0.3	0.8			0.1	0.7			0.1	0.1
Search costs (non-emp. w/ non-emp. sp.)			2.5	1.4			0.6	1.4			1.9	-0.1

Notes: Effects on behaviors of cuts in unemployment insurance and social assistance that decrease demographic-group-level average net-of-tax transfer income by 37 euros per person-quarter. All behavioral effects are differences in levels, rate variables expressed in percentage points, and wealth is defined as household wealth per adult household member. See Section VI.C.1 for a description of the demographic groups.

Table A.5: Additional results on the heterogeneous fiscally-equalized behavioral effects of cuts in social assistance and unemployment insurance

	Cut social assistance to 62.7% of baseline				Eliminate unemployment insurance				Difference			
	Single		Married		Single		Married		Single		Married	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Aggregate incentive effect	1.0				-0.4				1.4			
Aggregate insurance effect	-2.3				-0.3				-2.0			
Aggregate redistribution effect	-0.8				-0.4				-0.4			
Aggregate cost effect	0.1				0.2				-0.1			
Panel A: Demographic groups based on sex, marital status and wealth												
<u>Low wealth:</u>												
Incentive effect	0.2	-1.1	0.0	0.8	0.2	-0.4	0.0	-0.5	0.0	-0.7	0.0	1.3
Insurance effect	-5.3	-2.4	-1.3	-1.0	-0.7	0.0	-0.6	0.2	-4.5	-2.4	-0.7	-1.2
Redistribution effect	-4.0	-4.1	-0.1	-0.2	-1.6	0.1	0.3	-1.7	-2.3	-4.3	-0.4	1.5
Cost effect	-0.1	0.4	0.8	0.7	0.6	-1.5	-0.4	-0.2	-0.7	1.9	1.2	0.8
Group cont. to agg. incentive eff.	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Group cont. to agg. insurance eff.	-0.3	-0.1	-0.1	-0.1	0.0	0.0	-0.1	0.0	-0.3	-0.1	-0.1	-0.1
Group cont. to agg. redistribution eff.	-0.2	-0.2	0.0	0.0	-0.1	0.0	0.0	-0.2	-0.1	-0.2	0.0	0.1
Group cont. to agg. cost eff.	0.0	0.0	0.1	0.1	0.0	-0.1	0.0	0.0	0.0	0.1	0.1	0.1
<u>High wealth:</u>												
Incentive effect	1.3	1.8	0.4	2.2	-0.2	-1.3	0.4	-1.1	1.4	3.1	0.0	3.3
Insurance effect	-4.3	-3.0	-1.3	-1.9	-0.6	0.0	-0.5	-0.1	-3.7	-3.0	-0.8	-1.8
Redistribution effect	0.5	-2.1	0.2	-0.5	-1.3	0.5	0.1	-0.4	1.8	-2.6	0.1	-0.1
Cost effect	-0.3	-0.6	0.1	0.2	1.2	0.4	0.0	0.3	-1.4	-1.0	0.1	-0.1
Group cont. to agg. incentive eff.	0.2	0.2	0.1	0.5	0.0	-0.1	0.1	-0.2	0.2	0.4	0.0	0.7
Group cont. to agg. insurance eff.	-0.5	-0.3	-0.3	-0.4	-0.1	0.0	-0.1	0.0	-0.5	-0.3	-0.2	-0.4
Group cont. to agg. redistribution eff.	0.1	-0.2	0.0	-0.1	-0.2	0.1	0.0	-0.1	0.2	-0.3	0.0	0.0
Group cont. to agg. cost eff.	0.0	-0.1	0.0	0.0	0.1	0.1	0.0	0.1	-0.2	-0.1	0.0	0.0
Panel B: Demographic groups based on sex, marital status and education												
<u>Low education:</u>												
Incentive effect	0.9	0.7	0.2	1.7	-0.1	-1.1	0.2	-0.9	1.0	1.9	0.0	2.6
Insurance effect	-5.0	-2.8	-1.3	-1.7	-0.6	0.0	-0.5	0.0	-4.4	-2.8	-0.8	-1.7
Redistribution effect	-0.9	-2.8	0.1	-0.3	-1.5	0.4	0.2	-1.0	0.6	-3.3	-0.1	0.7
Cost effect	-0.2	-0.1	0.3	0.3	0.9	-0.4	-0.1	0.2	-1.2	0.2	0.4	0.2
Group cont. to agg. incentive eff.	0.2	0.1	0.1	0.5	0.0	-0.2	0.1	-0.2	0.2	0.3	0.0	0.7
Group cont. to agg. insurance eff.	-0.8	-0.4	-0.4	-0.5	-0.1	0.0	-0.2	0.0	-0.7	-0.4	-0.2	-0.5
Group cont. to agg. redistribution eff.	-0.2	-0.4	0.0	-0.1	-0.3	0.1	0.0	-0.3	0.1	-0.5	0.0	0.2
Group cont. to agg. cost eff.	0.0	0.0	0.1	0.1	0.2	-0.1	0.0	0.0	-0.2	0.0	0.1	0.0
<u>High education:</u>												
Incentive effect	0.9	1.6	0.7	2.7	0.3	0.1	1.0	-1.0	0.7	1.5	-0.3	3.6
Insurance effect	-1.5	-3.0	-0.7	-1.4	-1.6	-0.3	-0.5	-0.4	0.2	-2.7	-0.2	-1.0
Redistribution effect	-1.6	-2.7	0.0	-1.4	-0.4	0.0	0.1	0.2	-1.2	-2.6	-0.1	-1.6
Cost effect	0.2	-1.3	0.0	0.3	1.1	0.9	0.0	0.2	-0.9	-2.2	0.0	0.1
Group cont. to agg. incentive eff.	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Group cont. to agg. insurance eff.	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0
Group cont. to agg. redistribution eff.	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1
Group cont. to agg. cost eff.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panel C: Demographic groups based on sex and marital status												
Incentive effect	0.9	0.8	0.3	1.8	-0.1	-1.0	0.3	-0.9	1.0	1.8	0.0	2.7
Insurance effect	-4.6	-2.8	-1.3	-1.7	-0.7	0.0	-0.5	0.0	-3.9	-2.8	-0.7	-1.6
Redistribution effect	-1.0	-2.8	0.1	-0.4	-1.4	0.4	0.2	-0.8	0.4	-3.2	-0.1	0.4
Cost effect	-0.2	-0.3	0.3	0.3	1.0	-0.2	-0.1	0.2	-1.2	-0.1	0.4	0.1
Group cont. to agg. incentive eff.	0.2	0.1	0.1	0.6	0.0	-0.2	0.1	-0.3	0.2	0.3	0.0	0.9
Group cont. to agg. insurance eff.	-0.9	-0.5	-0.4	-0.5	-0.1	0.0	-0.2	0.0	-0.7	-0.5	-0.2	-0.5
Group cont. to agg. redistribution eff.	-0.2	-0.5	0.0	-0.1	-0.3	0.1	0.0	-0.3	0.1	-0.6	0.0	0.1
Group cont. to agg. cost eff.	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.1	-0.2	0.0	0.1	0.0

Notes: Welfare effects are expressed as percentages of baseline consumption. A group's contribution to the aggregate total welfare effect is equal to the group's total welfare effect times the group's population share (as shown in Table 11). See Section VI.C.1 for a description of the demographic groups.

Table A.6: Heterogeneous incentive, insurance, redistribution and cost effects of social assistance and unemployment insurance

Revenue-neutral rebalancing reform (eliminate unemployment insurance and increase social assistance to 141% of baseline)				
Aggregate incentive effect	-1.4			
Aggregate insurance effect	1.2			
Aggregate redistribution effect	0.3			
Aggregate cost effect	0.4			
	Single		Married	
	Women	Men	Women	Men
Panel A: Demographic groups based on sex, marital status and wealth				
<u>Low wealth:</u>				
Incentive effect	0.6	-1.1	0.0	-1.0
Insurance effect	-0.2	-0.1	0.7	0.3
Redistribution effect	5.8	1.0	0.4	-0.8
Cost effect	-3.8	4.3	-0.8	-0.2
Contribution to aggregate incentive effect	0.0	-0.1	0.0	-0.1
Contribution to aggregate insurance effect	0.0	0.0	0.1	0.0
Contribution to aggregate redistribution effect	0.4	0.1	0.0	-0.1
Contribution to aggregate cost effect	-0.2	0.3	-0.1	0.0
<u>High wealth:</u>				
Incentive effect	-1.7	-3.5	0.1	-3.0
Insurance effect	4.1	0.7	0.7	1.7
Redistribution effect	-2.9	2.3	0.0	0.0
Cost effect	1.4	2.4	-0.1	0.2
Contribution to aggregate incentive effect	-0.2	-0.4	0.0	-0.7
Contribution to aggregate insurance effect	0.5	0.1	0.2	0.4
Contribution to aggregate redistribution effect	-0.4	0.3	0.0	0.0
Contribution to aggregate cost effect	0.2	0.3	0.0	0.0
Panel B: Demographic groups based on sex, marital status and education				
<u>Low education:</u>				
Incentive effect	-0.9	-3.0	0.0	-2.3
Insurance effect	2.9	0.4	0.7	1.5
Redistribution effect	0.1	1.9	0.1	-0.5
Cost effect	-0.6	3.4	-0.3	0.1
Contribution to aggregate incentive effect	-0.1	-0.5	0.0	-0.6
Contribution to aggregate insurance effect	0.5	0.1	0.2	0.4
Contribution to aggregate redistribution effect	0.0	0.3	0.0	-0.1
Contribution to aggregate cost effect	-0.1	0.5	-0.1	0.0
<u>High education:</u>				
Incentive effect	-1.1	-0.3	0.6	-3.1
Insurance effect	1.0	0.6	0.0	0.7
Redistribution effect	-1.0	1.6	0.2	1.4
Cost effect	3.1	0.7	0.0	0.1
Contribution to aggregate incentive effect	0.0	0.0	0.0	-0.1
Contribution to aggregate insurance effect	0.0	0.0	0.0	0.0
Contribution to aggregate redistribution effect	0.0	0.0	0.0	0.1
Contribution to aggregate cost effect	0.1	0.0	0.0	0.0
Panel C: Demographic groups based on sex and marital status				
Incentive effect	-0.9	-2.7	0.1	-2.4
Insurance effect	2.7	0.4	0.7	1.3
Redistribution effect	0.0	1.9	0.1	-0.2
Cost effect	-0.3	3.1	-0.3	0.1
Contribution to aggregate incentive effect	-0.2	-0.5	0.0	-0.8
Contribution to aggregate insurance effect	0.5	0.1	0.2	0.4
Contribution to aggregate redistribution effect	0.0	0.3	0.0	-0.1
Contribution to aggregate cost effect	-0.1	0.5	-0.1	0.0

Notes: See the Notes to Table A.6.

Table A.7: Aggregate and heterogeneous incentive, insurance, redistributive and cost effects of a revenue-neutral rebalancing reform of the social safety net

Revenue-neutral rebalancing reform
(eliminate unemployment insurance and increase
social assistance to 141% of it baseline generosity)

	Single		Married	
	Women	Men	Women	Men
Panel A: Demographic groups based on sex, marital status and wealth				
<u>Low wealth:</u>				
Employment rate	-0.8	-2.1	-1.6	0.2
Wealth (1000s€)	-0.2	0.2	-0.2	-0.2
Low wealth rate (wealth<5,000€)	3.1	1.7	4.6	4.6
Unemployment insurance receipt rate	-3.4	-3.4	-1.7	-3.3
Social assistance receipt rate	7.9	0.6	1.5	1.5
Log reemployment wage ×100	-0.3	0.1	0.2	-0.2
Search costs (non-emp. individuals)	-2.0	-4.9	-0.1	-1.0
Search costs (non-emp. w/ emp. spouse)			-0.1	-0.9
Search costs (non-emp. w/ non-emp. spouse)			-1.3	-2.0
<u>High wealth:</u>				
Employment rate	0.1	0.5	-1.6	0.9
Wealth (1000s€)	-4.2	-2.2	-2.9	-2.9
Low wealth rate (wealth<5,000€)	4.3	1.6	1.8	1.8
Unemployment insurance receipt rate	-3.0	-3.7	-0.7	-2.7
Social assistance receipt rate	1.2	0.0	0.2	0.2
Log reemployment wage ×100	-0.1	0.3	0.5	-0.1
Search costs (non-emp. individuals)	-0.8	-1.3	0.0	0.3
Search costs (non-emp. w/ emp. spouse)			0.1	0.2
Search costs (non-emp. w/ non-emp. spouse)			0.0	0.7
Panel B: Demographic groups based on sex, marital status and age				
<u>Low education:</u>				
Employment rate	-0.2	-0.5	-1.6	0.7
Wealth (1000s€)	-3.1	-1.4	-2.2	-2.2
Low wealth rate (wealth<5,000€)	4.2	1.7	2.7	2.8
Unemployment insurance receipt rate	-3.3	-3.8	-1.0	-3.1
Social assistance receipt rate	3.8	0.1	0.6	0.6
Log reemployment wage ×100	0.0	0.5	0.4	0.0
Search costs (non-emp. individuals)	-1.2	-2.6	0.0	-0.1
Search costs (non-emp. w/ emp. spouse)			0.0	-0.2
Search costs (non-emp. w/ non-emp. spouse)			-0.2	0.2
<u>High education:</u>				
Employment rate	-0.1	0.6	-1.7	0.5
Wealth (1000s€)	-0.6	-1.4	-0.7	-1.3
Low wealth rate (wealth<5,000€)	1.3	1.3	0.8	1.4
Unemployment insurance receipt rate	-1.7	-2.2	-1.0	-1.9
Social assistance receipt rate	-0.4	1.1	0.1	0.2
Log reemployment wage ×100	0.0	0.3	0.0	0.0
Search costs (non-emp. individuals)	-1.7	-1.4	0.0	0.2
Search costs (non-emp. w/ emp. spouse)			0.0	0.2
Search costs (non-emp. w/ non-emp. spouse)			0.0	0.6
Panel C: Demographic groups based on sex and marital status				
Employment rate	-0.2	-0.4	-1.6	0.7
Wealth (1000s€)	-2.9	-1.4	-2.1	-2.1
Low wealth rate (wealth<5,000€)	3.9	1.6	2.6	2.6
Unemployment insurance receipt rate	-3.1	-3.6	-1.0	-2.9
Social assistance receipt rate	3.4	0.2	0.6	0.6
Log reemployment wage ×100	0.0	0.5	0.4	-0.1
Search costs (non-emp. individuals)	-1.2	-2.5	0.0	-0.1
Search costs (non-emp. w/ emp. spouse)			0.0	-0.2
Search costs (non-emp. w/ non-emp. spouse)			-0.2	0.3

Notes: Effects on behaviors of a revenue-neutral rebalancing reform that eliminates unemployment insurance and increases social assistance to 141% of its baseline generosity. All behavioral effects are differences in levels, rate variables expressed in percentage points, and wealth is defined as household wealth per adult household member. See Section VI.C.1 for a description of the demographic groups.

Table A.8: Heterogeneous behavioral effects of the revenue-neutral rebalancing reform

Aggregate total welfare effect	Social assistance				Unemployment insurance				Difference			
	-2.0				-0.9				-1.0			
	Low Educ.		High Educ.		Low Educ.		High Educ.		Low Educ.		High Educ.	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Panel A: Fiscally-equalized employment and welfare effects												
Change in the employment rate	2.1	1.0	1.2	0.5	0.2	1.2	-0.2	1.0	1.9	-0.2	1.3	-0.4
Total welfare effect	-3.0	-1.4	-1.8	-1.3	-0.8	-1.2	0.0	-0.3	-2.2	-0.2	-1.8	-0.9
... Incentive	0.6	1.0	2.1	2.1	0.1	-0.8	1.0	-0.7	0.5	1.8	1.1	2.8
... Insurance	-3.4	-1.6	-2.1	-1.6	-0.7	0.0	-1.2	-0.3	-2.8	-1.6	-0.9	-1.3
... Redistribution	-0.3	-0.9	-2.0	-1.6	-0.5	-0.4	-0.4	0.3	0.2	-0.5	-1.7	-1.9
... Costs	0.1	0.1	0.2	-0.2	0.3	0.0	0.6	0.4	-0.2	0.1	-0.4	-0.5
Panel B: Actual Employment and welfare effects												
Change in the employment rate	1.6	1.3	0.6	0.6	0.1	1.5	-0.2	1.1	1.4	-0.2	0.7	-0.5
Total welfare effect	-2.3	-1.8	-0.9	-1.5	-0.6	-1.5	0.0	-0.4	-1.7	-0.3	-0.9	-1.1
... Incentive	0.5	1.3	1.1	2.5	0.1	-1.0	0.8	-0.8	0.4	2.2	0.2	3.3
... Insurance	-2.6	-2.1	-1.1	-1.9	-0.5	0.0	-1.0	-0.4	-2.1	-2.1	0.0	-1.5
... Redistribution	-0.2	-1.2	-1.0	-2.0	-0.4	-0.5	-0.3	0.3	0.2	-0.7	-0.7	-2.3
... Costs	0.1	0.2	0.1	-0.2	0.3	0.0	0.5	0.4	-0.2	0.2	-0.4	-0.6
Relative change in transfer inc.	0.8	1.3	0.5	1.2	0.8	1.2	0.8	1.2	0.0	0.1	-0.3	0.0
Population share	0.47	0.43	0.04	0.07	0.47	0.43	0.04	0.07				
Cont. to agg. total welfare eff.	-1.1	-0.8	0.0	-0.1	-0.3	-0.6	0.0	0.0	-0.8	-0.1	0.0	-0.1

Notes: The table shows the heterogeneous effects of social assistance and unemployment insurance for demographic groups defined by characteristics determined before labor force entry. Panel A shows the effects of cuts in unemployment insurance and social assistance that decrease demographic-group-level average net-of-tax transfer income by 37 euros per person-quarter. Panel B shows the actual effects of the fiscal and welfare effects of eliminating unemployment insurance and a revenue equivalent cut in the generosity of social assistance to 62.7% of its baseline generosity. A group's contribution to the aggregate total welfare effect is equal to the group's total welfare effect times the group's population share. The change in the employment rate refers to the percentage point change in the employment rate, and the welfare effects are expressed as percentages of baseline consumption.

Table A.9: Heterogeneous effects of social assistance and unemployment insurance by sex and education

Revenue-neutral rebalancing reform (unemployment insurance eliminated and social assistance increased to 141% of baseline)				
Aggregate total welfare effect	0.5			
Aggregate incentive effect	-1.4			
Aggregate insurance effect	1.2			
Aggregate redistribution effect	0.3			
Aggregate cost effect	0.4			
	Low Educ.		High Educ.	
	Women	Men	Women	Men
Change in the employment rate	-1.1	0.3	-1.0	0.6
Total welfare effect	0.9	0.2	1.3	0.2
... Incentive	-0.3	-2.5	-0.2	-2.6
... Insurance	1.5	1.1	0.4	0.6
... Redistribution	0.1	0.3	-0.3	1.9
... Costs	-0.4	1.3	1.4	0.3
Contribution to aggregate total welfare effect	0.4	0.1	0.0	0.0
Contribution to aggregate incentive effect	-0.1	-1.1	0.0	-0.2
Contribution to aggregate insurance effect	0.7	0.5	0.0	0.0
Contribution to aggregate redistribution effect	0.0	0.1	0.0	0.1
Contribution to aggregate cost effect	-0.2	0.5	0.1	0.0

Notes: The table shows the heterogeneous effects of a revenue-neutral rebalancing reform of the social safety net for demographic groups defined by characteristics determined before labor force entry. A group's contribution to the aggregate total welfare effect is equal to the group's total welfare effect times the group's population share (as shown in Table A.9). The change in the employment rate refers to the percentage point change in the employment rate, and the welfare effects are expressed as percentages of baseline consumption.

Table A.10: Heterogeneous welfare effects of a revenue-neutral rebalancing reform of the social safety net by sex and education

Online Appendix G Robustness

Online Appendix G.I Ancillary Policy Parameters

The results in Panel A and Panel B of Table A.11 show that our main results on unemployment insurance versus social assistance in Sections VI.B-VI.C continue to hold when we consider cuts in the generosity of unemployment insurance that fall short of eliminating the program. Panel A reports the welfare effects of various cuts in unemployment insurance and is organized as follows. Column (1) repeats our results from the main text where unemployment insurance is eliminated. In columns (2), (3) and (4), the maximum duration of benefits is capped at, respectively, 18, 12 and 6 months. In columns (5) and (6), the replacement rate is lowered to, respectively, 40% and 20%. In column (7) maximum monthly benefit is capped at 2,500 euros. In column (8), unemployment insurance is changed to a flat benefit worth 60% of (population) average after-tax earnings (which is lower than the average earnings of individuals who receive unemployment insurance). In column (9), unemployment insurance is subject to the same wealth test as social assistance. Column (10) combines the cuts from columns (3), (8) and (9). In each column of Panel B, unemployment insurance is as in the baseline environment, while the generosity of social assistance is adjusted to match the aggregate change in transfer income arising from the cut in unemployment insurance in Panel A. Irrespective of how unemployment insurance is cut, the aggregate welfare loss from the revenue-equivalent cut in social assistance is larger than the aggregate welfare loss induced by the cut in unemployment insurance. Also, in contrast to the aggregate pattern and matching our results in the main text, married men consistently experience larger welfare losses from the cut in unemployment insurance than from the revenue-equivalent cut in social assistance.

In Section VI.D we showed that a revenue-neutral rebalancing reform that eliminates unemployment insurance while increasing the generosity of social assistance increases aggregate welfare by 0.5% of baseline consumption. Each column of Panel C in Table A.11 shows the welfare effect of a revenue-neutral rebalancing reform that combines the cut in unemployment insurance in Panel A with the increase in the generosity of social assistance that makes reform revenue-equivalent to the baseline environment. Among all the rebalancing reforms that we consider, welfare gains are highest under the rebalancing reform we consider in the main text, which eliminates unemployment insurance and increases the generosity of social assistance to 142.2% of its baseline generosity. Aggregate total aggregate welfare increases under the rebalancing reforms that cut unemployment insurance by limiting benefits to 6 months, lowering the replacement rate, placing a monthly cap on benefits, switching to a flat-rate benefit or introducing a wealth test; however, these rebalancing reforms deliver lower welfare gains than the rebalancing reform that eliminates unemployment insurance. Meanwhile, rebalancing reforms

that combine cuts in the maximum duration of unemployment insurance benefits to 12 or 18 months decreases aggregate total welfare. These findings indicate the incremental welfare value of increases in benefit durations beyond 6 months exceeds that of an increase in the generosity of social assistance with the same fiscal cost.

Table A.12 shows the welfare effects of additional changes in the design of social assistance. Column (1) repeats our results from the main text, where social assistance is withdrawn one-for-one against household income above a modest tax-free allowance (see footnote 19). In columns (2)-(4), the social assistance income exemption is increased by, respectively, 2,000, 4,000 and 6,000 euros per year, thereby increasing the social assistance available to working households. Panel C of Table A.12 shows the welfare effect of revenue-neutral rebalancing reforms that eliminate unemployment insurance and change the social assistance income exemption as described in Panel B while increasing the generosity of social assistance to make the rebalancing reform revenue-equivalent to the baseline environment. The welfare gain from a revenue-neutral rebalancing reform decreases with the social assistance income exemption and falls just below zero when the social assistance income exemption is increased by 4,000 euros per year. These results indicate inefficiencies in making social assistance available to working households.

Similarly, column (4) in Table A.12 shows that a rebalancing reform that eliminates unemployment insurance and replaces the household-size-dependent social assistance income floor with the income floor for single adults without children while adjusting the generosity of social assistance delivers an aggregate welfare gain of 0.6% of baseline consumption. This result indicates welfare inefficiencies in providing more generous social assistance to larger households. As such, this is consistent with our results in Section VI.E, where we show that the presence of married households in the population reduces the welfare gains from rebalancing the social safety net away from unemployment insurance and towards social assistance.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A. Cut unemployment insurance:										
Total welfare effect (% of baseline consumption):										
All individuals	-0.9	-0.1	-0.3	-0.4	-0.5	-1.0	-0.1	-0.3	-0.6	-0.8
Single women	-1.2	-0.1	-0.2	-0.7	-0.6	-0.9	0.0	-0.3	-0.8	-1.0
Single men	-0.8	-0.1	-0.3	-0.3	-0.3	-0.8	-0.1	-0.3	-0.2	-0.5
Married women	-0.2	-0.1	-0.2	0.2	-0.5	-1.3	-0.1	-0.2	-0.6	-0.2
Married men	-1.6	-0.1	-0.3	-1.0	-0.4	-0.7	-0.1	-0.5	-0.7	-1.4
Ancillary unemployment insurance parameters (if different from the baseline policy environment)										
Replacement rate	n.a.				40	20		n.a.		
Maximum duration (months)	0	18	12	6						6
Flat benefit based on average earnings								Yes		Yes
Unemp. ins. wealth test									Yes	Yes
Earnings cap (euros/month)							2,500			
Change in transfer income	-37	-3	-7	-24	-18	-35	-5	-16	-24	-35
Panel B: Revenue-equivalent cut in social assistance:										
Total welfare effect (% of baseline consumption):										
All individuals	-2.0	-0.1	-0.5	-1.2	-1.0	-1.8	-0.2	-0.9	-1.3	-1.8
Single women	-4.9	-0.3	-1.6	-3.3	-2.6	-4.6	-0.4	-2.5	-3.4	-4.6
Single men	-5.0	-0.2	-0.8	-2.9	-2.2	-4.6	-0.3	-1.9	-3.0	-4.6
Married women	-0.6	0.0	-0.2	-0.4	-0.3	-0.6	-0.1	-0.3	-0.4	-0.6
Married men	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Social assistance generosity (% of baseline)	62.7	97.5	91.2	74.7	79.8	64.7	96.1	81.7	73.9	64.7
Change in transfer income	-37	-3	-7	-24	-18	-35	-5	-16	-24	-35
Panel C. Revenue-neutral rebalancing reform with cut in unemployment insurance from Panel A:										
Total welfare effect (% of baseline consumption):										
All individuals	0.5	-0.0	-0.1	0.5	0.2	0.3	0.1	0.3	0.2	0.4
Single women	1.5	0.2	0.3	1.6	1.3	1.7	0.4	1.7	1.3	1.6
Single men	2.7	0.1	0.2	1.6	1.0	2.2	0.2	0.9	1.3	2.1
Married women	0.6	-0.1	-0.1	0.7	-0.2	-0.7	0.0	0.0	-0.3	0.5
Married men	-1.2	-0.1	-0.3	-0.9	-0.3	-0.4	-0.1	-0.5	-0.7	-1.1
Social assistance generosity (% of baseline)	141.2	102.6	106.2	126.2	119.0	137.7	104.3	117.0	122.9	136.2

Notes: Change in transfer income is expressed in euros per person per quarter. Panel A shows the total welfare effects of the cuts in unemployment insurance listed under ‘ancillary unemployment insurance parameters’. Panel B shows the total welfare effects of the cut in the generosity of social assistance that is revenue-equivalent to the cuts in unemployment insurance from Panel A. Panel C shows the total welfare effects of a revenue-neutral rebalancing reform that combines the cut in unemployment insurance from Panel A with the increase in the generosity of social assistance that makes the reform revenue equivalent to the baseline. Changes in the duration of unemployment insurance are implemented as cuts to the baseline entitlement. The flat unemployment insurance benefit is worth 60% of (population) average after-tax earnings. Individuals are allowed to claim social assistance before unemployment insurance when the unemployment insurance is cut (so individuals do not have to claim a small amount of unemployment insurance before claiming social assistance). Column (1) repeats results from Section VI.

Table A.11: Welfare effects with additional changes in the design of unemployment insurance

	(1)	(2)	(3)	(4)	(5)
Panel A. Eliminate unemployment insurance:					
Total welfare effect (% of baseline consumption):					
All individuals	-0.9	-0.9	-0.9	-0.9	-0.9
Single women	-1.2	-1.2	-1.2	-1.2	-1.2
Single men	-0.8	-0.8	-0.8	-0.8	-0.8
Married women	-0.2	-0.2	-0.2	-0.2	-0.2
Married men	-1.6	-1.6	-1.6	-1.6	-1.6
Change in transfer income	-37	-37	-37	-37	-37
Panel B: Revenue-equivalent cut in social assistance:					
Total welfare effect (% of baseline consumption):					
All individuals	-2.0	-2.0	-2.2	-2.3	-2.0
Single women	-4.9	-4.6	-5.0	-5.5	-4.8
Single men	-5.0	-6.1	-7.3	-8.0	-4.8
Married women	-0.6	-0.5	-0.5	-0.4	-0.7
Married men	0.0	0.3	0.5	0.6	0.0
Ancillary social assistance parameters (if different from the baseline policy environment)					
Additional income exemption (euros per year)		2,000	4,000	6,000	
Homogeneous income floor					Yes
Social assistance generosity (% of baseline)	62.7	60.9	58.0	56.9	63.9
Change in transfer income	-37	-37	-37	-37	-37
Panel C. Revenue-neutral rebalancing reform:					
<i>(No unemployment insurance & ancillary social assistance parameters from Panel B)</i>					
Total welfare effect (% of baseline consumption):					
All individuals	0.5	0.1	-0.1	-0.3	0.6
Single women	1.5	0.3	-0.7	-1.3	1.5
Single men	2.7	1.8	1.5	1.3	3.5
Married women	0.6	0.1	-0.3	-0.5	0.5
Married men	-1.2	-0.8	-0.5	-0.4	-1.6
Social assistance generosity (% of baseline)	141.2	134.6	131.2	129.1	151.3

Notes: The change in transfer income is expressed in euros per person per quarter. Panel A shows the total welfare effects of eliminating unemployment (the five columns are identical). Panel B shows the total welfare effects of the cut in the generosity of social assistance that is revenue-equivalent to the cuts in unemployment insurance from Panel A when combined with the changes in social assistance listed under ‘ancillary social assistance parameters’. Panel C shows the total welfare effects of a revenue-neutral rebalance reform that eliminates unemployment insurance, implements the changes in social assistance listed under ‘ancillary social assistance parameters’ in Panel B and increases the generosity of social assistance to make the reform revenue-equivalent to the baseline. The additional income exemption for social assistance is an increase in the pre-social-assistance household income that is disregarded when calculating the household’s entitlement to social assistance (see footnote 19). Under the homogeneous social assistance income floor, the income floor for a single adult without children applies to all households. Column (1) repeats results from Section VI.

Table A.12: Welfare effects with additional changes in the design of social assistance

Online Appendix G.II Model Specification

Table A.13 shows the welfare effects of the revenue-neutral rebalancing reform when we modify the estimated life-cycle model by suppressing saving, increasing risk aversion, suppressing wage shocks, or introducing a correlation between spouses' employment shocks. The findings presented in column (1) indicate that if households are unable to save, a revenue-neutral reform that eliminates unemployment insurance while increasing social assistance decreases overall welfare. Without the capacity to save, the complete removal of unemployment insurance forces households to resort to claiming social assistance, therefore incurring higher benefit-claiming costs. The results in columns (2)–(4) show that under each of the other changes in the model, we continue to find that the revenue-neutral rebalancing reform increases the welfare of single women, single men, and married women and decreases the welfare of married men.

	(1)	(2)	(3)	(4)
Total welfare effect (% of baseline consumption):				
All individuals	-1.5	-0.1	0.5	0.5
Single women	-2.0	1.5	1.2	1.5
Single men	-1.5	0.9	2.5	2.7
Married women	-1.1	0.0	0.6	0.6
Married men	-1.5	-1.6	-1.1	-1.2
Policy parameters:				
Social assistance generosity (% of baseline)	110.8	120.7	139.9	141.2
Change in model specification compared to the baseline model:				
Suppress saving	Yes			
Increase in risk aversion by 10%		Yes		
Suppress wage shocks			Yes	
Introduce a of correlation of 0.7 between spouses' employment shocks				Yes

Notes: For each model specification, unemployment insurance is eliminated and the generosity of social assistance is changed to make the rebalancing reform revenue neutral. Table 13 in Section VI.D shows the total welfare effects of the rebalancing reform from the baseline model.

Table A.13: Welfare effects of the revenue-neutral rebalancing reform under alternative model specifications

Online Appendix H Equilibrium Effects

Online Appendix H.I Overview

Recent works in macroeconomics have studied optimal unemployment insurance with general equilibrium effects in the labor market (see, among others, Krusell, Mukoyama and Şahin, 2010, Nakajima, 2012, Mitman and Rabinovich, 2015, Braxton, Herkenhoff and Phillips, 2020). As summarized by Lalive, Landais and Zweimüller (2015), the total effect, or macro effect, of a change in unemployment insurance is the sum of a micro effect and an equilibrium (or externality) effect. The micro effect arises from changes in accepted wages and job-offer rates due to changes in reservation wages and search effort at the individual level. In contrast, the equilibrium effect arises from changes in the equilibrium conditions in the labor market that affect market wages or an individual's job-offer rate, given their search effort. An increase in the generosity of benefits creates equilibrium effects through two channels. First, it decreases competition for jobs, which increases an individual's probability of receiving a job offer at any given search effort. Second, it increases workers' bargaining power, driving up market wages. Therefore, firms scale back job creation, which then decreases an individual's probability of receiving a job offer at any given search effort.

Our baseline model includes the micro effects of unemployment insurance and social assistance. Specifically, in the baseline model, accepted wages and job-offer rates respond to changes in benefits because households optimally base their reservation wages and search effort on the benefits system. Furthermore, in the baseline model, a household's optimal response to a benefit change depends on (i) whether the change involves unemployment insurance or social assistance and (ii) the household's demographic characteristics, including sex, marital status, age, wealth, and education. However, the equilibrium effects of unemployment insurance and social assistance are absent from the baseline model. We explore the sensitivity of our main results to equilibrium effects by implementing two relatively simple extensions to the baseline model that are intended to capture the equilibrium effects of unemployment insurance and social assistance on job-offer rates and market wages.²

In more detail, in Online Appendix H.II, we explore the equilibrium effects of unemployment insurance and social assistance on job-offer rates using an extension to the baseline model that allows an individual's probability of receiving a job offer at any given search effort to depend on the benefits system. In particular, we allow search productivity to depend on the support provided by the social assistance and unemployment insurance benefits system. We draw on the literature to calibrate values for the social assistance elasticity of search productivity and the unemployment insurance elasticity of search productivity. Based on this extended model, we

²Given the extensive heterogeneity in the baseline model, both across individuals and over the life cycle, it is infeasible to include a grounded equilibrium labor market concept in the model.

find that our results in Sections VI.B-VI.D on the aggregate and heterogeneous welfare effects of social assistance and unemployment insurance are robust to equilibrium effects of benefits on search productivity. We also show that these results are robust to allowing different benefit elasticities for women and men.

Similarly, in Online Appendix H.III, we explore the equilibrium effects of unemployment insurance and social assistance on market wages using an extension to the baseline model that allows market wages to depend on the support provided by the social assistance and unemployment insurance benefit systems. We draw on the literature to calibrate values for the social assistance elasticity of market wages and the unemployment insurance elasticity of market wages. Based on this extended model, we find that the welfare effects reported in Sections VI.B-VI.D are qualitatively robust to equilibrium effects of benefits on market wages. This robustness check may also be interpreted as evidence that our results are robust to more generous benefits improving match quality.

Online Appendix H.II Equilibrium effects on search productivity

We extend equation (16) in Section II.B by allowing search productivity to depend on the support provided by the social assistance benefits system and on the support provided by the unemployment insurance benefits system. The extended (log) search productivity for women i in alternative policy environment A is given by:

$$\begin{aligned} \log(\chi_{i,t}) = & \chi_1^F + \chi_2^F \text{AgeG50}_{i,t} + \chi_3^F \text{HiEduc}_i + \chi_4^F \text{Married}_{i,t} + \\ & \mu_{SA}^s \log(\text{SASupport}_A) + \mu_{UI}^s \log(\text{UISupport}_A), \end{aligned} \quad (\text{A14})$$

where SASupport_A (UISupport_A) denotes the support provided by the social assistance (unemployment insurance) benefit system in policy environment A and μ_{SA}^s (μ_{UI}^s) is the social assistance (unemployment insurance) elasticity of search productivity. SASupport_A and UISupport_A are given by:

$$\text{SASupport}_A = \frac{G_A/G_B + RR_B}{1 + RR_B} \quad \text{and} \quad \text{UISupport}_A = \frac{1 + RR_A}{1 + RR_B}, \quad (\text{A15})$$

where RR_A (RR_B) denotes the unemployment insurance replacement rate in the alternative (baseline) policy environment and G_A/G_B denotes the ratio of the social assistance generosity parameter in the alternative policy environment to its value in the baseline environment (recall the social assistance generosity parameter, G , was introduced in Section I.C.2 and is equal to 605 euros per month in the baseline environment). The corresponding extended search productivity for men is obtained by replacing F with M and i with j in (A14). We calibrate values for the unemployment insurance elasticity of search productivity and the social assistance

elasticity of search productivity to match Lalive, Landais and Zweimüller (2015)'s finding that the macro employment effect of a change in an unemployment benefit is 21% smaller than the employment effect in the absence of equilibrium effects (recall, without equilibrium effects, we find that eliminating unemployment insurance increases employment by 0.8 percentage points and revenue-equivalent cut in social assistance increases employment by 1.4 percentage points, see Table 8 in Section VI.B).³ The calibrated benefit elasticities of search productivity are 0.70 for social assistance and 0.14 for unemployment insurance.

We then use the extended model described in this section, including the calibrated equilibrium effects of social assistance and unemployment insurance on search productivity, to calculate the welfare effects of (i) eliminating unemployment insurance, (ii) a cut in social assistance that is revenue equivalent to eliminating unemployment insurance and (iii) a revenue-neutral rebalancing reform that eliminates unemployment insurance while increasing social assistance to keep net-of-tax transfer income constant. The results of this exercise are reported in Panel A of Table A.14, and can be summarized as follows. First, when we aggregate welfare effects across all individuals, we continue to find that eliminating unemployment insurance is less damaging for welfare than a revenue-equivalent cut in social assistance. In more detail, equilibrium effects increase the welfare loss from the revenue-equivalent cut in social assistance by more than they increase the welfare loss from eliminating unemployment insurance. This finding reflects that without equilibrium effects, the employment effect of social assistance is larger than that of unemployment insurance. Second, when we disaggregate by sex and marital status, we continue to find that single individuals and married women experience smaller welfare losses from the elimination of unemployment insurance than from the revenue-equivalent cut in social assistance, with the pattern reversed for married men. Third, we continue to find that the revenue-neutral rebalancing reform increases aggregate welfare.

Panel B of Table A.14 repeats the robustness checks described in the previous paragraph but with benefit elasticities of search productivity that vary by sex. In particular, we calibrate elasticities to make each benefit's sex-specific macro employment effect 21% smaller than the benefit's sex-specific employment effect in the absence of equilibrium effects. Without equilibrium effects, eliminating unemployment insurance increases employment by 0.1 percentage points for women and 1.4 percentage points for men, while the revenue-equivalent cut in social assistance increases employment by 1.5 percentage points for women and 1.2 percentage points for men. The calibrated social assistance elasticity of search productivity is 0.69 for women and

³Lalive, Landais and Zweimüller (2015) study the equilibrium effects of the Regional Extension Benefit Program in Austria, which gave eligible unemployed workers an additional three years of benefits. They find that unemployment durations for ineligible workers decreased by 6–8 weeks. The equilibrium effect of the unemployment benefits extension on ineligible workers made the macro effect of the benefit extension on unemployment durations 21% smaller than the micro effect. Marinescu (2017) reports a similar difference between the micro and macro effects of unemployment insurance.

	Revenue-equivalent policies			Revenue-neutral rebalancing reform
	Cut social assistance	Eliminate unemp. insurance	Diff.	
Panel A: Same benefit elasticities for women and men				
Total welfare effect (% of baseline consumption):				
All individuals	-3.9	-1.4	-2.5	0.9
Single women	-7.7	-1.7	-5.9	2.1
Single men	-10.7	-2.1	-8.6	3.4
Married women	-0.8	-0.4	-0.4	0.6
Married men	-1.1	-1.9	0.8	-1.0
Percentage point change in employment from baseline:				
All individuals	1.1	0.6	0.5	-0.5
Single women	1.2	0.5	0.7	-0.2
Single men	1.1	0.8	0.2	-0.3
Married women	1.2	-0.2	1.4	-1.8
Married men	0.9	1.4	-0.5	0.5
Policy parameters:				
Change in net transfer income (€/person-quarter)	-34	-34		0
Social assistance generosity (% of baseline)	60.7	100		143.7
Unemployment insurance replacement rate ($\times 100$)	60	0		0
Panel B: Different benefit elasticities for women and men				
Total welfare effect (% of baseline consumption):				
All individuals	-3.8	-1.5	-2.3	0.8
Single women	-7.4	-1.8	-5.7	2.1
Single men	-10.3	-2.4	-7.9	3.3
Married women	-0.8	-0.5	-0.3	0.5
Married men	-1.1	-1.9	0.8	-1.0
Percentage point change in employment from baseline:				
All individuals	1.1	0.6	0.5	-0.5
Single women	1.2	0.6	0.6	-0.1
Single men	1.0	0.7	0.3	-0.3
Married women	1.2	-0.2	1.4	-1.8
Married men	0.9	1.4	-0.5	0.6
Policy parameters:				
Change in net transfer income (€/person-quarter)	-31	-31		0
Social assistance generosity (% of baseline)	61.7	100		143.5
Unemployment insurance replacement rate ($\times 100$)	60	0		0

Table A.14: Robustness of policy comparisons to equilibrium effects of social assistance and unemployment insurance benefits on search productivity

0.70 for men, and the calibrated unemployment insurance elasticity of search productivity is 0.13 for women and 0.16 for men. The results discussed in the previous paragraph are robust to this generalization.

Online Appendix H.III Equilibrium effects on market wages

We extend equation (18) in Section II.C by allowing market wages to depend on the support provided by the social assistance and unemployment insurance benefit systems. The extended (log) market wage (including measurement error) for women i in alternative policy environment A is given by:

$$\log \widetilde{W}_{i,t} = \beta_1^F + \beta_2^F \text{Exp}_{i,t} + \beta_3^F \text{HiEduc}_i + \beta_4^F \kappa_{i,t} + \nu_{i,t} + \mu_{SA}^w \log(\text{SASupport}_A) + \mu_{UI}^w \log(\text{UISupport}_A), \quad (\text{A16})$$

where SASupport_A (UISupport_A) denotes the support provided by the social assistance (unemployment insurance) benefit system in policy environment A and μ_{SA}^w (μ_{UI}^w) is the social assistance (unemployment insurance) elasticity of wages. SASupport_A and UISupport_A are defined above in Online Appendix H.II. The corresponding extended wage equation for men is obtained by replacing F with M and i with j in (A16). We set the unemployment insurance elasticity of wages equal to 0.0232. We take this figure from Hagedorn et al. (2013), who find an unemployment insurance elasticity of wages of 0.0232 for job stayers, indicating that unemployment insurance is an outside option available to workers when they bargain on the job.⁴ Since, without equilibrium effects, eliminating unemployment insurance increase employment by 28.57% less than a revenue-equivalent cut in social assistance (1 versus 1.4 percentage points, see Table 8 in Section VI.B), we set the social assistance elasticity of wages equal to $0.0325 = 0.0232 \times (1 - 0.2857)^{-1}$.

We then use the extended model described in this section, including the calibrated equilibrium effects of social assistance and unemployment insurance on market wages, to calculate the welfare effects of (i) eliminating unemployment insurance, (ii) a cut in social assistance that is revenue equivalent to eliminating unemployment insurance, and (iii) a revenue-neutral rebalancing reform that eliminates unemployment insurance while increasing social assistance to keep net-of-tax transfer income constant. Table A.15 summarizes the findings of this exercise. Welfare losses increase due to the equilibrium effects of eliminating unemployment insurance and the revenue-equivalent cut in social assistance on market wages. However, across all individuals, we continue to find that eliminating unemployment insurance is less damaging for welfare than a revenue-equivalent cut in social assistance. We also continue to find that the

⁴Lalive, Landais and Zweimüller (2015) find no equilibrium effects on reemployment wages of workers. Marinescu (2017) finds no equilibrium effects on posted wages on an online job posting board.

pattern of welfare effects by sex and marital status is the same as in the baseline model. Finally, we note that equilibrium effects on market wages reduce the welfare gains for a revenue-neutral rebalancing reform to close to zero, but this reform still yields welfare gains for single women and men and married women.

	Revenue-equivalent policies			Revenue-neutral rebalancing reform
	Cut social assistance	Eliminate unemp. insurance	Diff.	
Total welfare effect (% of baseline consumption):				
All individuals	-2.1	-1.6	-0.5	0.0
Single women	-4.6	-1.9	-2.8	1.0
Single men	-4.4	-1.4	-3.0	1.4
Married women	-0.8	-0.6	-0.2	0.3
Married men	-0.6	-2.5	1.9	-1.7
Policy parameters:				
Change in net transfer income (€/person-quarter)	-22	-22		0
Social assistance generosity (% of baseline)	67.8	100		132.0
Unemployment insurance replacement rate ($\times 100$)	60	0		0

Table A.15: Robustness of policy comparisons to equilibrium effects of social assistance and unemployment insurance benefits on market wages

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