Unemployment Insurance, Inequality of Opportunity, and Labor Market Conditions*

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Abstract

This paper studies whether unemployment insurance should vary over the business cycle. I propose and empirically evaluate a framework to assess the optimal duration of unemployment benefits that accounts for differential selection of individuals into unemployment due to disparities in the availability of work opportunities. I derive sufficient statistics formulae showing that the optimal duration depends on the efficiency cost of providing insurance, the consumption insurance value, and the social preferences for redistribution between different types of unemployed. I examine how these components vary over the cycle by exploiting the large variation in unemployment rate over time and across regions in Spain between 2005 and 2017. To quantify the efficiency cost of providing insurance, I apply a regression discontinuity design using administrative data and show that the distortion induced by benefit extensions declines in recessions. To assess the insurance value, I use survey data on consumption and show that individuals experience larger drops in consumption upon job loss when the unemployment rate is high. To gauge the preferences for redistribution between different types of unemployed, I collect survey data and demonstrate that people are more favorable to provide benefits to individuals with higher willingness to work, and that the share of this type of unemployed increases in downturns. Taking into account all these forces, I find that optimal unemployment insurance should have been more generous at the peak of the Great Recession than in the preceding period. Furthermore, contrary to the conventional wisdom, my analysis reveals that the welfare gains of extending benefit duration coming from the social benefits are more countercyclical than the ones related to the costs, and so the optimal level of cyclicality is substantially underestimated in the existing literature.

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1 Introduction

Unemployment insurance (UI) is a crucial tool for policymakers seeking to support individuals when hit by adverse employment shocks. Its importance is even higher during economic downturns, when large numbers of individuals unexpectedly lose their jobs and rely on this income support to alleviate the hardship of unemployment. Despite this being a widespread issue, there is significant variation across countries in how the generosity of the program varies with economic conditions. While some, like the United States, usually provide more generous transfers during recessions, others, like many countries in Western Europe, keep transfers constant regardless of economic conditions.

Economists have long debated about whether the unemployed should receive more generous transfers when economic conditions are bad. The debate centers around how the efficiency costs and social benefits associated with UI (Baily, 1978; Chetty, 2006) evolve with economic conditions. Existing evidence on social benefits over the cycle, as captured by the consumption insurance value, is scant and remains inconclusive, since empirical studies usually exploit relatively small variations in the unemployment rate which may limit the power to detect fluctuations of these components. More fundamentally, the canonical framework fails to capture that the pool of unemployed workers may be different in good and bad times: while a labor supply narrative may be better suited for the unemployed in good times, involuntary unemployment due to lacking work opportunities becomes increasingly significant as labor market conditions deteriorate.[1] Such difference possibly affects the equity implications of unemployment benefit reforms over the cycle.

This paper proposes, and empirically evaluates, a framework to assess the welfare consequences of changing UI generosity with economic conditions. The framework characterizes optimal unemployment benefit duration depending on three components: the efficiency cost, the value of insurance, and the preferences for redistribution between different types of unemployed. It extends previous work by embedding inequality of opportunity (Roemer, 1998) within the UI framework, accounting for differential selection of individuals into unemployment due to variation in labor market conditions. In the model, the social planner is not solely concerned about consumption inequality due to unemployment; the origin of this inequality also matters, becoming crucial to disentangle whether unemployment emerges from unequal economic opportunities (e.g., job offers) or disparities in individual effort (e.g., job search).

The framework delivers a set of high-level "sufficient statistics" that can be estimated empirically, providing a direct link between theory and evidence. I implement this framework in the context of Spain, which is particularly well-suited for this analysis since it features unusually large variation

[1] Intuitively, the role of these two components changes substantially over the cycle, as conveyed by Summers (2010): *In an economy that is as demand constrained as ours, whatever small changes in search intensity may be associated with unemployment insurance are not the reason for the persistence of joblessness. With five unemployed Americans seeking work for every job opening available, there can be little doubt that the overwhelming cause of unemployment is not a lack of will among the jobless to find work, but a lack of work opportunities.*

in the unemployment rate. Over the period of study, 2005-2017, the national unemployment rate increased from 7.9% to 26.9%, making this context remarkable relative to international standards (see Figure A1). The empirical analysis combines administrative data on labor supply, survey data on consumption, time use survey data on job search, and a representative online survey I conducted on preferences for redistribution. Along with policy variation and the aforementioned variation in economic conditions, it enables a comprehensive assessment of all the inputs needed to evaluate the optimal variation in UI duration across good and bad times.

The theoretical framework follows Baily (1978), Lentz and Tranaes (2005), Chetty (2008), Schmieder et al. (2012), and Kolsrud et al. (2018), where a population of heterogeneous unemployed individuals look for jobs by making search effort and savings decisions. Individuals are also subject to different economic conditions (good or bad), where search effort is more or less effective in terms of job finding (unequal economic opportunity). The government provides unemployed individuals with unemployment benefits that are paid over a limited number of periods, and this duration can be made dependent on economic conditions.

I extend the standard framework by allowing the unemployed to differ in their willingness to work: the extent to which they search for jobs conditional on the economic environment. The government maximizes the welfare-weighted utility of employed and unemployed individuals. In the spirit of the generalized social marginal welfare weights of Saez and Stantcheva (2016), the welfare weights can depend on the unemployed's willingness to work type. This is motivated by work by Alesina and Angeletos (2005) and Alesina et al. (2018), where the social planner exhibits social preferences that depend on whether inequality emerges because of bad luck (not finding a job when labor demand is dampened) or lack of effort (not finding a job when plenty of opportunities are available).

The optimal cycle-dependent benefit duration follows a Baily-Chetty intuition in this economy: social benefits and costs of unemployment insurance in good times must balance the benefits and costs in bad times. These benefits and costs of UI benefit extensions are fully captured by three sufficient statistics that can be estimated in the data. First, benefit duration depends on the insurance value coming from consumption smoothing. The transfers are more valuable when individuals are less able to self-insure themselves. In this sense, the larger the gap in marginal utilities of consumption between the unemployed in recessions and the unemployed in booms, the larger the gap in UI duration between these two economic conditions should be.

Second, the framework introduces a novel channel determining the social benefits provided by UI transfers over the cycle. In the presence of preferences for redistribution across the unemployed based on their willingness to work, the social planner takes into account that the composition of the unemployed differs in booms and recessions. Although individual willingness to work is not directly observed, aggregate economic conditions seen through the lens of this framework reveal information about the type of the average unemployed. In good times, when job opportunities are available,

individuals with a high willingness to work often find a job, and so the pool of unemployed is on average composed of low-willingness to work individuals. However, in bad times, even individuals with high willingness to work are likely to remain unemployed, and thus the pool of unemployed is composed of both low but also high-willingness to work types. This implies that, all else constant, the willingness to work of the average unemployed increases with the unemployment rate.[2] Therefore, a social planner who prefers to insure the consumption drops of individuals whose unemployment status is not caused by limited job search effort can use aggregate conditions to target resources towards them. As a result, the larger the gap in society's relative valuations between the unemployed in recession and the unemployed in boom, the higher the potential UI duration should be in recession relative to boom.

Third, the derived formula highlights that optimal duration also depends on the evolution of the efficiency costs of the policy over the cycle. Higher potential benefit duration reduces incentives to look for jobs, which may result in distortions of labor supply with individuals spending more time unemployed and thus taking longer to find a job. This imposes an additional cost on the government budget, since the longer unemployment duration translates into more resources spent on unemployment benefits and less resources collected through taxes when employed. In this context, the larger the gap between the labor supply distortion caused by extending UI in good times relative to bad times, the larger the gap in generosity should be.

The framework described above guides the empirical analysis, which is structured in three parts. The first part of the analysis explores how the consumption insurance value of the transfers varies with economic conditions. In doing so, I employ a difference-in-differences design similar to Gruber (1997) where I compare the consumption patterns of individuals becoming unemployed with those of individuals who remain working. I exploit rich survey panel data on household consumption, which provide detailed information on different consumption categories. This allows me to study the effect on both food consumption – that has traditionally been the focus of the literature due to data limitations – and on overall consumption including housing, utilities, clothing and transportation among others. I find that, on average, households experience an overall 9.6% (s.e. 1.3%) reduction in consumption upon job loss. Moreover, this drop increases in bad times, with a 1 p.p. increase in unemployment rate resulting in an additional 0.4% (s.e. 0.1) reduction relative to pre-unemployment consumption levels. Similarly to Kroft and Notowidigdo (2016), I find no significant variation in the drop in food consumption over the business cycle. The main categories that drive the consumption drop fluctuations are housing and utilities, and clothing. This implies that extending UI duration

[2] In other words, aggregate unemployment rate can be seen as a shifter of the signal-to-noise ratio in the spirit of Alesina and Angeletos (2005), where the signal here corresponds to the voluntary part of unemployment and the noise to the involuntary one. The ratio in this context is decreasing with the unemployment rate, so that the moment of the cycle provides additional information to the government about the role of lack of effort vs bad luck in individuals' employment status.

in recessions provides larger consumption insurance benefits relative to extensions in boom periods. Moreover, it underscores the importance of leveraging detailed consumption data and helps reconcile previous work documenting a constant drop in consumption over the cycle.

The second part quantifies how the benefits of the transfers due to both preferences for redistribution and changes in the unemployed's composition evolve with economic conditions. I proxy willingness to work by the search effort level that the unemployed exert in boom periods. Individuals who search on a weekly basis are considered to have a high willingness to work, while those who do not are characterized by low willingness. I assess whether society has a preference for redistribution between these types of unemployed individuals. To do so, I explicitly design a survey and administer it to a sample of around 1000 individuals who are representative of the Spanish active population. The survey is designed following recommended practices in the literature (Stantcheva, 2022), and has features such as order randomization and open-ended questions to make sure that results are not driven by order effects or specific characteristics of the implementation. In a first step towards eliciting preferences, respondents are asked to express preference towards resource allocation between two types of unemployed: one who searched for jobs last week and one who did not. Remarkably, around 75% conveys a desire to reward job search behavior. The remaining share of respondents do not consider effort to be a dimension that should drive unequal allocations. In a second step, with the aim of quantifying relative valuations between types, respondents are presented with multiple pairwise choices that differ in the amounts received by each type of unemployed. The design varies experimentally the cost of the transfer between individuals, allowing me to elicit the distribution of relative valuations by society between the two types. This approach yields estimates that imply strong preferences for redistribution, with society valuing a €1 transfer to the high-willingness to work type as much as a €13 transfer to the low-willingness to work type.

After documenting strong preferences for redistribution along the willingness to work dimension, I study changes in the composition of the unemployed over the cycle. By exploiting the Spanish Time Use data, I show that the share of unemployed who search for jobs weekly increases strongly with the unemployment rate. Nevertheless, this increase could reflect both a change in composition of the unemployed and the behavioral change. I follow Mukoyama et al. (2018) to gauge the part driven by composition, and find that there is a large change over the business cycle driven just by the shift in composition: the share of weekly searchers (high willingness to work) goes from 49% in boom to 68% in recession. I provide a sensitivity analysis including a prediction exercise just using the Spanish data, where I first estimate the relationship between effort and a set of demographics, and then study how predicted effort varies given the observed change in demographics of the unemployed over the cycle. The results confirm the main finding of a considerable shift in the pool of unemployed towards high-willingness to work types in bad times. Combining the change in the composition of types over the cycle with the relative valuations between types, I estimate a ratio of welfare weights of 1.31. That

is, society values a €1 transfer to the type of individuals unemployed in recession as much as €1.31 to those unemployed during a boom.

The third part employs administrative data on unemployment spells to analyze the evolution of the efficiency cost over the cycle. This cost depends on two components. First, a mechanical one, captured by the share of people who remain unemployed after benefit exhaustion, which I estimate nonparametrically. Second, a behavioral one, captured by the response of unemployment duration to changes in potential benefit duration, which I estimate through a Regression Discontinuity (RD) design. To estimate the latter, I leverage variation in the structure of the Spanish UI system, where the statutory duration of the benefits varies discretely at several work experience thresholds. I find that, on average, for every €1 transferred mechanically to the unemployed, the government needs to levy €1.77 on top of that because of the behavioral response. Consistent with the results of Schmieder et al. (2012), I also find that the efficiency cost declines in recessions, and that this is driven by a higher share of individuals exhausting benefits in recessions as opposed to a larger marginal effect of potential benefit duration on unemployment duration.[3]

Finally, the empirical findings are used to inform the statistics of interest in the derived framework, with the aim of assessing the welfare effects of a hypothetical reform making UI benefit duration dependent on the business cycle. The results indicate that the potential duration of the benefits should increase with the unemployment rate. Specifically, I estimate that a local budget-balanced reform of the UI system that increases the duration of benefits for the unemployed in recession, and reduces the duration for the unemployed in boom, would yield a net welfare gain of €0.95 per euro transferred from individuals unemployed in boom to individuals unemployed in recession. Two thirds of this welfare gain come from an increase of the social benefits provided by UI transfers, while one third relates to the lower efficiency cost of increasing generosity in bad times.

Importantly, these results highlight the quantitative relevance of the change in social benefits over the cycle that has been overlooked in related empirical literature, which mostly focuses on the change in efficiency costs. In contrast, the total welfare gains of extending UI in recessions estimated in this paper are three times as large relative to the gains considering only the efficiency cost. This implies that UI benefit duration should increase more with the unemployment rate than predicted by previous work.[4] Note that this finding is not driven by the specific welfare criterion studied here.

[3]This result should be interpreted as a micro effect, since the RD design identifies labor supply responses for individuals with different benefits duration keeping labor market tightness constant. As pointed out by Landais et al. (2018b;a), when labor market tightness is not efficient, one also needs to include a correction term to account for the fact that tightness may also respond to UI increases. Given the evidence in the literature, where it is generally found that the correction term is countercyclical, my finding can be potentially interpreted as a lower bound, being possible that the overall cost of providing UI varies even more with economic conditions than estimated here.

[4]For example, based on the survival rates presented in Kroft and Notowidigdo (2016), back-of-the-envelope calculations assuming a constant marginal response over the cycle suggest that, under the standard framework and considering only the efficiency cost, it is very difficult to rationalize extending benefits from 26 to 99 weeks as implemented in the US. This is a motivation for further understanding of the changes of social benefits, focusing both on the standard insurance framework and incorporating empirically-relevant social preferences.

Even abstracting from welfare weights and considering only the changes in consumption insurance value over the cycle, which would correspond to the standard utilitarian framework, I estimate that the welfare gains are approximately twice the gains that include only the efficiency cost.

My work relates to several distinct literatures. It relates to work on normative analysis of UI policies that aims to connect theory and data, building on seminal work by Baily (1978), Gruber (1997) and Chetty (2006). While this work focuses on studying the main trade-off of UI — providing insurance while maintaining incentives — in a stylized framework, subsequent studies have considered different features of the generosity of unemployment benefits (Card et al., 2007; Shimer and Werning, 2008; Kolsrud et al., 2018; Lindner and Reizer, 2019; Campos et al., 2022; Ferey, 2022). In terms of changes of generosity over the business cycle, one strand applies the Baily-Chetty insights (Schmieder et al., 2012; Kroft and Notowidigdo, 2016; Landais et al., 2018b;a), while another one relies on model-based calibrations (Mitman and Rabinovich, 2015; McKay and Reis, 2021; Kekre, 2023). My paper contributes by embedding fairness considerations due to inequality of work opportunities into the design of UI policies over the cycle. It draws on insights from the generalized social marginal welfare weights proposed by Saez and Stantcheva (2016), and the equality of opportunity literature (Roemer, 1998; Roemer et al., 2003; Alesina and Angeletos, 2005; Alesina and La Ferrara, 2005; Alesina et al., 2018), accounting for the social preference for reducing the degree of inequality induced by luck, while rewarding individual effort. It is also closely related to the work on "tagging" (Akerlof, 1978), where here economic conditions reveal additional information and are used as an imperfect tag for willingness to work.

The first part of the empirical analysis relates to work on the social benefits of UI transfers.[5] Specifically, the literature has focused on its consumption insurance value, starting with the seminal work by Gruber (1997) and followed by Browning and Crossley (2001); Stephens Jr (2001); Hendren (2017); Kolsrud et al. (2018); Campos and Reggio (2019); Ganong and Noel (2019); Landais and Spinnewijn (2021); Gerard and Naritomi (2021).[6] Evidence on how the value of UI changes with economic conditions is surprisingly scant. A few recent studies document consumption patterns over the period of the Covid pandemic (Chetty et al., 2020; Ganong et al., 2022), while, to the best of my knowledge, only one paper considers changes over the business cycle (Kroft and Notowidigdo, 2016). This study finds that the insurance value does not vary with economic conditions. Unfortunately, given the institutional setting and the available data, their results only consider food consumption, and the variation in unemployment rate effectively exploited is relatively small, raising concerns about potential lack of power to

[5]The evidence on the value of transfers has historically lagged behind the evidence on disincentive effects. This historical emphasis in the literature on the costs of government programs, as opposed to their benefits, is not only present in Unemployment Insurance, but extends to other programs including Medicaid, AFDC/TANF and SNAP in the US as documented by Aizer et al. (2022).

[6]More generally, it also relates to studies on consumption responses to income shocks (e.g., Blundell et al., 2008; Low and Pistaferri, 2015; Autor et al., 2019; Gross et al., 2020; Ganong et al., 2020).

detect fluctuations.[7] I revisit this aspect by providing evidence from a setting where rich consumption data beyond food consumption is available, together with large variation in unemployment rate. I find that the insurance value changes over the cycle, and that the result is driven by non-food consumption categories, thus being able to reconcile previous findings in the literature.

The implementation of the survey in combination with alternative data sources with the aim of informing policy-relevant parameters relates to a growing body of research spanning different fields including public (Saez and Stantcheva, 2016; Stantcheva, 2021), labor (Jäger et al., 2022), urban (Gaubert et al., 2020), macro (Mui and Schoefer, 2023), and political economy (Kuziemko et al., 2015; Alesina et al., 2023). I contribute by designing and administering a new survey which is explicitly constructed to estimate preferences for redistribution between types of unemployed individuals that differ in their willingness to work. In this sense, I consider not only the insurance component but also the redistribution value of cycle-dependent UI transfers along a specific effort dimension.[8]

Finally, this paper also relates to the literature analyzing labor supply disincentive effects induced by increases in unemployment benefit generosity. While most studies quantify labor supply distortions at a given moment of the cycle (e.g., Katz and Meyer, 1990; Krueger and Meyer, 2002; Card and Levine, 2000; Rothstein, 2011; Landais, 2015; Lalive et al., 2015; Hagedorn et al., 2019; Chodorow-Reich et al., 2019; Boone et al., 2021; Dieterle et al., 2020; Gerard and Gonzaga, 2021; Domenech-Arumi and Vannutelli, 2023; Acosta et al., 2023), few studies analyze the evolution of the disincentive effects over the cycle (Farber et al., 2015; Schmieder et al., 2012; Kroft and Notowidigdo, 2016). My paper provides new insights on how the labor supply responses induced by potential benefit duration extensions evolve at different points of the cycle, in a setting with remarkably large variation in economic conditions.

The rest of the paper proceeds as follows. Section 2 provides the theoretical framework used to evaluate the marginal welfare gain from benefit duration extensions. Section 3 describes the institutional context and the data. Section 4 presents the empirical methodology and the results. Section 5 describes the welfare implications, and Section 6 concludes.

[7] The smaller variation in unemployment rate relative to my setting arises from two factors. First, overall fluctuations in the US Great Recession are an order of magnitude smaller than in the case of Spain. Second, benefit generosity in the US tends to increase when the unemployment rate increases. Given that the interest is on understanding consumption insurance over the cycle, while keeping generosity *constant*, the relation between benefits and unemployment needs to be controlled for and so the effective variation used is smaller. The potential duration of benefits in Spain is constant over the cycle, which allows to exploit relatively more variation.

[8] More broadly, it also relates conceptually to the measurement of the general equity-efficiency trade-off faced by societies when implementing policies, as pointed out by Okun (1975) in his seminal "leaky bucket" thought experiment.

2 Framework

2.1 Setup

Here I present a stylized version of the main framework, which will guide the empirical analysis. It builds on Baily (1978), Lentz and Tranaes (2005), Chetty (2008), Schmieder et al. (2012), and Kolsrud et al. (2018), and characterizes the job search problem of the unemployed and the policy choice of the social planner in good and bad times. I study changes in benefit duration over the cycle, while keeping taxes fixed. This allows me to focus on the unemployed, considering transfers between individuals unemployed at different moments of the business cycle, and accounting for composition shifts in the pool of unemployed. A more detailed derivation is provided in Appendix B.1.

Environment. There is a continuum of agents with unit mass who become unemployed at $t = 0$ and can be employed or unemployed until last period T when they retire. They make saving decisions $a_{i,t}$ and, while unemployed, they also choose search effort $e_{i,t}$ facing a fixed wage that is high enough to ensure that all job offers will be accepted. Effort increases the probability of finding a job next period, $h^k(e_{i,t})$, in a way that potentially differs depending on the moment of the business cycle k.[9] Search is costly as given by $\psi_i(e_{i,t})$, which is assumed to be differentiable, increasing and convex. There are two aggregate economic conditions $k \in \{B, R\}$, Boom and Recession, with the only difference being a different mapping between search effort and job finding such that $h^B(e_{i,t}) > h^R(e_{i,t})$ (i.e. for a given effort level, job finding is higher in Boom than in Recession).[10] Formally, the problem of an unemployed individual in state k at time t is:

$$V^u_{i,t}(a_{i,t}, k_t) = \max_{e_{i,t}, a_{i,t+1}} u(c^u_{i,t}) - \psi_i(e_{i,t}) + \beta E_t[(1 - h^k(e_{i,t}))V^u_{i,t+1}(a_{i,t+1}, k_{t+1}) + h^k(e_{i,t})V^e_{i,t+1}(a_{i,t+1}, k_{t+1})] \quad (1)$$

where $a_{i,t+1} = (1 + r)a_{i,t} + b^k_t + y_u - c^u_{i,t}$ and $a_{i,t+1} \geq \overline{a}_i$. When re-employed, the agent solves the following problem:

$$V^e_{i,t}(a_{i,t}, k_t) = \max_{a_{i,t+1}} v(c^e_{i,t}) + \beta E_t V^e_{i,t+1}(a_{i,t+1}, k_{t+1}) \quad (2)$$

where $a_{i,t+1} = (1+r)a_{i,t} + w_i - \tau - c^e_{i,t}$ and $a_{i,t+1} \geq \overline{a}_i$. Flow utilities for the unemployed and employed are $u(c^u_{i,t}) - \psi_i(e_{i,t})$ and $v(c^e_{i,t})$, with $u(\cdot)$ and $v(\cdot)$ being increasing and concave.

Unemployed's consumption is denoted by $c^u_{i,t}$, and employed's consumption by $c^e_{i,t}$. Each individual receives a wage w_i and pays a tax τ when employed, and receives benefits b^k_t (which may depend

[9] This formulation can accommodate matching functions where search effort and market tightness are substitutes as in Mukoyama et al. (2018). Intuitively, this implies that when economic conditions are bad, job finding may be low but the marginal product of search is potentially high, which is consistent with the empirical evidence of search effort increasing with unemployment rate, even conditional on observables.

[10] The stylized version of the model considers two aggregate economic conditions for simplicity, but can be easily extended to consider a continuum of them.

on economic conditions) and non-labor income y_u when unemployed. Savings cannot be lower than a borrowing constraint $\overline{a}_i$.

Government policy. I consider an unemployment benefit policy P characterized by a benefit profile $\{b_t^k\}_{t=1}^T$ for $k \in \{B, R\}$. The government commits to a given benefit policy before the start of the model. The starting point is an environment with a fixed benefit level and with fixed potential benefit duration $P^k = P$ which does not depend on the cycle, such that agents receive benefit $b_t^k = b$ from $t = 1$ to $t = P$, and $b_t^k = 0$ afterwards. The choice of benefit generosity by the planner is the benefit duration P^k, considering a local reform where the duration can be made dependent on the moment of the cycle k. For simplicity, the policy characterization ignores time discounting ($1 + r = \beta = 1$). The government's budget is given by:

$$G(P) = (T - D^B - D^R)\tau - \sum_{t=1}^{T} S_t^B b_t^B - \sum_{t=1}^{T} S_t^R b_t^R \tag{3}$$

where $D^k = \sum_{t=1}^{T} S_t^k$ refers to total unemployment duration in aggregate conditions k, and S_t^k refers to the survival rate at time t and aggregate conditions k. Social welfare for a given unemployment benefit policy is:

$$W(P) = \int \omega(\overline{e}_i) V_{i,0}(P)\, di + \lambda[G(P) - \overline{G}] \tag{4}$$

where $V_{i,0}(P)$ refers to indirect lifetime utility, and the social planner places welfare weights $\omega(\overline{e}_i)$, which depend on the willingness-to-work type, capturing specific preferences for redistribution towards individuals with specific attitudes towards job search $\overline{e}_i$ (Saez and Stantcheva, 2016). Specifically, individuals are characterized by a willingness-to-work type, defined as the average effort level exerted when faced with a fixed benefit policy and economic conditions as in Boom period: $\overline{e}_i = E[e_{i,t}|k = B, P]$. This characterization thus assigns a type for each individual regardless of her aggregate state, measuring individual effort when individuals are faced with the same set of economic conditions. Moreover, note that the weights do not respond to changes in the benefit policy since they are based on a fixed type. The Lagrange multiplier on the budget's constraint is denoted by λ, and $\overline{G}$ is an exogenous revenue constraint.

Reform of benefit generosity. The planner considers increasing the duration of benefits for the unemployed in Recession and reducing the duration of benefits for the unemployed in Boom $\left(\frac{db_{P+1}^R}{db_{P+1}^B} < 0\right)$, such that the budget remains balanced. At the optimum, the following condition is obtained:

$$\underbrace{\frac{E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}}_{\textbf{Marginal Benefit (MB)}} = \underbrace{\frac{1+FE^R}{1+FE^B}}_{\textbf{Marginal Cost (MC)}} \tag{5}$$

The expression highlights the key statistics needed to evaluate the welfare implications of changes in unemployment benefit generosity over the cycle. The left hand side refers to the marginal benefit of changing benefit generosity, which is shown to depend on two terms. First, it depends on the ratio of marginal utilities of consumption between the unemployed in Recession and in Boom who are near the benefit exhaustion point. Second, it also depends on the ratio of welfare weights between those same unemployed in Recession and in Boom. Given the definition of the types, note that only the differences in mean effort of the unemployed across the cycle that are driven by composition enter the welfare weights, and so changes in behavior are not considered. The right hand side, the efficiency cost, depends on the relative extra costs — or fiscal externalities — due to labor supply distortions that are induced when increasing benefit generosity in Boom and Recession. In summary, the expression implies that the reform increases welfare if and only if the marginal benefit is greater than the marginal cost. This motivates the empirical part of the paper, which implements the expression in order to assess the welfare consequences of the reform.

2.2 Implementation: Marginal Benefit

In order to take the above expression to the data, I follow a consumption-based approach (Gruber, 1997; Chetty, 2006; Kolsrud et al., 2018; 2024). The approximated empirical counterpart of the marginal benefit term is:[11]

$$\frac{E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]} \approx \underbrace{\frac{\omega^R}{\omega^B}}_{\textbf{WW}} \underbrace{\frac{1+\gamma\frac{c^{e,R}-c^{u,R}}{c^{e,R}}}{1+\gamma\frac{c^{e,B}-c^{u,B}}{c^{e,B}}}}_{\textbf{CS}} \tag{6}$$

The equation highlights that the value of the transfers depends on the welfare weights associated with the unemployed individuals at each moment of the business cycle, and on the relative consumption changes experienced upon unemployment.

Consumption Smoothing (CS). The transfers provide insurance value due to consumption smoothing gains, which are captured by a risk aversion parameter and the relative consumption changes upon job loss by the unemployed at different moments of the cycle. Intuitively, the larger the consumption drop individuals experience upon unemployment, the higher the value of transferring resources towards that state of the world. Thus, the empirical analysis will focus on assessing whether the

[11] Further details are provided in Appendix B.2.

ability to smooth consumption after job loss differs over the business cycle by estimating how the consumption drops vary with economic conditions.

Note that, as shown in Appendix B.2, differences in consumption (marginal utilities) across the unemployed in different economic conditions may arise via consumption changes upon unemployment as shown in the derived expression, but also due to pre-existing consumption differences while employed. The latter would mean that a benefit reform of this type would imply redistribution across pre-unemployment consumption levels. Given that the empirical exercise in Table A2 shows that the (residualized) level of consumption before unemployment is roughly constant over the business cycle, I focus here on the insurance value for the sake of simplicity in the exposition.[12]

Welfare Weights (WW). Even conditional on consumption, the type of individuals who are unemployed in Boom and Recession may be different along dimensions that the social planner cares about (Saez and Stantcheva, 2016), which provides an additional argument for targeting resources towards these individuals. In particular, here I focus on a specific dimension — willingness to work ($\overline{e}_i$) — which is proxied in the empirical analysis by the individual's effort level keeping economic conditions fixed as in a Boom period.

If, for example, the social planner places a larger weight on high-effort types, the first best would be to target benefits based on $\overline{e}_i$, but individual effort is not observed.
However, given the outlined framework, the moment of the cycle when people are unemployed reveals information about their type. Intuitively, when the unemployment rate is low and there are many jobs available, some search effort is enough to find a job and only the low-effort individuals will remain unemployed. In contrast, when the unemployment rate is high and there are fewer jobs available, even individuals who search hard are likely to remain unemployed, and so the pool of unemployed shifts towards individuals who are, on average, of higher-effort types.

Given these preferences, and the selection mechanism described, the average welfare weight for unemployed individuals in Recessions would be larger than the one for the unemployed in Boom, and therefore the planner could do better by conditioning benefits on aggregate conditions (Akerlof, 1978).[13] The empirical part focuses on testing empirically these predictions and quantifying the different components— namely whether society has a preference for redistribution along the willingness to work dimension and whether the composition of the unemployed changes over the cycle. In addition, it also quantifies the effects under a standard (utilitarian) social planner that does not place different welfare weights across individuals. The results are then used to explore the implications for the

[12] See Kolsrud et al. (2024) for a similar setting in the context of pension benefit reforms.

[13] This idea applies more generally and could be implemented along other dimensions rather than national aggregate conditions, such as job availability in specific sectors or regions. Moreover, it is not necessary that all the selection along the willingness to work dimension occurs through dynamic selection over the unemployment spell, being also possible that composition shifts arise from differential layoff composition over the cycle.

welfare impact of a cycle-dependent benefit duration reform.

2.3 Implementation: Marginal Cost

When changing benefit generosity, affected unemployed individuals tend to take longer to find a job, which imposes an efficiency cost on the government budget. The fiscal externality capturing the extra cost due to labor supply distortions, induced by changing potential benefit duration, is:

$$1 + FE^k \approx 1 + \frac{1}{S^k_{P+1}} \left[\frac{\partial D^k_b}{\partial b^k_{P+1}} b + \frac{\partial D^k}{\partial b^k_{P+1}} \tau \right] \tag{7}$$

where k refers to a specific moment of the cycle, S^k_{P+1} is the share of individuals that remain unemployed in period $P+1$, and D^k_b and D^k refer to unemployment and nonemployment duration respectively[14]. Unemployment duration refers to time spent receiving benefits, while nonemployment duration refers to time between job loss and start of the new job. Intuitively, when the benefit at the exhaustion point is marginally increased, unemployed individuals react by taking longer to find a job. This has a negative effect on the budget because people spend more time receiving benefits and also take longer to start paying taxes. The expression measures the cost in terms of the behavioral response induced by each euro transferred mechanically to the unemployed.

3 Institutional Background and Data

3.1 Great Recession and Unemployment Insurance System in Spain

Great Recession. The Spanish Great Recession was characterized by a strong boom period over the years up to 2007, followed by a slowdown in 2008 and then a substantial bust in the subsequent years. Internal demand had increased by around 20% in real terms since the early 2000s over the years leading up to the recession (Almunia et al., 2021). The rapid growth was in large part due to an increasingly important construction sector, which accounted for 12.4% of Spain's GDP at the peak in 2007. The growth, incentivized by the relatively cheap credit available in the Spanish economy, fueled a substantial housing boom (Martínez-Toledano, 2020). With a one year delay, after the unraveling of the subprime mortgage market in the US, the reduction in credit supply affected the real economy, which led to a collapse in internal demand together with a massive reduction in the importance of this sector, which was 5.4% of GDP by 2014. Overall, this resulted into large effects that extended to other sectors, having a substantial impact in terms of labor market outcomes. The national unemployment rate skyrocketed from 7.9% to 26.9% over a period of 6 years. As mentioned before, this magnitude is remarkable relative to international standards as shown in Figure A1.

[14]The approximation relies on the effect of extending benefit duration in a given economic condition having small effect of individuals' behavior while unemployed in other economic conditions. See Appendix B.1 for further details.

UI System. The Spanish UI system is a national program financed via payroll taxes. Benefit levels and durations are set by the central government and are the same for all regions. In order to qualify for unemployment insurance, a worker must become unemployed involuntarily and have worked for at least 1 year within the last 6 years after the last time of UI reception. Individuals who quit voluntarily, receive full-time disability benefits or whose age is above 65 are not eligible to get UI. Potential benefit duration — the maximum time an individual can spend receiving UI benefits — is a function of work experience within the last 6 years before becoming unemployed. This duration is invariant over the business cycle. It is similar to systems in other countries in Western Europe such as Germany, and different from countries such as the US where the duration is usually extended when the economy is in a bad state. Specifically, potential benefit duration ranges from 4 to 24 months, increasing by two months every six months worked. In relation to benefit levels, they are determined as a function of pre-unemployment labor income and individual characteristics. The labor income considered is average gross earnings within the last 6 months and the replacement rate is 70%, getting reduced to 60% after 6 months unemployed.[15] From July 2012 onwards, the latter replacement rate was set to 50%. After UI benefit exhaustion and depending on individual characteristics, individuals remaining unemployed may apply for unemployment assistance.

3.2 Data

Consumption. I use household expenditure survey data from the Spanish EPF (*Encuesta de Presupuestos Familares*) over 2006-2015. This yearly survey provides detailed diary-based information on household consumption, labor market status, and demographic characteristics. It is available over a long period of time, so proves useful to study dynamics over the business cycle far from the current period. The waves covered here correspond to an improved version of the survey where the sample size, duration of households' diaries completion and quality have increased substantially with respect to previous waves (INE, 2008). The survey has a panel dimension, with households being followed for two consecutive years, and contains 80 consumption categories which are classified following the COICOP/HBS classification. It accounts for 87% of aggregate consumption, which compares favorably to figures obtained in other countries (Heathcote et al., 2010; Campos and Reggio, 2015). A limitation, shared with other surveys, is that unemployment duration or potential benefit duration are not present in the dataset. Thus, the empirical analysis focuses on consumption patterns of the average unemployed around job loss, and not specifically on those at the moment of benefit exhaustion.
I construct an expenditure measure that includes expenditure on a wide variety of goods and services: Food, Alcohol/tobacco, Clothing, Housing, Inventories, Health, Transport, Telecom, Recreation, Ed-

[15] In the stylized model, I focus on the duration of the benefits and make the simplifying assumption that the benefit level is constant up to the exhaustion point. See e.g. Kolsrud et al. (2018) for work considering variation in benefit profiles over the unemployment spell.

ucation, Hotels.[16] I exclude rent for homeowners (which is imputed), and deflate this measure using annual CPI. I restrict my sample to household heads aged 25-64 who were either employed in both periods or employed in t and unemployed in $t+1$, and had less than a threefold change in consumption (Gruber, 1997; Kroft and Notowidigdo, 2016; Hendren, 2017).

Search Effort. My measure of search effort is constructed from the Spanish Time Use Survey (*Encuesta de Empleo del Tiempo*). Specifically, in order to explore variation over the business cycle, I use the two available waves in years 2002-2003 and 2009-2010. The survey is harmonized at the European level by Eurostat as part of the Harmonized European Time Use Surveys, and is similar to the American Time Use Survey (ATUS). Its objective is quantifying the time spent by individuals on various activities throughout the day. To that end, respondents fill questionnaires and time diaries where they record their daily activities in 10-minute slots over one day, so the survey structure is a cross section.
For the analysis, I focus on the unemployed aged 25-64 and use the information available on job search related activities to construct a measure capturing whether individuals report searching for jobs in a given day. Similarly to the consumption data, the dataset does not contain information on unemployment duration or potential benefit duration, so I focus on the behavior of all unemployed instead of individuals just around the benefit exhaustion point. More details on the construction on the search effort measure are presented in Appendix C.

Preferences for Redistribution. I design and administer an online survey to understand preferences for redistribution between the unemployed based on search effort types. To do so, I program a new survey using oTree and partner with the company Respondi/Bilendi to obtain survey respondents from Spain. This panel company has been previously used in the literature for other studies (e.g., Alesina et al., 2018; 2023). The survey was administered in August 2023, with a sample size of N=1022, and respondents being rewarded with €1.15 for an average completion time of 8 minutes. The sample is representative of the Spanish active population aged 25-64. The data collection was performed to target 24 age-education-sex-employment cells based on the Spanish Labor Force Survey (*Encuesta de Población Activa*). In order to maintain data quality, I further restrict the sample to individuals with a completion time between the 5 and 95 percentiles, and whose answers to the qualitative and quantitative questions explained below are consistent. This results in a final sample of 709 individuals. The survey is designed following recommended practices in the literature (Stantcheva, 2022). In order to address order effects, and understand reasons behind the responses, it has features such as order randomization and open-ended questions to make sure that results are not driven by specific characteristics of the implementation.
The survey first starts with a section collecting information on demographics and labor market status.

[16] This corresponds to a more comprehensive version of the expenditure measure in Campos and Reggio (2019).

It then elicits respondents' preferences for redistribution between the unemployed based on effort types, in both qualitative and quantitative ways. To do so, respondents are presented with scenarios where they are asked to allocate government funds between two individuals with different search effort behavior in the previous week, allowing to estimate relative valuations between them. Finally, the survey concludes with open-ended questions to understand the reasons for their choices, and multiple choice questions to know whether they would support a hypothetical UI reform of the type studied in the paper. Appendix E provides more detailed information about the survey structure including the full questionnaire.

Unemployment Spells. Information on unemployment spells and unemployment benefit transfers comes from the Social Security administrative records from the Continuous Sample of Employment Histories (*Muestra Continua de Vidas Laborales*). They are effectively matched employer-employee data with daily longitudinal information created by matching income tax data, Social Security records and census data. It covers a 4% non-stratified random sample of individuals that, for any year, have a relationship with the Social Security. My sample comprises the years 2006-2017 to build a dataset which contains the complete history of employment and unemployment spells since entrance in the labor market for the group of individuals who had any relationship with Spain's Social Security during the years of the waves. The variables of interest include information on sex, education, age, experience, job location, earnings, hours, occupation, industry and contract type. Moreover, I observe both unemployment duration (days receiving unemployment benefits) and nonemployment duration (days between the start of UI reception and the beginning of a new employment spell). An important variable in the analysis is potential benefit duration, which is not present in the dataset. For this reason, I compute it applying the UI eligibility rules to the working history of every individual. For the main analysis, given difficulties in the empirical computation of potential benefit duration, I focus on prime-age individuals with PBD between 8 and 22 months.[17] I cap my measure of nonemployment duration at 3 years following common practice in the literature (e.g., Schmieder et al., 2012; Lindner and Reizer, 2019).

[17] In the dataset constructed, I require that individuals were previously working in the general regime of the social security. Moreover, I restrict to the first spell of each individual in the sample. Given the statutory rules, an individual that gets unemployed but does not exhaust the PBD and works for a certain amount of time, can choose upon unemployment what the new PBD will be between the remaining months from the old spell and the new ones. This information is missing in the data and thus makes difficult assignment of the running variable so I do not consider those spells. Moreover, I focus on individuals with PBD from 8 to 22 months, discarding the cutoffs at the bottom and at the very top. Given these rules together with short contracts for individuals located around the first cutoffs, apparent bunching appears near these cutoffs. The last cutoff also presents bunching which is mechanical, given that the maximum work experience counted is 6 years, and those individuals tend to have been employed longer than that. In addition, I focus on individuals aged 26-54 given the longer work spells that enable better assignment into treatment, and the lower likelihood to be impacted by retirement and unemployment assistance policies. Finally, the most recent individuals included are the ones becoming unemployed in 2014, so that I have three years after the start of UI reception for all people in the sample. Summary statistics are shown in Table A4.

Unemployment Rate and Demographics. The information on economic conditions is based on the microdata files of the Labor Force Survey (*Encuesta de Población Activa*) provided by the National Statistics Institute (INE). I compute unemployment rate measures at the region-year level over the period 2006-2017 for the analysis of the different components over the business cycle. Given differences in availability of geographical information across datasets, regions correspond to (52) provinces in the unemployment spell analysis, and (17) autonomous communities (CCAA) in the consumption and search effort analyses. I also use this dataset for two additional tasks: (i) obtaining shares of population for each demographic cell to achieve representativeness of the online survey; (ii) performing the prediction exercise based on search effort as described in Section 4.2.2.

4 Empirical Approach and Results

The model described in Section 2 guides the empirical strategy, which aims to recover the required statistics for the assessment of the optimal benefit generosity of the UI system. I start by looking at the evolution of consumption and the welfare weights, and continue analyzing the efficiency cost of the transfers.

4.1 Estimating Consumption Changes

Assessing the insurance value of providing more generous UI transfers in bad times relative to good times requires getting a sense of how individuals change their consumption upon unemployment, and whether this change varies with economic conditions.

To quantify these patterns, I adopt a Difference-in-Differences strategy similar to Gruber (1997), where I compare the consumption behavior of heads of household getting unemployed with those who remain employed over the business cycle. Specifically, I estimate the following model:

$$logC_{irt} = \beta_0 + \beta_1 Unemployed_{it} + \beta_2 Unemployed_{it} \times U.Rate_{rt} + \lambda_i + \lambda_r + \lambda_t + X'\beta + \varepsilon_{irt} \quad (8)$$

where $logC_{irt}$ refers to log consumption measured at the household level, $Unemployed_{it}$ is a dummy variable that equals one when the household head is unemployed, $U.Rate_{rt}$ refers to the unemployment rate in the region of the individual, and λ_i, λ_r, λ_t are individual, region and year fixed effects, respectively. The vector of controls X includes the regional unemployment rate, and information on type of household, intended to control for any mechanical relationship between household composition and economic conditions or job loss.

Table 1 shows the main results on consumption smoothing. First, in column (1), we see that, on average, individuals experience a 9.6% (s.e. 1.3%) consumption drop upon unemployment. From column (2), which is the baseline specification, we see that the average consumption drop masks a clear gradient with respect to economic conditions. A 1 p.p. increase in unemployment rate results

in an additional -0.4% (s.e. 0.1) change in consumption relative to pre-unemployment level. From column (3), which includes region-times-year fixed effects, we see that the consumption drop covaries similarly with economic conditions. These models include controls for type of household. Columns (4)-(6) include additional covariates that intend to capture changes in household composition. Results are very similar to the ones without these covariates.

Figure 1 depicts the main result, focusing on the baseline specification and grouping individuals by their region's unemployment rate. The groups are selected so that the average unemployment rate in each group roughly approximates the national average in Boom, normal times and Recession. It shows that the within individual change in consumption between employment and unemployment gets significantly and monotonically larger when the unemployment rate increases. This is in contrast to the findings of Kroft and Notowidigdo (2016), where the authors do not find that the individual drop gets larger when economic conditions deteriorate. The difference in findings may be explained by limited power to detect an effect in their study given the relatively small sample size and/or variation in unemployment rate, and the fact that the consumption measure only captures food components. In my setting, there is relatively larger variation in economic conditions and a more comprehensive consumption measure that goes beyond good consumption, which allows me to revisit this issue and get further insights.

To do so, I decompose the change in the consumption drop over the cycle by consumption category in order to understand what components of the consumption basket drive the cyclicality of the overall drop. Specifically, I estimate models of the form:

$$ShareC^{j}_{irt,0} = \beta_0 + \beta_1 Unemployed_i + \beta_2 Unemployed_i \times U.Rate_{rt} + \lambda_i + \lambda_r + \lambda_t + X'\beta + \varepsilon_{irt} \quad (9)$$

where $ShareC^{j}_{irt,0}$ corresponds to the share of each consumption category j relative to total consumption of the individual in the first year observed in the sample. Then, for each category, I compute the difference between the consumption change in Recession and the change in Boom.[18] I focus on the preferred specification (column (2) in Table 1), now analyzing consumption shares. Note that considering shares relative to the previous year provides a clear interpretation since adding up all the estimates by category yields the total change in the consumption drop documented before (Table 1). The results are depicted in Figure 2, where I find that the drop in food consumption upon unemployment gets somehow larger in bad times but the magnitude is not statistically significant. Nonetheless, the larger drop in overall consumption in Recession arises mainly from larger drops in a few consumption categories: housing, utilities, and clothing and shoes.[19] Therefore, my findings can help reconcile the empirical result in Kroft and Notowidigdo (2016). Although their theoretical

[18]This statistic ($\frac{\Delta^{ue,R}}{c} - \frac{\Delta^{ue,B}}{c}$) is computed as $\beta_2 \times (U.Rate^R - U.Rate^B)$, where economic conditions are defined as Recession corresponding to 26% and Boom to 8% unemployment rate, respectively.

[19]Note that the design compares the consumption behavior of the unemployed relative to employed individuals in the same region and time period, so that the results are not explained by the aggregate housing boom and bust documented in Section 3.1 which are common across groups.

model predicted a larger consumption drop in bad times, they find that it does not significantly vary with economic conditions when measured only by the food component. Given my findings, it thus seems that focusing only on a component such as food consumption that is relatively inelastic may limit the understanding of the welfare costs of job loss. Although it is sufficient in theory to just use food consumption — provided that one uses the appropriate curvature of utility over food (Chetty, 2006) —, in practice obtaining estimates that are precise enough to detect cyclical variations in this component may be difficult. Therefore, this result highlights the importance of empirically assessing consumption behavior using a more comprehensive measure.

Overall, the results here have shown that the unemployed in bad times suffer considerably larger consumption drops upon unemployment than the unemployed in good times. Moreover, this additional drop comes from countercyclical drops in non-food categories such as housing and utilities, and clothing.

Additional Evidence and Robustness. Further analysis presented in Table A1 explores mechanisms and sensitivity of the main results. While the findings above reveal that overall consumption declines in bad times, here I start by exploring whether this is just driven by longer unemployment duration in recessions. Results are robust to controlling by either regional unemployment duration or regional unemployment duration distribution (share of unemployed longer than 6 months). This suggests that the larger drop found in bad times is not fully explained by longer unemployment spells, with larger drops at a given duration potentially being the main driver.[20]

Additionally, I explore whether the 2012 reform which slightly decreased the replacement rate after 6 months (see Section 3.1) can mechanically explain the countercyclical drop in consumption. The findings indicate that this policy change does not drive the main results.

In relation to differences in consumption across the unemployed in different economic conditions, they may also come from pre-unemployment differences in consumption as mentioned before. Table A2 examines whether the pre-unemployment gap in consumption for individuals who become unemployed changes over the business cycle. Following the main specification, conditional on region and year fixed effects, the results indicate that the consumption gap does not change with economic conditions. This implies that the benefit reform does not induce redistribution in terms of consumption levels, which is the motivation for focusing on the insurance aspect in the main analysis.

[20] Kolsrud et al. (2018) show that the consumption drop gets larger over the unemployment spell in the Swedish context. Unfortunately, a measure of unemployment duration is not available at the individual level in the Spanish consumption data, so I construct it at the region-year level from the LFS, potentially introducing some measurement error that may attenuate the results.

4.2 Estimating Welfare Weights

A key statistic to evaluate how the benefits provided by UI transfers vary with economic conditions is the ratio of welfare weights. Specifically, these weights capture society's relative valuations between the type of unemployed individuals receiving the transfers at different moments of the cycle, who may differ in their general attitudes towards job search.

To estimate this parameter, I proceed in three steps. First, I study preferences for redistribution between individuals of different willingness-to-work types. Second, I analyze whether the composition of the unemployed changes along the willingness-to-work dimension over the cycle. Third, I combine both results in order to estimate the ratio of welfare weights between the unemployed in Recession and the unemployed in Boom.

4.2.1 Preferences for Redistribution over Willingness-to-Work Types

I build on the idea of the generalized social marginal welfare weights of Saez and Stantcheva (2016) in order to understand whether society has a preference for redistribution over the willingness to work dimension. To do so, I design and administer an online survey to estimate the statistics of interest highlighted by the framework. Here I describe the key questions, and refer the reader to Appendix E for more detailed information.

After responding a set of demographic questions, individuals are shown the first question that is intended to elicit preferences for redistribution in a qualitative way. The question reads as follows:[21]

> *Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed:*
>
> *A looked for jobs last week*
> *B did not look for jobs last week*
>
> *The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Please choose what allocation option you would prefer:*
>
> - *More money to A than to B*
> - *More money to B than to A*
> - *Same amount to A and B*

The answers to this question are shown in Figure 3a, which shows that respondents have strong preferences for redistribution over effort types. Around 75% of respondents prefer to allocate more resources to the individual that was looking for work in the previous week. Almost all of the other respondents would allocate the same resources to both individuals — meaning that they would not

[21] Note that the hypothetical benefit amount and potential duration correspond to the national average at the time of the survey as reported by the Spanish Employment Agency (SEPE).

redistribute based on this dimension—, with virtually no respondents preferring to give more to the individual who did not search.

Although a stark qualitative picture emerges from the answers to this question, this is not enough to estimate the statistic we are after. Therefore, in order to make progress on that front, after the qualitative question, respondents are presented with 10 quantitative questions designed to obtain the relative valuations between types. They are of the following form:

> *Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed:*
>
> *A looked for jobs last week*
> *B did not look for jobs last week*
>
> *The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Now imagine that an unequal allocation may be costly. That is, it can allocate €500 each, or more to one than the other, but the latter option may result in the total amount of resources that can be distributed being reduced. Please choose what allocation option you would prefer:*
>
> - *500 for A and 500 for B*
> - *550 for A and 400 for B*

For each of these questions, there are always two allocation options: one offering the same amount for both individuals, and the other one where the amounts differ between them. Under the equal allocation option, both individuals receive the same amount of €500 (i.e. $r_0^A = r_0^B = 500$). Under the alternative option, one individual gets €550 ($r_1^A = 550$) and the other individual an amount r_1^B obtained from the set $\{50, 100, 150, 200, 250, 300, 350, 400, 450\}$.[22] The identity of individuals A and B, the order of questions, as well as the order in which the equal allocation option appears within the question are all randomized. This intends to alleviate concerns about order effects.[23] In practice, the experimental variation created in the cost of the transfer, or Marginal Rate of Transformation (MRT), allows to identify the relative valuation over individuals, or Marginal Rate of Substitution (MRS), and induces individuals to accept the unequal allocation whenever:

$$\frac{\omega(\bar{e}_A)}{\omega(\bar{e}_B)} = MRS \geq MRT = \frac{r_0^B - r_1^B}{r_1^A - r_0^A} \tag{10}$$

[22] In practice, all individuals are presented with the same two options of 550 to A (B) and 450 to B (A). This allows me to assess data quality by comparing answers, for the same individual, to a question with no cost of transfer and asked in both qualitative and quantitative way. The other 8 questions are randomly drawn from the remaining set of transfer amounts.

[23] Note that the fact that each individual is presented only with 10 of these questions, and that there is order randomization, only has the objective of reducing fatigue and increasing data quality. This design does not seek to create a treatment and a control group to estimate any causal effect since the analysis pools all individuals together. The aim is just to avoid making respondents answer about all potential options with different transfer costs while being able to learn about the distribution of preferences in the population.

Figure 3b depicts the share of individuals that choose an unequal allocation for different values of the cost of the transfer. First, we see that when the cost of the transfer is low, a large share of respondents choose the unequal allocation that gives more to individual A. Specifically, when there is no cost of transferring resources between individuals (MRT=1), the share is around 75%, which equals the figure obtained in the qualitative question.[24] Moreover, we see that the share declines as the cost increases, implying lower willingness to redistribute as more resources are lost to implement a given transfer. Overall, respondents exhibit a strong preference for redistribution from the individual that did not search last week and towards the one that searched. However, when asked to redistribute in the opposite direction, towards the individual that did not search, almost no one is in favor of that allocation. Leveraging the responses of individuals, I estimate the relative valuation (or average marginal rate of substitution) between the type of individual A and B as follows:

$$\frac{\omega(\overline{e}_A)}{\omega(\overline{e}_B)} = \sum_j (s_j - s_{j+1}) MRT_j \tag{11}$$

where s_j corresponds to the share of individuals accepting an unequal allocation when presented with an allocation option of cost MRT_j. Thus, I effectively compute a weighted average of the (binned) MRS distribution by summing over bins corresponding to all MRT values. Given the relatively high share still present at the largest cost considered in the design (MRT=9), my preferred specification assumes a linear extrapolation with a downward slope as estimated over the range before that point. Following this approach I obtain that $\frac{\omega(\overline{e}_A)}{\omega(\overline{e}_B)} = 12.8$.[25] Consequently, respondents have a strong preference for individuals who exert effort, with a valuation of around 13 times relative to individuals not searching for jobs.

Additional Evidence and Robustness. It is plausible that respondents support redistribution based on effort, not due to a direct concern for effort itself, but rather because of some other underlying factor that correlates with this dimension. In order to understand what respondents have in mind when answering the questions, I ask them open-ended questions about the reasons for their allocations. A wordcloud with their answers is depicted in Figure 3c, where the most common expressions include "search for job", "effort" and "reward", which seem to be directly related to the dimension of interest.[26]

[24] As mentioned before in Section 3.2, the final sample excludes individuals that provide contradictory responses to the same question, asked in both a qualitative and a quantitative way.

[25] Without extrapolating, assuming that all individuals at the upper tail of the distribution have exactly MRS=9, I obtain a lower bound of $\frac{\omega(\overline{e}_A)}{\omega(\overline{e}_B)} = 4$. As I show later, the main statistic of interest, which is the ratio of welfare weights between the unemployed in boom and recession, is not very sensitive to this issue.

[26] Nevertheless, although respondents care about the effort dimension per se, there seems to be an understanding of confounders and heterogeneity in the population. For example, the analysis of the open-ended answers reveals that some individuals have in mind the case of single mother with kids. They suggest that, despite this group potentially exerting less effort compared to others, they prefer not to support redistribution based on the effort dimension in this context. For this reason, the question used to elicit preferences intentionally does not fix other characteristics of the hypothetical individuals beyond the benefit policy, given that the unemployed's composition may change over the cycle along various dimensions

Additionally, in Figure A2, I explore whether the preferences for redistribution are driven by specific groups that may be more likely to benefit from the policy. Remarkably, I find that preferences are homogeneous and are not driven by specific groups. Unemployed individuals present slightly reduced support for redistribution based on willingness to work relative to the employed, but still more than 50% wishes to reward effort.

I also consider whether previous experiences of respondents, during their impressionable years (18-25) (Krosnick and Alwin, 1989), affect their stated preferences. In this sense, I do not find that long-term unemployment of the parents or household's economic difficulties during this important period impact preferences along the willingness to work dimension.

While the baseline implementation elicits preferences for redistribution between types while fixing the economic environment, it could be the case that the welfare weight function also depends on economic conditions itself, on top of the unemployed's composition changes. To explore the importance of this issue, I examine whether preferences are heterogeneous by the unemployment rate of the respondents' region. As shown in Figure A2, preferences are stable across economic conditions.

Finally, I explore qualitatively whether there is hypothetical support for a UI reform of the type studied in this paper. Suggestive evidence from Figure 3d indicates that respondents claim they would tend to approve the proposed differentiation of the policy over the cycle. See Appendix D for further analysis on this aspect.

4.2.2 Unemployed's Composition

The second piece of information required is whether the composition of the unemployed shifts towards high willingness to work types when economic conditions worsen. Intuitively, a reduction in labor demand where the offer arrival rate is low potentially makes search less effective and thus creates a selection mechanism where, all else equal, high effort types are more likely to remain unemployed relative to a situation when the unemployment rate is low. Here I provide empirical evidence that demonstrates the relevance of this mechanism.[27]

To do so, I focus on the following measure: the share of unemployed that search for jobs in a given week.[28] Specifically, I am interested in how this measure changes with economic conditions, but only

in addition to effort. As a result, while understanding how preferences for redistribution vary depending on the source of effort differences is beyond the scope of this paper, the exercise below, which computes welfare weights over the cycle, accounts for changes in the composition of the unemployed along dimensions that correlate with effort to the extent that respondents incorporate that heterogeneity/correlation. In relation to this, it is also important to note that the question fixes the potential unemployment benefit policy, and the transfers are lump-sum. This aims to obtain responses that are orthogonal to differences in consumption and to capture preferences based on effort.

[27] As mentioned before, since the statistic of interest is average willingness to work over the cycle, it is not necessary that the main mechanism driving composition changes is a decrease in job finding in bad times. This could also be explained by a different composition of layoffs.

[28] This measure captures an intensive margin of job search. Given that according to the International Labour Organization (ILO) definition of unemployment, a requirement to be considered unemployed is to have searched for jobs in the last month, this explores the degree of search intensity within that period. It is also a relevant measure considered in other surveys like

to the extent that is driven by a composition shift. As described before, given that the unemployed may change their search effort behavior in response to changes in the offer arrival rate over the cycle, my measure of effort type fixes effort at the level that would be observed were the unemployed faced with an offer arrival rate as in Boom (i.e. unemployment rate of 8%).

I leverage the two available waves of Spanish Time Use data (2002-2003 and 2009-2010).[29] Exploiting the variation in unemployment rate across regions over the two time periods, I obtain the results shown in Figure 4.[30] We observe that the share of individuals that search in a given week increases strongly with the unemployment rate. Specifically, it goes from around 50% when the unemployment rate is 8% to more than 80% when the unemployment rate exceeds 20%.

Importantly, not all the fluctuations in search effort are potentially due to a composition effect.[31] As mentioned before, individuals may also change their search behavior while unemployed in response to changes in the availability of jobs. Evidence from Mukoyama et al. (2018) with panel data from the US indicates that around 50% of the effort increase observed over the cycle is due to a composition effect, with both observable and unobservable dimensions playing an important role.[32] Applying this magnitude to my context in order to only consider changes due to composition, I obtain that the share of unemployed individuals searching in a given week increases with the unemployment rate, going from 49% in Boom to 68% in Recession.

For the estimation of the welfare weights below, I perform a sensitivity analysis where I consider different magnitudes for the change due to composition effects.[33] In addition, I also perform a complementary prediction exercise only using Spanish data, where I predict search effort based on the set of demographics present in both the Time Use data and the Labor Force Survey. Specifically, I estimate the relationship between search effort and the demographic characteristics based on the Time Use data and then impute search effort in the Labor Force Survey using the same demographics.[34] Note that the set of demographics in both datasets is limited and I do not have a panel dimension in the Labor Force Survey to account for unobservables, so this provides a lower bound on the magnitude

the Survey of Consumer Expectations (SCE) carried out by the Federal Reserve Bank of New York (Faberman et al., 2022).

[29] For more details on data construction, see Appendix C.

[30] Given data availability the analysis uses only two years, and residualizes the variables on region FEs to not consider variation from structural differences across regions that are constant over time. Note that the relationship documented is not only present in Spain, and does not depend on the specific search effort measure or the specification used. See Table A3 for evidence of overall countercyclicality of usage of different search methods over 15 years across 34 countries using data from Eurostat.

[31] For related literature that investigates the drivers of the cyclicality in the job finding rate instead of search effort, see e.g. Kroft et al. (2016) and Mueller and Spinnewijn (2023).

[32] The authors use market tightness as the measure of economic conditions and minutes of search as the measure of search effort. They exploit the panel dimension of the Current Population Survey (CPS) to account for both observables and unobservables. Findings from their working paper using unemployment rate instead present similar results.

[33] See Table 3 for estimates of the Marginal Benefit term under different implementation assumptions regarding composition changes.

[34] For this exercise, given the availability of only two waves of the Time Use Survey, I focus on the years up to 2010 which is the last period for which search effort is actually observed and so we can compare measured search effort with predicted (by composition) search effort. The demographics present in both datasets that are used in the prediction model are interactions between age categories and sex; between education categories and sex; and between married status and sex.

of composition shift over the cycle that I can detect relative to the richer data setup in Mukoyama et al. (2018). Nonetheless, Figure A4 reassuringly shows that predicted search effort changes over the business cycle even when only considering this limited set of demographics present in the Spanish data.

4.2.3 Combining Information: Unemployed in Recession vs Boom

The previous sections showed that society exhibits strong preferences for transferring resources from low to high willingness-to-work individuals. Moreover, the composition of the unemployed shifts towards high willingness-to-work types in bad times. Here I combine both pieces of information to obtain an estimate of how individuals value the unemployed in Recession relative to Boom.

As we found before, we have $\frac{\omega(\overline{e}_A)}{\omega(\overline{e}_B)} = 12.8$. Then, from the exercise employing Time Use data we have that the shares of each effort type in Boom and Recession are: $s_A^{Recess.} = 0.49; s_B^{Recess.} = 0.51; s_A^{Boom} = 0.68; s_B^{Boom} = 0.32$. After that, I compute $\omega^R = (s_A^{Recess.})\omega(\overline{e}_A) + (s_B^{Recess.})\omega(\overline{e}_B)$ and $\omega^B = (s_A^{Boom})\omega(\overline{e}_A) + (s_B^{Boom})\omega(\overline{e}_B)$. As a result, the ratio of welfare weights is $\frac{\omega^R}{\omega^B} = 1.31$, which indicates that society values a €1 transfer to the type of individuals unemployed in Recession as much as €1.31 to those unemployed during a Boom.

This implies strong preferences for redistribution along the specific effort dimension, a result that is robust to different implementation assumptions. On the one hand, under the strong assumption that the distribution of MRS does not have values larger than the ones randomized, we get a ratio of 1.22. On the other hand, using the baseline estimate, even if the part of the search effort increase in Recession that is due to composition is 25% — half of the one found in the US —, the magnitude is 1.15. Alternatively, using the variation in effort due to composition effects obtained from the prediction exercise that only uses the sparse set of demographics in the Spanish Time use data combined with LFS, I obtain a similar magnitude: 1.13. As explained before, this likely understates the composition shift given the inability to account for unobservables and the sparsity of the predictors set present in the data.

In summary, this section has demonstrated that there is an important shift in the composition of the unemployed over the cycle, and that society values substantially more the type of individuals that receive transfers in bad times.

4.3 Estimating Efficiency Cost

When increasing potential benefit duration (PBD), individuals may change their search behavior and thus impose some extra cost on the government budget. Equation (7) highlights the main statistics needed to quantify this component, namely the marginal effect of potential benefit duration on unemployment $\frac{dD_b^k}{db_{P+1}^k}$ and nonemployment duration $\frac{dD^k}{db_{P+1}^k}$, and the exhaustion rate S_{P+1}^k.

In order to gain a better understanding of the effect of PBD on unemployment and nonemployment duration, I start by providing graphical evidence of the behavior exhibited by unemployed individuals when presented with additional benefit generosity. As outlined before, the institutional setup delivers a treatment assignment mechanism typical of a Regression Discontinuity design, and thus my empirical strategy exploits the discontinuities in potential benefit duration present in the UI system. Figure 5 illustrates the structure of the UI system for the main sample, where it is shown that PBD discretely increases by 2 months at specific cutoffs of recent work experience. To estimate the statistics of interest, the empirical approach pools all cutoffs together. First, I provide evidence for the validity of the design in two ways: testing whether there is any discontinuity in the density of the running variable following McCrary (2008), and assessing whether selection on observables could explain the effects on the outcomes of interest (Card et al., 2015). I do not find discontinuities in the density or in the covariates indexes of the outcomes as depicted in Figure A5. Second, I proceed to analyze the impact of higher benefit generosity on the main labor market outcomes as shown in Figure 6. Panel (a) shows the discontinuity in PBD that arises when crossing the cutoff. Panels (b) and (c) depict the conditional expectation functions of unemployment and nonemployment duration, which also present discrete jumps exactly at the cutoff, consistent with PBD having a positive effect on both outcomes. To quantify these effects, I estimate models of the following form:

$$Y_{irt} = \alpha + \beta \mathbb{1}[Experience_i > 0] + \phi \mathbb{1}[Experience_i > 0] \times U.Rate_{rt} + X'\theta + \lambda_r + \lambda_t + \varepsilon_{irt} \qquad (12)$$

where Y_{irt} refers to potential benefit duration, unemployment duration and nonemployment duration, $\mathbb{1}[Experience_i > 0]$ is a dummy for being on the right side of the normalized cutoff, $U.Rate_{rt}$ refers to unemployment rate at the region level from the quarter when the individual became unemployed, X is a set of controls including a (linear) polynomial in normalized work experience within the last 6 years and the regional unemployment rate, and λ_r and λ_t are region and time fixed effects, respectively.

The results are shown in Table 2. In column (1), we see that PBD increases at the cutoff by 60.33 (s.e. 5.44) days, reflecting the discontinuous structure of the UI schedule previously described. In column (3), we see that unemployment duration increases by 25.05 (s.e. 7.72) days in response to the higher PBD enjoyed when crossing the cutoff. When looking at the effect on nonemployment duration, column (5), we see that there is an increase of 43.30 (s.e. 15.56) days. In terms of marginal effects, they correspond to an effect of PBD on unemployment duration of 0.42, and an effect of PBD on nonemployment duration of 0.72. These estimates are at the upper tail of the distribution in the literature as surveyed by Schmieder and Von Wachter (2016). For the effect on nonemployment duration, which is the one that has received more attention in the literature, I find an elasticity of 0.92. This is closer to the largest estimate after excluding outliers reported in the survey, with a value of 1.

All of these together imply that providing the unemployed with more generous UI benefits induces large behavioral responses.

Columns (2), (4), and (6) investigate whether these behavioral responses vary when the unemployment rate increases. I do not find that these marginal effects are different from each other when the increase in generosity is implemented in Boom relative to Recession.

Now I turn to assessing how the exhaustion rate — the value of the survival function at the benefit exhaustion point — varies with the unemployment rate. I estimate it nonparametrically in the following way:

$$S^k_{P+1} = \frac{1}{N}\sum_{i=1}^{N} \mathbb{1}[D^k_i > P^k_i | k] \tag{13}$$

which captures the share of individuals with a nonemployment duration D^k longer than their potential benefit duration P^k, where k refers to different values of the regional unemployment rate. Figure 7 depicts the results, where it is shown that the share of individuals that are not able to find a job before exhausting unemployment insurance benefits increases with the unemployment rate, going from 0.19 to 0.34 when the unemployment rate changes from 8% to 26%, respectively.

5 Welfare Implications

In relation to the value provided by the unemployment insurance transfers, the empirical analysis above has shown that there are larger social benefits of increasing the potential duration of benefits in bad times relative to good times. Table 3 presents the estimates for the marginal benefit term, combining the findings on the value of insurance and the welfare weights. For the benchmark specification, with $\frac{\omega^R}{\omega^B} = 1.31$ and a risk aversion parameter $\gamma = 4$ (Landais and Spinnewijn, 2021), I find that the social benefits of transferring resources towards the unemployed in recession is 64% larger than for the unemployed in boom. Moreover, a main takeaway that arises from the sensitivity analysis in Table 3 is that, regardless of the implementation assumptions, the value provided by UI transfers is larger in recessions. This is true when focusing only on the insurance value, but the magnitude is considerably larger when also accounting for the preferences for redistribution together with the shift in the composition of the unemployed along the effort dimension.

In relation to the cost, the estimates above imply that benefit extensions are less costly when economic conditions are bad. Using those estimates to calibrate the fiscal externality formula in equation (7), I obtain the results presented in Table 4. At the mean unemployment rate (15%), for every €1 transferred mechanically to the unemployed, the government needs to levy €1.77 on top of that because of the behavioral response. This efficiency cost is measured as euros of behavioral cost per euro of total mechanical transfer. Moreover, the fiscal externality is larger in good times, ranging from €1.35 in recession to €2.42 in boom. Overall, these results are consistent with the ones obtained by

Schmieder et al. (2012), where they find that marginal effects remain constant over the cycle, with the only relevant component that changes with economic conditions being the exhaustion rate. As pointed out by Landais et al. (2018a;b), this type of analysis does not consider general equilibrium mechanisms and one should include a correction term to the optimal formula in order to account for them. The evidence from this literature points towards a correction term that is countercyclical. Therefore, in that case the cyclicality of the marginal cost becomes more pronounced, and so my estimates can be potentially thought as lower bound estimates of the countercyclicality of this component.[35]

Now I finally combine both, social benefits and costs, and proceed to quantify the net welfare impact of changing potential benefit duration according to the state of the economy. To do so, I consider the effect of the budget-balanced reform described above such that $b^R_{P+1} > b^B_{P+1}$ as shown in Appendix B.3. Normalizing by unemployed's marginal utility in boom, I find that that the net welfare impact of the reform is €0.95. That is, society would gain an extra €0.95 per euro transferred from individuals unemployed in boom to individuals unemployed in recession. Moreover, I decompose the welfare gain between the different components as shown in Figure 8. I find that they are all quantitatively important. Specifically, the welfare weights component accounts for around 37% of the total gain, while the consumption smoothing accounts for 30% and the efficiency cost channel for 33%. This implies that there are large welfare gains from having a system where the generosity of the transfers varies with economic conditions. Importantly, this analysis highlights that the welfare gain not only increases in Recession because of an efficiency cost decline as emphasized by the bulk of the empirical literature, but also because the social benefits of the transfers increase considerably in bad times. This increase in social benefits is found when focusing only on the insurance channel, but this becomes substantially more pronounced when accounting for preferences for redistribution and changes in the composition of the unemployed. Overall, this pushes for potential benefit duration being countercyclical, with a larger variation over the cycle than implied by previous work which documented that the social benefits do not vary with economic conditions.

6 Conclusion

This paper provides a comprehensive assessment on whether the duration of the benefits should be higher when economic conditions are bad. I propose a simple and robust framework where the

[35] As mentioned before, when estimating the effect of PBD on nonemployment duration, the design keeps labor market tightness constant so that the estimate refers to a micro effect. As pointed out by Landais et al. (2018a;b) in the case of benefit levels, one must consider not only the microelasticity but also the macroelasticity. If tightness is not efficient, in addition to the term in my formula which captures the effect of UI on welfare holding tightness constant, one should also add a correction term which is equal to the effect of UI on tightness times the effect of tightness on welfare. On the one hand, available evidence in the literature suggests that the macroelasticity is larger than the microelasticity meaning that UI increases tightness. On the other hand, the effect of tightness on welfare is found to be countercyclical. Hence, given that the correction term would be countercyclical, the potentially countercyclical behavior of my partial equlibrium estimate can be thought as a lower bound for the one including general equilibrium mechanisms.

gains from allowing the UI system to vary according to the state of the economy depend on the value of insurance, preferences for redistribution over effort types, and efficiency cost. I exploit rich consumption data, administrative data on labor supply, time use data on job search and an own survey to document four facts. First, individuals reduce their consumption more when hit by unemployment in Recession. Second, the pool of unemployed shifts towards high willingness to work individuals in bad times. Third, society has a strong preference for transferring resources towards high willingness to work individuals. Fourth, the efficiency cost is large, and decreases in bad times.

Overall, I find that there are large welfare gains derived from having UI generosity varying with the unemployment rate. These gains are larger than previously found in the literature, highlighting the importance of accounting for the increasing social benefits of the transfers in Recession. Moreover, these additional gains are not only due to the standard consumption insurance channel, but also come from the important role of society's preferences for redistribution along the willingness to work dimension together with shifts in the composition of the unemployed.

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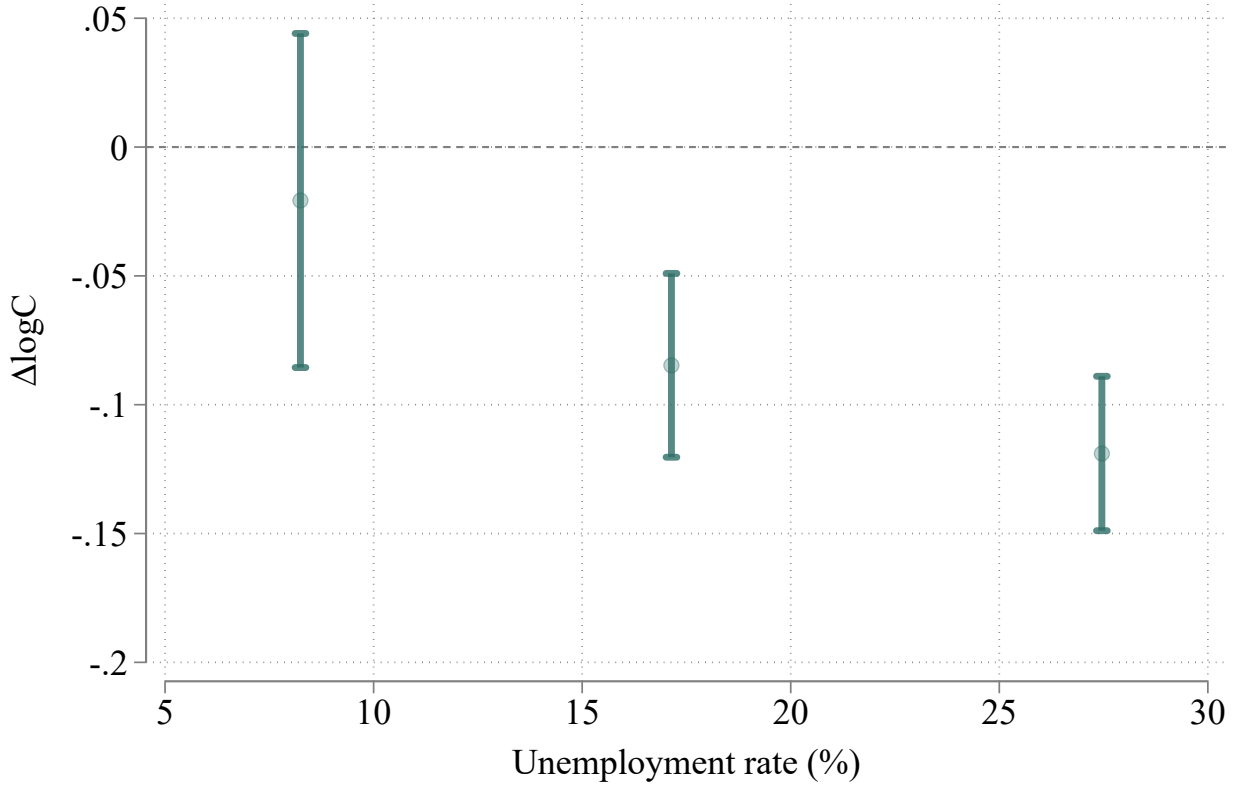
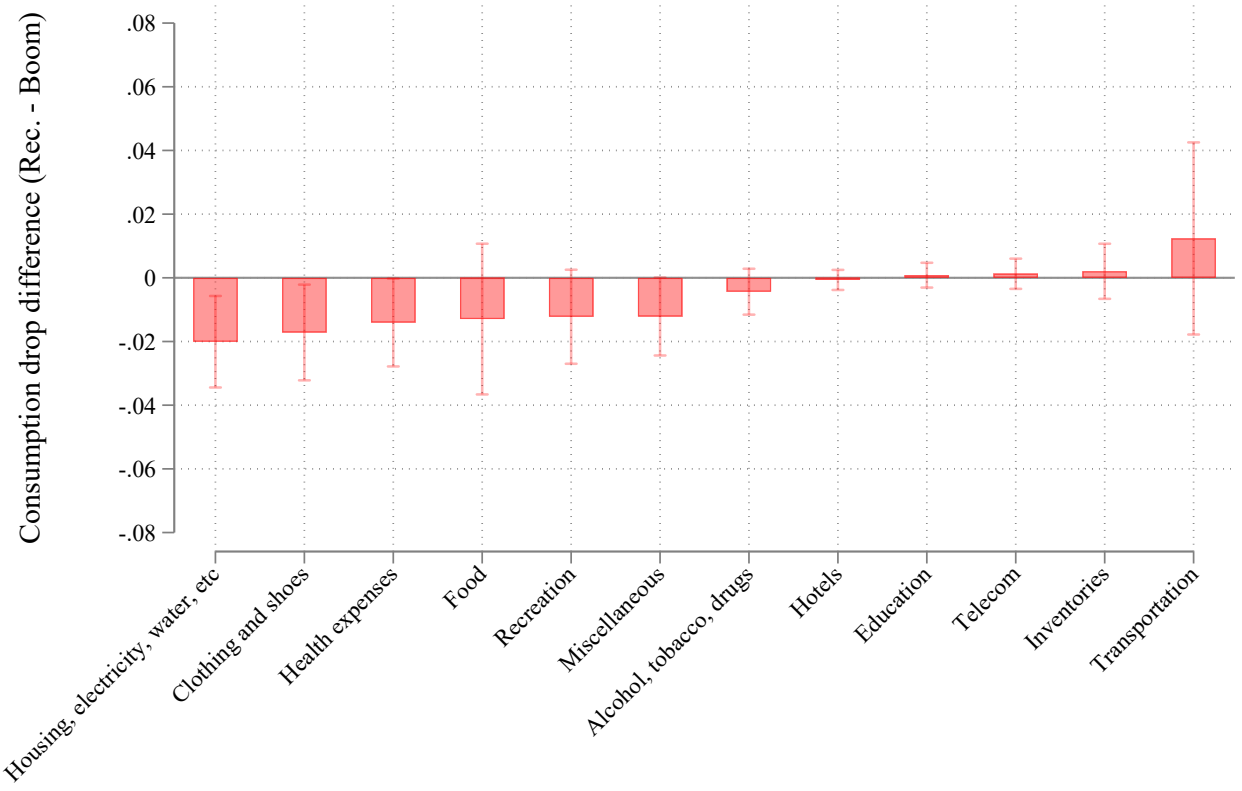
Figure 1: Consumption Smoothing Gains - Insurance



Note: The graph shows how the within-individual consumption drop upon job loss varies with the unemployment rate. Specifically, the graph plots the α_j coefficients obtained by estimating the following regression equation:
$logC_{irt} = \sum_j \alpha_j \cdot \mathbb{1}[unemployed_{it}] \cdot \mathbb{1}[URate_{rt} = j] + \lambda_i + \lambda_r + \lambda_t + X'\beta + \varepsilon_{irt}$, where $logC_{irt}$ refers to log consumption measured at the household level, $\mathbb{1}[unemployed_{it}]$ is a dummy variable that equals one when the household head is unemployed, $\mathbb{1}[URate_{rt} = j]$ is a dummy variable that equals one when the regional unemployment rate of the household falls within unemployment rate group j, and λ_i, λ_r, λ_t are individual, region and year fixed effects, respectively. The vector of controls X includes dummies for the regional unemployment rate groups, and information on type of household and other household composition variables, intended to control for any mechanical relationship between household composition and economic conditions or job loss. The three unemployment rate groups approximate the national average in Boom, normal times and Recession. 95% confidence intervals from standard errors clustered at the region-year level.

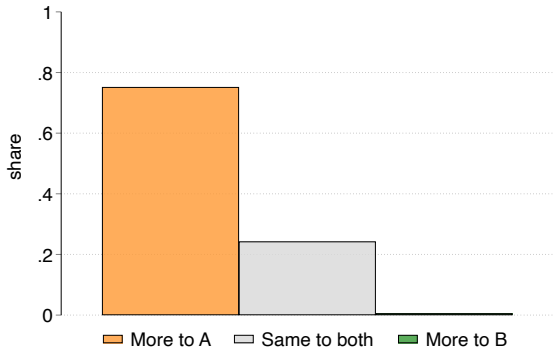
Figure 2: Consumption Smoothing Gains - Insurance: Evolution of Consumption Drop Over the Cycle by Category



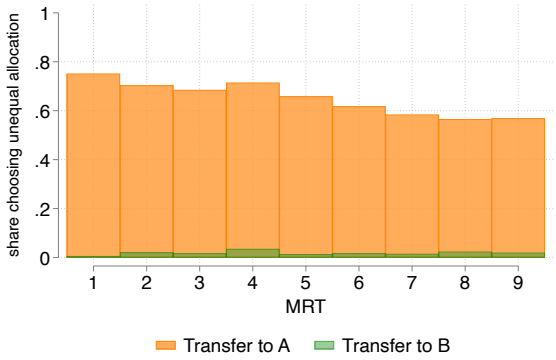
Note: The graph shows how the magnitude of the category-specific change in consumption upon unemployment varies with economic conditions. Specifically, I first estimate the following model $ShareC^{j}_{irt,0} = \beta_0 + \beta_1 Unemployed_i + \beta_2 Unemployed_i \times U.Rate_{rt} + \lambda_i + \lambda_r + \lambda_t + X'\beta + \varepsilon_{irt}$, where $ShareC^{j}_{irt,0}$ corresponds to the share of each consumption category j relative to total consumption of the individual in the first year observed in the sample, $Unemployed_{it}$ is a dummy variable that equals one when the household head is unemployed, $U.Rate_{rt}$ refers to the unemployment rate in the region of the individual, and λ_i, λ_r, λ_t are individual, region and year fixed effects, respectively. The vector of controls X includes the regional unemployment rate, and information on type of household and other household composition variables, intended to control for any mechanical relationship between household composition and economic conditions or job loss. Then, for each category, I compute the difference between the change in Recession and the change in Boom ($\frac{\Delta^{ue,R}}{c} - \frac{\Delta^{ue,B}}{c}$). Adding up all the estimates by category yields the total change in the consumption drop shown in Table 1. 95% confidence intervals from standard errors clustered at the region-year level.

Figure 3: Online Survey: Redistribution Over Search Effort Types

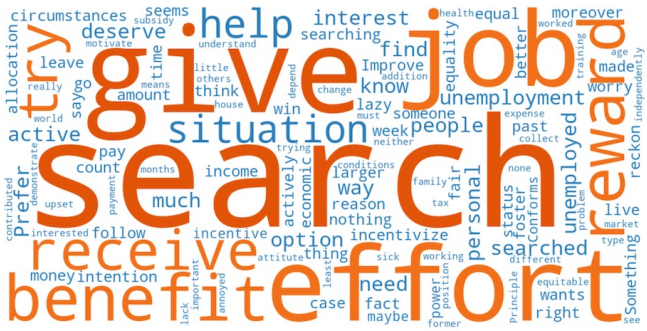
(a) Preferences for Redistribution - Qualitative



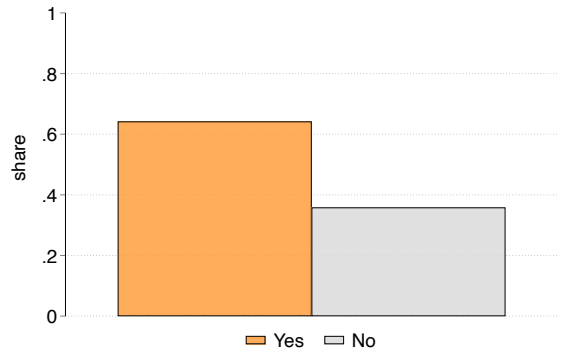
(b) Preferences for Redistribution - Quantitative



(c) Reason for Allocation

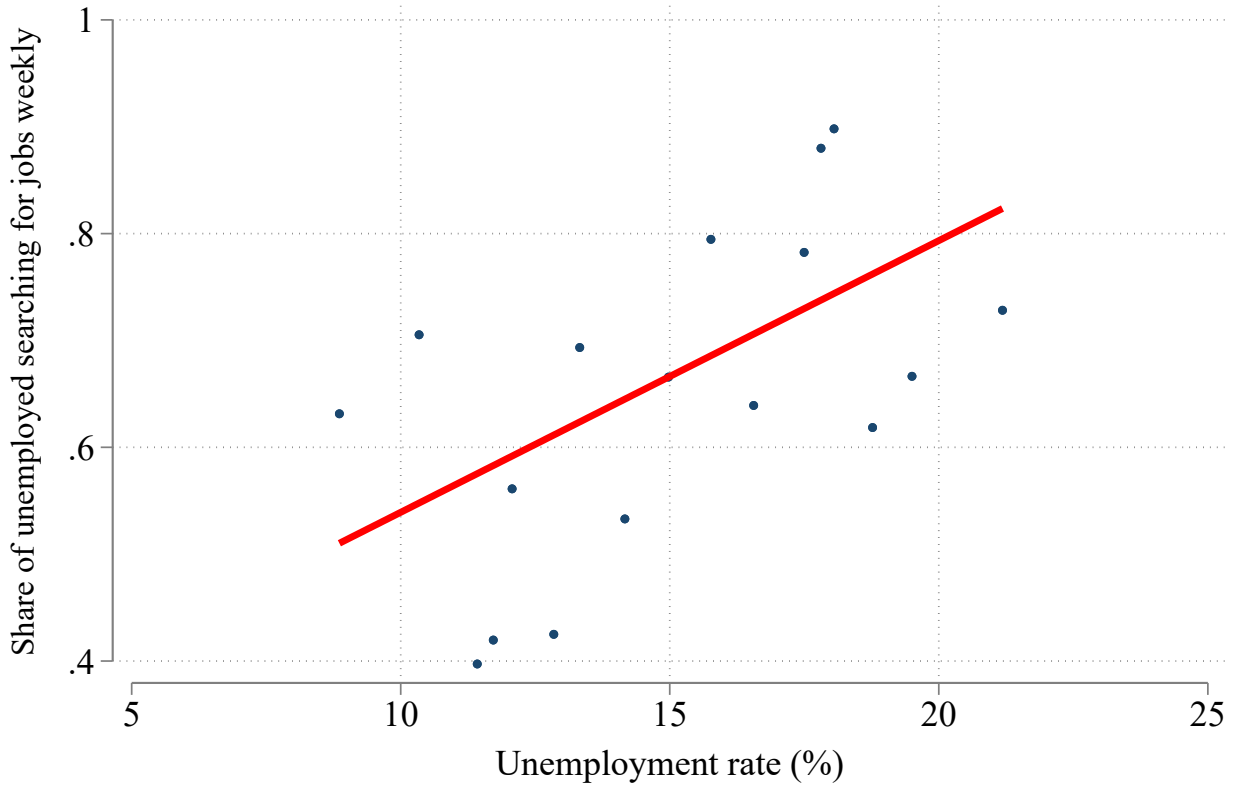


(d) Support for UI Reform



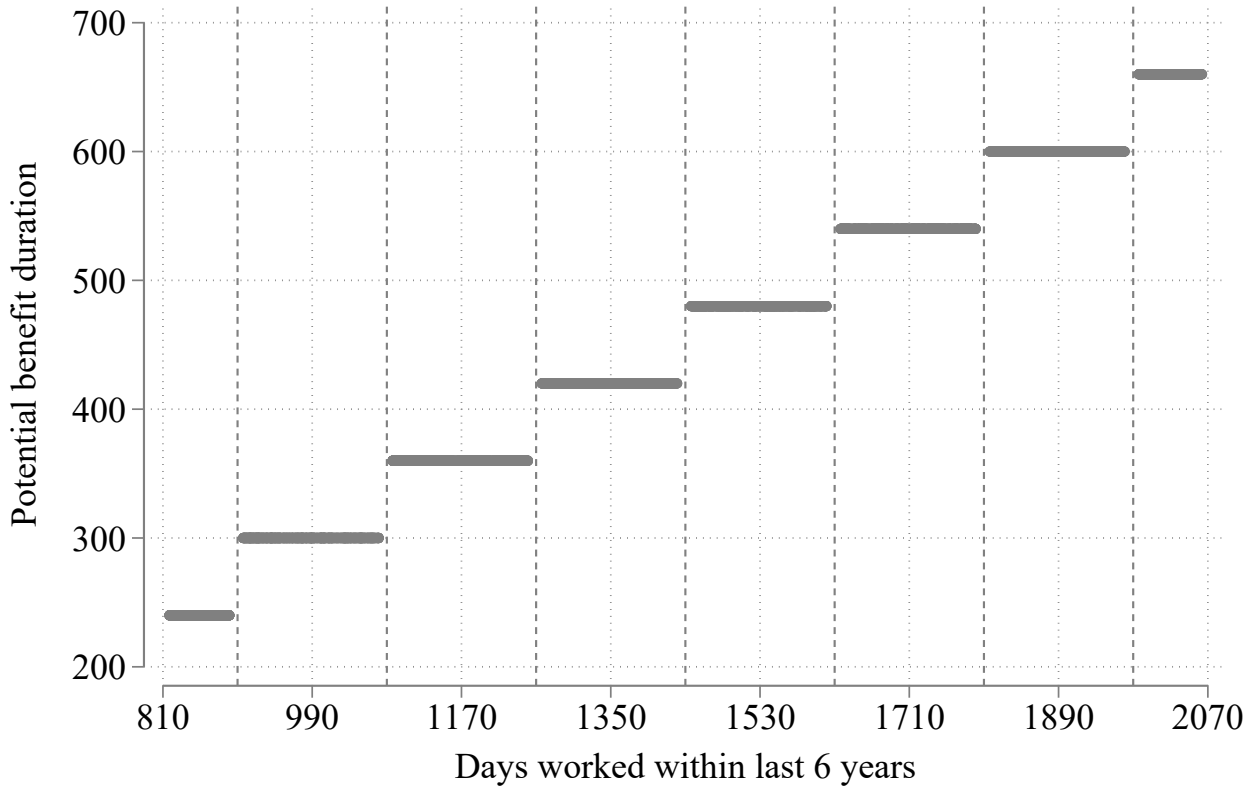
Note: The graphs present results from the online survey I designed. Panel (a) depicts the share of respondents choosing a given option when presented with the question on qualitative preferences for redistribution: *Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed: A looked for jobs last week; B did not look for jobs last week. The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Please choose what allocation option you would prefer: More money to A than to B; More money to B than to A; Same amount to A and B.* Panel (b) depicts the share of respondents accepting an unequal allocation when presented with the question on quantitative preferences for redistribution: *Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed: A looked for jobs last week; B did not look for jobs last week. The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Now imagine that an unequal allocation may be costly. That is, it can allocate €500 each, or more to one than the other, but the latter option may result in the total amount of resources that can be distributed being reduced. Please choose what allocation option you would prefer: 500 for A and 500 for B; 550 for A and 400 for B.* The offered amounts are experimentally varied as explained in Section 4.2.1, so that the implied marginal rate of transformation (MRT) or cost of the transfer varies depending on the amounts. Panel (c) depicts a wordcloud with the most common words used by respondents to describe their reasons for choosing the option in the question for Panel (a). Panel (d) shows the share of individuals stating that they would support a cycle-dependent benefit duration reform. The exact question is: *There exists the idea that benefits received by each unemployed could be more generous (higher benefit level or duration) at times when economic conditions are bad (high unemployment rate), relative to times when economic conditions are good (low unemployment rate). Some reasons for that are that when economic conditions are bad, the unemployed suffer larger consumption reductions upon job loss, and the type of unemployed at that moment are, on average, individuals who put more effort into job finding but who face more difficulties given the lack of job offers. Would you agree with having unemployment benefits changing with economic conditions in this way?.*

Figure 4: Unemployed's Search Effort Over the Business Cycle



Note: The graph shows how search effort by the unemployed varies with economic conditions. It is built using the 2002-2003 and 2009-2010 waves of the Spanish Time Use data, and unemployment rate from the LFS. First, data on the probability of daily search is collapsed at the region level. Second, it is converted to weekly terms following Faberman et al. (2022). Third, it is residualized on region FEs and weighted by population. More details on the methodology are presented in Appendix C.

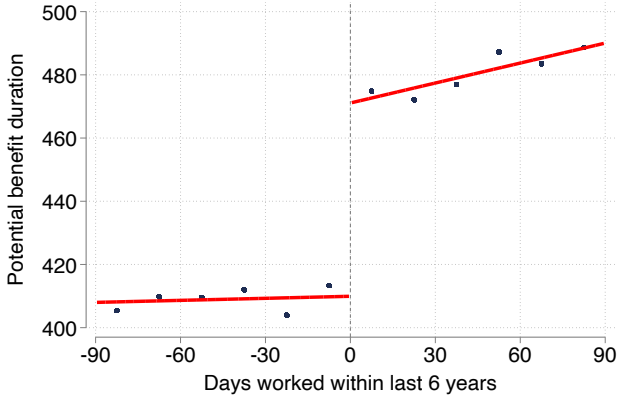
Figure 5: UI Schedule



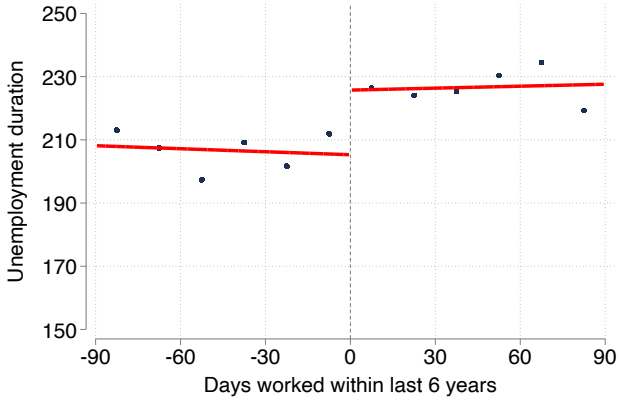
Note: The graph shows the Spanish Unemployment Insurance schedule. Specifically, it depicts the statutory relationship between recent work experience and potential benefit duration, measured in days.

Figure 6: Effect of UI Generosity on Labor Market Outcomes

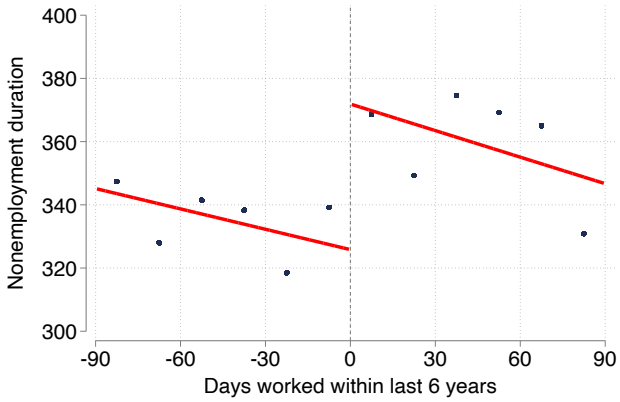
(a) Potential Benefit Duration



(b) Unemployment Duration

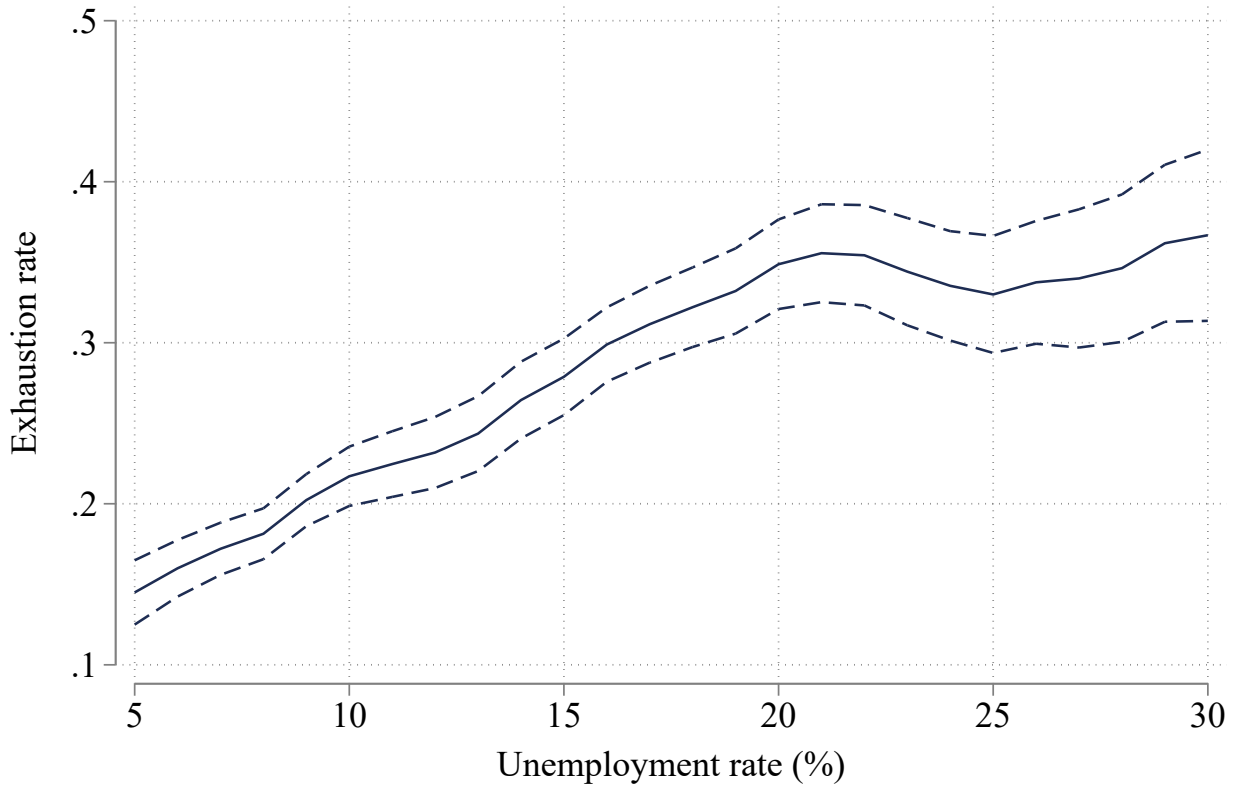


(c) Nonemployment Duration



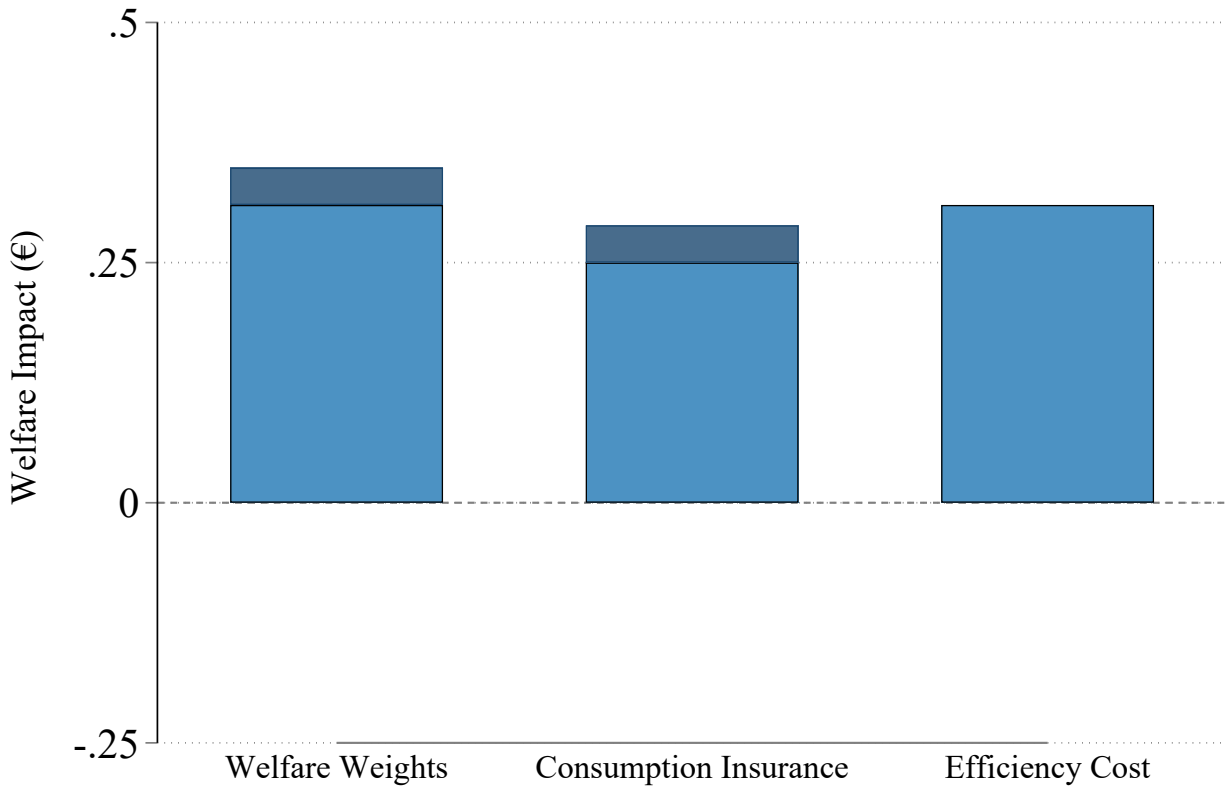
Note: Panels (a), (b), and (c) are binned scatter plots of PBD, unemployment and nonemployment duration, respectively, versus work experience within last 6 years, measured in days. They are depicted in days relative to the closest cutoff, effectively pooling together all cutoffs shown in Figure 5. Nonemployment duration is capped at 3 years.

Figure 7: Exhaustion Rate



Note: The graph shows how the exhaustion rate — the share of individuals remaining nonemployed beyond the maximum entitled time with paid transfers — evolves with economic conditions. It is estimated nonparametrically as described in Section 4.3.

Figure 8: Welfare Impact



Note: The graph shows the contribution of the different components — welfare weights, consumption insurance and efficiency cost — to the net welfare gain of implementing a budget-balanced cycle-dependent benefit duration reform. The contribution of each component refers to the change in the welfare gain when that component changes from no variation over the cycle to the variation estimated in the main text. It uses the estimates in the main text of the implementation equations (6) and (7), and follows the derivation in Appendix B.3. The darker areas correspond to an interaction effect between the ratio of welfare weights and the consumption insurance component.

Table 1: Consumption Baseline Results

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Estimates						
Unemployed	-0.096	-0.006	0.003	-0.095	-0.011	-0.001
	(0.013)	(0.032)	(0.035)	(0.013)	(0.031)	(0.034)
Unemployed × Unemp. rate (%)		-0.0041	-0.0045		-0.0040	-0.0044
		(0.0013)	(0.0015)		(0.0012)	(0.0014)
Region FE	Yes	Yes	No	No	Yes	No
Year FE	Yes	Yes	No	Yes	Yes	No
Region × Year FEs	No	No	Yes	No	No	Yes
Controls	No	No	No	Yes	Yes	Yes
N	63304	63304	63304	63304	63304	63304
Panel B: Post-estimation						
$\frac{\Delta^{ue,B}}{c}$ (Boom: Unemp. rate 8%)		-0.039	-0.033		-0.042	-0.036
		(0.022)	(0.024)		(0.023)	(0.025)
$\frac{\Delta^{ue,R}}{c}$ (Recession: Unemp. rate 26%)		-0.112	-0.113		-0.113	-0.115
		(0.011)	(0.012)		(0.013)	(0.014)
Panel C: Statistics						
$\frac{\Delta^{ue,R}}{c} - \frac{\Delta^{ue,B}}{c}$ (Difference: Recession - Boom)		-0.074	-0.080		-0.071	-0.079
		(0.023)	(0.026)		(0.021)	(0.025)

Note: The table shows how the consumption change upon unemployment evolves over the business cycle. Results are obtained from a regression with specification as in equation (8). Columns (1)-(3) include controls for regional unemployment rate and type of household. Columns (4)-(6) include controls for regional unemployment rate, type of household and the following set of covariates: age, sex, education, civil status, (log) number of individuals in household, number of household members working, number of household members unemployed, number of kids, rural status and house ownership. Standard errors are clustered at the region-year level and reported in parentheses.

Table 2: Marginal Cost Baseline Results

	Pot. benefit duration		Unemp. duration		Nonemp. duration	
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbb{1}[Exp. > 0]$	60.33	55.50	25.05	29.80	43.30	69.34
	(5.44)	(7.06)	(7.72)	(10.45)	(15.56)	(22.57)
$\mathbb{1}[Exp. > 0]$ x Unemp. rate (%)		0.33		-0.32		-1.76
		(0.34)		(0.49)		(1.16)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	6451	6451	6451	6451	6451	6451

Note: The table shows the marginal effect on potential benefit duration, unemployment duration and nonemployment duration. It also explores whether these relationships vary with regional unemployment rate. They are estimated following equation (12). Standard errors are clustered at the region level and reported in parentheses.

Table 3: Marginal Benefit Calibration

	$\gamma = 1$	$\gamma = 2$	$\gamma = 3$	$\gamma = 4$	$\gamma = 5$
$\frac{\omega^R}{\omega^B}$=1	1.07	1.14	1.20	1.25	1.31
$\frac{\omega^R}{\omega^B}$=1.13	1.21	1.28	1.35	1.42	1.48
$\frac{\omega^R}{\omega^B}$=1.15	1.23	1.31	1.38	1.44	1.50
$\frac{\omega^R}{\omega^B}$=1.31	1.40	1.49	1.57	1.64	1.71
$\frac{\omega^R}{\omega^B}$=1.5	1.61	1.70	1.79	1.88	1.96

Note: The table combines results on consumption smoothing gains and welfare weights estimated in previous sections to produce estimates of the marginal benefit term, $\frac{E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}$, under different implementation assumptions following the consumption-based approach in equation (6). The rows show results under different ratios of welfare weights, where I use the benchmark estimate for relative valuation across types obtained in Section 4.2.1, and vary the magnitude of search effort change over the business cycle that is due to a composition effect. Row (1) refers to the case where there is no composition change. Column (2) refers to the case where only composition changes due to observables as measured by the set of demographics in the Spanish Time Use data and LFS, as obtained from the prediction exercise in Appendix C. Column (3) refers to half of the composition change found by (Mukoyama et al., 2018) in the US using CPS data, while column (4) refers to the same composition change found by them. Column (5) refers to the case where all the change in effort is assumed to be due to composition effects. Columns (1)-(5) explore sensitivity of the results with respect to the parameter of relative risk aversion, γ.

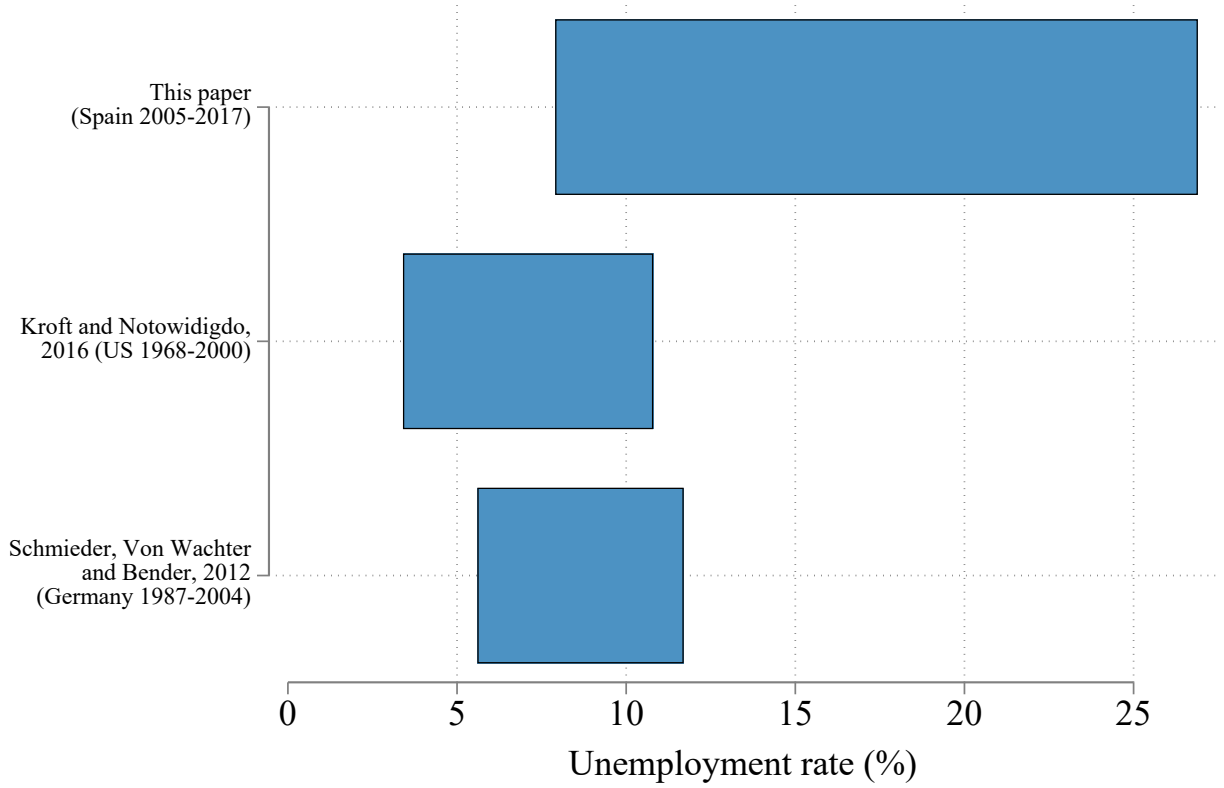
Table 4: Marginal Cost Calibration

	$\frac{dD_b}{db_{P+1}}$	$\frac{dD}{db_{P+1}}$	b	τ	S_{P+1}	FE
Boom (8% unemp. rate)	0.015	0.025	850	53	0.19	2.42
Mean (15% unemp. rate)	0.015	0.025	850	53	0.26	1.77
Recession (26% unemp. rate)	0.015	0.025	850	53	0.34	1.35

Note: The table quantifies how the efficiency cost varies with economic conditions. It shows the estimates for the different components in equation (7), and how they change when the economy goes from boom to recession, with the magnitudes reflecting the national unemployment rate at different points of the business cycle. Effects of a €1 equivalent increase in potential benefit duration on unemployment duration $\frac{dD_b}{db_{P+1}}$ and nonemployment duration $\frac{dD}{db_{P+1}}$ are measured in days. Average monthly benefit level is $b = 850$, and the payroll tax is $\tau = 53$. The tax is obtained as the amount consistent with the stated benefit level and the ratio of UI recipients to employed individuals over the period 2007-2017, following Landais (2015). Number of UI recipients is obtained from OECD, and number of employed from EPA (INE).

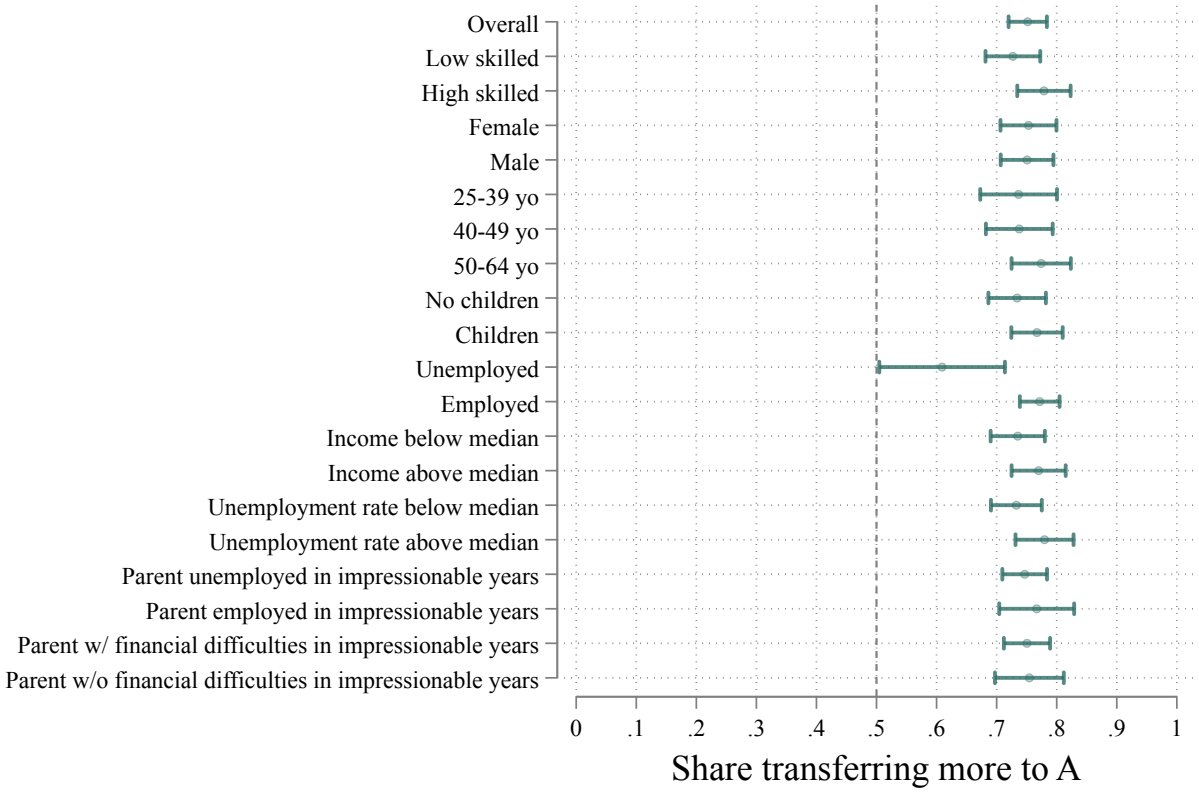
Appendix A Figures and Tables

Figure A1: Spanish Unemployment Fluctuations in the Context of Recent Literature



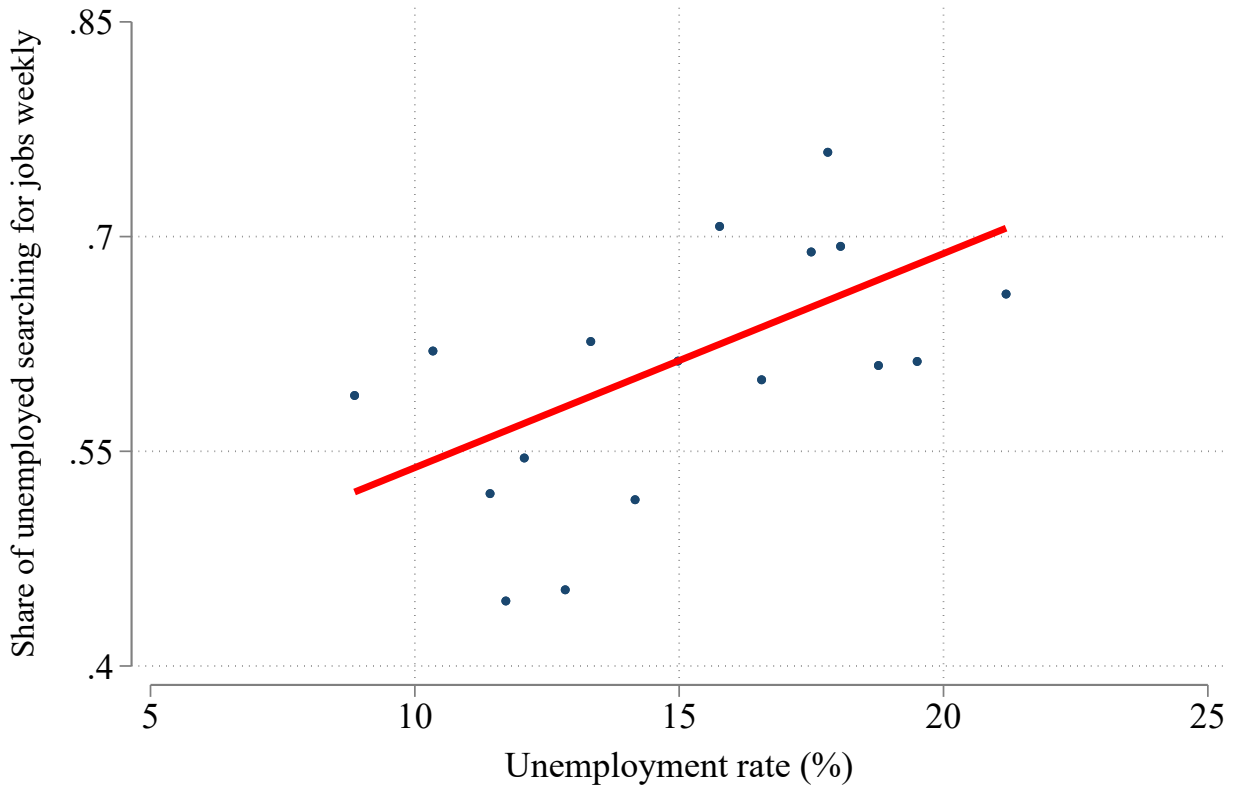
Note: This graph presents the magnitude of the Spanish unemployment fluctuations in relation to two prominent papers in the literature. Those papers use data from US (Kroft and Notowidigdo, 2016) and Germany (Schmieder et al., 2012). Blue bars correspond to the range of national unemployment rate in their country and period of study.

Figure A2: Preferences for Redistribution: Heterogeneity



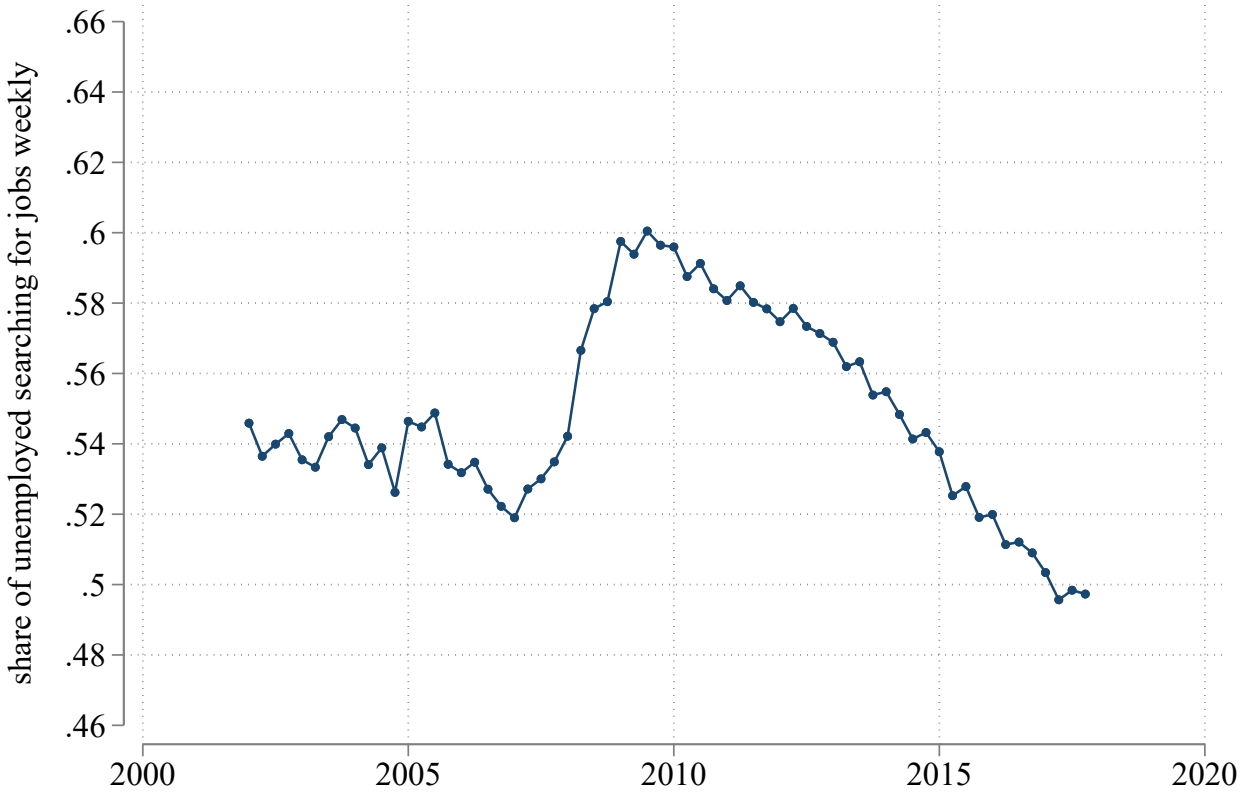
Note: The graph explores heterogeneity in preferences for redistribution between the different types of unemployed. It focuses on the qualitative question: *Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed: A looked for jobs last week; B did not look for jobs last week. The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Please choose what allocation option you would prefer: More money to A than to B; More money to B than to A; Same amount to A and B.*, as described in Section 4.2.1. I summarize the answers in a dummy variable that equals one for individuals choosing to allocate more resources to the individual who searched for jobs last week, and zero otherwise. The plot depicts the average value for that variable for the different demographic characteristics elicited in the Preliminary Questions and Demographic blocks in the online survey, as shown in Appendix E. Impressionable years refer to 18-25 (Krosnick and Alwin, 1989). Point estimates are shown along 95% confidence intervals.

Figure A3: Unemployed's Search Effort Over the Business Cycle



Note: The graph shows how search effort by the unemployed varies with economic conditions. It is built using the 2002-2003 and 2009-2010 waves of the Spanish Time Use data, and unemployment rate from the LFS. First, data on the probability of daily search is collapsed at the region level. Second, it is converted to weekly terms assuming search is independent across days. Third, it is residualized on region FEs, and weighted by population. More details on the methodology are presented in Appendix C.

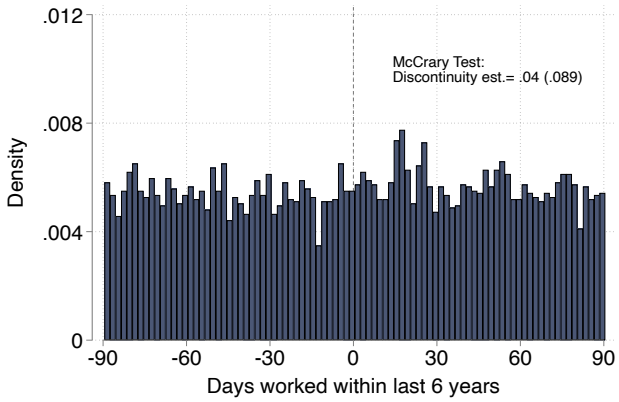
Figure A4: Unemployed's Search Effort Over the Business Cycle: Composition Effect Based on Observables



Note: The graph shows the component of search effort that varies over the business cycle due to composition shift in observable characteristics. It is built first estimating a model that relates the probability of daily search with a set of demographic characteristics in the Time Use data. These variables are: interactions between age categories and sex; interactions between education categories and sex; interaction between married status and sex; and unemployment rate, day of the week when diary was filled and region FEs. Then, I predict daily search based on that model using the same set of demographic characteristics into the Labor Force Survey. Finally, I convert to weekly terms following Faberman et al. (2022). The depicted change in search effort is therefore only due to a composition effect based on observables, and not driven by changes in search effort behavior within individual in response to economic conditions.

Figure A5: Validity of the Design

(a) Density



(b) Unemployment Duration

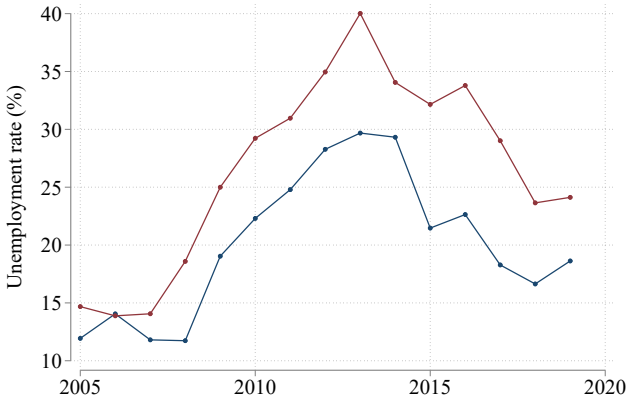
(c) Nonemployment Duration

Note: Panel (a) follows McCrary (2008) to assess whether the density of the running variable presents any discontinuity at the normalized cutoff. Panels (b) and (c) plot the evolution of predicted unemployment and nonemployment duration around the normalized cutoff. This covariate index is constructed using a linear model of the covariates in the benchmark specification in the spirit of Card et al. (2015).

Figure A6: Support for Increase in UI Generosity - CIS Survey

(a) Support by Demographic Groups

(b) Unemployment Rate by Shock Size



(c) Support by Shock Size

Note: The plots are obtained using data from the Spanish CIS survey on public finance issues over the years 2005-2019. Panel (a) shows, on the left axis, the evolution of the share of people supporting increases in UI generosity over the business cycle for different groups of individuals. I recode the answers to the question into a dummy variable that equals one if the respondent would like a more generous UI system, and zero otherwise. National unemployment rate is shown on the right axis. Panel (b) shows the unemployment rate for two groups of regions according to the intensity of the Great Recession shock. Specifically, I compute for each region the change in unemployment rate between 2007 and 2013, and create two groups containing regions below and above the median change in the sample. Panel (c) shows the evolution of the demand for UI generosity increase split by the same groups as in Panel (b).

Table A1: Consumption Robustness Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployed	-0.006	0.749	0.004	-0.004	-0.011	0.845	-0.008	-0.008
	(0.031)	(0.801)	(0.059)	(0.030)	(0.031)	(0.783)	(0.058)	(0.030)
Unemployed × Unemp. rate (%)	-0.0041	-0.0038	-0.0039	-0.0043	-0.0040	-0.0038	-0.0039	-0.0043
	(0.0013)	(0.0016)	(0.0015)	(0.0013)	(0.0012)	(0.0015)	(0.0014)	(0.0012)
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Unemployment duration	No	Yes	No	No	No	Yes	No	No
Share unemp. 6-12 months	No	No	Yes	No	No	No	Yes	No
$\mathbb{1}[\text{year} \geq 2012]$	No	No	No	Yes	No	No	No	Yes
Controls	No	No	No	No	Yes	Yes	Yes	Yes
N	63304	63304	63304	63304	63304	63304	63304	63304

Note: The table explores sensitivity for the evolution of consumption changes upon unemployment over the business cycle. Columns (1) and (5) are the same ones as columns (2) and (5) in Table 1, which report results with and without controls for the benchmark specification, respectively. Column (2) interacts unemployed's consumption with a first and second order polynomial in unemployment duration, for the unemployed with duration up to one year. Column (3) interacts unemployed's consumption with the share of unemployed up to one year that have a duration between 6-12 months. Column (4) interacts unemployed's consumption with a dummy that equals one for the period from 2012 onwards, which corresponds to the period where the benefit level after 6 months was slightly decreased. Columns (6), (7) and (8) repeat the same specifications before and also include controls for type of household and the following set of covariates: age, sex, education, civil status, (log) number of individuals in household, number of household members working, number of household members unemployed, number of kids, rural status and house ownership. Standard errors are clustered at the region-year level and reported in parentheses.

Table A2: First-Year Consumption

	(1)	(2)	(3)	(4)	(5)	(6)
Unemployed (t+1)	-0.253	-0.252	-0.255	-0.163	-0.154	-0.157
	(0.0186)	(0.0455)	(0.0459)	(0.0171)	(0.0431)	(0.0437)
Unemployed (t+1) × Unemp. rate (%)		-0.00005	0.00020		-0.00045	-0.00025
		(0.00239)	(0.00241)		(0.00226)	(0.00229)
Region FE	Yes	Yes	No	No	Yes	No
Year FE	Yes	Yes	No	Yes	Yes	No
Region × Year FEs	No	No	Yes	No	No	Yes
Controls	No	No	No	Yes	Yes	Yes
N	31652	31652	31652	31652	31652	31652

Note: The table shows consumption how consumption evolves over the business cycle during the first year individuals are observed in the sample. Specifically, it compares first-year (t) consumption patterns (while employed) for individuals that get unemployed in the following period (t+1) relative to those that remain employed. Results are obtained from a regression similar to specification as in equation (8). However, since here I only look at individuals' first year in the sample, these specifications do not include individual FEs. Columns (1)-(3) include controls for type of household. Columns (4)-(6) include controls for type of household and the following set of covariates: age, sex, education, civil status, (log) number of individuals in household, number of household members working, number of household members unemployed, number of kids, rural status and house ownership. Standard errors are clustered at the region-year level and reported in parentheses.

Table A3: Unemployed's Search Effort Over the Business Cycle - Search Methods Across Countries

	All		Ask friends		Study job ads		Apply to employers		Contact public service	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Unemp. rate (%)	0.423	0.308	1.016	0.833	0.704	0.495	1.063	0.793	0.949	0.795
	(0.0770)	(0.0761)	(0.227)	(0.235)	(0.344)	(0.473)	(0.246)	(0.245)	(0.599)	(0.547)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Mean	32.9	32.9	65	65	58.7	58.7	54.4	54.4	51	51
Countries	34	34	34	34	34	34	34	34	34	34
N	4868	4868	497	497	496	496	497	497	497	497

	Answer job ads		Contact priv. agency		Other		Look for land		Look for licenses	
	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Unemp. rate (%)	0.737	0.425	0.441	0.473	-0.615	-0.919	-0.027	0.005	-0.042	-0.007
	(0.143)	(0.174)	(0.196)	(0.316)	(0.707)	(0.519)	(0.021)	(0.054)	(0.027)	(0.042)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Mean	41.5	41.5	20.5	20.5	14	14	1.8	1.8	1.7	1.7
Countries	34	34	34	34	34	34	34	34	34	34
N	496	496	496	496	438	438	492	492	492	492

Note: The table presents the relationship between the unemployment rate (%) and the percentage of unemployed that declared using each of the different search methods over the last 4 weeks. The data spans the years 2005-2019 and 34 countries. The data are obtained from Eurostat, which collects it from national Labor Force Surveys. The annual unemployment rate and population are also from Eurostat. Columns (1)-(2) pool all search methods. Columns (2)-(20) represent different search methods used to seek work ordered in the table according to usage, which include: contacting private employment agencies; applying to employers directly; asking friends, relatives, and trade unions; publishing or answering job advertisements; studying job advertisements; taking tests, interviews, or examinations; looking for land, premises, or equipment; looking for licenses, permits, or financial resources; and other methods. The countries included in the sample are Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czechia, Germany, Denmark, Estonia, Spain, Finland, France, Croatia, Hungary, Ireland, Iceland, Italy, Lithuania, Luxembourg, Latvia, Montenegro, North Macedonia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Sweden, Slovenia, Slovakia, Turkey and United Kingdom. For each method, regression results are presented from specifications with country FE and with/without year FE, along with the mean value of the dependent variable, the number of countries, and the number of country-year-method observations. Regressions are weighted by country population and standard errors, in parentheses, are clustered at the country level.

Table A4: Marginal Cost Sample Summary Statistics

	Mean	Std. Dev.
Potential benefit duration	445.61	129.74
Nonemployment duration	347.88	358.12
Days worked last 6 years	1424.46	380.78
Unemployment rate	14.83	7.54
Previous wage	1538.86	723.44
Lifetime experience	2703.63	1504.30
Age	33.12	5.87
Full-time	0.97	0.12
Rural	0.40	0.49
Education:		
Primary	0.57	0.50
High School	0.27	0.44
University	0.17	0.37
Occupation:		
Low	0.19	0.39
Lower medium	0.55	0.50
Upper medium	0.15	0.35
High	0.11	0.32
N	6451	

Note: The table shows the mean and standard deviation of the variables from the final sample used to estimate the statistics in the efficiency cost term. Nonemployment duration refers to the number of days between start of UI reception and beginning of a new employment spell and is capped at 3 years. Previous wage corresponds to the average nominal wage over the last 6 months before becoming unemployed and is expressed in euros. Lifetime experience is measured in days and age in years. Full-time is a continuous variable regarding the number of hours worked where the value of one corresponds to full-time job (e.g., 0.5 is part-time). Rural is a dummy variable which equals one if the previous job was located in a municipality with less than 40000 inhabitants.

Appendix B Derivations

B.1 Model

I follow closely Chetty (2006) and Kolsrud et al. (2018), but consider differentiation of the unemployment benefit policy according to economic conditions and a social planner with fairness considerations based on willingness to work. Let $\xi_{i,t}$ refer to a vector of state variables containing all relevant information up to time t, which determines individual's employment status, aggregate economic conditions k and behavior at time t. $F_{i,t}(\xi_{i,t})$ denotes the unconditional distribution of $\xi_{i,t}$ given information available at time t. I assume $F_{i,t}$ is a cdf function and Ω denotes the maximal support of $F_{i,t}$ for $\forall i, t$. Aggregate economic conditions are denoted by $k \in \{B, R\}$.

Individuals choose each period how much to consume from income and assets, and how much effort to exert if unemployed. An employed individual earns $w_i - \tau$, and when unemployed receives $b_t^k + y_u$. The law of motion of assets when employed is $a_{i,t+1} = (1+r)a_{i,t} + w_i - \tau - c_{i,t}^e$; and when unemployed is $a_{i,t+1} = (1+r)a_{i,t} + b_t^k + y_u - c_{i,t}^u$, with $a_{i,t+1} \geq \bar{a}_i$. The Lagrange multipliers on these constraints are $\mu_{i,t}^{e,k}(\xi_{i,t})$, $\mu_{i,t}^{u,k}(\xi_{i,t})$ and $\mu_{i,t}^{a}(\xi_{i,t})$, respectively.

Let $\theta_{i,t}^{s,k}(\xi_{i,t})$ denote an individual's employment status s at time t in aggregate economic conditions k. When $\theta^{e,k} = 1$, the individual is employed in aggregate economic conditions k. When $\theta^{u,k} = 1$, the individual is unemployed in aggregate economic conditions k. They equal zero otherwise. Each individual is in one of four mutually exclusive labor market status, denoted by the combination of employment status and aggregate conditions. In each period t, an unemployed individual chooses a level of search effort $e_{i,t}$ as well. This search effort level determines the probability to leave unemployment for employment, with the mapping potentially depending on economic conditions.

Each individual i chooses a program (e_i, c_i^u, c_i^e) where

$$
\begin{aligned}
e_i &= \{e_{i,t}(\xi_{i,t})\}_{t\in\{1,2..T\},\xi_{i,t}\in\Omega,\theta^{u,k}(\xi_{i,t})=1}, \\
c_i^u &= \{c_{i,t}^u(\xi_{i,t})\}_{t\in\{1,2..T\},\xi_{i,t}\in\Omega,\theta^{u,k}(\xi_{i,t})=1}, \\
c_i^e &= \{c_{i,t}^e(\xi_{i,t})\}_{t\in\{1,2..T\},\xi_{i,t}\in\Omega,\theta^{e,k}(\xi_{i,t})=1},
\end{aligned}
$$

to solve

$$
\begin{aligned}
V_{i,0}(P) = \max \Sigma_{t=1}^{T}\beta^{t-1} & \int \{\Sigma_k[u_i\left(c_{i,t}^u(\xi_{i,t}), e_{i,t}(\xi_{i,t})\right)\theta_{i,t}^{u,k}\left(\xi_{i,t}\right) + v_i\left(c_{i,t}^e\right)\theta_{i,t}^{e,k}\left(\xi_{i,t}\right)]\}dF_{i,t}\left(\xi_{i,t}\right) \\
+ \Sigma_{t=1}^{T}\beta^{t-1} & \int \{\Sigma_k\mu_{i,t}^{u,k}\left(\xi_{i,t}\right)[(1+r)a_{i,t-1}(\tilde{\xi}_{i,t-1}) + b_t^k - c_{i,t}^u\left(\xi_{i,t}\right) - a_{i,t}]\theta_{i,t}^{u,k}\left(\xi_{i,t}\right)\}dF_{i,t}\left(\xi_{i,t}\right) \\
+ \Sigma_{t=1}^{T}\beta^{t-1} & \int \{\Sigma_k\mu_{i,t}^{e,k}\left(\xi_{i,t}\right)[(1+r)a_{i,t-1}(\tilde{\xi}_{i,t-1}) + w_i - \tau - c_{i,t}^e\left(\xi_{i,t}\right) - a_{i,t}]\theta_{i,t}^{e,k}\left(\xi_{i,t}\right)\}dF_{i,t}\left(\xi_{i,t}\right) \\
+ \Sigma_{t=1}^{T}\beta^{t-1} & \int \mu_{i,t}^{a}\left(\xi_{i,t}\right)[\overline{a}_i - a_{i,t+1}]dF_{i,t}\left(\xi_{i,t}\right),
\end{aligned}
$$

where the short-hand notation $\tilde{\xi}_{i,t-1}$ denotes the vector of state variables at time $t-1$ that preceded the vector of state variables $\xi_{i,t}$ at time t. While in the empirical implementation in the main text I consider separability of utility between consumption and effort, here I allow for non-separability in the characterization. In the framework, the individual starts unemployed and remains active until T, with employment being an absorbing state. The individual's exit rate out of unemployment in aggregate economic conditions k at time t depends on her search effort at time t. The (unconditional) probability to be unemployed at time $t+1$ in aggregate economic conditions k is

$$\Pr(\theta_{i,t+1}^{u,k}=1)=\int[1-h^k(e_{i,t}(\xi_{i,t}))]\theta_{i,t}^{u,k}(\xi_{i,t})dF_{i,t}(\xi_{i,t}).$$

The present value of the government's budget is

$$G(P)=\Sigma_{t=1}^{T}\frac{1}{(1+r)^{t-1}}\int\int\{\Sigma_k[-b_t^k\theta_{i,t}^{u,k}(\xi_{i,t})+\tau\theta_{i,t}^{e,k}(\xi_{i,t})]\}dF_{i,t}(\xi_{i,t})di.$$

The government solves

$$\max\int\omega(\overline{e}_i)V_{i,0}(P)di+\lambda[G(P)-\overline{G}],$$

where $\omega(.)$ is a welfare weight, λ is the Lagrange multiplier on the government's budget constraint and $\overline{G}$ is an exogenous revenue constraint. The welfare weight is assumed to depend on willingness to work $\overline{e}_i$, which is defined as the effort level exerted by individuals when faced with aggregate economic conditions as in Boom period and a fixed benefit policy:

$$\overline{e}_i=E[e_{i,t}|\theta_{i,t}^{u,B}=1,P],$$

The characterization is based on local policy changes and thus only allows for local tests and recommendations. For the ability to translate globally, the program would need to be strictly concave in P. To provide tractable expressions of local welfare implications I assume that the social welfare function is differentiable.

Unemployment Policy Following Chetty (2006), I assume that lifetime utility is smooth, increasing and strictly quasi-concave in (c_i^u,c_i^e,e_i) and that the value function $V_{i,0}(P)$ is differentiable such that the envelope theorem applies.

The welfare impact of a change in the unemployment benefit b_{P+1}^k equals

$$\frac{\partial W(P)}{\partial b_{P+1}^k}=\int\omega(\overline{e}_i)\frac{\partial V_{i,0}(P)}{\partial b_{P+1}^k}di+\lambda\frac{\partial G(P)}{\partial b_{P+1}^k},$$

where, using $S_t^{r,k} = S_t^k/[1+r]^{(t-1)}$,

$$\begin{aligned}\frac{\partial G(P)}{\partial b_{P+1}^k} &= -S_{P+1}^{r,k} - \Sigma_{t'=1}^{T}(b_{t'}^k+\tau)\frac{\partial S_{t'}^{r,k}}{\partial b_{P+1}^k} - \Sigma_{t'=1}^{T}(b_{t'}^{k'}+\tau)\frac{\partial S_{t'}^{r,k'}}{\partial b_{P+1}^k} \\ &\approx -S_{P+1}^{r,k} - \Sigma_{t'=1}^{T}(b_{t'}^k+\tau)\frac{\partial S_{t'}^{r,k}}{\partial b_{P+1}^k} \\ &= -S_{P+1}^{k} - \frac{\partial D_b^k}{\partial b_{P+1}^k}b - \frac{\partial D^k}{\partial b_{P+1}^k}\tau\end{aligned}$$

where the second line approximation relies on the effect of extending benefit duration in a given economic condition having small effect of individuals' behavior while unemployed in other economic conditions, and the last line follows from the simplification $r=0$ and a constant benefit policy paying b up to period P and zero afterwards as in the main text, and

$$\begin{aligned}\int \omega(\overline{e}_i)\frac{\partial V_{i,0}(P)}{\partial b_{P+1}^k}di &= \beta^P \int\int \omega(\overline{e}_i)\frac{\partial u_i^u(c_{i,P+1}^u(\xi_{i,P+1}),e_{i,P+1}(\xi_{i,P+1}))}{\partial c_{i,P+1}^u}\theta_{i,P+1}^{u,k}(\xi_{i,P+1})dF_{i,P+1}(\xi_{i,P+1})di \\ &= S_{P+1}^k E\left[\omega(\overline{e}_i)\frac{\partial u_i^u(c_{i,t}^u(\xi_{i,t}),e_{i,t}(\xi_{i,t}))}{\partial c_{i,t}^u}\middle| t=P+1,\theta_{i,t}^{u,k}=1\right].\end{aligned}$$

Where the last line follows from the simplification $\beta = 1+r = 1$. The expectation operator thus averages over all potential states in which the individual is unemployed at time $P+1$ in aggregate conditions k. The weight of individual i's marginal utility in calculating the average marginal utility among the unemployed at time t is scaled by $S_{i,t}^k/S_t^k$.

Combining the two expressions, I find

$$\frac{\partial W(P)}{\partial b_{P+1}^k} = 0 \Leftrightarrow E_{P+1}^{u,k}\left[\omega(\overline{e}_i)\frac{\partial u_i^u(c_{i,t}^u(\xi_{i,t}),e_{i,t}(\xi_{i,t}))}{\partial c_{i,t}^u}\right] = \lambda\left[1+\frac{1}{S_{P+1}^k}\left[\frac{\partial D_b^k}{\partial b_{P+1}^k}b+\frac{\partial D^k}{\partial b_{P+1}^k}\tau\right]\right].$$

Thus, extending the unemployment benefit in both Boom and Recession, and combining expressions, I obtain:

$$\frac{E_{P+1}^{u,R}\left[\omega(\overline{e}_i)\frac{\partial u_i^u(c_{i,t}^u(\xi_{i,t}),e_{i,t}(\xi_{i,t}))}{\partial c_{i,t}^u}\right]}{E_{P+1}^{u,B}\left[\omega(\overline{e}_i)\frac{\partial u_i^u(c_{i,t}^u(\xi_{i,t}),e_{i,t}(\xi_{i,t}))}{\partial c_{i,t}^u}\right]} = \frac{1+\frac{1}{S_{P+1}^R}\left[\frac{\partial D_b^R}{\partial b_{P+1}^R}b+\frac{\partial D^R}{\partial b_{P+1}^R}\tau\right]}{1+\frac{1}{S_{P+1}^B}\left[\frac{\partial D_b^B}{\partial b_{P+1}^B}b+\frac{\partial D^B}{\partial b_{P+1}^B}\tau\right]}.$$

which corresponds to equation (5) in the main text.

B.2 Implementation Assumptions

- *Assumption 1* - Relevant heterogeneity in consumption only across Boom and Recession, not within unemployed in the same aggregate economic condition: $c_{i,t}^{u,k} = c_t^{u,k}$ [36]

[36] When there is heterogeneity within the same economics conditions, one needs to account for the covariance between marginal utility and welfare weights (and risk aversion parameter if not assumed to be constant) (Andrews and Miller, 2013; Kolsrud et al., 2024).

- *Assumption 2* - Homogeneous preferences: $u_i(c) = v_i(c) = u(c)$
- *Assumption 3* - Homogeneous relative risk aversion: $\gamma^k \approx \gamma$ (where $\gamma^k = \frac{-u''(c^{u,k})c^{u,k}}{u'(c^{u,k})}$)
- *Assumption 4* - Taylor approximation for $u'(c^{u,k})$ around $c^{e,k}$:

$$\begin{aligned} u'(c^{u,k}) &\approx u'(c^{e,k}) + u''(c^{e,k})(c^{u,k} - c^{e,k}) \\ &= u'(c^{e,k}) \left[1 + \gamma \frac{c^{e,k} - c^{u,k}}{c^{e,k}}\right] \end{aligned}$$

Thus, we arrive at the expression in the main text:

$$\begin{aligned} \frac{E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]} &\approx \frac{\omega^R}{\omega^B}\frac{u'(c^{u,R})}{u'(c^{u,B})} \\ &\approx \frac{\omega^R}{\omega^B}\frac{u'(c^{e,R})}{u'(c^{e,B})}\frac{1+\gamma\frac{c^{e,R}-c^{u,R}}{c^{e,R}}}{1+\gamma\frac{c^{e,B}-c^{u,B}}{c^{e,B}}} \\ &\approx \frac{\omega^R}{\omega^B}\left[1+\gamma\frac{c^{e,B}-c^{e,R}}{c^{e,B}}\right]\frac{1+\gamma\frac{c^{e,R}-c^{u,R}}{c^{e,R}}}{1+\gamma\frac{c^{e,B}-c^{u,B}}{c^{e,B}}} \\ &= \frac{\omega^R}{\omega^B}\frac{1+\gamma\frac{c^{e,R}-c^{u,R}}{c^{e,R}}}{1+\gamma\frac{c^{e,B}-c^{u,B}}{c^{e,B}}} \end{aligned}$$

where the second line follows from another Taylor approximation of $u'(c^{e,R})$ around $u'(c^{e,B})$, and the last line from the empirical finding of $c^{e,R} \approx c^{e,B}$ shown in Table A2.

B.3 Welfare Impact

Consider a reform where $\frac{db^R_{P+1}}{db^B_{P+1}} < 0$ such that the budget remains balanced:
$S^R_{P+1}b^R_{P+1} = S^B_{P+1}b^B_{P+1} \Rightarrow S^R_{P+1}(1+FE^R)db^R_{P+1} = -S^B_{P+1}(1+FE^B)db^B_{P+1}$

$$\begin{aligned} dW =& S^R_{P+1}E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]db^R_{P+1} + S^B_{P+1}E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]db^B_{P+1} - \\ &- \lambda\left[S^R_{P+1}(1+FE^R)db^R_{P+1} + S^B_{P+1}(1+FE^B)db^B_{P+1}\right] \\ =& S^R_{P+1}E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})] - S^B_{P+1}E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]db^B_{P+1}\frac{S^R_{P+1}(1+FE^R)}{S^B_{P+1}(1+FE^B)}db^R_{P+1} \end{aligned}$$

where the second equality follows from the budget neutrality of the reform.

$$\begin{aligned} \frac{dW/S^R_{P+1}db^R_{P+1}}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]} &= \underbrace{\frac{E^{u,R}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}{E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]}}_{=1.64} - \underbrace{\frac{1+FE^R}{1+FE^B}}_{=0.69} \\ &= \mathbf{0.95} \end{aligned}$$

where welfare is measured in monetary terms relative to $E^{u,B}_{P+1}[\omega(\overline{e}_i)u'(c^u_{i,P+1})]$, which denotes the average welfare-weighted marginal utility for the individuals unemployed in Boom (Boom and Recession refer to 8% and 26% unemployment rate respectively).

Appendix C Time Use Data

A key input of the framework in the main text is the share of unemployed individuals that searched for jobs over the last week, and how it varies with economic conditions. Here I provide a more detailed explanation of how I estimate these statistics.

The data used are the two available waves (2002-2003 and 2009-2010) of the Spanish Time Use survey, which is similar to the American Time Use Survey (ATUS) in the US. Since this survey oversamples individuals during Fridays, Saturdays and Sundays, I estimate averages at the daily level for the variable of interest — share of individuals with positive search time — and then aggregate by adding up all the days of the week. I compute these averages at the region-year level (CCAA), which is the lowest geographical level available. I also collect data on unemployment rate at this same level from the Statistical National Institute (INE).

While time use surveys provide very detailed information on the activities of individuals throughout the day, they have the caveat that individuals only fill the dairy once, and so we cannot see how the same individual behaves over the whole week. Given that my statistic of interest is the share of individuals who searched last week, I estimate this from the daily probability of search. To do so, I follow Faberman et al. (2022) who compare their estimates from the Survey of Consumer Expectations (SCE) with the ones obtained with ATUS, and provide a framework to map daily probability of job search into weekly share of searchers. The advantage of SCE is that individuals are asked specifically about whether they searched for jobs last week, and not just one day as in ATUS. For this exercise, they leverage the fact that in the UK time use survey, individuals fill diaries for two consecutive days, which provides information about what share of individuals search frequently. They find that 35 % of the unemployed who search one day, repeat again the next day. They assume that (i) there are two types of searchers: steady or intermittent job seekers; (ii) individuals observed searching two days in a row are steady job seekers who search every day; (iii) individuals who do not search two days in a row are intermittent job seekers who search only once per week and could therefore be randomly observed looking for work on any day of the week. Based on this statistic, they assume that in the US 35% of unemployed search every day of the week and the rest only once per week, resulting in the following probability of weekly search:

$$\pi_{\text{week}_j} = \mu_j^{uk}\pi_j^{day} + 7(1-\mu_j^{uk})\pi_j^{day}$$

which provides a good approximation for their estimate with SCE data. Thus, I apply this to the Spanish data and obtain that the weekly share of searchers ranges between 50% in Boom and 95% in Recession. The analysis residualizes the variables on region FEs to not compare regions that are structurally different and focus on the variation over the business cycle. Figure 4 depicts the results.

Moreover, I also provide results estimating the share of weekly searchers using a different approach to prove the robustness of the findings. To do so I instead assume that search is independent across days, and just compute the probability of not searching in a week as $\pi_{\text{week}_j} = 1 - (1 - \pi_j^{day})^7$. This is a similar approach to Braun (2022), who computes the share at the monthly level instead. Results are shown in Figure A3. Reassuringly, even in this case under a strong independence assumption, the share ranges between 52% and 78%, which implies a relatively lower increase but still a substantial shift which is in line with the baseline finding.

Appendix D Public Opinion Polls

As described in the main text, the empirical implementation of the framework suggests that the UI system should be more generous when economic conditions worsen. However, this induces a violation of horizontal equity which may raise implementation concerns. Here I explore public opinions about this type of reform, presenting two pieces of suggestive evidence on the political economy of a cycle-dependent benefit reform. First, in the online survey I designed, respondents are also asked whether they would support a UI reform of the type described in this paper. The objective of this question is to assess whether they agree with the interpretation of their answers through the lens of my framework. Figure 3d shows that a majority of people claim they would be likely to support a UI reform of the type described above.

Second, I draw on annual public opinion surveys over the years 2005-2019. This information on public attitudes towards certain public policies comes from the individual-level files of the Public Opinion and Fiscal Policy Survey (*Encuesta de Opinión Pública y Política Fiscal*) carried out by the Spanish CIS. This is a representative sample, eliciting opinions on several public policy issues over time. My analysis focuses on a question repeated every year that asks whether the unemployment benefits provided should be same/more/less generous than in the given year. I combine the waves for the years 2005-2019[37]. Here I focus on a question asked every year about whether they think that the government should devote more/less/same resources to UI than are provided at each point in time. I classify individuals as demanding more generous UI when they state that more resources should be devoted. The evolution of the answers to this question over the cycle are shown in Figure A6. Panel (a) shows that people demand more generous UI when economics conditions are bad, with a remarkable increase in this demand that parallels the increase in the unemployment rate. Although I am not able to isolate mechanisms in this analysis, a potential explanation is that the probability of receiving benefits goes up in recession (probability of paying taxes goes down), so people just respond in that way that because they will be more likely to benefit directly from the reform, and not because they consider that there is a higher value of transferring resources towards the type of individuals unemployed in recessions. However, the same plot reveals that the increase in UI demand is common across groups (employed, unemployed, retired)[38], and thus does not depend on the group-specific probability of receiving benefits which varies across them. To gain further insights, in Panels (b) and (c) I divide regions in two groups by the size of the region unemployment shock experienced in order

[37]The annual samples consist of around 2500 individuals, so the total sample contains information on approximately 38000 individuals.

[38]The increase in support for a more generous UI system when economic conditions worsen could be just driven by a composition effect: if the unemployed support more UI increases than the employed on average, the fact that more people become unemployed in Recession could explain the increase in the support for UI. It is not the case, which can also be shown formally using a shift-share decomposition of the change in UI support from trough to peak (2005-2014):
$UI_t - UI_{t-1} = \sum s_{i,t-1}(UI_{i,t} - UI_{i,t-1}) + (s_{i,t} - s_{i,t-1})UI_{i,t}$, where the within-group component accounts for 95% of the increase.

to see whether regions that are relatively hit harder by the Great Recession increase their support for higher UI generosity more. I find again that the increase is common across groups and not related to the change in the unemployment risk. Although more suggestive, this complementary evidence is consistent with people taking into account other dimensions beyond their own unemployment risk, and supporting more generous UI when economic conditions deteriorate.

Appendix E Online Survey

Instructions (Information Sheet)

You are invited to participate in this survey, which investigates the preferences of Spanish people for public policies. It takes approximately 8 minutes. When you complete it, you will receive panel points worth €1.15 as a reward.
We are a non-partisan group of researchers affiliated to University College London. Our goal is to understand preferences about various social policies. **It is very important that you respond honestly. No matter what your political views are, this is an important question and by completing this survey, you are contributing to our knowledge as a society.**
Anytime you don't know an answer, just give your best guess.

All the information collected about you is treated confidentially. The information is only used for scientific purposes and the survey is registered at University College London. This is intended to be used for academic publication, a chapter of a PhD thesis and potentially for subsequent research. You have been chosen to participate because you are aged 25-64 and are representative of the Spanish population. Participation is voluntary and you can withdraw at any point if you wish. **The data are anonymized and you will not be individually identified from responses.** There are no direct risks or benefits for you from taking part in the survey, beyond the monetary reward. This project has received approval by the UCL Research Ethics Committee (#21191/001). In case you have doubts or complaints, you can contact the corresponding member of the Research Team (jon.piqueras.17@ucl.ac.uk) or the Ethics Committee (ethics@ucl.ac.uk). The title of the study is "Redistribution and Social Insurance Design". This project is funded by the Institute for Fiscal Studies.

Local Data Protection Privacy Notice:

The controller for this project will be University College London (UCL). The UCL Data Protection Officer provides oversight of UCL activities involving the processing of personal data. This "local" privacy notice sets out the information that applies to this particular study. Further information on how UCL uses participant information can be found in our "general" privacy notice (here). The categories of personal data used will be as follows: year of birth, gender, province of residence, employment status, income, socio-economic status, education, postcode. The lawful basis that will be used to process your personal data are: "Public task" for personal data and "Research purposes" for special category data. Your data will be anonymized at any point and therefore it cannot be withdrawn. If you are concerned about how your personal data is being processed, or if you would like to contact us about your rights, please contact UCL in the first instance at data-protection@ucl.ac.uk.

Thank you for reading this information sheet and for considering to take part in this research study. If you agree with these terms, please continue reading the consent form below before you start.

Consent Form

I confirm that I understand that by clicking "Next" below I am consenting to ALL these elements of the study. I understand that by not giving consent to these elements I may be deemed ineligible for the study.

- I confirm that I have read and understood the Information Sheet for the above study. I have had an opportunity to consider the information and what will be expected of me.
- I consent to participate in the study. I understand that my personal information will be used for the purposes explained to me. I understand that according to data protection legislation, "public task" will be the lawful basis for processing.
- I understand that my data gathered in this study will be stored anonymously and securely. It will not be possible to identify me in any publications.
- I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason.
- I understand the direct/indirect benefits and risks of participating.
- I understand that I will be compensated if I complete the survey.
- I agree that my anonymized research data may be used by others for future research.
- I hereby confirm that I understand the inclusion criteria as detailed in the Information Sheet.
- I am aware of who I should contact if I wish to lodge a complaint.
- I voluntarily agree to take part in this study.

Next

Preliminary Questions

What is your year of birth?

What is your sex?

- Male
- Female

What is your current employment status?

- Full-time employment
- Part-time employment
- Unemployed looking for jobs
- Other (for example, student or retired)
- Disabled/unable to work

What is your highest educational level?

- Primary education
- Secondary education
- Baccalaureate/professional training
- Bachelors degree
- Masters degree
- PhD

Next

Demographics

What is your province of residence?

What is the duration of your usual workday? (for example, 100% corresponds to full time and 50% to part time)

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

What is your gross monthly labor income if employed, or benefits if unemployed? (that is, before taxes, without decimals, in €)

What is your current type of job?

- Permanent
- Temporary
- Self employed
- Not working

How many children do you have (younger than 26 years old)?

How much do you have in savings (savings in current account + value of other assets you own - debt, in €)?

While you were 18-25 years old, was any of your parents more than one year unemployed?

- Yes
- No

While you were 18-25 years old, did your parents have difficulties to make ends meet?

- Yes
- No

Next

20%

Opinions on Public Policy

Imagine there are 2 unemployed individuals, A and B, who receive €950 while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed:

- *Individual A looked for jobs last week*
- *Individuo B did not look for jobs last week*

The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Please choose what allocation option you would prefer:

- ○ More money to A than to B
- ○ More money to B than to A
- ○ Same amount to A and B

Next

40%

Opinions on Public Policy

Imagine there are 2 unemployed individuals, A and B, who receive 950€ while unemployed and are entitled to receive benefits for up to 14 months if remaining unemployed:

- *Individual A looked for jobs last week*
- *Individual B did not look for jobs last week*

The government wants to transfer €1000 to individuals A and B in a one-time payment, and is thinking of how to allocate them. Now imagine that an unequal allocation may be costly. That is, it can allocate €500 each, or more to one than the other, but the latter option may result in the total amount of resources that can be distributed being reduced.

Please choose, for each pair of options below, what allocation option you would prefer:

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 550 for A, 450 for B
- ○ 500 for A, 500 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 350 for A, 550 for B
- ○ 500 for A, 500 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 150 for A, 550 for B
- ○ 500 for A, 500 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 500 for A, 500 for B
- ○ 450 for A, 550 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 500 for A, 500 for B
- ○ 250 for A, 550 for B

Next

60%

Opinions on Public Policy

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 50 for A, 550 for B
- ○ 500 for A, 500 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 500 for A, 500 for B
- ○ 550 for A, 300 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 550 for A, 350 for B
- ○ 500 for A, 500 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 500 for A, 500 for B
- ○ 300 for A, 550 for B

Individual A looked for jobs last week
Individual B did not look for jobs last week

What amounts (€) would you prefer for individuals A and B?

- ○ 500 for A, 500 for B
- ○ 550 for A, 400 for B

Next

80%

General Opinions (last questions)

When you were asked before about your preferred allocation of the €1000, you answered you would prefer to give "More money to A than to B".
(Note: Remember that A looked for jobs last week, and B did not looked for jobs last week).

Please, explain why you chose that option:

There exists the idea that the benefits received by each unemployed could be more generous (higher benefit level or duration) at times when economic conditions are bad (high unemployment rate), relative to times where economic conditions are good (low unemployment rate).
Some reasons for that are that when the economic conditions are bad, the unemployed suffer larger consumption reductions upon job loss and the type of unemployed at that moment are, on average, people who put more effort into job finding but who face more difficulties given the lack of job offers.

Would you agree with having unemployment benefits changing with economic conditions in this way?

- ○ Yes
- ○ No

We want to improve the survey and your opinion matters. Please, write below if you have any comment about the questions, the survey structure or whether the questions are clear/intuitive (in case you do not have comments, write NO).

Next

100%

Many thanks for answering the questions!

Please click on "End survey" to end your participation.

End survey