

Portugal, Pedro; Addison, John

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DISINCENTIVE EFFECTS OF UNEMPLOYMENT BENEFITS ON THE PATHS OUT OF UNEMPLOYMENT

PEDRO PORTUGAL* AND
JOHN T. ADDISON**

The role of unemployment insurance (UI) in prolonging unemployment duration is well established. Job search theory informs us that subsidized search will elevate the reservation wage, and an extensive empirical literature has duly confirmed the prediction that this will lead to longer unemployment duration on the part of recipients (see Mortensen 1997; Devine and Kiefer 1991). But the other key prediction when benefits are finite – that the disincentive effects of UI will vary through time, declining with the approach of benefit expiration – has been altogether less subject to empirical scrutiny. Only a handful of studies have allowed for time-varying UI effects, although they clearly reject the constraint that unemployment benefits have the same effect throughout the course of the jobless spell (see Addison and Portugal 2004). Finally, there is no real theoretical recognition of the various exit options available to the unemployed individual and virtually no investigation of whether access to UI affects choice between them.

Our analysis allows the effect of UI to vary through time and also for individuals to exit joblessness via a number of routes. The need to account for a time-varying effect of UI is obvious enough: it provides more information on worker behavior and should thereby assist in the design of policy (with respect to the duration of benefits). The role of destination state is potentially no less important. First, if unemployed individuals attach different utilities to the various alternatives to employment then the effects

of the regressors (i.e. the determinants of unemployment such as age or education) may differ markedly across destinations. In the case of UI, an individual drawing benefits in a regime that does not allow them to be paid in conjunction with part-time employment is unlikely to move into such employment prior benefit expiration. Second, the underlying functions describing the pattern of escape rates from unemployment over time to each destination (see below) may differ markedly, in which case observationally-equivalent individuals will differ in the timing of their transitions out of unemployment. For example, unemployed individuals – most likely women – may engage in home production; if they become increasingly more productive in this endeavor (through learning by doing), the opportunity cost of accepting a job offer will rise, leading to higher transition rates into inactivity. The bottom line is that *de facto* aggregation over destination states is likely to cloud the portrait of the unemployment experience of individuals by compounding distinct (even contradictory) influences.

We will therefore pursue an empirical strategy leading to a disaggregated approach. In what follows, we preface a simplified statement of our reduced-form competing risks model with some brief remarks on the unique dataset used here. We then review the empirical evidence, beginning with results from a standard aggregate specification before allowing for time-varying UI effects and different destination states. Several policy implications of our analysis are offered in conclusion.

Our analysis is of the Portuguese labor market, 1992–96. Portugal is of interest because its institutions, including the generosity of its UI system, are mainstream continental European; because its unemployment data are of very high quality; and because its distinct barriers to reemployment might be expected to amplify the impact of UI on joblessness (see Blanchard and Portugal 2001). The five-year sample period was selected because major changes in the employment surveys (e.g. in sampling procedure and definitions of employment, unemployment and inactivity) occurred immediately prior

* Pedro Portugal, University of Porto.
** John T. Addison, Hugh C. Lane Professor of Economic Theory, University of South Carolina.

to 1992 and after 1997. No material changes were made to the Portuguese UI system over this sample period.

Data and Methodology

Our data are taken from the *Inquérito ao Emprego*, the quarterly, nationally representative Portuguese employment survey. The survey inquires of individuals their current labor market state and elapsed duration in that state. Individuals are interviewed for six quarters and are then rotated out of the sample, allowing us to track unemployed individuals for up to five quarters and identify their transition rates by elapsed duration.

The destination states of previously unemployed individuals can also be identified. As noted earlier, we shall distinguish between four such states, namely, full-time employment, part-time work, “discouragement,” and inactivity. We define discouraged workers as those individuals who, although they did not search for work in the prior 30-day interval, nevertheless responded that they would like a job. In all other respects, however, they are identical to the economically inactive.

In addition to providing information on the length of the current unemployment spell in months and the manner in which individuals exit unemployment, the employment surveys also identify whether or not the individual receives unemployment benefits (*BENEFITS*). As a practical matter, recipients comprise not just those receiving “regular” or “full” benefits but also recipients of “unemployment assistance” which is a lower form of benefits. Since the surveys do not distinguish between the two types of benefits – let us call them *UI PROPER* and *ASSISTANCE* – neither will the preponderance of our analysis. However, we can offer a rough delineation based on the individual’s tenure on the last job, and we will provide tentative (aggregative) estimates of the disincentive effects of the two types of benefits.¹

The bulk of our analysis will instead focus on the *BENEFITS* variable and also on an imputed measure of time to benefit exhaustion we call *TIMEEX*.

As noted, *BENEFITS* simply capture whether or not the individual receives unemployment benefits, as reported in the survey. We can calculate *TIMEEX* because maximum benefit duration in Portugal is purely age determined. (It is 10 months for those aged less than 25 years, rising in roughly three-month intervals for each incremental five years of age to 30 months at age 55 years.) We calculate these remaining weeks of benefit entitlement as imputed maximum duration based on the individual’s age less his or her reported elapsed duration, employing the simplifying assumption that all benefit recipients are entitled to regular of full *UI* benefits. Aggregate and disaggregate results for each UI measure are provided. Further, we allow the effect of *BENEFITS* to vary with elapsed duration and for non-linearities in the effect of *TIMEEX*.

In addition to data on elapsed unemployment duration, benefit status, destination state, age and tenure on the last job, the survey also contains information on worker disability, the number of jobs held, whether or not the individual is a new entrant, broad occupational status, reason for job loss, and region of residence, inter al. The sole restrictions placed on the data were that, at the time of the survey, the individual be unemployed, aged between 16 and 64 years, and resident in mainland Portugal. The final sample was 15,734.

Our empirical analysis is conducted within the general framework of job search theory. Possessing imperfect information as to the wage offer distribution, job searchers devise an optimal strategy *ex ante* that involves their accepting any wage offer above a given threshold: the reservation wage. This crucial variable is determined as a function of the key parameters of the wage offer distribution, the expected arrival rate of job offers, search costs, and of course unemployment insurance benefits. Most relevantly for present purposes, the search model predicts an unambiguously positive relationship between the mean duration of unemployment and the generosity of benefits, as indexed by their maximum potential duration and the fraction of net earnings that they replace.

We shall estimate a reduced form version of the job search model. In particular, we specify a simple log-linear regression equation relating the (log) hazard rate of exiting unemployment to a number of relevant covariates. The hazard function indicates the probability of moving out of unemployment at a

What determines unemployment exit strategies?

¹ Individuals have to have been employed for at least 18 (six months during the two years prior to the unemployment event to draw full benefits (social assistance). Thus, we can with imprecision classify a worker as eligible for *UI PROPER* (*ASSISTANCE*) if he or she is a recipient and had at least 18 (between six and 18) months tenure on the last job.

given time, conditional on having been unemployed up until that point. In the interests of flexibility, the time axis is divided into 11 intervals and we assume that the hazard rate is constant within each interval, yielding what is known as a “piecewise-constant hazard function.” Given the functional form employed, the role of the regressors is to shift proportionally the (baseline) hazard function either up or down, which is why this model is called a proportional hazards model. The baseline hazard function simply depicts the hazard function when the covariates are zero; typically, as in this case, non-categorical variables are defined as their deviation from the sample means.

Older, longer-serving or disabled persons have higher jobless duration

We referred earlier to the stock sampling nature of the *Inquérito ao Emprego*. It follows that the construction of the likelihood function has to account for the incomplete spells of unemployment and the over-representation of long durations implied by this sampling plan, namely, observation over a fixed-interval.

In order to study the four distinct ways of exiting unemployment – full-time employment, part-time employment, discouragement, and inactivity – we made the simplest and most conventional assumption of independent competing risks. Although this assumption does require that innovations (errors) across exit modes are uncorrelated, it greatly simplifies estimation because each destination-specific hazard model can be estimated separately, simply treating exits into other modes as right-censored spells.

Findings

Results of estimating the piecewise-constant hazards model are given in Table 1. Recall that the coefficient estimates show the effect of the regressors in shifting the baseline hazard up or down. It can be seen that

Table 1
Estimated Piecewise-Constant Hazards Regression, Aggregate Model

Variable	Coefficient Estimate
BENEFITS	– 0,291
=1 if received unemployment benefits, 0 otherwise	(0,048)
MALE	0,079
=1 if male, 0 otherwise	(0,038)
AGE	– 0,010
age in years	(0,002)
SCHOOL	0,019
years of schooling completed	(0,006)
TENURE	– 0,011
years of tenure on previous job	(0,004)
JOBS	0,012
number of previous jobs	(0,003)
WHITE COLLAR	– 0,115
=1 if white-collar employee, 0 otherwise	(0,057)
MARRIED	0,032
=1 if married, 0 otherwise	(0,047)
DISABILITY	– 0,487
=1 if disabled, 0 otherwise	(0,220)
FIRSTJOB	– 0,178
=1 if looking for first job, 0 otherwise	(0,062)
LAYOFF	– 0,014
=1 if job lost by reason of mass layoff, 0 otherwise	(0,066)
ENDFT	0,082
=1 if job lost through termination of a fixed-term contract, 0 otherwise	(0,047)
YEAR DUMMIES	yes
REGIONAL DUMMIES	yes
Log-likelihood	– 7465,312
Asymptotic standard errors in parenthesis. Notes: The pattern of the four year dummies confirmed that flows out of unemployment are procyclical, while the four regional dummies are indicative of the strong persistence in Portuguese regional unemployment differentials	

workers in receipt of UI benefits are 25.2 percent [viz. $(\exp^{-0.291} - 1)$] less likely to escape unemployment than their non-recipient counterparts. Most of the other determinants of escape rates behave in an expected manner. For example, older (*AGE*) and longer-serving (*TENURE*) workers and disabled individuals (*DISABILITY*) have lower escape rates/higher jobless duration. Age and tenure may be expected to lower escape rates by elevating reservation wages, although the main effect of age is probably via a reduced arrival rate of job offers an effect which presumably dominates in the case of disability as well. The positive effects of greater education (*SCHOOL*) and marital status (*MARRIED*) are also quite conventional – reflecting an improved wage offer distribution/better search efficiency and higher opportunity cost considerations, respectively – even if the effect of marriage is imprecisely estimated here. Three variables proxy labor market

knowledge/search efficiency: number of past jobs (*JOBS*) and job loss by reason of termination of a fixed-term contract (*ENDFT*) directly, and recent labor market entry (*FIRSTJOB*) inversely. And their opposing and generally well determined effects again accord with search-theoretic priors.

Summary results for alternative representations of UI are considered in columns (2) through (5) in Table 2, although the regression specification is otherwise unchanged. The entry in the first column simply carries over the coefficient estimate for *BENEFITS* from Table 1. The next column substitutes two measures of UI for this single *BENEFITS* measure: regular or full UI benefits (*UI PROPER*) on the one hand, and the second-order benefit of social assistance (*ASSISTANCE*) on the other. As

noted, each is imputed using information on the recipient's tenure on the last job. It can be seen that access to regular benefits depresses escape rates by 34.5 percent as compared with 26.7 percent in the case of social assistance. Replacement rates explain why imputed receipt of regular benefits is stronger in absolute terms than reported benefit receipt, but observe that the differential is not large.

In the third column of the table are the results for *TIMEEX*, namely, time to benefit exhaustion. Consistent with search theory, escape rates are lower, the further away is the (mainstream) benefit recipient from benefit exhaustion. Specifically, escape rates decline by 2.6 percent for each remaining month of unemployment benefits. Evidently, this variable improves our understanding of the effects

Table 2
Summary Results of the Effect of Unemployment Benefits on Transitions Out of Unemployment, Aggregate Model

Variable	Specification				
	(1)	(2)	(3)	(4)	(5)
BENEFITS	-0,291 (0,048)				
UI PROPER		-0,423 (0,005)			
ASSISTANCE		-0,311 (0,091)			
TIMEEX			-0,026 (0,004)		
<i>Recipient Elapsed Duration</i>					
1-6 months				-0,388 (0,062)	
7-12 months				-0,253 (0,088)	
13-18 months				-0,272 (0,140)	
19 months or more				-0,060 (0,118)	
<i>Recipient Time to Exhaustion</i>					
1-2 months					-0,034 (0,169)
3-5 months					-0,296 (0,118)
6-11 months					-0,414 (0,073)
12-17 months					-0,479 (0,094)
18-23 months					-0,392 (0,112)
24 months or more					-0,336 (0,160)
Log-likelihood	-7465,3	-7458,1	-7460,6	-7459,5	-7452,3

Asymptotic standard errors in parenthesis.
Note: The full array of covariates is given in Table 1.

The longer the time to benefit exhaustion, the lower the escape rates from unemployment

Table 3
Summary Results of the Effect of Unemployment Benefits on Transitions Out of Unemployment by Destination State

Variable	Transition to:			
	<i>Full-time Employment</i>	<i>Part-time Employment</i>	<i>Discouragement</i>	<i>Inactivity</i>
BENEFITS	-0,130 (0,055)	-1,533 (0,025)	-0,324 (0,143)	-0,511 (0,156)
Log-likelihood	-5905,8	-1096,3	-1576,8	-1628,4
TIMEEX	-0,013 (0,004)	-0,118 (0,118)	-0,035 (0,012)	-0,044 (0,013)
Log-likelihood	-5904	-1102,7	-1574,5	-1627,6

Asymptotic errors in parenthesis.
Note: The full array of covariates is given in Table 1.

of UI on joblessness since we are not simply contrasting the behavior of benefit recipients with non-recipients but also examining the behavior of recipients through time.

The last two columns of Table 2 respectively allow the effect of benefit receipt to vary with elapsed duration of joblessness and allow for non-linearities in the effects of the time to exhaustion of benefits measure. In the former case, introducing time-varying effects improves the estimate but mainly points to the persistence of the disincentive effect. In the case of the modified *TIMEEX* variable the results are sharper. If there are just under 18 months of remaining entitlement, the recipient is 38 percent less likely than his uninsured counterpart to escape from unemployment. Twelve months closer to exhaustion this value falls to 26 percent, and with just two months to go it is only 3 percent.

Benefit recipients are less likely to enter part-time employment

We can now report the results of distinguishing between destination states. Table 3 provides summary results for the main UI measures as before, namely, *BENEFITS* and *TIMEEX*. The coefficient estimates given in the table inform us as to how UI affects the probability of entering any one of four destination states, namely, full-time employment, part-time work, discouragement, and inactivity. (Some results for the other regressors are footnoted below.) Beginning with *BENEFITS*, although disincentive effects of UI are found across all destination states, they are striking for part-time employment. Benefit recipients are 4.6 times less likely than their non-recipient counterparts to enter part-time employment. This result is not surprising: insured workers have reservation wages that typically exceed the part-time wage. Disincentive effects are somewhat strong for inactivity. This result is also not unexpected: if some insured individuals plan from the outset to exit the labor force, it makes

sense for them to claim that they are looking for work, as required by the UI rules, at least up to benefit exhaustion.²

The second row of Table 3 gives results for *TIMEEX*, the time to exhaustion of benefits measure. It provides a very similar description of the role of UI. Thus, disincentive effects are again observed for all transitions and the pattern of coefficient estimates closely tracks that established earlier for *BENEFITS*. But the substitution of *TIMEEX* for *BENEFITS* yields a modest improvement in the fit of the model.

Allowing for time-varying effects/non-linearities results in further improvement. To facilitate exposition we simply graph the effects and this time just for our preferred representation of UI, namely, the modified time to exhaustion of benefits measure. Figure 1 expresses the percentage changes in transition rates of insured recipients over the relevant entitlement period, where non-recipients are the benchmark. As is readily apparent, the effects of UI are strongly negative throughout but still well differentiated. In the case of the two most frequent transitions (full-time employment and inactivity), it is clear that escape rates increase sizably just prior to the expiration of benefits; for the other destinations, the disincentive effects benefits persist up to very end.

The baseline hazard functions for each of the four destination states are given in Figure 2. As before,

² The effects of the other variables also vary by destination state. We find that discouragement is a relatively unlikely destination state for males; that older workers are less likely to move into full-time employment than their younger counterparts but, unlike longer-tenured workers, not more prone to be discouraged; that better educated individuals are more likely to move into full-time employment and disabled workers more likely to enter part-time employment; and that those looking for their first job are much less likely to locate full-time jobs and much more likely to end up discouraged or inactive than other job seekers.

the specification is for *TIMEEX*. The results are interesting. First, transitions into full-time employ-

ment point to a near continuous decline in escape rates with rising jobless duration. This negative duration

dependence can be produced by human capital depreciation and stigmatization. To the extent that the unemployment pool is increasingly made up of less employable workers due to unobserved factors, the phenomenon may also be generated by unobserved individual heterogeneity, although there is no straightforward way of dealing with this issue.³ Second, the baseline hazard for part-time employment is U-shaped. This configuration is consistent with there being two distinct types of transitions: individuals desiring part-time employment from the outset manage to locate such jobs rather rapidly, while others less enamored of part-time work reluctantly take it after unsuccessful search for a preferred full-time job. Third, the baseline hazard for the destination we characterize as discouragement, if anything, shows some modest upward trajectory. In this sense, discouraged workers appear to fit the stereotype. Fourth, the path taken by transitions into inactivity is clearly decreasing in jobless duration. The suggestion may be that some individuals optimally seek inactivity. The suggestion is not rejection of the notion that inactivity is an end state realized after all else has been tried precisely because we formally take account of discouragement. Had we instead used a composite inactivity destination state the baseline hazard would have been U-shaped.

In the case of full-time employment and inactivity, escape rates rise sizably just prior to benefit exhaustion

The baseline hazard for part-time employment is U-shaped

Figure 1

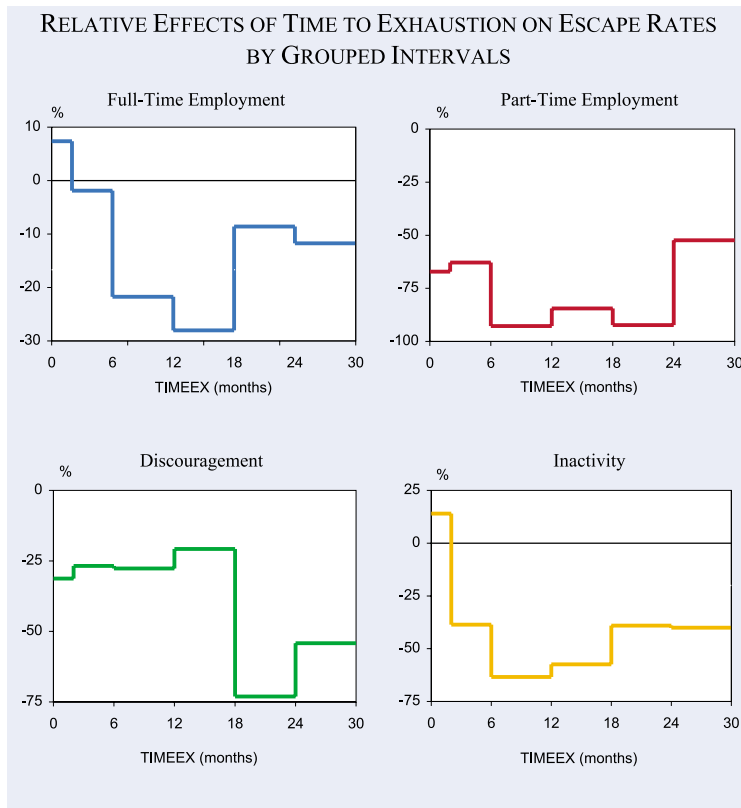
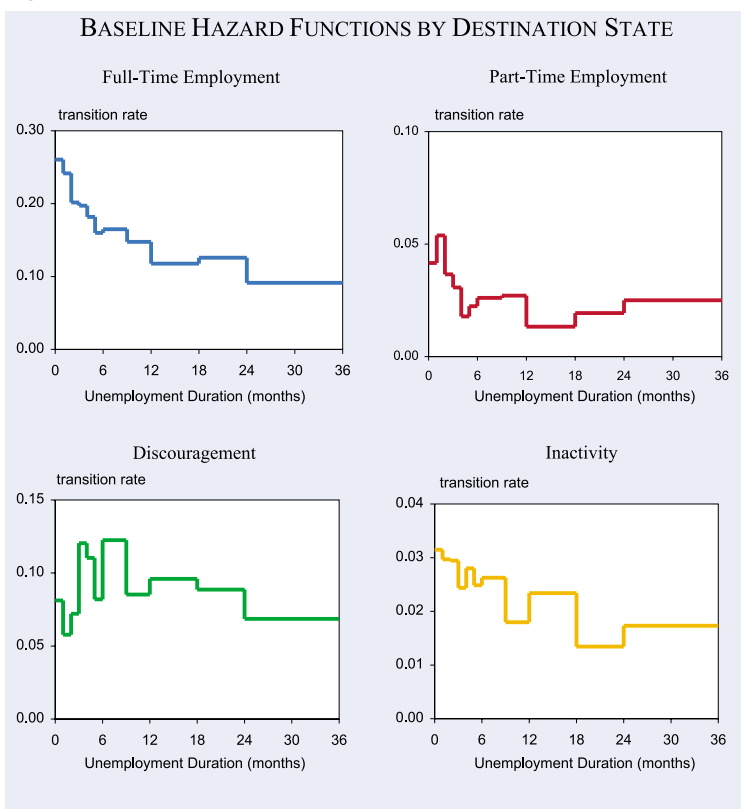


Figure 2



³ Accounting for unobserved individual heterogeneity – stemming from omitted variables, measurement error, etc. – would seriously complicate the estimation procedure without offering any prospect of materially altering our results for either regression coefficients or the parameters of the baseline hazard (see Portugal and Addison, 2003).

In summary, we have found that UI is a disincentive that operates across all destination states. Further, UI influences the choice of destination state by slowing the transitions at different rates across destinations. The disincentive effect is strongest for part-time work followed by inactivity, and discouragement. Accordingly, it is weakest for full-time employment.

Conclusions

We have analyzed the effects of UI benefits on escape rates from joblessness/unemployment duration in Portugal. Portugal is typical of EU countries in having generous unemployment benefits, particularly with respect to their duration. It is atypical in having a stricter system of employment protection as well, which should serve to amplify the effects of UI on joblessness. Strong disincentive effects of UI were duly reported.

The novelty of our analysis resides in its use of time-varying effects of UI in conjunction with a set of four destination states, namely, full-time employment, part-time employment, discouragement, and inactivity/labor force withdrawal. The importance of the destination state is that it accommodates potentially different search strategies on the part of unemployed workers. Failure to differentiate between types of transition out of unemployment may be expected to compound heterogeneous effects and impart bias to estimates of the impact of UI on unemployment duration. Estimates of our reduced form, competing risks model confirmed that one cannot assume common regression coefficients across destination states. The use of an aggregate approach was demonstrated to compound distinct effects of the covariates – at times contradictory influences in the case of certain non-UI regressors.

In investigating the effects of our two main benefit measures – receipt of benefits and time to exhaustion of benefits – strong and differentiated disincentive effects were observed across all destination states. (The same was also true for the time-dependent variants of these UI measures.) The disincentive effects were strongest for part-time employment and smallest in the case of full-time employment.

From the perspective of policy, and given the failure of longer unemployment duration to translate into higher subsequent earnings, the inescapable conclu-

sion is that the duration of benefits be shortened – even if this policy shift has to be accompanied by increased outlays for other measures such as job search assistance. We do not make recommendations in respect of replacement rates for the obvious reason that our data do not provide such information. However, given the fairly modest difference in disincentive effects observed for eligibility for full benefits (*IU PROPER*) on the one hand and social assistance (*ASSISTANCE*) on the other, we would speculate that changes in the rules governing duration would have much the bigger bang per Euro.

Finally, there is at least a modestly optimistic note on which to end. As we have seen, huge disincentive effects of UI were obtained for the destination state of part-time employment. One obvious policy implication here is that workers should be allowed to draw benefits for some period after they make the transition into part-time jobs. In 1999, the Portuguese government obliged and revised the rules of the UI system so as to permit this very option.

References

- Addison, J. T. and P. Portugal (2004), “How Does the Unemployment Insurance System Shape the Time Profile of Jobless Duration?”, *IZA Discussion Paper* No. 978.
- Blanchard, O. and P. Portugal (2001), “What Hides Behind an Unemployment Rate: Comparing Portuguese and U.S. Labor Markets”, *American Economic Review* 91, 187–207.
- Devine, T. J. and N. M. Kiefer (1991), *Empirical Labor Economics – The Search Approach*, Oxford University Press, New York and Oxford.
- Mortensen, D. T. (1977), “Unemployment Insurance and Job Search Decisions”, *Industrial and Labor Relations Review* 30, 505–17.
- Portugal, P. and J. T. Addison (2003), “Six Ways to Leave Unemployment”, *IZA Discussion Paper* No. 954.

One conclusion:
Duration of unemployment benefits should be shortened