

NEGOTIATE

Overcoming early job-insecurity in Europe

Youth unemployment and stigmatization across Europe: A comparative analysis

Sara Ayllón
Javier Valbuena

University of Girona (UDG),
Spain

NEGOTIATE working paper no. 6.4

This project has received funding from the European
Union's Horizon 2020 research and innovation
programme under grant agreement No 649395



Deliverable 6.4 (D6.4)

Youth unemployment and stigmatization across Europe: A comparative analysis

Deliverable type: Report
Dissemination level: Public
Month and date of Delivery: Month 30, August 2017

Authors

Sara Ayllón
Javier Valbuena

© 2017 – NEGOTIATE. All rights reserved
Published by NEGOTIATE HiOA in August 2017



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 649395.

This publication reflects the views only of the author(s), and *the Research Executive Agency (REA)* cannot be held responsible for any use of the information contained therein

NEGOTIATE
Overcoming early job-insecurity in Europe

NEGOTIATE – Negotiating early job-insecurity and labour market exclusion in Europe

Horizon 2020, Societal Challenge 6, H2020-YOUNG-SOCIETY-2014, YOUNG-1-2014, Research and Innovation Action (RIA)

Duration: 01 March 2015 – 28 February 2018

www.negotiate-research.eu

twitter: @NEGOTIATE_EU
Facebook: negotiateEU

Associated Work Package (WP6)

Causes and consequences of long-term unemployment:
Exploring the dynamics of scarring

Lead beneficiary for D6.4

Department of Economics,
University of Girona (UDG),
Spain

WP Leader

Sara Ayllón

Youth unemployment and stigmatization across Europe: A comparative analysis *

Sara Ayllón[†]

Department of Economics & EQUALITAS
University of Girona

Javier Valbuena

Independent researcher

Abstract

This paper studies the dynamics of the scarring effect of youth unemployment along the business cycle in 12 European countries. On the one hand, we analyse differences associated to the negative effect of past unemployment experiences in future labour market status. And, on the other hand, we consider potential stigmatization against prospect young workers, that is, the extent to which employers are more reluctant to hire individuals with a history of unemployment. Our results are based on data from the EU-SILC for the period 2004 to 2015 and provide support in favour of a significant scarring effect of unemployment among youths that is highly heterogeneous across the countries under analysis and that increased substantially during the Great Recession. On the contrary, evidence on stigma effects was found to be rather weak.

JEL classification: J64, J65, C21

Keywords: youth; unemployment; Great Recession; stigma effects; genuine state dependence; EU-SILC

*This paper has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 649395 (project title: Negotiate). Sara Ayllón also acknowledges support from the projects ECO2013-46516-C4-1-R, ECO2016-76506-C4-4-R and 2014-SGR-1279. Participants at the Negotiate meeting in Girona (April 2017) are thanked for their useful comments. Any errors or misinterpretations are our own.

[†]Correspondance to: Sara Ayllón, C/Universtat de Girona 10. 17003, Girona (Spain). E-mail: sara.ayllon@udg.edu. Tel.: +34 972 418 779.

1 Introduction

This paper studies the dynamics of the scarring effect of unemployment along the business cycle. In particular, we analyse differences associated to the negative effect of past unemployment experiences in future labour market status among relevant European Union (EU) countries from 2004 to 2015, which include periods of low and relatively stable unemployment rates as well as the Great Recession. There exist a vast literature showing that unemployment suffers from a considerable degree of persistence (Arulampalam et al., 2000, 2001; Stewart, 2007). On the one hand, unemployment persistence can be explained by observed and unobserved characteristics which persist across time that make someone more likely to be unemployed successively. For example, low qualifications, low motivation or a general lack of abilities (Biewen and Steffes, 2010). On the other hand, it has also been shown that experiencing an unemployment spell increases by itself the likelihood of suffering unemployment again in the future what has come to be known among labour economists as unemployment genuine state dependence. The sources or mechanisms behind such scarring effect of unemployment have proven to be more difficult to disentangle but several suggestions have been pointed out in this research field: loss of human capital (Pissarides, 1992), unemployment insurance disincentives, decline in search intensity (Vishwanath, 1989), habituation (Clark et al., 2001), discouragement (Ayllón, 2013), rational herding¹ (Oberholzer-Gee, 2008) but also stigmatization by employers (Lockwood, 1991; Omori, 1997; Biewen and Steffes, 2010).

Stigmatisation in the labour market refers to a certain type of discrimination against prospect workers that occurs when employers are more reluctant to hire individuals with a history of long-term unemployment or that have had frequent periods of unemployment. Instead employers favour individuals that move from job to job or that have had short (and less often) unemployment spells. Stigmatization may occur because employers believe that the human capital of unemployed individuals deteriorates while jobless or simply may assume that they are less motivated or less productive (Blau and Robins, 1990; Clark et al., 2001; Lockwood, 1991 and Omori, 1997).

Previous literature has pointed out that stigmatisation of unemployed individuals is particularly prevalent during periods of economic growth (when the unemployment rate is low). Biewen and Steffes (2010), show that when the unemployment rate raises, unemployment state dependence decreases indicating that employers are less suspicious towards unemployed individuals during periods of economic downturn when the unemployment rate is above its trend. On the contrary, they discriminate individuals that are unemployed when the current unemployment rate is low so, in periods of economic growth. In other words, employers become more suspicious towards individuals that became unemployed at times when the economy was growing and unemployment was less prevalent.

Moreover, recent studies focusing on the socio-economic consequences of unemployment and employment uncertainty among youth in the EU indicate its negative consequences mostly associated with: 1) an increased risk of poverty and material deprivation in the short term, and 2) effects being cumulative which affect the duration and number of future unemployment spells (Hofacker, 2017). There is also clear evidence in the psychological literature pointing out that youth unemployment leads to a decreased level of subjective and objective wellbeing (Bell and Blanchflower, 2009 and 2011; Harrison et

¹Rational herding refers to the idea that managers believe that unemployed applicants must have been previously interviewed and if the applicants would have been productive, they would have been already employed (Oberholzer-Gee, 2008).

al., 2016; Kapteyn et al., 2015). This negative effect has been shown to persist regardless of the current employment status offering a psychological explanation of persistent unemployment (Clark et al., 2001 and 2015).

However, research on the analysis of stigmatization in the labour market has mainly focused on prime aged men so we know very little about (potential) stigmatisation against young unemployed or against women. Also the analysis of the effect of different institutional and national contexts on the existence of stigmatization against prospect young workers in the labour market remains totally unexplored. Moreover, as far as we know, stigmatization has not been analyzed during the period of the Great Recession — being the only exception Tumino (2015) (see below). Thus, to the best of our knowledge, this is the first study using a relevant group of EU countries to analyse potential stigma effects among young people, from a cross-country comparison, and while considering the extent to which such disadvantage can also affect women.

Our main findings provide support in favour of a significant scarring effect of unemployment among youths, being stronger for females only in few contexts. The effect is highly heterogeneous across the European countries under analysis and increases substantially during the Great Recession. Comparing the results with those relative to prime-aged workers, our findings suggest that young individuals suffer from higher unemployment rates but are less affected by unemployment state dependence. Regarding the existence of potential stigma effects, we only find such a counter-cyclical relationship in Belgium. On the other hand, when we restrict our analysis to the period from 2008 to 2015 the results show that the number of countries suffering from stigma effects have increased. Therefore, although the overall evidence of a positive association between state dependence and the business cycle is rather weak, our results indicate that during and after the Great Recession stigma effects have become stronger.

The paper is organized as follows. Section 2 provides a literature review. Section 3 describes our data. Section 4 presents the methodology used. Section 5 shows the results as well as some robustness checks. And, finally, the last section contains a conclusion and a discussion of avenues for future research.

2 Literature review

In addition to the literature discussed above, there seems to be only a handful of empirical studies focusing on the potential stigma effects of past unemployment experiences and its relation with the business cycle. This line of research explores the effect of previous unemployment status as a negative signal, therefore increasing the risk of staying or becoming unemployed for those individuals in future periods. Moreover, stigma effects would be associated differently to the dynamics of unemployment scarring depending on macroeconomic conditions. Then, individuals will become stigmatized if they remain unemployed when the economy is growing and total unemployment is low. This is presumably the consequence of employers discounting their status in the labour market due to the high degree of uncertainty about these individuals productivity, thus implying a lower labour market value attached to their characteristics. Omori (1997) reports evidence of stigma effects for young men in the US using the local unemployment rate at the time non-unemployment occurred as a proxy for general economic conditions. This implies that employers will only consider informative the level of unemployment associated to past unemployment spells when making hiring decisions. Drawing on data from the National Longitudinal Survey of Labor Market Experience Youth Survey (NLSY), he finds that

workers who were unemployed under relatively favourable labour market conditions are more severely stigmatized. Also for the US, Kroft et al. (2013) find the same evidence when focusing on the effect of duration dependence, rather than state dependence, in labour market conditions.

Using data from the British Household Panel Survey (BHPS) and considering the local unemployment to vacancy ratio as an inverse measure of labour market tightness, Arulampalam et al. (2000) find that in the UK youth unemployment is independent of the business cycle, whereas the unemployment probability is increasing with the local labour market conditions for men aged 25 and over. Moreover, Arulampalam (2002) extends her previous research by using different definitions of unemployment and finds very similar results. Analysing more recent data from UK, Tumino (2015) looks at the relation between true state dependence and the business cycle focusing on the role of local unemployment affecting persistence during the last two decades. He finds evidence of the scarring effect of unemployment affecting both young and older men. In contrast with previous studies, his estimates increase when unemployment raises, and fall when the labour market conditions are more favourable, indicating a positive association with levels of unemployment. In particular, he shows that youths have been the most affected during the Great Recession. Thus, his results show a negative association between the business cycle and state dependence in the early 90s, early 2000s and during the Great Recession.

Closely related to our study, Biewen and Steffes (2010) analyse stigmatization effects using data from the German Socio-Economic Panel (SOEP). Following Lockwood (1991), and using a broad measure of unemployment, they find that state dependence in unemployment decreases (increases) when unemployment rate in high (low).² On the other hand, when they test the hypothesis suggested by Omori (1997) and consider the level of past unemployment as a measure of the business cycle, no significant effects are found. Thus, they conclude that there exist evidence of the scarring effects of unemployment being countercyclical in Germany and interpret their results as weak confirmation of stigma effects affecting men.

Finally, Ayllón (2013) extends this approach by showing that discouragement among unemployed individuals is not constant along the business cycle as it is assumed in Biewen and Steffes (2010). She argues that discouragement will be associated to a fall in search intensity, especially when employment conditions deteriorate. Drawing from the Spanish component of European Community Household Panel (ECHP), she reports evidence of stigma effects and discouragement explaining unemployment persistence, with a consequent positive relationship between scarring effect and the unemployment cycle. In particular, the effect of discouragement runs against the fall of stigmatization effects when workers face more favourable labour market conditions.

On the other hand, another relevant feature of our research is that we carry out the analysis allowing for variability across regions. Thus, considering the existence of significant regional divergence in economic development and labour market opportunities within a country, a theoretical model in the context of social norms and economic incentives developed by Lindbeck et al. (1999) show that, higher regional unemployment rates (as measured by a high proportion of government transfer recipients) should reduce the detrimental effect of unemployment (consistent with low levels of individual disutil-

²Lockwood (1991) developed a matching model where unemployment duration is a signal of productivity and employers use information regarding the current level of unemployment to infer workers characteristics.

ity). Hence, unfavourable economic conditions should weaken the social stigma. Lupi and Ordine (2002) find evidence of this hypothesis comparing northern and southern Italian areas. They show that, individual unemployment experience may be less important in determining wages in a social environment characterized by high unemployment rates and in the presence of a less developed productive structure. This might have effects in inducing the hysteresis of unemployment, and reducing the downward pressure of unemployment on wages at the macro level.

3 Data

We use data from all the waves available of the longitudinal component of the European Union – Statistics on Income and Living Conditions (EU-SILC) which, at the time of writing, runs from 2004 to 2015. The greatest advantage of the EU-SILC is that it provides detailed socio-economic and demographic information on individual and household characteristics. Moreover, data is meant to be comparable across all the participating countries.³ Possibly, the most important disadvantage is that, in the large majority of countries, individuals are followed for only four consecutive waves, which means that in each survey year, 25% of the sample (that constitutes a rotational group) is replaced by new interviewees. This implies that (at most) we will be observing changes in young people’s labour market status for three consecutive waves.⁴

Our analysis covers a selection of 12 countries (and 90 regions). Because our methodology (see below) requires information at the regional level, we could only work with those countries that provide such variable in the survey.⁵ Moreover, not all the countries started their participation in the survey from 2004, and not all the countries provide the regional information for all the period under analysis — see all these details in Table 1. Despite all these limitations, our sample is composed of countries from Continental Europe (with Austria and Belgium), the Mediterranean countries (Greece, Spain and Italy), Central and Eastern Europe (Bulgaria, Czech Republic, Poland and Hungary), Nordic Europe (Sweden) and the English-speaking countries (United Kingdom) and thus, includes examples of different Welfare State regimes and geographical areas.

Our main sample contains young people from the ages of 17 to 29 (and from 30 to 44 when we want to compare results for young people from those of prime-aged individuals). As shown in Table 2, and in relation to our dependent variable, 11.9% of young people in the sample were unemployed. However, it is important to note that youth unemployment rates were at very different levels and evolved very differently across the period under analysis. Figure 1 shows the youth unemployment rates between 2005 and 2015 (as provided by Eurostat in the Labour Force Survey) of all the European countries that participate in the EU-SILC. An horizontal line at 20% has been drawn to ease comparison. As can be seen, it is in Greece, Spain and Italy where the youth unemployment rate increased the most reaching maximum values around 2013. In the rest of countries, the

³Krell et al. (2017) have pointed out significant differences between *register* countries, *survey* countries and *proxy* countries that can affect our cross-country comparative analysis however an in-depth analysis of the limitations of the EU-SILC survey design in our estimates is beyond the scope of this paper.

⁴Our pooled data set has been constructed by taking the information from the last file in which a given rotational group appears (Iacovou and Lynn, 2013) which guarantees that the same survey methodology is applied to a given individual over time.

⁵Finland provides information at regional level however there is a change in 2008 by which some region codes disappear and others are new and thus, the information is not provided longitudinally.

Table 1: Countries in the analysis, period of time covered and number of regions per country

Label - Country	Period covered	Number of regions
AT - Austria	2004–2015	3
BE - Belgium	2004–2015	3
BG - Bulgaria	2006–2015	2
CZ - Czech Republic	2005–2015	8
EL - Greece	2004–2015	4
ES - Spain	2004–2015	19
FR - France	2004–2015	22
HU - Hungary	2005–2015	3
IT - Italy	2004–2015	5
PL - Poland	2005–2014	6
SE - Sweden	2008–2015	3
UK - United Kingdom	2007–2014	12

Source: Longitudinal component of the EU-SILC from 2004 to 2015.

Note: Authors' elaboration.

trend remains much more stable though at different levels, being Austria the country with the lowest values out of those analysed in this paper.

Table 2: Summary statistics

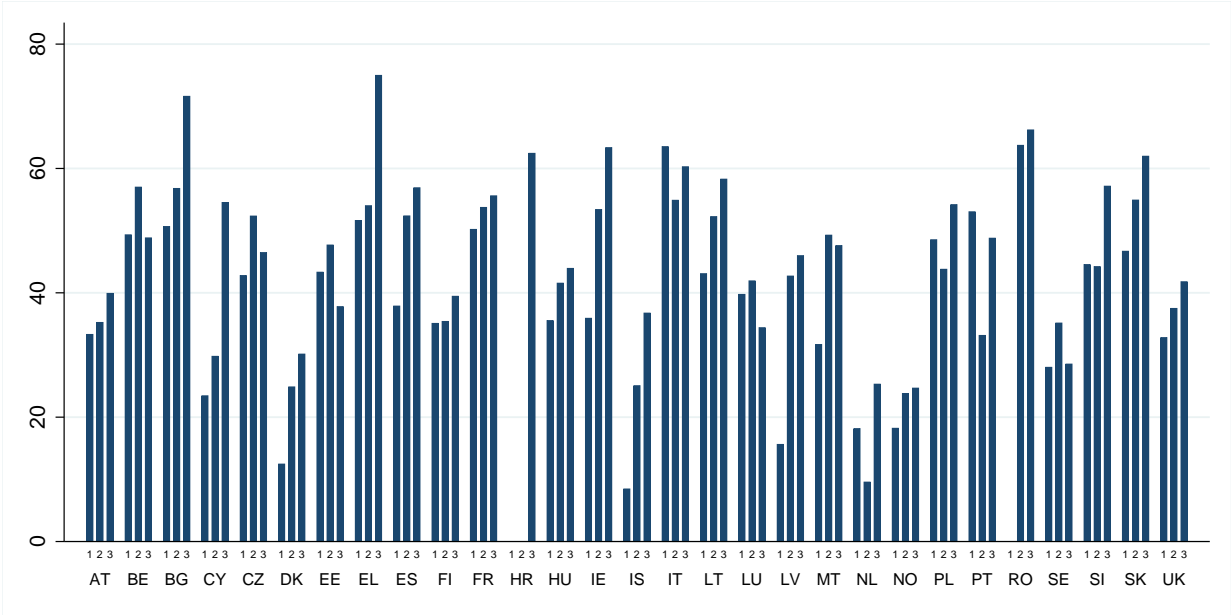
Variable	Mean	Std. Dev.	Min.	Max.	N
Unemployed at t	0.119	0.324	0	1	248296
Unemployed at t if unemployed at $t - 1$	0.535	0.498	0	1	27978
Unemployed at t if not unemployed at $t - 1$	0.070	0.255	0	1	220318
Age	23.359	3.518	17	29	251433
Age ²	558.013	165.232	289	841	251433
Female	0.486	0.500	0	1	251433
High-school drop-out	0.244	0.429	0	1	248182
High-school graduate	0.524	0.499	0	1	248182
University degree	0.232	0.422	0	1	248182
Living outside the parental home	0.410	0.492	0	1	251428
Living with a partner	0.193	0.395	0	1	251384
Living with own children	0.115	0.319	0	1	251433

Source: Longitudinal component of the EU-SILC from 2004 to 2015.

Note: Authors' elaboration.

Table 2 also indicates that, on average, the probability of persisting in unemployment if previously unemployed is 53.4% while the likelihood of unemployment at t if not unemployed at $t - 1$ is only of 7.0%. Yet, the probability of persistence in unemployment varies greatly across the countries under analysis and also in the different periods under analysis. Figure 2 shows precisely the probability of being unemployed at time t conditional on the probability of being unemployed in the previous period ($t -$

Figure 2: Probability of being unemployed at t conditional on the probability of being unemployed at $t - 1$, Europe, 2004–2015



Source: Authors' elaboration. EU-SILC, 2005–2015. Note: The unemployment persistence has been computed at the individual level using microdata from the EU-SILC. '1' indicates the period between 2004 and 2007, '2' from 2008 to 2011 and '3' from 2012 to 2015. Missing bars indicate that the country does not participate in the EU-SILC survey for that period.

$$y_{it} = 1(\alpha_1 y_{it-1} + \beta' x_{it} + v_i + \epsilon_{it}) \quad (1)$$

where $i = 1, 2, \dots, N$ are individuals and $t = 1, \dots, T$ are the number of periods under study. The dependent variable (y_{it}) is equal to 1 if the individual i is unemployed at time t and 0 otherwise. Moreover, y_{it} is explained by its lagged outcome (y_{it-1}) and a vector of explanatory variables (x_{it}) that include gender, age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. The parameter α_1 measures to what extent being unemployed in the previous year has an influence on the likelihood of being unemployed again at time t — that is, it captures the degree of *true* or *genuine* state dependence in unemployment. We expect α_1 to be positive and highly significant among the sample of youths under study in all countries and regions.⁷

Furthermore, we need to consider that the labour market position observed for the first time in our data set may not necessarily be the beginning of the labour market career of the individuals in our sample, neither such first observed period is necessarily randomly distributed (Heckman, 1981a, 1981b). To deal with such *initial conditions problem*, we follow Wooldridge (2005)'s suggestion to condition the estimation on the first observation of each individual. That is, instead of finding the density of the dependent variable from $t = 0, 1, \dots, T$ given the explanatory variables, we find the density of the dependent variable from $t = 1, \dots, T$ given the initial conditions and the explanatory variables. Moreover, in order to relax the assumption that the heterogeneous intercept (v_i) is uncorrelated with the explanatory variables, we add the time mean of the explanatory variables (Stewart, 2007; Alessie et al., 2004; Wooldridge, 2000; Chamberlain, 1984; Mundlak, 1978) thus, allowing a certain degree of correlation between the individual-specific effects and the time-varying variables. Formally, v_i can be written as follows:

$$v_i = a_0 + \gamma y_{i0} + \pi \bar{X}_i + e_i \quad (2)$$

Indeed, v_i is assumed to be normally distributed with zero mean and unit variance while e_i is assumed to be normally distributed with zero mean and $\sigma_{v_i}^2$ variance. Equation (1) is estimated using Gauss-Hermite quadrature (Butler and Moffitt, 1982) with 12 points — though main results were not sensitive to a change in the number of quadrature points.

As for the estimation of stigma effects in unemployment, we follow Ayllón (2013) and Biewen and Steffes (2010) who, in turn, draw from previous proposals in the literature. In this case, we extend Equation (1) by adding an interaction term between the individual past unemployment status and a measure of the cyclical unemployment risk in period t (u_t) which we have computed by running for each country a simple OLS regression of the unemployment rate at regional level against time and predicting the residual. The cyclical unemployment risk at t is also included in the regression for completeness. Formally,

$$y_{it} = 1(\alpha_1 y_{it-1} + \alpha_2 u_t y_{it-1} + \alpha_3 u_t + \beta' x_{it} + v_i + \epsilon_{it}) \quad (3)$$

⁷For simplicity, in this work, we do not consider heterogeneity in state dependence. In Plum and Ayllón (2015), a second RE is included to account for the fact that unemployment state dependence may vary between workers that have actually experienced unemployment in the past from those that have not. In their work, the scarring effect of unemployment is found to be underestimated when an homogeneous effect of past unemployment is assumed which means that the results we present in the next section are probably conservative.

where the individual-specific effect is defined as in Equation (2). If there are stigma effects against prospects workers, we expect α_2 to be negative indicating that true state dependence decreases when the unemployment rate deviates positively from its trend which necessarily implies that persistence in unemployment is higher when the economy is growing and the unemployment rate is lower — potentially because of stigmatization.

For robustness, and following the proposal by Omori (1997), we have also run specifications that consider the interaction term between past unemployment status of the individual and the measure of the cyclical unemployment rate at $t - 1$. That is,

$$y_{it} = 1(\gamma_1 y_{it-1} + \gamma_2 u_{t-1} y_{it-1} + \gamma_3 u_{t-1} + \beta' x_{it} + v_i + \epsilon_{it}) \quad (4)$$

The intuition underlying this specification is that what matters for employers is the unemployment risk at the time when past unemployment occurred rather than the current labour market situation. This means that hiring decisions would be conditioned on the specific circumstances of past unemployment spells: if those were associated to favourable labour market conditions, employers would interpret it as a negative signal, and therefore stigmatization would raise.

5 Results

Our findings are presented in four subsections. First, we give detail of the main results from the estimation of Equation (3). Second, we detail results by gender. Third, we present a comparative exercise by analysing the situation of youth against that of prime-aged individuals. And, finally, we study whether the situation of young people changed with the bust of the Great Recession.

5.1 Main results

Table 3 presents main results for the countries under analysis. First column shows the coefficients relative to the parameter α_1 , that is, the degree of genuine state dependence in unemployment. Column (2) presents α_1 associated Average Partial Effect (APE) which has been calculated for each individual holding fixed his or her characteristics and averaging over the sample. Column (3) details the results of α_2 which account for the interaction between the lagged individual status of unemployment and the cyclical unemployment rate — potentially indicating the existence of stigma effects. And, column (4) indicates α_3 which is the estimated coefficient for the cyclical unemployment rate.

In relation to state dependence, results are very clear. Youth unemployment suffers from an important degree of genuine state dependence by which being unemployed at $t - 1$ increases *by itself* the probability of being unemployed again in the following year. However, important differences as for the level can be observed across the analyzed countries. It is in Bulgaria, Greece and Poland where state dependence is the strongest: being unemployed at $t - 1$ increases the probability of being unemployed at t by nearly 33 percentage points in Bulgaria. The same figure for Greece and Poland is 23 and 21, respectively. Belgium, France, Italy, and Spain are in the middle of the rank with figures below 20 but above 10. And, the rest of the countries yield estimates below 10, being particularly low in the Czech Republic with slightly above 5 percentage points and Sweden with a degree of state dependence in unemployment of 6.4 percentage points. Note that from

the results presented we cannot establish country clusters, neither there seems to be a correlation between the degree of state dependence found and the level of unemployment or the degree of persistence in unemployment as shown in Figures 1 and 2.

As for the results on potential stigma effects, these are only found in the case of Belgium. As can be seen, the interaction between lagged individual unemployment status and the cyclical unemployment rate has an associated coefficient of -0.192 statistically significant at 95%. This means that a decline (rise) in the unemployment rate is associated with an increase (decrease) in the impact that past unemployment status has for an individual signaling potential enhanced discrimination against individuals that became unemployed when the economy was growing. On the opposite, and in the cases of Bulgaria, Hungary, Italy and Poland we obtain a positive coefficient for the same interaction indicating that in these contexts, state dependence in unemployment actually increases when the macroeconomic conditions worsen. For the rest of countries analyzed, no effect is found.

To confirm our findings, we have run a similar exercise than above but instead of using the regional unemployment rate for the adult population, we take the youth unemployment rate at regional level as provided by Eurostat. Results can be found in Table [A.1](#) of the Appendix. Genuine state dependence in youth unemployment is found to be positive and highly significant and at a similar level whether we use the total unemployment rate or the youth unemployment rate. As for stigma effects, results are confirmed respect to Belgium (though significant at 90% confidence level instead of 95%) while Austria and Sweden can also be added as countries with a certain degree of stigmatization against young unemployed (even if rather weak in the case of the Nordic country). Thus, estimates indicate the robustness of our results regarding the scarring effect of unemployment for youth and provide further evidence of the negative association of this disadvantage along the business cycle when we consider tighter labour market conditions.

Following Biewen and Steffes (2010) and Omori (1997), we have also computed our results by considering the unemployment rate at $t - 1$ instead of at t , that is, following Equation (4) above. Results are presented in Table [A.2](#). When past unemployment status is interacted with past unemployment risk we find the presence of stigma effects in Sweden and UK. This means that for these particular countries the amount of stigmatization is related to the specific labour market conditions at the time unemployment spells occurred rather than associated to the current risk of unemployment.

5.2 Is there differences by gender?

We present the results for gender specific estimations in Table [4](#). Columns (1)-(4) and (5)-(8) show the estimates for males and females. Regarding the degree of genuine state dependence, we observe that past unemployment experiences ($t - 1$) significantly increase the probability of being currently unemployed (t) for either gender. The effects seem to be stronger for women although overall differences are not statistically significant.

Considering the magnitudes of the state dependence, male youths living in Bulgaria, Greece and Poland, where the probability of being unemployed increases by 32, 23 and 21 percentage points respectively, are the most affected. Following behind come Spain and France with probabilities around 14 percentage points. At the lower end of the distribution of the effect, we find the Czech Republic, Sweden and the UK, all with estimates between 4 and 6 percentage points. As for females, we find much higher APEs associated to the state dependence effect in Belgium and the UK compared to those of men. Bulgaria

Table 3: Results of the RE probit models (Equation 3) on youth unemployment state dependence and stigma effects, selected countries, 2004-2015

	y_{it-1}		$u_t y_{it-1}$	u_t
	α_1	APE (%)	α_2	α_3
Austria	0.6707*** [0.1385]	9.12	-0.1191 [0.1281]	0.2167* [0.1261]
Belgium	1.0638*** [0.1271]	18.03	-0.1921** [0.0814]	0.0702 [0.0633]
Bulgaria	1.2782*** [0.0831]	32.91	0.0814*** [0.0243]	-0.0170 [0.0938]
Czech Rep.	0.7738*** [0.0982]	5.03	-0.0237 [0.0433]	0.0146 [0.0499]
France	0.8951*** [0.0578]	14.00	0.0013 [0.0435]	-0.0088 [0.0274]
Greece	1.0886*** [0.0767]	23.40	0.0083 [0.0115]	0.0427* [0.0256]
Hungary	0.5905*** [0.0707]	7.85	0.0420* [0.0230]	0.1647*** [0.0500]
Italy	0.9662*** [0.0432]	19.68	0.0896*** [0.0147]	-0.0196 [0.0154]
Poland	1.0528*** [0.0485]	20.99	0.0290** [0.0133]	0.0053 [0.0307]
Spain	0.6205*** [0.0419]	14.09	0.0039 [0.0076]	0.0132* [0.0079]
Sweden	0.4071*** [0.1242]	6.37	-0.0670 [0.1217]	0.1780 [0.1673]
UK	0.5733*** [0.1715]	9.19	-0.0729 [0.0812]	0.0084 [0.1165]

Note: Results from estimating equation (3) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 17-29 years old. All specifications control for gender, age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** p<0.01, ** p<0.05, * p<0.1.

stands out showing the most severe consequences with an unemployment probability of 32 percentage points, followed by a group of countries including Belgium, Greece, Poland and Italy that yield estimates above 19 points.

Regarding the results associated to potential stigma effects, we find evidence of it for both males and females in Belgium with significant coefficients of -0.221 and -0.173 (albeit at 90% confidence level). There is further evidence that state dependence in unemployment decreases with unfavourable economic conditions in Austria affecting only females, which shows a significant estimate of -0.321 (yet again at 90%). On the other hand, we find the opposite result, which indicates stronger effects of state dependence even when the economy declines, especially in Italy where it affects both males and females. Furthermore, males in Bulgaria and females in Hungary show the same pattern.

Gender results presented above provide evidence in favour of the existence of state dependence affecting both males and females. These effects are highly heterogeneous across the countries under analysis, and slightly stronger for females in some particular contexts. Concerning potential stigma effects, we only find clear evidence affecting both genders in Belgium.

Table 4: Results of the RE probit models (Equation 3) on youth unemployment state dependence and stigma effects by gender, selected countries, 2004-2015

	Male				Female			
	y_{it-1}	$u_t y_{it-1}$	u_t	$u_t y_{it-1}$	y_{it-1}	$u_t y_{it-1}$	u_t	$u_t y_{it-1}$
	α_1	APE	α_2	α_3	α_1	APE	α_2	α_3
Austria	0.6402*** [0.1899]	8.46	0.1003 [0.1802]	0.3468** [0.1752]	0.6846*** [0.2130]	8.66	-0.3210* [0.1918]	0.0481 [0.1882]
Belgium	0.8688*** [0.1850]	12.06	-0.2212* [0.1260]	0.0447 [0.1003]	1.2938*** [0.1711]	29.14	-0.1735* [0.1036]	0.0950 [0.0790]
Bulgaria	1.2581*** [0.1111]	31.76	0.1145*** [0.0329]	0.0297 [0.1279]	1.3170*** [0.1241]	32.43	0.0371 [0.0367]	-0.0541 [0.1398]
Czech Rep.	0.7525*** [0.1290]	4.40	-0.0704 [0.0601]	0.0390 [0.0711]	0.8142*** [0.1487]	5.66	0.0046 [0.0622]	-0.0080 [0.0697]
France	0.8704*** [0.0815]	13.42	0.0824 [0.0608]	-0.0239 [0.0388]	0.9209*** [0.0823]	14.22	-0.0818 [0.0628]	0.0082 [0.0388]
Greece	1.0249*** [0.1030]	23.48	0.0038 [0.0159]	0.0639* [0.0354]	1.1696*** [0.1153]	25.92	0.0161 [0.0165]	0.0172 [0.0370]
Hungary	0.5495*** [0.0925]	7.18	0.0163 [0.0297]	0.2156*** [0.0675]	0.6286*** [0.1107]	7.15	0.0856** [0.0369]	0.1097 [0.0747]
Italy	0.9778*** [0.0620]	18.65	0.0818*** [0.0204]	-0.0049 [0.0226]	0.9391*** [0.0601]	18.78	0.0778*** [0.0216]	-0.0316 [0.0210]
Poland	1.0416*** [0.0706]	20.49	0.0287 [0.0197]	0.0017 [0.0448]	1.0094*** [0.0698]	20.00	0.0294 [0.0185]	0.0113 [0.0434]
Spain	0.6651*** [0.0593]	14.70	-0.0033 [0.0107]	0.0160 [0.0114]	0.5268*** [0.0619]	11.91	0.0110 [0.0111]	0.0087 [0.0112]
Sweden	0.3526** [0.1617]	5.76	-0.1353 [0.1534]	0.3429 [0.2174]	0.4510** [0.1981]	6.10	0.0546 [0.2082]	-0.0803 [0.2730]
UK	0.4054* [0.2357]	5.78	-0.1371 [0.1145]	0.0506 [0.1707]	0.8387*** [0.2609]	13.50	-0.0316 [0.1168]	-0.0054 [0.1565]

Note: Results from estimating equation (1) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 17-29 years old. All specifications control for age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** p<0.01, ** p<0.05, * p<0.1.

5.3 How the situation among youth compares with prime-aged?

Individual characteristics like age are likely to affect differently labour market conditions such as job search intensity, mobility between jobs looking for a suitable match and gains (loses) of marginal productivity associated to human capital accumulation (skill depreciation). The association of all these characteristics with unemployment experiences along different phases of business cycle might well affect decisions of potential employers in the hiring process. Therefore, we now turn to the analysis of the state dependence and potential stigma effects for prime-aged individuals, aged between 30 and 44. Coefficients estimates are reported in Table 5.

The coefficients on lagged unemployment shown in column (1) are all positive and statistically significant indicating a strong positive association between unemployment in the previous period and unemployment risk in the current period for mature workers. Comparing these results with those of younger individuals presented in Table 3, we observe that the magnitude of the state dependence effect is higher for prime-aged workers in a handful of countries. This pattern is also reflected in the APEs, showing that the effect is always stronger for mature individuals except for Austria, Belgium, Italy, Sweden and the UK. Differences are particularly high in countries like France and Czech Republic, where the probability of being unemployed is above 20 and 10 percentage points respectively, about 80% for the former and more than double for the latter as compared to their younger counterparts. Furthermore, Bulgaria and Greece show the strongest effects with unemployment probabilities of around 34 and 29 percentage points, followed by France and Poland which are close to 24 percentage points.

Estimated results for the interaction between lagged individual unemployment and the cyclical unemployment rate are shown in column (2). There is no significant evidence of the existence of stigma effects for prime-aged individuals in none of the countries under analysis. On the other hand, there is a group of countries, including Italy, Bulgaria, Poland, Czech Republic, Greece and France showing positive and significant coefficients. This indicates that the disadvantage for having been unemployed in the previous period is smaller (larger) when unemployment is low (high).

We interpret our findings as consistent with a context where the effect of true state dependence is considerably larger for prime-aged individuals. In order to check the robustness of this result, we have further replicated the analysis using the full age sample including an indicator for prime-aged individuals, and the interaction of this indicator with our state dependence measure.⁸ The results from these auxiliary regressions clearly indicate that prime-aged individuals are associated to lower levels of unemployment compared to younger workers. Moreover, the coefficient of the interaction is always positive and significant for all countries but the UK. Therefore, although the risk of being unemployed is lower from prime-aged individuals, the scarring effect of unemployment experiences in the previous period is substantially larger for them. In this scenario, younger workers might be associated to higher mobility and flexibility, and therefore less penalised by past unemployment experiences. As for potential stigma effects, the evidence falls slightly against young individuals.

⁸Results are available upon request.

Table 5: Results of the RE probit models (Equation 3) on prime-aged unemployment state dependence and stigma effects, selected countries, 2004-2015

	y_{it-1}		$u_t y_{it-1}$	u_t
	α_1	APE (%)	α_2	α_3
Austria	0.4770*** [0.1166]	3.57	-0.0585 [0.1145]	-0.0376 [0.1181]
Belgium	1.1235*** [0.0986]	15.99	0.0698 [0.0720]	-0.0651 [0.0583]
Bulgaria	1.5239*** [0.0761]	34.54	0.0793*** [0.0219]	-0.1591* [0.0913]
Czech Rep.	1.2360*** [0.0823]	11.43	0.0862** [0.0347]	0.0261 [0.0416]
France	1.4588*** [0.0457]	23.25	0.0642* [0.0364]	-0.0108 [0.0235]
Greece	1.4365*** [0.0643]	29.04	0.0249** [0.0101]	0.0482** [0.0218]
Hungary	0.6883*** [0.0581]	8.22	0.0261 [0.0203]	0.0781* [0.0440]
Italy	1.0656*** [0.0368]	14.11	0.1043*** [0.0139]	-0.0506*** [0.0139]
Poland	1.4533*** [0.0419]	23.73	0.0755*** [0.0129]	-0.0251 [0.0320]
Spain	0.8370*** [0.0323]	18.00	-0.0038 [0.0063]	0.0173** [0.0067]
Sweden	0.6654*** [0.1972]	3.96	0.1725 [0.1801]	0.4179* [0.2355]
UK	0.7042*** [0.1686]	8.15	0.1166 [0.0836]	0.1456 [0.1126]

Note: Results from estimating equation (3) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 30-44 years old. All specifications control for gender, age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** p<0.01, ** p<0.05, * p<0.1.

5.4 Did the situation change for youth during the Great Recession?

In this section we explore the extent to which unemployment experiences have affected youth workers during and after the Great Recession (i.e., 2008-2015). Unfortunately, we are not able to analyse the period pre-crisis due to the lack of variability in the data available, as some of the countries under analysis did not participate in the survey for several of those years. Notwithstanding, comparing the results that consider the period from 2004 to 2015 presented above (see Table 3) with those referring to the years after the Great Recession began, it will allow us to observe whether there exist different patterns associated to state dependence and potential stigma effect affecting young individuals during this particular period.

Columns (5)-(8) in Table 6 report the corresponding estimates for young individuals from the beginning of the Great Recession, whereas columns (1)-(4) replicate previous estimates associated to the period ranging from 2004 to 2015 for comparative purposes. Controlling for observed and unobserved characteristics, the coefficient on the lagged unemployment is positive and statistically significant for all countries. Moreover, the estimates associated to the Great Recession are always larger in size providing evidence in support of the existence of stronger true state dependence among youth during these years. Note, in particular, the cases of Belgium with a change in the APE from 18 percentage points to 27, Greece from 23 to 35 or Poland from 21 to nearly 30.

Turning to the analysis of potential stigma effects, we find that during the Great Recession the disadvantage associated to past unemployment experiences depends on current labour market conditions for the following countries: Belgium, the Czech Republic and France. This stigma effect is particularly strong for the Czech Republic and France. Therefore, our results show that in this regions the dependence of unemployment risk on past unemployment status is smaller in times of economic growth and higher during crisis. Comparing these estimates to those that refer to the period from 2004 to 2015, where only Belgium showed this disadvantage, we observe that the number of countries suffering from stigma effects has increased.

Our analysis confirms that the scarring effect of unemployment shows an increasing pattern during the Great Recession affecting a larger number of youth workers. Moreover, our results point out that the potential negative relation between employment persistence and the business cycle has spread to other areas during these years. We interpret these results as evidence of the existence of stronger stigma effects between 2008 and 2015 as compared to the analysis over the entire period.

Our findings therefore support the existence of higher levels of unemployment persistence as well as larger stigmatization across the EU countries under analysis, meaning that those youth who were unemployed during and after the Great Recession face systematically lower chances of being hired.

Table 6: Results of the RE probit models (Equation 3) on youth unemployment state dependence and stigma effects by period of time, selected countries, 2004-2015

	2004-2015						2008-2015					
	y_{it-1}	APE	$u_t y_{it-1}$	u_t	y_{it-1}	APE	$u_t y_{it-1}$	u_t	y_{it-1}	APE	$u_t y_{it-1}$	u_t
Austria	0.6707^{***} [0.1385]	9.12	-0.1191 [0.1281]	0.2167^* [0.1261]	0.7951^{***} [0.1460]	13.22	-0.1112 [0.1376]	0.2829^{**} [0.1357]	0.7951^{***} [0.1460]	13.22	-0.1112 [0.1376]	0.2829^{**} [0.1357]
Belgium	1.0638^{***} [0.1271]	18.03	-0.1921** [0.0814]	0.0702 [0.0633]	1.3100^{***} [0.1229]	27.10	-0.1719* [0.0936]	0.0064 [0.0691]	1.3100^{***} [0.1229]	27.10	-0.1719* [0.0936]	0.0064 [0.0691]
Bulgaria	1.2782^{***} [0.0831]	32.91	0.0814^{***} [0.0243]	-0.0170 [0.0938]	1.3002^{***} [0.0797]	31.23	0.0487^* [0.0261]	0.0757 [0.1218]	1.3002^{***} [0.0797]	31.23	0.0487^* [0.0261]	0.0757 [0.1218]
Czech Rep.	0.7738^{***} [0.0982]	5.03	-0.0237 [0.0433]	0.0146 [0.0499]	1.0260^{***} [0.0934]	9.32	-0.1048** [0.0501]	0.0169 [0.0515]	1.0260^{***} [0.0934]	9.32	-0.1048** [0.0501]	0.0169 [0.0515]
France	0.8951^{***} [0.0578]	14.00	0.0013 [0.0435]	-0.0088 [0.0274]	1.0317^{***} [0.0620]	19.99	-0.1264** [0.0505]	0.0341 [0.0312]	1.0317^{***} [0.0620]	19.99	-0.1264** [0.0505]	0.0341 [0.0312]
Greece	1.0886^{***} [0.0767]	23.40	0.0083 [0.0115]	0.0427^* [0.0256]	1.3056^{***} [0.0724]	35.11	0.0082 [0.0114]	0.0374 [0.0246]	1.3056^{***} [0.0724]	35.11	0.0082 [0.0114]	0.0374 [0.0246]
Hungary	0.5905^{***} [0.0707]	7.85	0.0420^* [0.0230]	0.1647^{***} [0.0500]	0.7333^{***} [0.0711]	11.47	0.0298 [0.0233]	0.1987^{***} [0.0542]	0.7333^{***} [0.0711]	11.47	0.0298 [0.0233]	0.1987^{***} [0.0542]
Italy	0.9662^{***} [0.0432]	19.68	0.0896^{***} [0.0147]	-0.0196 [0.0154]	1.0171^{***} [0.0443]	23.71	0.0099 [0.0170]	0.0077 [0.0168]	1.0171^{***} [0.0443]	23.71	0.0099 [0.0170]	0.0077 [0.0168]
Poland	1.0528^{***} [0.0485]	20.99	0.0290^{**} [0.0133]	0.0053 [0.0307]	1.2987^{***} [0.0499]	29.57	0.0396^{**} [0.0159]	-0.0106 [0.0355]	1.2987^{***} [0.0499]	29.57	0.0396^{**} [0.0159]	-0.0106 [0.0355]
Spain	0.6205^{***} [0.0419]	14.09	0.0039 [0.0076]	0.0132^* [0.0079]	0.7180^{***} [0.0430]	18.18	-0.0136 [0.0084]	0.0140 [0.0086]	0.7180^{***} [0.0430]	18.18	-0.0136 [0.0084]	0.0140 [0.0086]

Note: Results from estimating equation (3) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 17-29 years old. All specifications control for age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** p<0.01, ** p<0.05, * p<0.1.

6 Conclusions

This paper studies unemployment persistence among young people in Europe in the context of the Great Recession. To that end, we have estimated to what extent the probability of being unemployed during the previous year influences in itself the probability of being currently unemployed, that is, we provide a measure of *genuine state dependence* that accounts for observed and unobserved heterogeneity and the initial conditions problem. Moreover, we consider whether young unemployed are being stigmatized in today’s labour market in the sense of being even more discriminated against if they became unemployed when the economy was growing. We use data from all the waves available of the EU-SILC which runs from 2004 to 2015 and for a selection of 12 countries.

Our main findings indicate that young people suffer from an important degree of genuine state dependence in unemployment but that such effect varies greatly across Europe. Out of the countries analysed, it is in Bulgaria, in Greece and in Poland where the effect is the strongest. For instance, in Bulgaria, the probability of being unemployed at t increases by 32 percentage points if unemployed at $t - 1$ compared to someone employed or inactive at $t - 1$. It is in Sweden and in the Czech Republic where the effect is the lowest. The variety in magnitude of the effects found does not allow to establish clusters of countries neither by geographical region or type of Welfare State regime.

When looking at the results by gender, the effects seem to be stronger for females than males but overall differences are not statistically significant. This means that the scarring effect of unemployment is present for both genders to a similar degree at the beginning of young people’s labour market careers. The comparison of our results relative to young people with those from prime-aged individuals indicates that, as a matter of fact, in the large majority of countries, it is more mature unemployed that suffer a higher degree of genuine state dependence. Additional results indicate that while prime-aged individuals are associated with overall lower levels of unemployment, when unemployed, they suffer a higher degree of unemployment persistence compared to youth. The fact that young individuals are less affected by the scarring effect of unemployment is consistent with previous results in the literature and associated to “job shopping” behavior or the propensity to change jobs often during youth (Arulampalam et al., 2000). Moreover, we have compared the results for the period between 2004-2015 with those for 2008-2015 to observe that during and after the Great Recession, the genuine state dependence effect increased in magnitude for young people. That is, the likelihood of being unemployed because of previous unemployment worsened for those between 17 and 29 years of age in the context of the economic crisis.

In relation to potential stigma effects suffered by young unemployed during the period, the empirical evidence found for Europe is rather weak. As a matter of fact, we have only found such effects in the case of Belgium when considering the whole period of analysis. Such effect is similarly shared by males and females in that context. In the rest of the countries, either no effect is found or the effect is positive indicating that state dependence in unemployment actually increases when the unemployment rate is rising thus contributing to the increased difficulties of finding a job among young unemployed — but also pointing to the fact that youth are not necessarily discriminated against because they became unemployed when the economy was growing. Importantly, when we restrict our analysis to the period from 2008 to 2015 there is evidence of stigma effects affecting a larger number of countries during and after the Great Recession, namely Belgium, Czech Republic and France.

This paper suffers from a number of limitations. First, our analysis could be carried out only for an arbitrary selection of 12 European countries: those that in the EU-SILC provided information at regional level. This implies that our results are not representative of the experiences lived by young people all over Europe. Second, due to the design of the longitudinal component of the EU-SILC, only three transitions between labour market statuses per individual could be observed. Therefore, our findings are relevant as short-term consequences of the scarring effect of unemployment.

References

- ALESSIE, R., S. HOCHGUERTEL, AND A. VAN SOEST (2004): “Ownership of stocks and mutual funds: A panel data analysis,” *The Review of Economics and Statistics*, 86(3), 783–796.
- ARULAMPALAM, W. (2002): “State dependence in unemployment incidence: evidence for British men revisited,” Discussion paper, IZA Discussion Paper 630.
- ARULAMPALAM, W., A. BOOTH, AND M. TAYLOR (2000): “Unemployment persistence,” *Oxford Economic Papers*, 52(1), 24–50.
- ARULAMPALAM, W., P. GREGG, AND M. GREGORY (2001): “Unemployment Scarring,” *Economic Journal*, 111(475), 577 – 584.
- AYLLÓN, S. (2013): “Unemployment persistence: Not only stigma but discouragement too,” *Applied Economics Letters*, 20(1), 67–71.
- BELL, D. N. F., AND D. G. BLANCHFLOWER (2009): “What should be done about rising unemployment in the OECD?,” Discussion paper, IZA Discussion Paper 4040.
- (2011): “Young people and the Great Recession,” *Oxford Review of Economic Policy*, 27(2), 241–267.
- BIEWEN, M., AND S. STEFFES (2010): “Unemployment persistence: Is there evidence for stigma effects?,” *Economics Letters*, 106(3), 188–190.
- BLAU, D. M., AND P. K. ROBINS (1990): “Job search outcomes for the employed and unemployed,” *The Journal of Political Economy*, 98(3), 637–655.
- BUTLER, J. S., AND R. MOFFITT (1982): “A Computationally Efficient Quadrature Procedure for the One-Factor Multinomial Probit Model,” *Econometrica*, 50(3), 761–764.
- CHAMBERLAIN, G. (1984): “Panel Data,” in *Handbook of Econometrics*, ed. by Z. Griliches, and M. Intriligator, vol. 2, pp. 1247–1318. Amsterdam, North Holland.
- CLARK, A. E., C. D’AMBROSIO, AND S. GHISLANDI (2015): “Adaptation to poverty in long-run panel data,” *Review of Economics and Statistics*, forthcoming.
- CLARK, A. E., Y. GEORGELLIS, AND P. SANFEY (2001): “Scarring: the psychological impact of past unemployment,” *Economica*, 68, 221–241.
- HARRISON, E., A. QUICK, AND S. ABDALLAH (2016): *Looking through the wellbeing kaleidoscope*. New Economics Foundation.
- HECKMAN, J. J. (1981a): “The incidental parameters problem and the problem of initial conditions in estimating a discrete time-discrete data stochastic process,” in *Structural analysis of discrete data with econometric applications*, ed. by C. F. Manski, and D. McFadden, pp. 179–195. MIT Press.
- (1981b): “Statistical models for discrete panel data,” in *Structural analysis of discrete data with econometric applications*, ed. by C. F. Manski, and D. McFadden, pp. 114–178. MIT Press.

- HOFACKER, D. (2017): “Medium-term economic consequences of insecure labour market positions,” Discussion paper, EXCEPT WP 6 Report (D 6.3), Tallinn University.
- IACOVOU, M., AND P. LYNN (2013): “Implications of the EU-SILC following rules, and they implementation for longitudinal analysis,” Discussion Paper 2013-17, Institute for Economic and Social Research (ISER).
- KAPTEYN, A., J. LEE, C. TASSOT, H. VONKOVA, AND G. ZAMARRO (2015): “Dimensions of Subjective Well-Being,” *Social Indicators Research*, 123(3), 625–660.
- KRELL, K., J. R. FRICK, AND M. M. GRABKA (2017): “Measuring the Consistency of Cross-Sectional and Longitudinal Income Information in EU-SILC,” *Review of Income and Wealth*, 63(1), 30–52.
- LINDBECK, A., S. NYBERG, AND J. W. WEIBULL (1999): “Social Norms and Economic Incentives in the Welfare State,” *The Quarterly Journal of Economics*, 114(1), 1–35.
- LOCKWOOD, B. (1991): “Information externalities in the labour market and the duration of unemployment,” *The Review of Economic Studies*, 58(4), 733–753.
- MUNDLAK, Y. (1978): “On the Pooling of Time Series and Cross Section Data,” *Econometrica*, 46(1), 69–85.
- OSBERHOLZER-GEE, F. (2008): “Nonemployment stigma as rational herding: A field experiment,” *The Journal of Economic Behavior and Organization*, 65, 30–40.
- OMORI, Y. (1997): “Stigma effects of unemployment,” *Economic Inquiry*, 35(2), 394–416.
- PISSARIDES, C. A. (1992): “Loss of Skill During Unemployment and the Persistence of Employment Shocks,” *The Quarterly Journal of Economics*, 107(4), pp. 1371–1391.
- PLUM, A., AND S. AYLLÓN (2015): “Heterogeneity in unemployment state dependence,” *Economics Letters*, 136, 85 – 87.
- STEWART, M. B. (2007): “The interrelated dynamics of unemployment and low-wage employment,” *Journal of Applied Econometrics*, 22(3), 511–531.
- TUMINO, A. (2015): “The scarring effect of unemployment from the early 90s to the Great Recession,” ISER Working Paper Series 2015-05, Institute for Social and Economic Research.
- VISHWANATH, T. (1989): “Job search, stigma effect, and escape rate from unemployment,” *Journal of Labor Economics*, 7(4), 487–502.
- WOOLDRIDGE, J. M. (2000): “A framework for estimating dynamic, unobserved effects panel data models with possible feedback to future explanatory variables,” *Economics Letters*, 68(3), 245–250.
- (2005): “Simple solutions to the initial conditions problem in dynamic, non linear panel data models with unobserved heterogeneity,” *Journal of Applied Econometrics*, 20(1), 39–54.

A Appendix

Table A.1: Results of the RE probit models (Equation 3) on unemployment state dependence and stigma effects among youth using the youth unemployment rate, selected countries, 2004-2015

	y_{it-1}		$u_t y_{it-1}$	u_t
	α_1	APE (%)	α_2	α_3
Austria	0.6715*** [0.1382]	9.23	-0.1529** [0.0744]	0.1031* [0.0534]
Belgium	1.0615*** [0.1269]	17.76	-0.0474* [0.0270]	0.0375* [0.0203]
Bulgaria	1.2877*** [0.0831]	33.53	0.0423*** [0.0111]	0.0100 [0.0168]
Czech Rep.	0.7730*** [0.0981]	5.07	0.0001 [0.0130]	0.0042 [0.0122]
France	0.8975*** [0.0576]	14.09	0.0141 [0.0148]	0.0099 [0.0082]
Greece	1.0867*** [0.0766]	23.21	-0.0017 [0.0055]	0.0097 [0.0084]
Hungary	0.5839*** [0.0708]	7.64	0.0212** [0.0097]	0.0403** [0.0161]
Italy	0.9650*** [0.0432]	19.66	0.0392*** [0.0061]	0.0022 [0.0080]
Poland	1.0526*** [0.0486]	20.67	0.0123** [0.0061]	-0.0138 [0.0102]
Spain	0.6201*** [0.0419]	14.04	0.0049 [0.0040]	0.0009 [0.0041]
Sweden	0.4295*** [0.1228]	6.84	-0.0847* [0.0446]	0.0663 [0.0421]
UK	0.5621*** [0.1724]	8.93	-0.0199 [0.0310]	0.0296 [0.0316]

Note: Results from estimating equation (3) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 17-29 years old. All specifications control for age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.2: Results of the RE probit models (Equation 3) on unemployment state dependence and stigma effects among youth using the total unemployment rate at $t - 1$, selected countries, 2004-2015

	y_{it-1}		$u_t y_{it-1}$	u_t
Austria	0.6848*** [0.1383]	9.46	-0.0249 [0.1335]	0.0275 [0.1321]
Belgium	1.0325*** [0.1270]	16.99	0.0342 [0.0812]	-0.1006 [0.0639]
Bulgaria	1.2671*** [0.0826]	32.49	0.0162 [0.0272]	0.2195** [0.0934]
Czech Rep.	0.7734*** [0.0990]	5.08	-0.0009 [0.0440]	0.0325 [0.0453]
France	0.8954*** [0.0575]	13.99	0.0528 [0.0386]	-0.0260 [0.0255]
Greece	1.0871*** [0.0764]	23.51	0.0168* [0.0100]	0.0621** [0.0277]
Hungary	0.5747*** [0.0710]	7.35	0.0624** [0.0284]	0.0239 [0.0411]
Italy	0.9658*** [0.0431]	19.77	0.0632*** [0.0118]	-0.0110 [0.0121]
Poland	1.0356*** [0.0489]	20.34	0.0265** [0.0106]	0.0098 [0.0242]
Spain	0.6176*** [0.0419]	13.95	0.0103 [0.0081]	0.0167** [0.0081]
Sweden	0.4037*** [0.1230]	6.41	-0.1789** [0.0888]	0.0062 [0.1802]
UK	0.5723*** [0.1710]	9.11	-0.1787* [0.1081]	0.0540 [0.1096]

Note: Results from estimating equation (3) using the longitudinal component of the EU-SILC from 2004 to 2015. Sample: Youth 17-29 years old. All specifications control for age, age squared, maximum level of education attained, living outside the parental home, having a partner and the number of own children in the household. They also include year and country fixed-effects. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

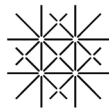
**NEGOTIATE –
Negotiating early job-insecurity and
labour market exclusion in Europe**

www.negotiate-research.eu
twitter: @NEGOTIATE_EU
Facebook: negotiateEU

**NOVA - Norwegian Social Research, Oslo
and Akershus University College
of Applied Sciences
(HiOA NOVA)**

Bjørn Hvinden
E-mail: bjorn.hvinden@nova.hioa.no

CONSORTIUM MEMBERS



UNIVERSITÄT BASEL



University of Brighton



Universität Bremen

