UNEMPLOYMENT BENEFITS AND UNEMPLOYMENT DURATION IN FRANCE AND POLAND*

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Abstract

This research attempts to investigate the impact of the unemployment benefits on unemployment duration in France and Poland. It is assumed that all social transfers have effect on labor supply. Therefore, vast amount of policies and reforms have been taken at the EU level. Panel of Income and Living Conditions Survey (EU-SILC) data is taken from Eurostat to conduct the empirical analyses of monthly periods over 2006-09 and 2011-14. The estimation is conducted by applying Accelerated Failure Time (AFT) model. The empirical results indicate that in both countries receiving unemployment benefits prolongs unemployment duration in both periods. The findings may be validation for the job search theory and signaling for inefficient allocation of social transfer resources and suboptimal investment in areas like education. Especially, reallocation of investment in training toward old aged individuals may be the primary policy implication to be drawn.

Key Words: *Unemployment benefits, labor supply, social transfers, labor market, unemployment durations*

JEL codes: *J01, J22, J65*

FRANSA VE POLONYA'DA İŞSİZLİK ÖDENEKLERİ VE İŞSİZLİK SÜRESİ

Öz

Bu çalışma; Fransa ve Polonya'da işsizlik ödeneklerinin işsizlik süresine olan etkisini incelemeyi amaçlamaktadır. Bütün sosyal transferlerin iş gücü arzında bir etkisi olduğu var sayılmaktadır. Bu yüzden de AB'de farklı türde

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sosyal transferler için birçok politika ve reformlar uygulanmıştır. Ampirik analizler, 2006 –2009 ve 2011 –2014 periyodlarını içeren, Eurostat'tan alınan Gelir ve Yaşam Koşulları Anketi (GYKA) aylık panel veri seti ile gerçekleştirilmiştir. Hızlandırılmış başarısızlık süresi (AFT) modeli kullanılarak regresyon tahminleri yapılmıştır. Seçilen iki ülke için de elde edilen bulgular, her iki dönemde de işsizlik yardımı ödeneklerinin işsizlik süresini uzattığı yönündedir. Çalışmanın bulguları, iş arama teorisinin bir doğrulaması niteliğinde değerlendirilebilir. Bununla birlikte, sosyal transfer kaynaklarının verimsiz dağıldığı ve eğitim önemli alanlarda verimsiz yatırımların yapıldığı sonucundadır. Özellikle yaşlı çalışanlar için yatırımların kurslara ağırlık verilerek yeniden dağıtılması gerektiği çıkarılabilecek ilk politika önerileri arasındadır.

Anahtar Kelimeler: *İşsizlik ödeneği, iş gücü arzı, sosyal transferler, emek piyasası, işsizlik süresi*

JEL Kodları: *J01, J22, J65*

Introduction

From the very beginning with the Treaty of Rome, 1957, one of the main aims of the EU is enabling labor, goods, services, and capital to move freely. However, it has never been easy to reach and maintain that goal since every member state differs in terms of their labor market (Barslund *et al.*, 2014). As part of the integration process, the EU has always focused on the harmonization and articulation of the labor markets of its member states. In the 1990s, the EU carried out programs and implementations in order to tackle labor market-related problems. By 2014, the labor force in the EU had reached a total of 242.3 million people, an increase of 0.8 million on 2013 (Eurostat, 2015). However, especially after the global financial crisis and during the sovereign debt crisis in Europe, high unemployment, low growth and low wages became a crucial concern for EU countries and their citizens. In order, therefore, to cope with the negative economic climate, social security reforms were introduced. Public authorities aim to help individuals who are in need via social transfers. According to the European Commission (2016), social transfers include old-age (retirement) and survivors' (widows' and widowers') pensions, unemployment benefits, family-related benefits, sickness and invalidity benefits, education-related benefits, housing allowances, social assistance, and other benefits.

There is vast amount of studies regarding social transfers on labor supply. Lubyova and Van Ours (1997) investigate the effect of unemployment benefits on unemployment dynamics in Slovakia. By using public employment office data from 1992 to 1995 with proportional hazard model, they conclude that

when unemployment benefit system is stronger, the duration of unemployment is shorter in Slovakia. Lalive and Zweimüller (2004) examine whether unemployment benefits extend the unemployment duration in Austria. They use two sets of data: the Austrian social security database and the Austrian unemployment register between 1986 and 1995. By applying dif-and-dif-and-dif and Cox Proportional Hazard models, their results show that the transition to employment has reduced by around 17% with the benefit programs. According to Terracol (2009), the RMI, which is an income program in France, has negative impact on the unemployment hazard only after six months of the 1994 – 2000 period. By using the Austrian social security database (ASSD) and the Austrian unemployment register (AUR) with 1986-1987 and 1989-1991 periods, Lalive (2008) investigates if additional unemployment benefit increases the duration of unemployment. His empirical analysis of the RDD model concludes that the spell of unemployed women in Austria rises with additional unemployment benefit. By applying the Box-Cox quantile regression with the IABS data from 1975 to 2001, Fitzenberger and Wilke (2010) investigate the effect of unemployment benefits on the duration of unemployment in Germany. They come to the conclusion that benefits affect the duration if the individual receives it for more than 12 months. Tatsiramos and Jan Ours (2014) conduct an overview of recent theoretical and empirical evidence on incentives influencing the behavior of employed workers and UI recipients and discuss its implications for UI design. They argue that the behavior of unemployed workers is affected by the two main characteristics of UI systems in a similar way, despite the obvious differences between these systems and other differences in labor market institutions such as employment protection legislation, minimum wages and active labor market policies. Feldstein (1978) investigates the impact of unemployment insurance on temporary layoff unemployment for the US using Current Population Survey of 1971. He concludes that there is a positive correlation between unemployment insurance (UI) and temporary layoff unemployment. Not only does he state that positive relationship, but also, he also empirically finds that an increase in UI raises the temporary layoff unemployment rate up by around 0.6 percentage points. Similarly, studies of Christofides and McKenna (1996), Green and Riddell (1997), Baker and Rea (1998), Jurajda (2002) are in line with Feldstein. Gruber and Madrian (1997) concludes that when individuals have health insurance related to their previous jobs, they are more likely to take their time finding jobs; therefore, finding better-paid jobs will be resulted in earning higher wages. Weber *et al.* (2014) examines the subsidy generosity program and its outcomes for Oregon families using administrative data. To be able to see whether programs have affected the probability of employment, job situation, unemployment, etc., they used Cox regression model with 48-month data from October 2005 through September 2009. The analysis shows that

longer subsidy spells are achieved with more generosity programs (Howes and Hamilton, 1992; Loeb *et al.*, 2004; Votruba-Drzal *et al.*, 2013; Michalopoulos *et al.*, 2010; Schexnayder and Schroeder, 2008; Witte and Queralt, 2005). Many studies show that the motivation of individuals receiving unemployment benefits to find a job and/or improve the quality of a job is different from those who does not receive the benefits. Van Ours and Vodopivec (2008) study the quality of jobs once unemployment insurance law came into force in Slovenia. Their difference-in-difference estimation results show a positive link between unemployment benefits and unemployment duration spells, suggesting that more benefits lead to longer unemployed durations for individuals. However, they do not point to any effects on the quality of the job after unemployment.

Most of the studies either concerns advanced countries and were done in the late 1980s or 1990s. Regarding European-focused studies, they are usually done for one country, or compare two similar countries, i.e. Central and Eastern European countries. Furthermore, as well as adding to recent scholarship in this area this note investigates the link between unemployment benefits and unemployment duration for two different labor markets by comparing France and Poland. Moreover, results of 2006-09 and 2011-14 periods are reported. Panel of Income and Living Conditions Survey (EU-SILC) from Eurostat is used. The empirical results show that in both countries receiving unemployment benefits prolong the unemployment duration in both periods.

The paper is structured as follows. The unemployment benefit system in France and Poland is put forward in section 2. Section 3 presents the data used for the analysis, and some basic descriptive statistics regarding the sample are calculated. Section 4 presents the empirical strategy used. In section 5, estimation results are presented. Lastly, section 6 gives the concluding remarks and policy recommendations.

Unemployment Benefit System in France and Poland

Since the establishment of the EU, European integration has been one of its major aims. However, it has not been always easy to achieve. Not having the same economic and social structure makes it harder for the EU to maintain its goal. Achieving this aim would also require some changes in terms of social transfers. Alsasua *et al.* (2007) classifies these changes into three parts. According to them, before accession of Southern and Central and Eastern European countries the EU had a more homogeneous *social protection system,* since those countries' welfare systems were not as well developed those of the other member states at the time of their accession. Moreover, having a monetary union has new implications for the European social system. While giving the authority to member states, the EU has the duty of giving recommendations to states (European Council, 1992). These recommendations

are presented to member states via the Lisbon Strategy, after the Lisbon Summit of European Council in 2000. In terms of social protection, the Lisbon Strategy presents OMC, which is aimed to give "*voluntary conciliation*" and provide policies accordingly to the member states. The economic structure of a country, basically its economic capacity, shapes the social benefits. Labor market dynamics (employment and unemployment situation) and financial capability set the amount of transfers to be put out by public authorities (Alsasua *et al.*, 2007).

Not only developing countries but also developed countries tackle unemployment problems. The economic, social, and cultural costs of unemployment are commonly debate issues in the literature. Both the social and individual aspects are taken into account, and the differences are inevitable and visible due to different labor market structures, legal systems, institutions, and unemployment benefits systems (Tansel and Taşçı, 2010). The individual's incentive to search for work is shaped by unemployment benefits. It can be either positive or negative. If the search activities are costly or a person holds out for a better-paid job, then it is negative. Otherwise, it positively affects one's incentive (Behar, 2009). The probability for an unemployed person to get a job offer and the probability of accepting this offer forms the probability to find a job for this individual. If the offered wage level is above a certain level, one is likely to accept the job offer (also called reservation wage). On the other hand, receiving a job offer depends on the labor market's condition and the job offer should be in accordance with the job seeker's effort. The more unemployment benefit received, the higher the reservation wage but the lower the search effort, thus lower probability of finding a job. When the country's economy is doing well and there are jobs in the labor market, unemployment insurance is effective; however, it is the opposite case in recessions (Şahin and Kızılırmak, 2007). According to the ILO, all individuals who are 15 and over and are not employed, and who used at least one search channel to find a job during the last 3 months and are available to start work within 15 days count as unemployed. Later, the ILO dropped the 'search for a job' requirement from the definition (Tansel and Taşçı, 2004).

Unemployment benefits play an important role as an automatic stabilizer over the business cycle, since it gives time to the unemployed individuals to find a new job and support their household's consumption during unemployment. According to Venn (2012), consumption (plus income and benefits coming from work) raises the individual's utility, while effort put into a job search reduces it. Unemployed people are enabled to receive unemployment benefits at a certain level and duration. People who have made a minimum contribution to the unemployment benefit system and have minimum employment record are entitled to be given benefits. In France, individuals must

contribute to the system for at least 122 days in the last 28 months and the Duration of the payment is between 122 to 730 days. On the other hand, in Poland individuals must contribute to the system for at least 365 days in the last 18 months. The Duration of the payment depends on the unemployment rate of the area where individuals live. It is either 6 months or 12 months. If the person resigns from his/her job, s/he does not have the right to apply for the unemployment benefit. Moreover, complying with the requirements does not mean that the individuals will receive the benefit. If one does not seek a job actively or does not accept a suitable job, again s/he does not receive the benefit, not to mention the sanctions.

Data and Descriptive Statistics

Data Description

Four-year panel of Income and Living Conditions Survey (EU-SILC) micro data of Eurostat for two periods (2006-09 and 2011-14) is employed in the analyses. Individuals who receive unemployment benefits is considerably little in the data therefore, four years of annual data is converted to forty-eight months of monthly data. Out of 28 EU member states France and Poland has been chosen for a reason. There are number of differences between France and Poland. A part of the explanation lies in France being the second largest populated EU member state after Germany. Second, France has a very high level of institutionalism. Theodoropoulou (2018) defines French labor market as "Continental European" and it is very rigid. And Poland has a very different labor market than France by having agriculture-based labor market. Registration with the social security system is obligatory to apply for unemployment benefits. In addition to that, to be eligible for the benefit, individuals must contribute to the system by paying premiums for a certain amount of days in total and prior to unemployment period. In France, individuals must contribute to the system for at least 122 days in the last 28 months[1]. In Poland individuals must contribute to the system for at least 365 days in the last 18 months[2]. Unemployment duration gives us the unemployment spell of an individual. It is the transition period of being unemployed to being employed (Kupets, 2006).

Descriptive Statistics

Descriptive statistics are presented in table 1. Law states that individuals have the right to receive unemployment benefits as long as they contributed to the system for a certain period. Duration of the benefit depends on the premium

[1] The duration of the payment is between 122 to 730 days.

[2] The duration of the payment depends on the unemployment rate of the area where individuals live. It is either 6 months or 12 months.

paid by the worker. Paid premium days of the individuals are not extracted due to the availability data. Therefore, as mentioned above, instead of number of eligibility months, amount of unemployment benefits[3] are taken into account. The sample is categorized as: all sample, unemployment benefit (UB) receivers, and non-unemployment benefit receivers. Since it is 48-month covered data average unemployment durations are 32 months in 2006-09 and 33 months in 2011-14. First period shows that unemployment duration is not longer whether individuals receive unemployment benefit or not. On the other hand, in the second period we see that individuals who do not receive unemployment benefit stay in unemployment longer than the ones who do receive. Average schooling in France is 8.4 years in the first period and 11.5 years in the second. Age variable shows that the average age of the sample is 39 in both periods. Moreover, age gap is quite visible for UB receivers and non-receivers both in 2006-09 and 2011-14. Regarding marital status variable, 45 % of the UB receivers and 24 % of non-receivers belong to married individuals in 2006. We see a decrease for UB receivers in the second period with 36 %. Occupation variables show that 15 % of the workers receive UB in 2006-09. However, in 2011-14 we see a dramatic increase by 49 % for UB receivers.

Table 1 Descriptive Statistics

	2006 – 2009			2011 - 2014		
	All Mean (Std.Dev)	**UB Mean (Std.Dev)**	**Non-UB Mean (Std.Dev)**	**All Mean (Std.Dev)**	**UB Mean (Std.Dev)**	**Non-UB Mean (Std.Dev)**
France						
Unemployment duration	31.944 (11.32)	31.963 (11.24)	31.911 (11.45)	32.876 (11.12)	32.445 (11.12)	33.646 (11.10)
Transition from unemployment	0.004 (0.06)	0.002 (0.05)	0.006 (0.079)	0.003 (0.06)	0.002 (0.04)	0.006 (0.08)
Amount of UB payments (all)	7245.112 (7202.49)			7047.904 (5780.28)		
Low amount of UB payments	0.209 (0.41)	0.331 (0.47)		0.182 (0.39)	0.284 (0.45)	
Middle amount of UB payments	0.157 (0.36)	0.248 (0.43)		0.238 (0.43)	0.371 (0.48)	
High amount of UB payments	0.246 (0.43)	0.389 (0.49)		0.204 (0.40)	0.318 (0.47)	
Education	9.492 (2.82)	9.418 (2.99)	9.619 (2.51)	11.598 (2.80)	11.731 (2.76)	11.356 (2.87)
Age	39.592 (13.67)	43.001 (12.84)	33.742 (13.06)	39.178 (13.32)	41.822 (12.66)	34.441 (13.16)
Marital Status	0.374 (0.48)	0.450 (0.50)	0.244 (0.43)	0.320 (0.47)	0.360 (0.48)	0.247 (0.43)
Gender	0.493 (0.50)	0.508 (0.50)	0.466 (0.50)	0.491 (0.50)	0.479 (0.50)	0.514 (0.50)
Observations	932256	589017	343239	1195035	766854	796471

[3] Data covers unemployment benefits plus severance payments.

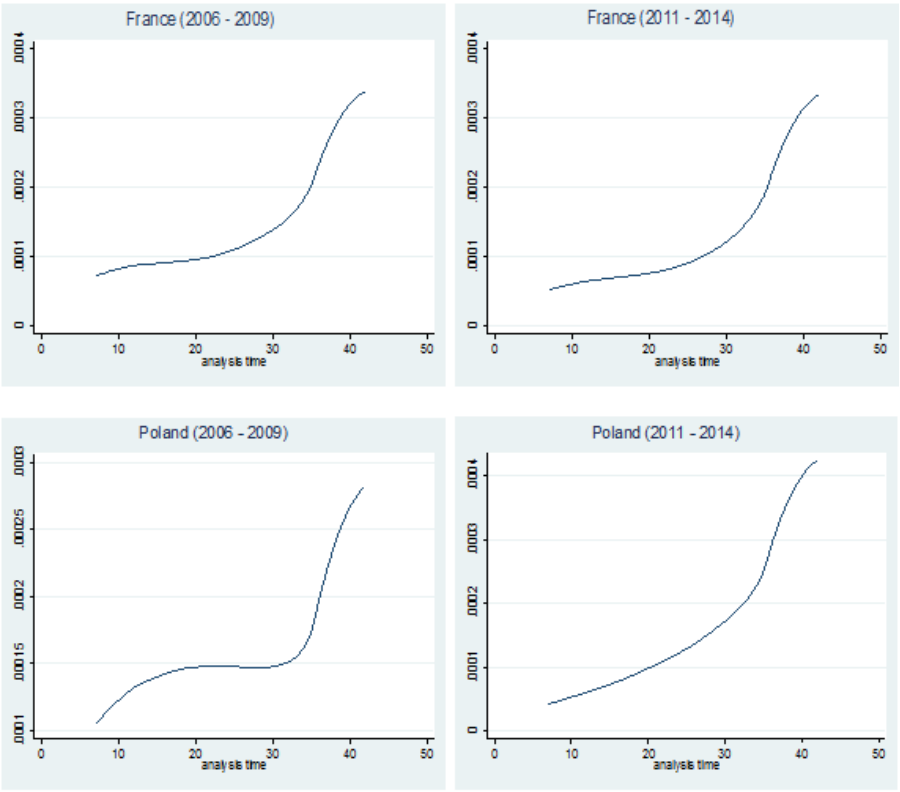
Table 1 Descriptive Statistics (continues)

Poland						
Unemployment duration	30.548 (11.29)	33.585 (10.21)	29.920 (11.40)	33.861 (10.12)	33.958 (10.19)	33.844 (10.11)
Transition from unemployment	0.004 (0.07)	0.001 (0.03)	0.005 (0.07)	0.004 (0.06)	0.001 (0.04)	0.004 (0.07)
Amount of UB payments (all)	1295.279 (2493.70)			1394.817 (1521.50)		
Low amount of UB payments	0.091 (0.29)	0.530 (0.50)		0.038 (0.19)	0.262 (0.44)	
Middle amount of UB payments	0.064 (0.24)	0.373 (0.48)		0.061 (0.24)	0.423 (0.49)	
High amount of UB payments	0.015 (0.12)	0.086 (0.28)		0.043 (0.20)	0.298 (0.46)	
Education	8.440 (2.49)	8.688 (2.49)	8.388 (2.48)	10.942 (2.60)	11.375 (2.50)	10.869 (2.61)
Age	38.172 (11.95)	40.948 (12.07)	37.598 (11.84)	39.495 (13.25)	46.672 (12.59)	38.275 (12.97)
Marital Status	0.577 (0.49)	0.686 (0.46)	0.554 (0.50)	0.538 (0.50)	0.720 (0.45)	0.507 (0.50)
Gender	0.554 (0.50)	0.536 (0.50)	0.558 (0.50)	0.512 (0.50)	0.555 (0.50)	0.505 (0.50)
Observations	1074611	184112	890499	1397177	203099	1194078

Source: SILC by EU-SILC.
Note: Amounts are in *EUR* for the EU countries.

On the other hand, in Poland, average unemployment duration is 31 months in the first period. As expected, individuals who receive UB stay unemployed longer. Regarding education variable, like France, we see that average year of schooling is 8.4. Second period indicate that 31 month long average unemployment duration expands to 34 months considering all sample. Furthermore, it is observed that comparison of average unemployment duration of UB receivers and non-receivers shows no difference. In 2011 period, average education level individuals attain rises up to 10.9 years. In both periods we observe that individuals who receive UB are older and average age lies in middle age group. Regarding marital status variable, 68 % of the UB receivers and 55 % of non-receivers belong to married individuals in 2006. The second period we look into reveal an increase as 72 % for the UB receivers but a decrease to 50 % of non-receivers belong to married individuals. Occupation variables show that 5 % of the workers receive UB in 2006-09. However, in 2011-14 we see a dramatic increase by 64 %.

Figure 1 Smoothed Hazard Estimates



Source: Eurostat, EU-SILC.

Other than duration of unemployment, the probability of leaving unemployment is lower for those who receive benefits, even though it is less than one-percentage point in all countries for both periods. Smoothed hazard estimates that show the average probability of exiting unemployment is presented in figure 1 for each country. The average probability of leaving unemployment for all samples is 0.004 in the first period and 0.003 in the second in France. And results for Poland indicate that it is was 0.004 in both periods.

Empirical Methodology

This note concerns individuals' probability of leaving unemployment. While doing that hazard model is the appropriate method to use given the fact that there are duration dependences, time-varying covariates, and censors[4].

[4] For detail please refer to Cox (1972); Ham and Rea (1987); Meyer (1990); Jenkins (1995).

Unemployment spell of the individual gives us their unemployment duration. There are different types of hazard models and this note uses accelerated failure time (AFT) model. In general, the accelerated failure time models are written in the form of

$$\ln(t_i) = x_i\beta_x + \epsilon_i$$

and the failure time t_i is assumed for

$$\tau_i = \exp(-x_i\beta_x)t_i$$

where $\exp(-x_i\beta_x)$ is accepted as an/the acceleration parameter. There are five different distributions of the AFT models. As AFT models are represented as $\tau_i = \exp(-x_i\beta_x)t_i$, *exponential AFT model* assumes that distribution of τ_i is exponential and includes the mean of exp (β_0).

As AFT models are represented as $\tau_i = \exp(-x_i\beta_x)t_i$, *Weibull AFT model* assumes that the distribution of τ_i occurs as Weibull with parameters, which are (β_0, p) and includes cumulative distribution function

$$F(\tau) = 1 - exp[-\{\exp(-\beta_0)\tau\}^p]$$

and as we have written the notation of

$$\ln(t_i) = x_i\beta_x + \ln(\tau_i) \text{ then } \ln(t_i) = \beta_0 + x_i\beta_x + u_i$$

where u_i has the Gumbel distribution with p shape parameter. Its survival function is written as

$$S(\mathrm{t}_i|x_i) = exp[-\{\exp(-\beta_0 - x_i\beta_x)t_i\}^p]$$

As AFT models are represented as $\tau_i = \exp(-x_i\beta_x)t_i$, *Log-normal AFT model* assumes that the distribution of τ_i occurs as lognormal with parameters, which are (β_0, σ) and includes cumulative distribution function

$$F(\tau) = \phi\left(\frac{ln\tau - \beta_0}{\sigma}\right) \text{ and } \phi()$$

function has Gaussian distribution; therefore u_i in

$$\ln(t_i) = x_i\beta_x + \ln(\tau_i) \text{ then } \ln(t_i) = \beta_0 + x_i\beta_x + u_i$$

is normally distributed with 0 mean and σ standard deviation. And its survival function is written as

$$S(\mathrm{t}_i|x_i) = 1 - \phi\left\{\frac{ln\, t_i - (\beta_0 + x_i\beta_x)}{\sigma}\right\}$$

As AFT models are represented as $\tau_i = \exp(-x_i\beta_x)t_i$, *Loglogistic AFT model* assumes that distribution of τ_i occurs as loglogistic with parameters, which are (β_0, γ) and includes cumulative distribution function

$F(\tau) = 1 - \left[1 + \{\exp(-\beta_0)\tau\}^{\frac{1}{\gamma}}\right]^{-1}$ and

$\ln(t_i) = x_i\beta_x + \ln(\tau_i)$ then $\ln(t_i) = \beta_0 + x_i\beta_x + u_i$

where u_i has the logistic distribution with 0 mean and $\pi\gamma/\sqrt{3}$ standard deviation. And its survival function is written as

$$S(\mathrm{t}_i|x_i) = \left[1 + \{\exp(-\beta_0 - x_i\beta_x)t_i\}^{\frac{1}{\gamma}}\right]^{-1}$$

As AFT models are represented as $\tau_i = \exp(\text{-}x_i\beta_x)t_i$, *Gamma AFT model* assumes that the distribution of τ_i occurs as generalized gamma with parameters, which are $(\beta_0, \kappa, \sigma)$ and includes cumulative distribution function

$$F(\tau) = \begin{cases} \mathrm{I}(\gamma, \mathrm{u}), & \text{if } \kappa < 0 \\ \phi(z), & \text{if } \kappa = 0 \\ 1 - \mathrm{I}(\gamma, \mathrm{u}), & \text{if } \kappa > 0 \end{cases}$$

where $\phi()$ is the standard cumulative distribution function and $\mathrm{I}(\gamma, \mathrm{u})$ is the incomplete gamma function.

$\ln(t_i) = x_i\beta_x + \ln(\tau_i)$ then $\ln(t_i) = \beta_0 + x_i\beta_x + u_i$

And its survival function is written as

$S(\mathrm{t}_i|x_i) = 1 - F^*(t_i)$

If $\kappa = 1$, then it has Weibull distribution, $\kappa = \sigma = 1$, then expotential distribution, and if $\kappa = 0$ it has lognormal distribution, since generalized gamma models include expotential, Weibull, and lognormal as special cases[5].

There is no doubt that receiving social transfers shapes people's decision on labor force participation. Therefore, a number of variables are used in the course of the analysis: leaving unemployment is used as a dependent variable; gender, age, marital status, education level, predicted wage, the number of earners in the household, unemployment rate, and occupation are included as independent variables[6]. This micro data allows us to investigate the unemployment duration by calculating the unemployment spells. Individuals' current economic status helps us determine the "unemployed" individuals each month. The dataset of EU-SILC did not allow us to calculate the duration of the social transfers and unemployment benefits received. Regarding unemployment benefits, since we could not reach that information, the amount of payment

[5] Please refer to Cox and Oakes (1984), Lawless (1982), Cleves (2008), Qi (2009), Collett (2003) for more about the AFT models.

[6] A table showing the definition of variables is given in Appendix.

from *"Unemployment benefits received in income reference period (EUR)"* is used in three categories as: low, middle, and high. Including these variables in the regression with other variables gave us the chance to interpret the elasticities of those variables in terms of the impact of different levels of unemployment benefits on the employment state of an individual. Table 2 shows different levels of UB variables. A more detailed definition of the variables can be found in appendix.

Table 2 Different Levels of UB Variables

	2006 – 2009			*2011 - 2014*		
	LowUB	***MiddleUB***	***HighUB***	***LowUB***	***MiddleUB***	***HighUB***
France	L<4500	4500≤M<7000	H≥7000	L<4000	4000≤M<8000	H≥8000
Poland	L<1000	1000≤M<2300	H≥2300	L<750	750≤M<1700	H≥1700

Source: SILC by EU-SILC.
Note: Amounts are in *EUR*. L: LowUB, M: MiddleUB, H: HighUB.

Empirical Findings

The relationship between unemployment benefits and its impact on unemployment duration is examined through survival analysis more specifically accelerated failure time model. The AFT model contains five different types of distributions: exponential, Weibull, lognormal, loglogistic, and gamma distributions. In order to pick the proper distribution, one must look at the lowest AIC (Akaike information criterion). However, the estimation results of Gamma distribution are not reported since other four distributions are nested in gamma distribution. The main purpose in this study is to monitor the probability of leaving unemployment of each individual in France and Poland. There are four different regressions that represent the impact of each independent variable on the probability of leaving unemployment. First regressor includes gender, education, and predicted wage variables, which is our base model. The second regressor includes all control variables, while third model comprised of unemployment benefits. And model number four included all explanatory variables plus unemployment benefits and a different level of unemployment benefits.

Table 3 AFT Hazard Model Summary Estimations

	2006 – 2009				2011 - 2014			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
France	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**
UB			0.309***	-0.154***			0.340***	-0.344***
			(0.0245)	(0.0296)			(0.021)	(0.0252)
LowUB				0.000559***				0.000567***
				(3.57e-05)				(3.08e-05)
MidUB				0.000175***				0.000253***
				(1.20e-05)				(1.05e-05)
HighUB				4.88e-05***				9.95e-05***
				(4.04e-06)				(4.60e-06)
Female	1.875***	1.866***	1.818***	1.614***	0.633***	0.821***	0.852***	0.755***
	(0.0459)	(0.0438)	(0.0434)	(0.0423)	(0.028)	(0.029)	(0.029)	(0.0284)
Lower edu	0.692***	0.639***	0.599***	0.521***	0.265***	-0.324***	-0.327***	-0.336***
	(0.0359)	(0.0333)	(0.0334)	(0.0329)	(0.023)	(0.022)	(0.022)	(0.0221)
Higher edu	-1.528***	-2.378***	-2.299***	-1.914***	0.413***	0.635***	0.645***	0.502***
	(0.0945)	(0.0952)	(0.0947)	(0.0942)	(0.038)	(0.041)	(0.041)	(0.0400)
Pre wage	0.870***	1.065***	1.028***	0.870***	0.127***	-0.106***	-0.118***	-0.0956***
	(0.0233)	(0.0253)	(0.0251)	(0.0248)	(0.006)	(0.007)	(0.007)	(0.00690)
Marital_sta		0.184***	0.127***	0.145***		0.240***	0.255***	0.191***
		(0.0274)	(0.0277)	(0.0278)		(0.026)	(0.025)	(0.0255)
Young		0.574***	0.620***	0.710***		-9.943***	-9.558***	-6.456***
		(0.0876)	(0.0875)	(0.0871)		(0.391)	(0.386)	(0.375)
Old		0.630***	0.557***	0.606***		1.050***	0.998***	0.698***
		(0.0481)	(0.0484)	(0.0481)		(0.038)	(0.037)	(0.0363)
Technicians		0.797***	0.720***	0.625***		1.168***	1.058***	0.941***
		(0.170)	(0.170)	(0.169)		(0.065)	(0.065)	(0.0643)
Pro		4.235	4.935	6.072		1.943***	1.890***	1.753***
		(318.2)	(485.1)	(655.5)		(0.174)	(0.174)	(0.173)
Elem_occ		-6.824***	-6.594***	-5.486***		1.455***	1.395***	1.185***
		(0.253)	(0.253)	(0.254)		(0.045)	(0.045)	(0.0437)
Workers		-6.391***	-6.198***	-5.229***		1.338***	1.274***	1.077***
		(0.184)	(0.184)	(0.184)		(0.035)	(0.034)	(0.0326)
No of earner		0.501***	0.506***	0.495***		-0.002	-0.009	-0.0112
		(0.0259)	(0.0257)	(0.0258)		(0.013)	(0.013)	(0.0126)
Un_rate		-5.589***	-5.371***	-5.914***		73.965***	71.770***	49.84***
		(0.995)	(0.994)	(0.987)		(2.731)	(2.699)	(2.615)
Constant	4.253***	3.907***	3.871***	4.236***	5.964***	-3.412***	-3.224***	-0.442
	(0.043)	(0.093)	(0.092)	(0.0943)	(0.043)	(0.330)	(0.326)	(0.319)
Observations	932256	932256	932256	932256	1195035	1195035	1195035	1195035

Table 3 AFT Hazard Model Summary Estimations (continues)

	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Poland	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**	**LL**
UB			0.783***	-0.507***			0.181***	-0.766***
			(0.057)	(0.084)			(0.030)	(0.0445)
LowUB				0.004***				0.00552***
				(0.0003)				(0.000579)
MidUB				0.001***				0.00149***
				(0.0001)				(9.71e-05)
HighUB				0.023***				0.000401***
				(0.000)				(2.90e-05)
Female	2.215***	2.049***	2.007***	1.997***	1.385***	1.281***	1.279***	1.243***
	(0.047)	(0.041)	(0.041)	(0.041)	(0.027)	(0.028)	(0.028)	(0.0273)
Lower_edu	1.059***	0.805***	0.766***	0.760***	0.513***	0.445***	0.438***	0.425***
	(0.045)	(0.041)	(0.040)	(0.040)	(0.024)	(0.025)	(0.025)	(0.0245)
Higher_edu	1.808***	0.495***	0.536***	0.549***	0.322***	0.131**	0.122**	0.133**
	(0.155)	(0.137)	(0.136)	(0.136)	(0.050)	(0.052)	(0.052)	(0.0517)
Pre_wage	0.565***	0.895***	0.850***	0.843***	0.277***	0.272***	0.270***	0.262***
	(0.016)	(0.020)	(0.019)	(0.019)	(0.005)	(0.007)	(0.007)	(0.00680)
Marital sta		0.206***	0.185***	0.176***		0.065***	0.053***	0.0749***
		(0.026)	(0.026)	(0.026)		(0.016)	(0.016)	(0.0164)
Young		-0.464***	-0.459***	-3.358***		1.602***	1.604***	1.626***
		(0.026)	(0.026)	(0.053)		(0.112)	(0.112)	(0.111)
Old		0.938***	0.884***	0.977***		0.537***	0.520***	0.515***
		(0.045)	(0.045)	(0.045)		(0.026)	(0.026)	(0.0261)
Technicians		1.612***	1.507***	1.512***		1.245***	1.225***	1.178***
		(0.310)	(0.309)	(0.309)		(0.080)	(0.080)	(0.0799)
Pro		208.824***	208.763***	318.583***		0.102	0.096	0.0768
		(0.000)	(0.000)	(0.000)		(0.101)	(0.101)	(0.101)
Elem occ		-5.109***	-4.833***	-4.788***		-0.031	-0.035	-0.0107
		(0.147)	(0.146)	(0.146)		(0.032)	(0.032)	(0.0317)
Workers		-3.060***	-2.925***	-2.897***		0.063***	0.053**	0.0505**
		(0.102)	(0.101)	(0.101)		(0.021)	(0.021)	(0.0203)
No of earner		0.645***	0.634***	0.636***		-0.040***	-0.041***	-0.0467***
		(0.022)	(0.022)	(0.022)		(0.006)	(0.006)	(0.00637)
Un rate		37.507***	37.885***	38.067***		-10.746***	-10.765***	-10.92***
		(0.453)	(0.453)	(0.454)		(1.040)	(1.039)	(1.036)
Constant	5.072***	4.276***	4.319***		4.458***	5.421***	5.436***	5.480***
	(0.055)	(0.052)	(0.052)		(0.026)	(0.118)	(0.118)	(0.118)
Observations	1074611	1074611	1074611	1074611	1397177	1397177	1397177	1397177

a) Standard errors are shown in parentheses.
b) * Significant at 10%; ** significant at 5%; *** significant at 1%.
c) E: exponential, W: Weibull, LN: log-normal, LL: log –logistic.

The analyses concerning France reveal that the coefficient estimate of the unemployment benefit receivers is significant for the 2006 –09 period. Unemployment benefits prolong the duration of unemployment to employment of individuals in France[7]. The model, which includes the amounts of unemployment benefits, allows us to comment on the elasticities of the UB effect on the transition state. Low, middle, and high amounts of unemployment benefits prolong the survival duration of the unemployed, while the variable coefficient that whether people receive unemployment benefits or not reveals that leaving unemployment happens to be faster for the ones who receive unemployment benefit payments.

[7] Tables showing full version of the AFT hazard model estimation results are given in the Appendix

.

Statistics show that the average unemployment duration of individuals is 31 months, which does not change for the ones who receive unemployment benefit or for the non-receivers. Different level of education shows different duration of leaving unemployment. The longer the individuals' education, the longer they stay unemployed. Opposite is valid for the highly educated individuals. As it is stated in descriptive statistics average age of the individuals is 39. Considering the average age, middle-age individuals are more likely to exit unemployment comparing to young and old age individuals. Marital status determines the labor force participation of the individuals. Being married often brings the pressure of taking care of more people to the household. However, in some cases single people find jobs more easily, since they are more mobile and can switch jobs easily. The survival duration of married unemployed people in our analysis is longer. The result is the same for females, their unemployment duration being longer than males in France. The results for the occupation dummies indicate that for those who are workers' and working in elementary occupations, the duration of unemployment to employment is shorter compared to managers. Meanwhile the coefficient estimates of professionals do not show any significance. The more earners there are in the household, the longer the unemployment duration in France. Regarding unemployment rate, results indicate that higher unemployment rate does not prolong the unemployment durations of the individuals. This may be explained with the fact that in this analysis unemployment rate is calculated with three age groups and not regionally.

The results for the 2011-14 period state that the survival time of unemployment is longer for unemployment benefit receivers. The estimation coefficient of regressor (4) indicates that transition state of exiting unemployment is shorter for unemployment benefit receivers but longer for low, middle, and higher UB receivers, as it is in 2006-09 period. Estimation coefficient of the age variable shows that young individuals' probability of leaving unemployment is shorter than middle and old age individuals. Hairault (2012) and Baguelin and Remilion (2014) state that unemployment insurance in France plays a crucial role for older individuals, until they reach retirement. This often creates the problem of unemployment insurance costs, especially for workers with high wages (Seignour *et al.*, 2007; Baguelin & Remilion 2014). On the other hand, it is important to keep the duration of unemployment benefit longer because older people are not in a position of negotiating for a job (until retirement) compared to younger workers. Thus, comprehensive policies are more useful (Belot and van Ours, 2004; Inderbitzin *et al.*, 2013; OECD, 2014; Baguelin and Remilion, 2014). In line with the existing literature, the survival rate of females, as well as the coefficient of age, is longer than males. The survival rate decreases as people get older. In the second period, we see a positive link between unemployment rate and unemployment duration saying

that higher unemployment rate prolongs the probability of exiting unemployment. Unlike the first period, education variables show that individuals who have higher education attainment have longer unemployment durations. Possible explanation lies in their high unemployment rate and low labor market participation. The individual's transition to employment is mostly determined by the duration of unemployment benefit. Moreover, more generous unemployment benefits shape the individuals' decision and effort on job search. In addition to that, even though the individual's wage increases with more generous unemployment benefits, longer unemployment spells makes them accept low-paid jobs (see Le Barbanchon, 2016; Schmieder *et al.*, 2016 for more). The analysis show that for all occupation dummies (technicians, professionals, elementary occupation employees, and workers), the employees' unemployment duration is longer compared to managers.

A summary table of analysis concerning Poland is presented in table 3. We have chosen to dwell on Poland for a few reasons. First, Poland has a considerably large population in the EU. Moreover, its high unemployment rate cannot be underestimated. Even though high unemployment rates are every country's problem, the situation is worth investigating in Central Europe not only economically but also politically. Most countries in Central Europe have transformed their economies from communism to capitalism and then to supranationalism (by entering the EU). Social transfer regulations constitute an important area of research in Poland. The first payment of unemployment benefits in Poland goes back to 1989. Before the 1991 reform, the unemployment benefit period was unlimited, with 70 % of wages in the first 3 months (Kwiatkowski, 1996). After 1991,[8] the maximum eligibility period was shortened to 12 months, with 36 % of wages. The aim was to reduce the administrative burden (Adamchik, 1999). It was a common idea that long unemployment durations were due to those unlimited benefit periods. However, Puhani (2000) argues that that regime was not to blame, even though it caused longer durations in unemployment (see Boeri and Keese, 1992; Góra, 1994; Steiner and Kwiatkowski, 1995 for more). There are a vast number of studies covering especially post-communist Poland. Góra and Schmidt (1998) focus on how the Polish government acted on social assistance and unemployment benefits in the post-communist era. Having an underdeveloped labor market with high unemployment rate and poverty pushed the Polish authorities to take initiatives on benefits so that poverty would diminish. However, receiving social assistance led individuals to be demotivated with regard to the job search. A great deal of research has been done to look into the effect of unemployment insurance benefits on unemployment duration (Moffitt, 1985; Nickell, 1979; Lancaster, 1979; Meyer, 1990; Atkinson and Micklewright, 1991; Pellizzari,

[8] "The Act on Employment and Unemployment of October 1991".

2006). Some of them find lower unemployment-exiting probabilities, while some finds the opposite. According to our estimation results unemployment benefits prolong the unemployment duration. Not only about Poland, but also studies about other CEECs show similar results. For example, Lubyova and Van Ours (1997) for Slovakia, Gabriel *et al.* (2017) for Romania, and Dănăcică and Mazilescu (2014) for Romania and Hungary find that the hazard rate of leaving unemployment is lower for UB receivers than for non-receivers. The estimation coefficient in our model, including the amounts of unemployment benefits, indicates that the transition state of exiting unemployment is shorter for unemployment benefit receivers but longer for low, middle, and higher UB receivers in both periods. Adamchik (1999) also finds that receiving unemployment benefits prolongs the unemployment duration. As in other EU countries mentioned above, the probability of exiting from unemployment speeds up when the exhaustion is near. In Poland, this has been more likely to happen since 1992, after the reform on unemployment insurance system in December 1991. Cazes and Scarpetta (1998) investigate the impact of unemployment benefits on the unemployment duration in Poland and Bulgaria. They come to the conclusion that, just as our findings suggest, the duration of unemployment of females are longer than males. Our results in both 2006-09 and 2011-14 periods point out that males are more likely to escape unemployment in a shorter period compared to females. Our results of age variable indicate that in both periods, middle age individuals are more likely to exit unemployment compared to old age ones (Góra and Schmidt (1998) finds similar results). When it comes to young people, we (as Newell and Pastore (2006)) find that in 2006 period young individuals tend to leave unemployment faster. However, the situation is the opposite in the 2011 period (similar to Cazes and Scarpetta (1998)).

Regarding education variable, we find that individuals who receive lower and higher education are more likely to stay unemployed longer than vocational education in both periods. Our results are in line with Mondschean and Oppenheimer (2011) in terms of having vocational degree education and shorter unemployment duration. Our results point out that in both periods the coefficient estimate of being married is negatively associated with the unemployment duration. One might unfold this with the income/support of the spouse so that one of them has the motive to stay unemployed. Adamchik (1999) finds that marital status provides different results for females and males. Married females are more likely to stay unemployed longer. Also, contrary to Newell and Pastore's (2006) estimates, our results show that the probability of leaving unemployment is shorter for workers in the 2006 period (until 2011 period). However, technicians tend to stay unemployed longer compared to managers in both timelines. We may elaborate this with reference to unemployment protection in large enterprises. Regarding the predicted wage of

the individuals, wage is negatively associated with the probability of exiting unemployment. As the job search theory explains, the more individuals wish to earn, the less likely they are to find a job that makes their duration of searching for a job longer. The number of earners in the household has a significant effect on the probability of finding a job in the period of 2011-14. If the number of earners in the household increases, then duration of unemployment is shorter. On the other hand, the 2006 period reveals that the more earners there are in the household, the longer the unemployment duration is, since there is income coming into the household. In Poland, unemployment rate has been decreasing since 2010. Moreover, after becoming an EU member in 2010, migration rate has been increasing causing a decline in labor supply. Increase in the investments and labor demand is another explanation of lower unemployment rate. So, in line with these facts, we found that in case of a higher unemployment rate, individuals' unemployment spell is longer.

Concluding Remarks and Policy Implications

This research has examined the impact of the unemployment benefits on unemployment duration in France and Poland. Vast amount of policies and reforms have been taken at the EU level. Panel of Income and Living Conditions Survey (EU-SILC) data is taken from Eurostat to conduct the empirical analyses of monthly periods over 2006-09 and 2011-14. The estimation is conducted by applying Accelerated Failure Time (AFT) model.

The empirical results of the AFT hazard model demonstrate that, in general, receiving unemployment benefits prolongs the unemployment duration in both periods. In Turkey, the more individuals receive unemployment benefit payment, the longer the duration of their unemployment. In France, receiving unemployment benefits extend the unemployment duration. Low, middle, and high amounts of unemployment benefits prolong the survival duration of the unemployed, while the variable coefficient—whether people received unemployment benefits or not–reveals that leaving unemployment happens to be faster for the ones who receive unemployment benefit payments. The transition duration is longer for social transfer receivers in both periods. In the first period, as the education level increases the duration of unemployment decreases. The second period shows the opposite. The survival duration of young and old individuals is longer than middle-aged individuals. The gender variable shows that females stay unemployed longer than males. As in France, unemployment benefits and social transfers as a whole prolong the unemployment spell in Poland. The model that includes amounts of unemployment benefits indicate that leaving unemployment is shorter for unemployment benefit receivers but longer for low, middle, and higher UB receivers in both periods. In both periods, we find that males are more likely to escape unemployment in a shorter period compared to females. We can

conclude that older individuals' probability to find a job is smaller than middle age in both periods. However, 15-29 years old individuals have lower probability of exiting unemployment in the 2011 period, while the effect is the opposite in 2006 period. Both periods indicate that having low and high education prolong the unemployment duration compared to vocational education degree.

Policy Implications: Remedying the long duration of unemployment

Our results reveal that receiving unemployment benefits prolongs the duration of unemployment. Therefore, the question is what could be done to eliminate this long duration or what could help to shrink it? One could suggest that active labor market policies (ALMPs) may help. In principle, ALMPs have been used as a common tool to fight long-term unemployment and increase employment probability. It is highly important for countries to share spending on ALMPs out of their GDPs. In 2015, the total spending on ALPMs was recorded as 2.98 % for France, and 0.73 % for Poland (OECD, 2018). Governments' initiatives help to improve the labor market conditions. In practice, measures may be taken in order to tackle the chronic skill mismatch problem so that individuals' unemployment duration is reduced. Through training and retraining programs, the aim is to eliminate the mismatch problem.

It is important to create harmony between employers and jobseekers in terms of their needs. Usually public training agencies play an intermediary role. However, demand between the two has been changing so that the efforts of those public agencies are inadequate. In that sense, it may be helpful to redirect the public funds to private and non-profit providers. Therefore, individuals who are hard to reach are not left out, i.e. Romania, Hungary, Bulgaria, Slovenia, and Serbia (World Bank, 2012). Public job creation plays a crucial role in fighting unemployment. Part of the long-term unemployed individuals is put in the labor force via job creation so that ALMPs reconstructs human capital. Nevertheless, there is evidence in terms of the positive and negative outcomes to the countries involved. For example, the effect of public job creation is positive in Colombia and India. On the other hand, it has decreased possible employment in Poland and Romania. Another policy implication is wage subsidies. If unemployed individuals wish to rejoin the labor force, wage subsidies help in the process. Subsidized jobs help individuals to foster and recuperate human capital. Hence, they are hired as regular employees. Not only do employees benefit from wage subsidies but also employers, since it shows the efficiency of an employee. Countries like Morocco and Argentina underline the positive impacts of wage subsidies, especially in youth labor market participation. However, in Poland men who are provided wage subsidies were more likely to stay out of the labor market (World Bank, 2012).

In order for ALMPs to be successful, it is important to adjust them according to the labor market needs. Moreover, stepping in upon labor market deficiencies so that employment outcomes are reached.

Appendix:

Definitions of Variables

Variable	*Definition*
Leaving unemployment (dependent variable)	1=exit, 0=otherwise
Gender	1=female, 0=male
Age	
Young	1= 15-29 years old 0= otherwise
Middle (Base)	1= 30-49 years old 0= otherwise
Old	1= > 50 years old 0= otherwise
Unemployment Rate	Unemployment rate (young, 15-29 years old) Unemployment rate (middle, 30-49 years old) Unemployment rate (old, > 50)
Marital Status	1= Married, 0= Otherwise
Education level (years of schooling)	
Lower *Not Graduated (Illiterate, Literate but not a graduate)* *Primary school* *Secondary school*	1= Lower education 0= Otherwise
High school	1= High school 0= Otherwise
Vocational (Base)	1= Vocational education
Vocational or technical high school	0= Otherwise
Higher *College = Faculty/university, college or higher education level*	1= higher education 0= Otherwise
Occupation	
Managers (Base)	1=managers, 0=otherwise
Professionals	1=professionals, 0=otherwise
Technicians and associate professionals	1=technicians, 0=otherwise
Workers *Clerical support workers* *Service and sales workers* *Skilled agricultural, forestry and fishery workers* *Craft and related trades workers* *Plant and machine operators, and assemblers*	1=workers, 0=otherwise
Elementary occupations	1=elementary occupations, 0=otherwise
Predicted wage	Predicted wage of an individual
Number of earners in the household	Number of earners in the household
Unemployment benefit status	1= received 0= not received

Note: Lower-high school-higher education for the EU countries in 2006-2009. Vocational secondary school instead of vocational high school for the EU countries in 2011-2014.

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