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BEVERIDGE CURVE SHIFTS – EUROPE 2020 PERSPECTIVES

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Abstract

The present paper aligns to the economic policy body of research granting intensive efforts to the sphere of analysing the unemployment rate's evolution as well as its primary drivers and effects in the context of the Europe 2020 strategy. Considering one of the agenda's main targets – increasing employability among the European Union's states, this paper analyses the areas funded by the European Social Fund as well as the country policy specifics in deriving the behaviour of the Beveridge curve associated with the EU-13 countries given the shift of European Union's funds from old member states to newer ones. As such, the study employs the tools of Simultaneous Equations Systems and examines the impact of four categories of components on the Beveridge curve's behaviour - structure of the unemployed, labour market and business environment factors as well as business cycles.

Keywords: Unemployment, Beveridge curve, Simultaneous Equations System, Economic policy

JEL classification: E24, J21, J64

1. INTRODUCTION

Starting from 2004, the European Union has enlarged more than during the previous 46 years since its foundation in 1958, encompassing 13 new member states from the Central and Eastern European former communist countries (Bulgaria – 2007, Croatia – 2013, Cyprus – 2004, Czech Republic – 2004, Estonia – 2004, Hungary – 2004, Latvia – 2004, Lithuania – 2004, Malta – 2004, Poland – 2004, Romania – 2007, Slovakia – 2004, Slovenia – 2004). In 2010, the Europe 2020 strategy was launched having as implementation horizon the 2014-2020 period and stating the European Union's commitment towards fighting against unemployment through supporting job creation and migration, business development, and lifelong learning schemes.

To achieve the strategy's targets (European Commission, 2010), the 2014-2020 European Social Fund (ESF) has generally increased its allocations for the new member states compared to the previous period (from 2.78%, Hungary to 842.20%, Croatia – Table no. 1). A shift in ESF allocations from the EU-15 to EU-13 member states is thus observed (a decrease of more than 30% is to be found in Denmark and Netherlands – Table no. 2).

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Table no. 1 – European Social Fund's allocations for the EU-13 member states

Country	2007-2013 allocations	Percentage from total	2014-2020 allocations	Percentage from total	Percentage change
Bulgaria	€ 1,179,738,062	1.54%	€ 1,460,627,776	1.82%	23.81%
Croatia	€ 152,413,106	0.20%	€ 1,436,033,035	1.79%	842.20%
Cyprus	€ 119,769,154	0.16%	€ 129,488,887	0.16%	8.12%
Czech Republic	€ 3,673,107,340	4.79%	€ 3,396,923,124	4.23%	-7.52%
Estonia	€ 391,517,329	0.51%	€ 443,022,913	0.55%	13.16%
Hungary	€ 3,612,105,277	4.71%	€ 3,712,540,948	4.62%	2.78%
Latvia	€ 583,103,717	0.76%	€ 629,240,231	0.78%	7.91%
Lithuania	€ 1,028,306,727	1.34%	€ 1,120,144,401	1.39%	8.93%
Malta	€ 112,000,000	0.15%	€ 105,893,448	0.13%	-5.45%
Poland	€ 10,007,397,937	13.04%	€ 12,817,448,274	15.96%	28.08%
Romania	€ 3,684,147,618	4.80%	€ 4,774,035,918	5.94%	29.58%
Slovakia	€ 1,484,030,338	1.93%	€ 1,991,329,107	2.48%	34.18%
Slovenia	€ 755,699,370	0.98%	€ 617,444,136	0.77%	-18.30%

Source: author's processing based on data provided by the European Commission

Table no. 2 – European Social Fund's allocations for the EU-15 member states

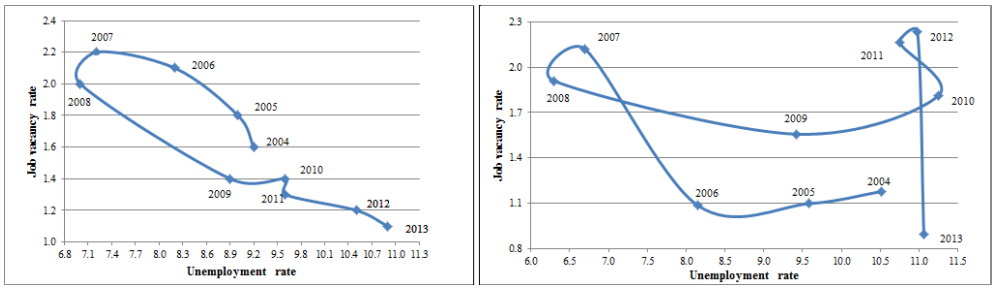
Country	2007-2013 allocations	Percentage from total	2014-2020 allocations	Percentage from total	Percentage change
Austria	€ 524,412,560	0.68%	€ 425,582,003	0.53%	-18.85%
Belgium	€ 1,073,217,594	1.40%	€ 1,028,719,649	1.28%	-4.15%
Denmark	€ 254,788,619	0.33%	€ 163,252,509	0.20%	-35.93%
Finland	€ 618,564,064	0.81%	€ 515,260,355	0.64%	-16.70%
France	€ 5,494,547,990	7.16%	€ 6,026,907,278	7.50%	9.69%
Germany	€ 9,380,654,763	12.22%	€ 6,723,160,961	8.37%	-28.33%
Greece	€ 4,363,800,403	5.69%	€ 3,335,044,542	4.15%	-23.57%
Ireland	€ 375,362,370	0.49%	€ 491,999,478	0.61%	31.07%
Italy	€ 6,960,542,469	9.07%	€ 8,246,466,857	10.27%	18.47%
Luxembourg	€ 25,243,666	0.03%	€ 20,056,223	0.02%	-20.55%
Netherlands	€ 830,002,737	1.08%	€ 507,318,228	0.63%	-38.88%
Portugal	€ 6,853,387,865	8.93%	€ 7,053,210,773	8.78%	2.92%
Spain	€ 8,018,292,796	10.45%	€ 7,478,571,457	9.31%	-6.73%
Sweden	€ 691,551,158	0.90%	€ 730,722,851	0.91%	5.66%
United Kingdom	€ 4,498,917,728	5.86%	€ 4,942,593,693	6.15%	9.86%

Source: author's processing based on data provided by the European Commission

The EU's focus on fighting against unemployment as a tool of fostering an environment for smart, sustainable and inclusive growth is in synchronisation with the unemployment rate's social and economic importance - an increase in the unemployment rate has a negative impact on the national budget both from the social benefits governmental expenditures perspective and from the fiscal incomes one. The national and supranational authorities at the European Union level in charge with controlling and combating the unemployment rate have mostly focused their efforts on increasing the job vacancy rate considering that an increased number of job vacancies is associated to lower unemployment rates.

Still, economic history showcases periods of increased unemployment and job vacancy rates, such as the 2010-2012 period for EU-13. Given the complexity of the subject matter, the present study has considered employing the Beveridge curve as a tool for examining the relationship between the unemployment rate and the job vacancy rate and analysing the factors associated with its behaviour.

The Beveridge curve's usefulness derives both from analysing the efficiency of the matching mechanism[1] and from determining the stage of the economy[2]. As such, the 2008-2009 period represents a time of increasing efficiency for the EU-28 compared to previous years, but it also accounts for a period of decreasing efficiency for the block of the 13 new member states (see Figure no. 1).



Source: Author's processing based on Eurostat data

Figure no. 1 – EU-28: Beveridge curve (2004-2013) (left pane) | EU-13: Beveridge curve (2004-2013) (right pane)

Moreover, the 2010-2012 time interval is a period of increased inefficiency in the EU-13's labour markets. These findings might suggest different job market behaviours for the EU-28 compared to EU-13, reinforcing the need for a separate analysis for the later ones. Furthermore, in both cases, the 2007-2008 time interval corresponds to periods of economic boom for both cases and the year 2013 could be considered as a period of economic restoration.

2. THEORETICAL FRAMEWORK

A common trait of the EU-13 member states is their primarily focus on rather passive labour market regulations during the first years after the fall of communism; the objective of the undertaken measures was that of controlling the phenomena and avoiding its large scale chronicity. On the other hand, the policy liberalization debate can be traced back to Milton Friedman; researchers such as Mortensen and Pissarides (1999) explained the differences in European and US unemployment rates considering the differences in policy settings. As such, present paper focuses on the legislator's role played in setting policies meant at fostering a low unemployment rate.

Thus, the research hypothesis is defined as – behaviours inside the EU-13 Beveridge curve are explained by:

- changes in the pool of unemployed,
- labour market reforms,
- business environment reforms,
- business cycles.

Firstly, the structure of the unemployed represents a central focus in the context of the European Social Fund's commitment towards investing in lifelong learning schemes[3].

As such, on the one hand, the unemployed exhibiting low degrees of experience were considered, namely the women and the youth – "While the unemployment rate of the prime age male workers has in most countries fluctuated around generally moderate average rates, those of the youth have fluctuated quite widely around considerably higher average rates" (Jimeno-Serrano and Rodriguez-Palenzuela, 2002, p. 1). The analysed variables in this respect were female unemployment rate expressed as the percentage of the total female population aged between 15 and 64 (data source: Eurostat) and youth employment rate expressed as the proportion of the total population aged between 15 and 24 (data source: Eurostat). Given the low level of experience and job attachment exhibited by these categories, a negative relationship between youth employment rate and the unemployment rate is expected and thus an inward movement of the Beveridge curve (increased efficiency in the matching function for greater female and youth employment rates) and a positive relationship between women unemployment rate and the level of unemployment, respectively.

On the other hand, the population in long-term unemployment were considered, defined as persons in unemployment for more than one year as the percentage of the total population (data source: Eurostat) to test for the need of requalification courses. Based on the hysteresis theory[4], previously confirmed by Dimian (2011), a positive relation between the long-term unemployment rate and the unemployment rate is expected and thus, an outward shift of the Beveridge curve (increased inefficiency in the matching function for increased long-term unemployment rates).

Further on, with respect to labour market factors, Ferenț-Pipaș and Armean (2016) proposed a country-clustering of the European labour markets based on several policy indicators. They have further tested for the existence of a preferred labour market regime (characterised by either more or less rigid regulations). In doing so, they analysed the unemployment and job vacancy rates' behaviours for the different identified regimes. The study did not showcase a systematically outperforming labour market model. Still, neither one of the country clusters identified by their study emphasised a purely liberal nor a purely rigid regime, but rather different mixings of both liberal and rigid policies. Thus, continuing the current debate on the liberalization of the labour market, present study analyses the impact of the minimum wage and unemployment benefits on the Beveridge curve's behaviour.

To begin with, the minimum wage data was extracted as a percentage of the median wage (data source: Eurostat). Following, five dummy variables were constructed:

- no minimum (corresponding to countries/years in which there was no minimum wage policy in place),
- minimum 35 (corresponding to countries/years in which the minimum wage was lower than 35% of the median wage),
- minimum 45 (corresponding to countries/years in which the minimum wage was equal or greater than 35% of the median wage, but lower than 45%),
- minimum 55 (corresponding to countries/years in which the minimum wage was equal or greater than 45% of the median wage, but lower than 55%),
- minimum 65 (corresponding to countries/years in which the minimum wage was equal or greater than 55% of the median wage and lower than 65%).

The split was done following the literature review. On the one hand, Bouvet (2012) shows an increased efficiency in the matching mechanism for the case in which there is a minimum wage policy in place as opposed to the non-existence of one reason for which, the first dummy variable was constructed for the countries which do not have a minimum wage policy in place. On the other hand, Blanchard (2005, p. 24) has argued that the impact of the minimum wage policy does not only stand in the implementation of it, but also in the stipulated level. Moreover, Blanchard *et al.* (2013, p. 23) stated that a minimum wage set above 40% of the median income has a negative impact on the unemployment rate for the low skilled workers. As such, the other four dummy variables were used.

To continue, the unemployment benefits data was used as a percentage of the GDP (data source: Eurostat). Blanchard *et al.* (2013, pp. 10-16) have suggested that the level of unemployment benefits is less relevant than the insurance system's design – duration considerations and ways that provide for the reintegration of the unemployed on the labour market. For the present paper, the authors consider only the level of compensations as a testing tool for the relevance of this passive measure[5].

Regarding the business environment reforms, Ferenț-Pipaș and Armean (2016) proposed a country-clustering of the European business environments and performed a cross-country comparison similar to the labour market exercise. Again, their study did not showcase a systematically outperforming model. In assessing the business environment's impact on the Beveridge curve's shifts, present study used a composite factor for easiness of starting a business as well as the total tax rate. The ease of starting a business is a derived percentile ranking (source: Doing Business – World Bank Group) which measures the number of procedures to legally start and operate a company, days needed to complete each procedure, cost required to complete each procedure as well as paid-in minimum capital. The reasoning behind the introduction of this variable is that a higher ranking, i.e. a more flexible business environment, would mean a more accessible market for new companies and thus the facilitation of job creation. An inward movement of the Beveridge curve (increased efficiency in the matching function for increased easiness of starting a business) is thus expected.

Taxation data represents the total tax rate as a percentage of commercial profits (source: World Bank). It is considered that a higher tax rate translates into a more rigid business environment, decreasing the general competitiveness of the companies through imposed burdens on the micro and small enterprises and thus decreasing the job vacancy rate. An outward movement of the Beveridge curve (increased inefficiency in the matching function for increased easiness of starting a business) is thus expected.

Last but not least, the fourth analysed component category refers to the changes in the business cycles. Benati and Lubik (2013) suggest the strong impact of the productivity shocks upon the unemployment and job vacancy rates, respectively. In this regard, the output gap variable was examined. The series was computed as the difference between the real and the potential gross domestic product (GDP-source: Eurostat), where the later was expressed as the de-trended series of the first. In order to eliminate the trend from the real GDP the Hodrick-Prescott filter was applied, with a frequency of 6.25, given the annual nature of the data. A decrease on average in the unemployment rate given an increase in the output gap is expected.

3. RESEARCH METHODOLOGY

The present study used data belonging to the EU-13 member states. The sample included a 10-year period, namely the decade prior to the Europe 2020's launch (2004-2013). Accessed databases include Eurostat, World Bank, and collaborators of them.

Table no. 3 presents several descriptive statistics indicators for the analysed variables. Thus, when comparing the mean and median values in general terms, a low difference between the two may be observed, suggesting the mean's representativeness for the analysed sample and the inexistence of significant outliers. Therefore, in the 2004-2013 period, there is an average unemployment rate of 9.35% compared to 1.49% for the job vacancy rate. Still, a distressing aspect here is the difference between the minimum and maximum values of these rates, suggesting the existence of a heterogeneity level between the 13 analysed European Union member countries, and between the studied years, respectively. A possible explanation in this direction may also be the inclusion of different economic cycles in the study.

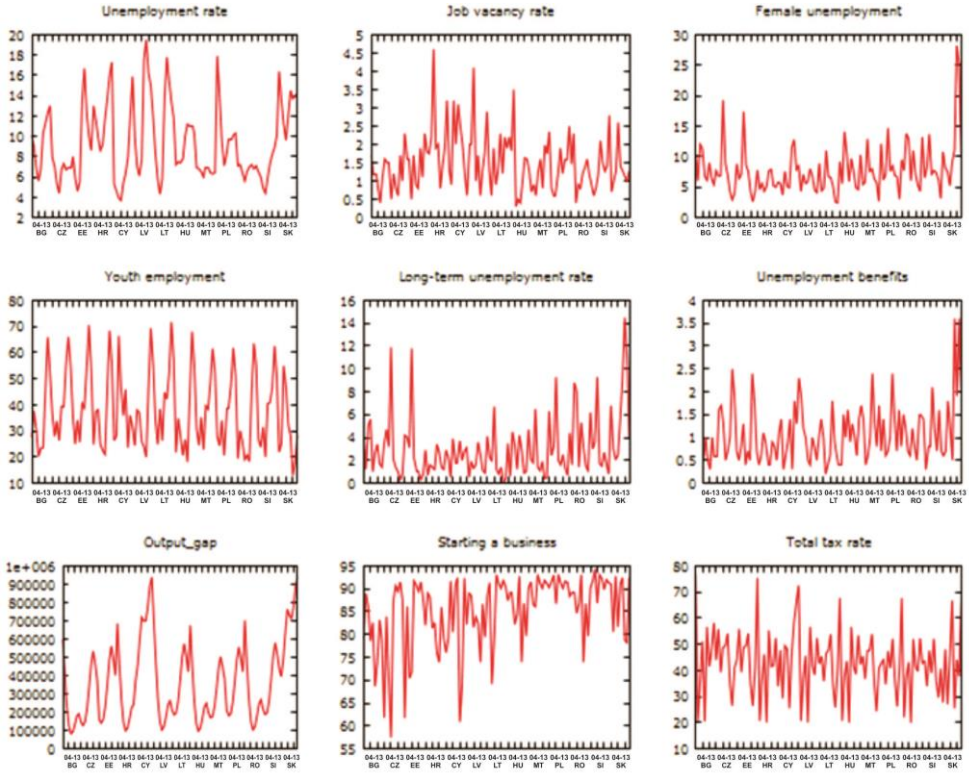
Table no. 3 - Descriptive statistics for the endogenous and exogenous variables

	Mean	Median	Minimum	Maximum
Unemployment rate	9.3513	8.1	3.7	19.5
Job vacancy rate	1.4904	1.3250	0.3	4.6
Structure of the unemployed				
Unemployment rate – women	7.7701	7.1	2.4	28.2
Employment rate – youth	37.768	35.9	13.0	71.7
Long term unemployment	3.012	2.1	0.1	14.5
Labour market				
Unemployment benefits	1.0752	0.9	0.2	3.6
Business cycles				
Output gap	0.000036	0.000027	0	0.000094
Business environment				
Starting a business	85.032	87.550	57.440	94.330
Taxation	42.684	42.5	19.8	76.8

Source: author's processing in Gretl

Given the recession period included in the analysis, a visual inspection was taken on the time series corresponding to the studied indicators in order to detect possible structural breaks inside the analysed period (see Figure no. 2). Further on, the Levin-Lin-Chu test was employed in testing for the presence of the unit root. Validating the stationarity assumption for all the variables was done through rejecting the null hypothesis, i.e. the panels contain unit roots, at a 5% significance level.

The Pooled Ordinary Least Squares technique (Pooled OLS) was employed in testing for the impact of the above-described factors on the Beveridge curve. Specialists consider the Pooled OLS method as unlikely to be adequate, but it provides a baseline for comparisons with more complex estimators was firstly conducted. As such, the Hausman test was further performed to test for the existence of a simultaneous determination of the unemployment rate and the job vacancy rate. The null hypothesis that the independent variable is not correlated with the residuals of the model was rejected. Given the obtained results the estimations were further carried out through Simultaneous Equations System (SES)[6].



Source: Author's processing in Gretl

Figure no. 2 – Time series graphs

The equation system (Equation 1 and 2) was built based on the methodology presented by Wooldridge (2002, pp. 501-522). To begin with, no exclusion restrictions were imposed as the economic theory supports a partial overlap of the exogenous variables. Subsequently, the necessary and sufficient conditions for the identification of the structural equation - the order and rank conditions, were verified. Considering the order condition, i.e. the structural equation excludes at least one exogenous variable, the easiness of starting a business and the corporate tax rate were used as exogenous variables only for the job vacancy rate equation given the economic reasoning explained earlier. Next, the dummy variable for the former members of the Soviet Union was constructed in order to eliminate the unobserved effects from the equation of interest and it was also tested for the existence of differences in the Beveridge curve of these respective countries compared to the rest of the sample.

$$unemployment\ rate = \beta 0 + \beta 1 * job\ vacancy\ rate + \beta 2 * job\ vacancy\ rate^2 + \beta 3 * women\ unemployment\ rate + \beta 4 * youth\ employment\ rate + \beta 5 * long\ term\ unemployment\ rate + \beta 6 * minimum\ wage\ 35 + \beta 7 * minimum\ wage\ 45 + \beta 8 * minimum\ wage\ 55 + \beta 9 * minimum\ wage\ 65 + \beta 10 * unemployment\ benefits + \beta 11 * output\ gap + \beta 12 * ex\text{-}soviet\ country + \varepsilon \quad (1)$$

$$job\ vacancy\ rate = \beta 0 + \beta 1 * unemployment\ rate + \beta 2 * unemployment\ rate2 + \beta 3 * minimum\ wage\ 35 + \beta 4 * minimum\ wage\ 45 + \beta 5 * minimum\ wage\ 55 + \beta 6 * minimum\ wage\ 65 + \beta 7 * unemployment\ benefits + \beta 8 * output\ gap + \beta 9 * starting\ business + \beta 10 * taxation + \beta 11 * ex\text{-}soviet\ country + \varepsilon \quad (2)$$

Table no. 4 – The results of the Three-Stage Least Squares estimations

Exogenous variables	Endogenous variable: unemployment rate	Endogenous variable: job vacancy rate
Constant	-15.5658*(0.0585)	0.158657 (0.9383)
Job vacancy rate	16.5745**(0.0184)	-
Unemployment rate	-	0.946331* (0.0667)
Job vacancy rate squared	-3.21350**(0.0310)	-
Unemployment rate squared	-	-0.0393714* (0.0921)
Unemployment rate – women	0.554232 (0.1338)	-
Long term unemployment rate	-0.473346 (0.2476)	-
Minimum wage - <35% median wage	5.58287 (0.1978)	-2.73092** (0.0145)
Minimum wage - <45% median wage	7.79858* (0.0789)	-3.11716*** (0.0051)
Minimum wage - <55% median wage	8.12545* (0.0684)	-3.21667*** (0.0033)
Minimum wage - <65% median wage	10.4298** (0.0306)	-3.30802*** (0.0025)
Unemployment benefits	1.26316* (0.0961)	-0.333948** (0.0294)
Output gap	-0.00000615741 (0.1048)	0.0000009849* (0.0572)
Total tax rate	-	-0.0143595** (0.0381)
Former Soviet Union member states (dummy)	1.69505*(0.0922)	0.155958 (0.5340)
Residuals' correlation	-0.51	
Breusch-Pagan test	30.3761 (0.0000)	

Source: Author's processing in Gretl
*Note: Within parentheses there are the p-values. *** denotes 1% significance level, ** 5% significance level and * 10% significance level.*

Then, a stepwise estimation with backward selection was conducted through Two-Stage Least Squares method (2SLS). Afterwards, the model was re-estimated through Three-Stage Least Squares (3SLS) as the Breusch-Pagan's null hypothesis, i.e. there is no correlation between the residuals of the 2SLS model was rejected at 5% significance level[7]. As the total tax rate is statistically significant, the preferred model (Table no. 4) met the rank condition, i.e. at least one of the excluded regressors from the first equation should have a statistically significant coefficient in the second regression. Thus, it may be concluded that by meeting the order and rank conditions, the structural equation is well identified by the estimated model.

4. FINDINGS AND DISCUSSIONS

The estimated model may suggest the presence of different forms of structural and voluntary unemployment (inefficiency in the labour market matching mechanism) given the steep slope and the concavity of the Beveridge curve emphasized. These results are opposing those of previous studies such as Bouvet (2012), which might suggest a difference in the labour markets of the Western and Eastern European countries explained by the difference in the economic history[8]. Sources of structural and voluntary unemployment might be: the mismatch of the required and detained job skills, the unavailability of jobs in the high unemployment regions and high distance or low resources to move to high vacancy rate ones or low wage levels. As such, the results may argue in favour of the Horizon 2020's goals of increasing the number of lifelong learning schemes, creating more jobs and supporting the job migration among member states. Similar recommendations were suggested by Ciumaș and Văidean (2011) – increasing active labour market polices such as

the development of lifelong learning strategies in cooperation with social partners or developing new products targeting groups of persons that face difficulties in getting employed through mitigating the discrepancies between the labour market demand and supply.

Considering the job market factors, the minimum wage dummies support the apriori hypothesis arguing in favour of a liberalization of the job market as there is emphasized a negative relation between the four minimum wage levels and the job vacancy rate - the enforcement of a minimum wage policy is associated with an outward movement of the curve and thus a decreased efficiency in the matching function; moreover, the results suggest that the job vacancy rate decreasing rate is higher as the minimum wage is higher as percentage of the median wage. The results oppose those of Bouvet (2012); this might indicate the fact that it is not only the undertaken measure that counts, but that there might be a country specific effect as well (including historical, economic, cultural and social considerations). What is more, the results are not in synchronisation with Blanchard *et al.* (2013) recommendations as for the analysed sample any level of the minimum wage has an outward effect on the Beveridge curve.

In addition, the structural and voluntary unemployment assumption is strengthened by the results obtained on the unemployment benefits as these seem to shift the Beveridge curve outwards (i.e. increased inefficiency in the matching mechanism). This suggests that the unemployment benefits may provide an incentive for those in unemployment not to accept any offer received considering the opportunity cost. An important future research direction in this sphere is represented by considering the density of trade unions which represent an important bargaining factor in the wage setting. It is expected that the increase in trade unions density would offset the negative effects of the unemployment benefits.

Considering the business environment factors, the corporate tax rate has a negative impact on the job vacancy rate and thus drives an outward movement in the Beveridge curve. The results are in synchronisation with the apriori assumptions - a higher tax rate translates into a more rigid business environment, decreasing the general competitiveness of the companies through imposed burdens on the micro and small enterprises and thus decreasing the job vacancy rate.

Furthermore, with respect to the influence of the business cycles, the resulted model suggests an inward movement of the Beveridge curve driven by a positive output gap (an increase in the job vacancy rate). The influence of the output gap is minor as compared to the other examined components; as such a focus of the policy makers on the lifelong learning schemes, supporting job migration programs and liberalizing the labour market and business environment legislation might mitigate the effects of a possible negative output gap.

Lastly, the results suggest an increased inefficiency in the matching mechanism for the former Soviet Union members as opposed to the rest of the sample. These results might indicate the need for an increased focus of the European Union's efforts towards these countries as compared the rest of the sample.

5. CONCLUSIONS

The paper contributes to the debate on the liberalization of the labour market in the context of Europe 2020 strategy. Considering the European Union's commitment towards creating more jobs in order to offset the present high unemployment rates, the paper has employed the Beveridge curve in order to analyse the impact of the structure of

unemployed, labour market and business environment factors as well as business cycles, upon the labour market matching mechanism for the EU-13 member states.

Findings suggest that the decade prior to the Europe 2020's launch presents different forms of structural and voluntary unemployment in the analysed countries, findings which support the strategy's targets of increasing the number of lifelong learning schemes, creating more jobs and supporting the job migration among member states. What is more, it seems that there is an increased inefficiency in the Beveridge curve associated with the former Soviet Union's members, which might suggest the need for increased efforts of the European Union towards these countries as opposed to the rest of the sample.

Furthermore, results incline towards a liberalization of the labour market; both minimum wage and unemployment benefits seem to contribute to an increased inefficiency in the matching mechanism by reducing job opportunities for low-skilled workers and encouraging voluntary unemployment forms. A shift to active measures such as facilitating job migration, lifelong learning programmes or supporting business initiatives is thus recommended. Similar results were obtained for the business environment, i.e. a rigid framework has negative externalities on the matching mechanism through negatively influencing the job vacancy rate.

Nevertheless, in synchronisation with the Europe 2020's targets and current research findings, an important future research direction is represented by employing the tools of spatial econometrics to account for the migration effect as the Agenda also targets the refugees and legal migrants.

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Notes

[1] Inward shifts of the Beveridge curve may be interpreted as an improvement in the labour market matching mechanism, whilst outward shifts may suggest a decline in the efficiency of the labour market matching mechanism.

[2] Points in the upper-left side of the Beveridge curve may be attributed to periods of economic boom, whereas points from the bottom-right side of the curve may be attributed to periods of economic recession or economic restoration.

[3] Crucially, the Funds will invest in the skills and adaptability of Europe's workforce, giving tens of millions of people, including young people, opportunities to (re)train or start businesses (European Commission, 2015, p. 2).

[4] The long term unemployment rate affects the matching function due to the deterioration of human capital in time.

[5] During the first years after the fall of the communism, the former communist countries have primarily focused on passive protection actions, i.e. granting financial benefits. The premise behind the unemployment policies was that, under certain limits, this represents a natural phenomenon in the context of a free market economy; the objective of the undertaken measures was that of controlling the phenomena and avoiding its large scale increasing chronicity.

[6] According to Wooldridge (2002, p. 507), in the context of simultaneous endogeneity, the OLS estimator suffers from simultaneity bias, the most efficient estimation method in this case being the estimation based on a Simultaneous Equations System (SES).

[7] Three-Stage Least Squares is considered a more efficient method as compared to the Two-Stage Least Squares in this case as it controls both for the simultaneous endogeneity and for the presence of the correlation between residuals.

[8] Bouvet (2012) analysed the Beveridge curve associated to five West European countries; Belgium, Germany and the Netherlands were founders of the European Community – 1958; United Kingdom was part of the first European Union enlargement – 1973; Spain was part of the Iberian enlargement – 1986; the Eastern Germany was supported by the Western part since the fall of the Berlin Wall. The countries analysed by the present study joined the European Union starting from the 2004. They had a non-capitalist background and benefited from the European Union's fund for shorter period.