Labour Market Policies in the CEE Region during Recession

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Abstract

The seriousness of the recent economic downturn led the Central Eastern European Countries (CEE) to adopt a set of countercyclical economic policy measures including those focusing on the fall of employment and unemployment raise. This paper provides an overview of applied countercyclical labour market policies in the CEE region and examines the effectiveness of labour market policies in the CEE region. The effectiveness of labour market policies are assessed with respect to (1) the power to change the underlying trend in employment and unemployment development (or the occurrence of a structural break) and (2) their timeliness. The results of structural or breakpoint tests did not unambiguously identify the change in (un)employment time series. Therefore, we cannot conclude that the applied countercyclical labour market measures in the Czech Republic, Hungary and Slovakia have been efficient, since they have not disrupted the cyclical trend in (un)employment time series.

JEL classification codes: **C20, E60, E32, H50, J60**
Keywords: **economic crisis, countercyclical policy, structural break, labour hoarding**

1. Introduction

European labour markets experienced changes caused by the Great Recession at the end of last decade. In general, there is hope for only fragile and jobless recovery. But there are substantial differences in the development of labour markets of EU member states. There are changes in unemployment inflow and outflow rates described for example in Arpaia (2010). In some countries (the Czech Republic, Slovakia, Denmark and the Netherlands, Slovenia, Romania, Finland) there is a pick up in inflow rates as outflow rates even improve. In France and Germany both rates decline slightly. In the rest of EU member states the inflow rate into unemployment increases and the outflow rate decreases. There are different developments in sectoral structures of GDP and (un)employment, too.

The labour market that is hit by an exogenous shock e.g. the recent financial turmoil in most developed countries might response through (1) price changes (changes in wages or labour costs) (2) quantity changes in number of (un)employed or in the total number of hours worked or (3) adjustment in the labour structure (geographical and occupational). The government might or might not react by appropriate policy measures. If it decides to apply active countercyclical labour policy measures, it should consider the social and economic pros and cons of such actions. The effectiveness of the measures might be evaluated ex-post from different aspects. For example, the European Commission turned its focus on the extent which

measures are target at specific groups in the labour market, their timeliness and the extent to which they are in line with broad EU's principles.[1]

This paper assesses the effectiveness of labour market policy responses with respect to (1) the power to change the underlying trend in employment and unemployment development and (2) their timeliness. Other aspects are not considered.

The structure of the paper is as follows. Following the Introduction, the second chapter describes the countercyclical measures that the individual CEE countries adopted. The Chapter 3 presents the data sources, the theoretical background and the results of applied econometric tests including Unit Root Test, Recursive Residual Test and Quandt-Andrews Breakpoint Test. The Conclusion summarizes the results of the tests and discusses their policy implications. The very end of the Conclusion indicates in which direction the further analysis might proceed.

2. Labour Market Policy Measures in CEE

The global financial crisis hit all countries in Europe. Fortunately, the CEE countries were not hit by sector-specific shocks (such as in Spain or Ireland), rather by a contraction in external demand. Nevertheless, the structure of the CEE economies is quite different much like their robustness. As a result, the extent of labour market adjustment and its character has been by no means identical within the CEE region as it is partly recorded in Table 1. Slovakia was the most hit country within the CEE region with a deep drop in production growth and sizeable increase in jobless rate.

The only country that escaped of recession in 2009 was Poland (PL). Though the government had not applied any country-cyclical labour market policy, the unemployment rate increased by 2.1pp in the period of 2008-2010 and the economic dynamics has considerably slowed down below the potential, reflecting deep recessions in Poland's main trading partners.

Table 1 Output and employment losses during last recession

	Output		Jobless rate		
	Accumulated Output Loss in pp (2008-2011)	Duration of contraction in quarters (between peak and trough)	Change in jobless rate 2008-2010 (pp)	Max jobless rate	Time lag between output trough and jobless peak (in quarters)
CZ	6.9	3	2.6	7.8	3
HU	9.1	6	3.5	11.2	3
PL	0.5	1	2.1	9.8	5
SK	10.8	1	3.7	14.7	4
EU (27)	6.2	5	2.8	9.7	3
EMU (15)	6.3	5	2.7	10.1	4

Note: Accumulated output loss is calculated from quarterly base indexes
Source: own calculations based on data from Eurostat, May 2012

The Czech Republic (CR) was the least hit economy in the CEE region after Poland. Despite this fact, the Czech government had introduced the anticrisis fiscal packet including for example the rebate on social security contributions. Though the packet was released in February 2009, the most of the measures were applied later, during the second half of 2009 or

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[1] European Commission (2009).

even in 2010. In aim to enhance the employability of low and middle-income employees and avoid mass lay-offs of most vulnerable employees, the government approved the rebate on social security contributions in 2009. The social security contributions have marginally decreased also for self-employed persons. For tax period 2009, the lump sum expenses for private entrepreneurs increased to mitigating the impact of economic recession on households of self-employers. The lump sum expenses for craftsmen increased from 60% to 80%, for other sole traders from 50% to 60% and for incomes from intellectual property rights or exercise of independent professions from 40% to 60% (in 2010 were reduced back to 40%). While some European countries increased the generosity of unemployment benefits (according to the European Commission it was e.g. Belgium, Italy, Bulgaria,… but none of the CEE countries), the CR went the opposite way and tightened the conditions for granting unemployment benefits and reduced the total supporting period by one month to eleven months. The intent was to increase work-incentives and reduce benefit dependency. To smooth the negative impact of these measures, the unemployment benefit rate was increased for the first two months of unemployment such that total financial amount of benefits remained the same. All these changes were effective from 1 January 2009. At the beginning of 2009, even ahead of anti-crisis package, the Czech government introduced the Institute of Public Service as a new instrument in the system of social support to stimulate work activity of benefit recipients, to support development of working skills and to facilitate social inclusion through a creation of subsidised jobs in the public sector. Besides this, the Public employment services started to provide individual action plans to all unemployed longer than 5 months to help with job-search and choose adequate level training. At the same time, the subsidised job creation schemes as a part of the Foreign Direct Investment Incentive Programme have been maintained with only marginal adjustments in February 2008 and in April 2010. And finally, in April 2010, the CR adopted retraining and in-work training programme for the regions with the above-average unemployment rate. The training was made compulsory for companies that applied for government support.

Similarly to the other countries in the CEE region, Hungary (HU) focused on the encouragement and maintenance of the labour demand during economic crisis. The labour market programme for 'Job Retention' launched in 2009 and carried over into 2010 aimed at retaining the employment and the capacity and willingness of the employees to work, as well as at improving the labour market status and re-employment within the shortest possible time of employees concerned by layoffs.[2] The new programme includes public support for flexible working time or temporary unemployment. The government started to provide incentives for using the reduced hours for training, in order to maximise the employability of workers on short-time arrangement. They also extended the training opportunities and incentive to educate during the working life. To increase and target better the labour market training and vocational education opportunities for the unemployed, the administrative capacity of public employment services had been increased. Thanks to these modifications the number of people involved in active labour market programmes significantly increased in the second half of 2009 and 2010. Analogous to the CR, the Hungarian government tightened eligibility criteria for beneficiaries, who are able to work. According to the new rules incorporating into so called 'Pathway to work' program with effect from January 2009, the beneficiaries are obliged to take up public work organised by local municipalities or, alternatively, to participate in training programmes. To mitigate the adverse impact of economic development on households' budgets, the Hungary government introduced allowance to support heating and electricity costs. As of July 2009, employers' social security contributions were cut by 5 percentage points for all workers to support employment by cutting labour costs and

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[2] For more details see National Employment Office (2011).

reinforcing activation. In 2010, further moderate reduction in social and health contributions was applied in aim to support demand for low-skilled labour.

Slovakia (SK), in response to economic recession, adopted a set of anti-crisis measures aimed to avoid a deep recession and a sharp decline in employment, and support a quick recovery of economic growth. With the effect from March 2009, the new forms of public support for flexible working time, using flexible worktime accounts at firms, or temporary unemployment programme was introduced. To increase or improve labour market training of unemployed, the government tried to enhance the administrative capacity of public employment services to provide services and counselling for jobseekers. Slovakia also reduced social security contributions of self-employed with effect from April 2009 in aim to lower the contributions burden on self-employed persons, and thus increase their real incomes in the adverse economic situation and make self-employment more attractive even for jobseekers. The government also tried to improve the incentive to work embedded in the tax and benefit system through income supplements and targeted in-work tax credit or higher computer tax allowance. To support the maintenance of employment and prevent the resultant redundancies, the government decided to introduce the monthly financial contribution to firms negatively affected by the cyclical decline. Among the adopted countercyclical measures were also the subsidised job creation schemes in the private sector and financial contribution to an employee's wage of employed jobseeker. Beyond this, the government raised the work commuting allowance.

Table 2 Overview of countercyclical measures to support the labour market in the CEE region

	Fiscal stimulus (% GDP)		Subsidies job creation	Encouraging flexible working time	Retraining and life-long learning	Reinforcing activation	Supporting employment by cutting labour costs
	supporting labour market	supporting households' incomes					
CZ	1.1	0.1	X	X	X		X
HU	0	0	X	X	X		X
PL	0	1.2					
SK	0.2	0.6	X	X		X	

Note: If the country adopted at least one policy measure from the defined subset of labour policy measures then it is denoted by 'X'.
Source: adopted from the European Commission (2009) and adjusted according to other (mainly national) sources

3. Data and Empirical Results of Structural Breaks

3.1. Unit Root Tests

The effectiveness of countercyclical labour market policies in the CEE region is measured on time series of employment and unemployment in the Czech Republic (CR), Hungary (HU), Poland (PL) and Slovakia (SK). To avoid the disparities in national methodologies, we have decided to use the data from the EU Labour Force Survey (LFS), the large sample survey among private households, on employment and unemployment that are available on Eurostat.

The tests examine the properties of quarterly figures seasonally adjusted. The sample period starts in the first quarter 1998 apart from employment in Hungary and Slovakia, where the continuous time series begins in the first quarter 1999 and 2000 respectively. The time series of employment ends by the end-of-2011 and in the case of unemployment in the first

quarter 2012. The original figures, the number of employed and unemployed people, are converted into the base indexes with the base period in fourth quarter 2005 and then transformed into log.

The first step of our analysis is the test of stationarity, the Augmented Dickey-Fuller (ADF) test of unit root run by EViews. This elementary test gives us the first preliminary information on the pattern in the time series of (un)employment. The stationarity of our time series would mean that the applied countercyclical policy measures have not caused a structural break(s) and we might consider them as ineffective. While non-stationary series should suffer permanent effects from random shocks (including policy measures) and thus the series follow a random walk. Moreover, we may refer to a well-known weakness of the ADF unit root test: the series that are found to be integrated of order one *I(1)* (their first difference is stationary) might be in fact stationary around the structural break(s), but are erroneously classified as *I(1)*.[3] Or the ADF test may fail to reject the unit root hypothesis if the series contain a structural break.

Our results from ADF test are reported in Table 3. It is evident, the null hypothesis of a unit root in time series can be rejected at 5 percent significance level only in the case of the first differences of variables. At levels, the variables prove to be non-stationary with only one exception: employment in Poland. However, unemployment in Poland seems to be stationary in the first difference. It is worth to recall here that Poland was the only country from the CEE region that has not applied countercyclical measures on labour market. So, the stationarity of time series (no structural break) is a result consistent with our analytical approach.

Nevertheless, the ambiguous results of stationarity of polish data and above mentioned bias of the ADF test that confuse a structural break in time series and non-stationarity lead us to carry out additional tests that would more precisely indicate or suspend the occurrence of a structural break.

Table 3 Unit Root tests without accounting for structural break

Country	Variable		ADF Test	t-statistics	Critical value at 5% significance level
CR	Unempl.	Stationary	I(1) with intercept	-3.1835	-2.9155
	Unempl.	Stationary	I(1) no intercept and trend	-3.2174	-1.9469
	Empl.	Stationary	I(1) with intercept	-3.2558	-2.9212
	Empl.	Stationary	I(1) no intercept and trend	-3.1979	-1.9475
HU	Unempl.	Stationary	I(1) with intercept	-3.7016	-2.9155
	Unempl.	Stationary	I(1) with intercept and trend	-4.3834	-3.4937
	Unempl.	Stationary	I(1) no intercept and trend	-3.6008	-1.9469
	Empl.	Stationary	I(1) no intercept and trend	-2.1947	-1.9480
PL	Unempl.	Stationary	I(1) no intercept and trend	-2.5689	-1.9469
	Empl.	Stationary	I(0) with intercept & trend	-3.7630	-3.5181
SK	Unempl.	Stationary	I(1) no intercept and trend	-2.8493	-1.9469
	Empl.	Stationary	I(1) with intercept	-3.4811	-2.9212
	Empl.	Stationary	I(1) no intercept and trend	-3.3051	-1.9475

Note: Unempl. means unemployment; Empl. Employment
Source: own calculations based on Eurostat data from LFS, May 2012

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[3] For more details on unit root tests see for example Glynn (2007).

3.2. Structural Breaks

In the second step, we run the recursive residuals test for (un)employment time series in all four CEE countries that in our view offers a more sophisticated investigation into pattern of (un)employment time series. For this purpose, we use the modification of the Dickey-Fuller procedure and apply the t-test on the specification of the lag length and this procedure give us the following equation:
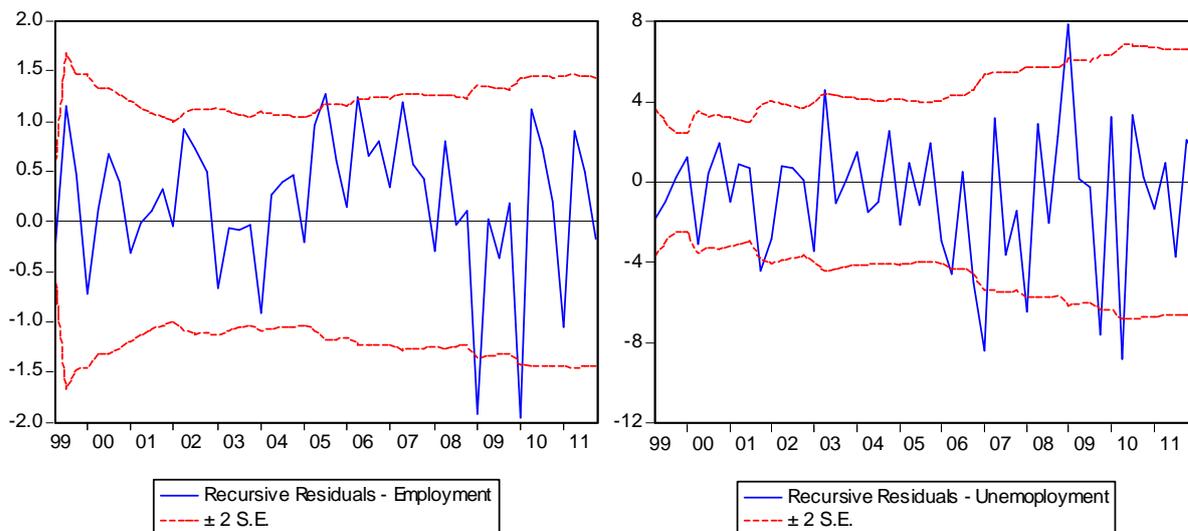
$$\Delta x_t = a + b x_{t-1} + c x_{t-2} + \omega_t, \tag{1}$$

where x is the tested variable (employment or unemployment) at time t, t-1 and t-2, and ω the error term.

The recursive residuals of the OLS estimation, in general, suggest instability in the estimated parameters as indicated in the distribution of structural shocks when the residuals exceed the standard error band.

The third, and last, step in testing the effectiveness of the applied countercyclical measures is the Quandt-Andrews Breakpoint Test (the Q-A Breakpoint test). This test, available in EViews, examines for one or more unknown structural breakpoints in the sample for a specified equation (see equation 1). The idea behind the Quandt-Andrews test is that a single Chow Breakpoint Test is performed at every observation between two dates, or observations. The original Chow Breakpoint Test might be used to test the equation separately for each subsample and to see whether there are significant differences in the estimated equations. A significant difference indicates a structural change in the relationship. By default the Chow breakpoint test and the Quandt-Andrews test examines whether there is a structural change in all of the equation parameters. However if the equation is linear EViews allows to test whether there has been a structural change in a subset of the parameters.

The recursive residual test indicates couple of structural breaks in time series of Czech employment and unemployment. The structural breaks of employment in the CR were identified by the test in 2009 and 2010, both in the first quarter. Both these breaks are negative, indicating an uneven drop in employment. This cannot be associated with labour market policy measures rather than postponed impact of economic recession that hit the Czech economy in fourth quarter of 2008. The decrease in employment in 1Q 2010 out of the standard error band might have been associated with the postponed lay-offs or so called labour hoarding. And it is no coincidence that at the same time the unemployment rate culminated. The unemployment data series are burdened by many structural breaks. While the positive structural break in 1Q 2009 is likely to reflect the impact of proceeding economic recession, the negative structural breaks in 4Q 2009 and 2Q 2010 might be ascribed to countercyclical labour market policy measures adopted in 2009 and 2010. Unfortunately, the Q-A test of unknown breakpoint (see Table 4) detects no breakpoint in both time series asides from those in 1Q 2009 which is most likely associated with the economic slump.
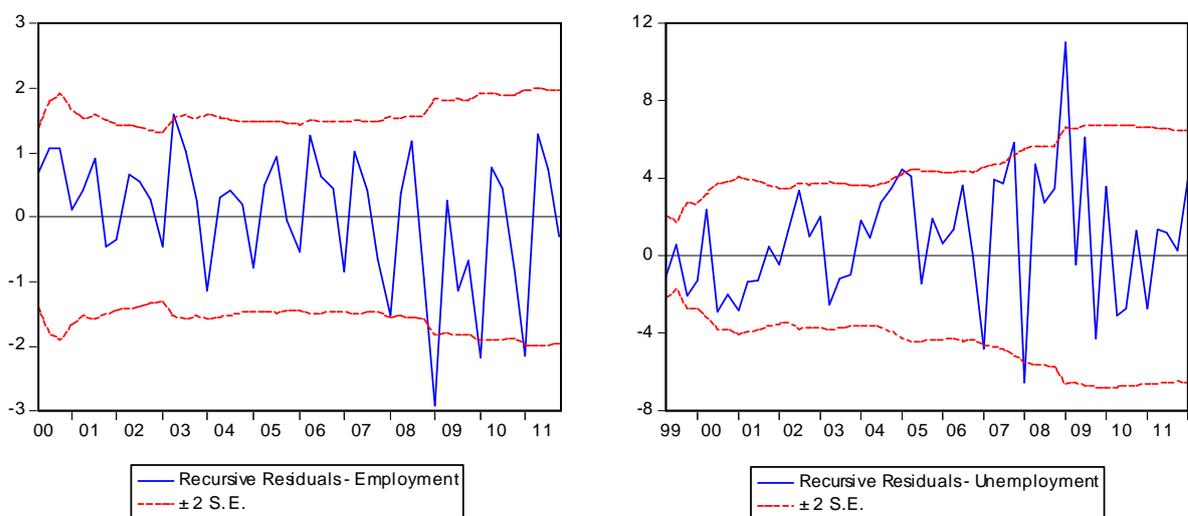
Figure 1 Recursive Residuals – Czech Republic

Source: own calculation in EViews

The recursive residual tests of (un)employment time series of Hungary record couple of structural breaks. None of them might be, however, associated with the applied labour market policy measures. The employment time series exceed the lower standard error band threefold (in 1Q 2009, 2010 and 2011) indicating nonstandard decrease in employment. The unemployment time series exceed the standard error band during the crises and post-crisis period only once, in 1Q 2009, and moreover in the direction up. Similarly to the Czech Republic, the Q-A test records the breakpoint in both time serious only in 1Q 2009, at the onset of economic recession. With respect to above results we cannot assess the adopted labour market measures to be effective.
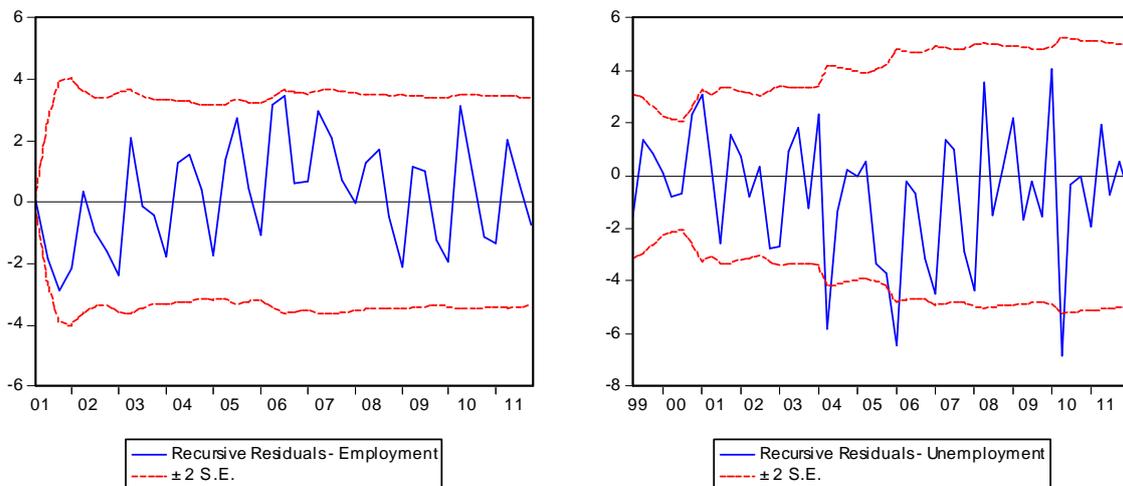
Figure 2 Recursive Residuals - Hungary

Source: own calculation in EViews

The exceptional development of Polish economy among CEE countries is proved also by the recursive residual test and the Q-A breakpoint test. In both time series of employment and unemployment, no structural break has occurred at the onset of economic crisis in neighboring countries. The employment has followed its original pattern, though the fall in external demand caused a mild drop in employment in 4Q 2009 and 1Q 2010. The unemployment has tended to rise, however, the accumulated increase in jobless rate over 2008-2010 period was the smallest among CEE countries (2.1pp). Thanks to the smooth development in unemployment in Poland, the time series did not overshoot the upper standard error band as it did in other countries. The break through the lower standard error band in 2Q 2010 can be associated with a quick economic turnaround.
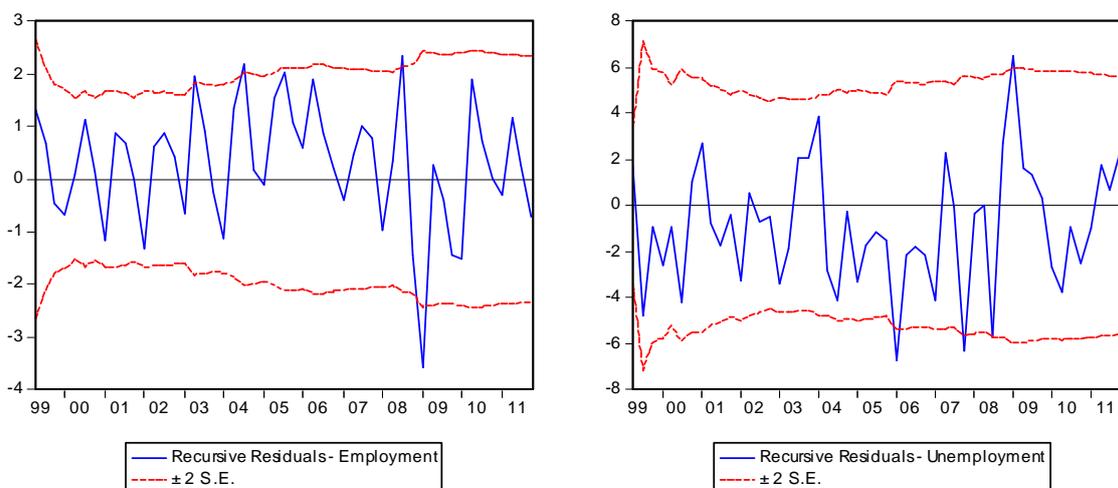
Figure 3 Recursive Residuals - Poland

Source: own calculation in Eviews

The Slovak anticrisis measures did not prove to be effective according to our criteria. The structural breaks were identified by the recursive residual test in both time series in 1Q 2009. Since the ambiguous set of countercyclical measures was adopted later, at the edge of first and second quarter 2009, the structural breaks are very likely the outcomes of impending economic recession. The direction of the breaks of the standard deviation band confirms this conclusion. Neither the Q-A test identifies a breakpoint at the time when the countercyclical measures were launched.

Figure 4 Recursive Residuals - in Slovakia

Table 4 Breakpoint test

Country	Variable	Quandt-Andrews unknown breakpoint test	Probability
CR	Unemployment	Break point 2009:Q1	0.66697
	Employment	Break point 2009:Q1	0.68350
HU	Unemployment	Break point 2009:Q1	0.63195
	Employment	Break point 2009:Q1	0.50135
PL	Unemployment	Break point 2006:Q2	0.76888
	Employment	Break point 2005:Q3	0.56374
SK	Unemployment	Break point 2005:Q2	0.85453
	Employment	Break point 2004:Q2	0.90642

4. Conclusion

This paper concentrates on the countercyclical labour market measures adopted in the Czech Republic, Hungary, Poland and Slovakia (so called CEE countries). The national specific policy responses to the economic recession were the subject of the examination of their efficiency. The efficiency was assed with respect to (1) occurrence of a structural break in (un)employment time series and (2) timeliness of measures.

Although the tests of structural break(s) have covered the sufficiently long time period (till the end of 2011 and 1Q 2012 respectively) to capture an eventual time-lag in the effect of labour market measures on (un)employment, the outcomes of the tests do not confirm the presence of a structural break in (un)employment time series except for the unambiguous result in the Czech Republic. As for that, we might preliminary conclude that the adopted labour market measures by the CEE countries do not prove to be effective with respect to the above results of econometric tests of structural breaks.

The second aspect, the timing of the anti-crisis measures was not optimal in the same cases even after reflecting the generally low operability of fiscal measures. For example, Slovakia adopted the first anti-crisis measures after the economy had reached the bottom in

1Q 2010 and the unemployment rate had reached the top at 14.7%. The Czech Republic and Hungary hanged back to adjust labour costs. Besides this, the Czech Republic came up with re-training program when the economy had already left behind the turning point in the downward cycle and the unemployment rate had been passing the top.

The most controversial measure adopted in the Czech Republic, Hungary and Slovakia is subsidised job creation schemes in the public sector. These programmes weight down public finances and might be difficult to reverse. They only postpone the solution of unemployability of jobseekers. However, some of their negative aspects might be mitigated by incorporating the subsidies jobs in public sector into the eligibility criteria for beneficiaries so that, for example, benefit recipients are required to accept job or training offer as preconditions to get benefits. This might reinforce activation of jobseekers and reduce the inactivity trap.

We are aware of the exceptionally tough situation of the majority of governments that are forced by confidence crisis on the European financial market to intensify their fiscal consolidation effort and on the other side to face the economic slowdown. Thus, the governments have a very limited scope to manoeuvre. They could not support the economy by large fiscal stimuli, even if they wanted to. Within the CEE countries, only the Czech Republic is estimated to invest into support of labour market slightly more than 1% of GDP, while other countries it is less visible less (Slovakia roughly 0.2 % of GDP, Hungary close to zero and Poland 0 % of GDP)[4]. Neither the Czech anticrisis fiscal package has gotten the power to reverse the cyclical trend in employment and unemployment. However, our test shows that the countercyclical measures were not able to significantly affect the (un)employment data so that the econometric tests indicates a structural break(s).

One of the aspects that this analysis does not deal with is the impact of the labour market policy measures on the particular age and social groups. Since the Czech, Hungarian and Slovak governments proclaimed that the primary target of these measures is to mitigate the adverse effects of the economic crisis on the most vulnerable households and individuals and, in some cases, to improve simultaneously the existing scheme of training and life-long learning with an aim to increase the flexibility of labour force, the next step in the analysis might be the extension of testing on data about the (un)employment of specific age or social groups (e.g. young jobseeker or long term unemployed). Another way to deepen the analysis of efficiency of recently applied countercyclical labour market measures is to use the test of unit root with structural break applying the procedure proposed by Zivot and Andrews (1992) or Perron (1997). Both these extensions of the analysis should help shed light on the effectiveness countercyclical policy.

References

Arpaia, A. and Curci, N. 2010. EU labour market behaviour during the Great Recesion. *Economic Papers 405*. European Commission. February 2010. Brussels.

European Commission 2011. Description of labour market institutions. http://ec.europa.eu/economy_finance/db_indicators/labref/

European Commission 2009. The EU's response to support the real economy during the economic crisis: an overview of Member States' recovery measures. *Occasional Papers, No. 51*, July 2009. Brussels.

Glynn, J. 2007. Unit Root Tests and Structural Breaks: A Survey with Applications. *Journal of Quantitative Methods for Economics and Business Administration*, 3(1), 2007, pp. 63-79.

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[4] Fore more details see European Commission (2009).

Ministry of Finance of the Slovak Republic 2009. National Reform Programme of the Slovak Republic for 2008 – 2010. *Implementation Report 2009*. October 2009. http://www.finance.gov.sk/en/Components/CategoryDocuments/s_LoadDocument.aspx?categoryId=600&documentId=369.

National Employment Office of Hungary 2011. Hungarian PES Yearbook of 2010. National Employment Office, 072/, 2011. Budapest.

Perron, P. 1997. Further evidence on breaking trend functions in macroeconomic variables. *Journal of Econometrics*, 80, pp. 355-385.

Verick, S. and Islam, I. 2010. The Great Recession of 2008-2009: Causes, consequences and policy responses. *Employment Working Paper* No.61, Employment Policy Department, Internatinal Labour Office, Geneva.

Zivot, E. and Andrews, D. 1992. Further evidence of great crash, the oil price shock and unit root hypothesis, *Journal of Business and Economic Statistics*, 10, pp 251-270.