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Youth Unemployment in Europe from a Regional Perspective

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INTRODUCTION

It is an established fact that in most countries the unemployment rate of young workers exceeds that of prime-age workers.[1] To a certain extent a moderately elevated rate of joblessness among young workers might be seen as 'natural'. For instance, job mobility in general is higher for entrants in the labour market. Younger workers are not yet closely attached to a specific workplace or occupation. They are often looking for better alternatives and are more inclined to try something new. As a result of these specific mobility patterns, employment spells are shorter and frictional unemployment is higher. Since mobility should lead to better matches, it even contributes to better labour market efficiency.

However, youth unemployment in most European countries is far beyond a level that could be explained by these idiosyncratic behavioural factors. Rather, it seems that for whatever reason, entry to a non-precarious labour market career is blocked for far too many young workers. Serious social and economic problems are likely to arise and call for early and resolute political counter-measures. Several studies present evidence, that especially in the European context, unemployment 'breeds' unemployment and diminishes career perspectives over the life course (Manzoni und Mooi-Reci 2011). With German data, Schmillen und Umkehrer (2013) find long-lasting unemployment effects in workers' prime-age careers caused by early unemployment experience. Gangl (2006) shows post-unemployment earnings losses for the United States and European countries, and Möller und Umkehrer (2015) identify significant long-lasting negative income effects of early unemployment experience in Germany.

In general for young workers, a problematic situation arises from a combination of labour market slackness and unfavorable labour market and educational institutions. In times of a macroeconomic crisis or insufficient labour demand in general, young workers might suffer especially under such conditions. They are in a weaker position relative to experienced workers because they have not yet been able to accumulate enough general and firm-specific human capital. Therefore, in the eyes of the employer, they appear to be less productive. Although young workers are also paid lower wages, the pay differential may not fully compensate for the productivity gap, especially if there are high costs of training on the job. The employer simply might not be willing to incur the corresponding investment in times of labour market slackness. This lack of willingness is especially relevant if the acquired skills of the young worker do not fit the practical needs of the firm or if the employer has no comprehensive information on the young worker's qualifications and characteristics and hiring him or her would therefore be risky. The relatively disadvantaged position of young workers can be reinforced under specific institutional arrangements. As argued by the insider-outsider theory, incumbent workers, i.e. the insiders, dispose of some market power because of hiring and firing costs. Job stability for prime-age workers and precarious jobs or elevated unemployment of young workers can be seen as two sides of the same coin. What is more, if layoff protection depends on tenure, then the inverse seniority principle leads to a concentration of job losses among younger workers in times of a severe recession. More than prime-age workers, the younger workforce serves as a buffer stock in times of economic crisis.

As a result of these considerations, one would expect substantially higher youth unemployment rates relative to those of prime-age workers, especially in situations of labour market slackness. In a previous study (Dietrich und Möller 2016), we compare the situations of young workers in different countries. We show not only that unemployment rates of the young relative to other workers are elevated in all EU countries but also that they are more responsive to situations of labour market slackness. Moreover, educational institutions are likely to play an important role. Countries such as Austria, Germany and Switzerland have established a so-called dual system of vocational training that combines firm-specific qualifications and general training in public vocational schools. In these countries, young workers acquire valuable qualifications and are therefore better off with respect to their relative labour market situation. We also find indications that significant insider-outsider mechanisms to the detriment of labour market entrants exist in at least some countries.

In the following, we consider not only the differences between countries but also intra-national variation. Whereas institutions vary between countries, such variation should not occur between regions of the same country. Typically, the legal framework, for instance, as well as the principles of education and vocational training should not vary considerably within a country. As a result, the regional perspective can contribute to some deeper insights into the nature of youth unemployment in different circumstances.

[1] See Dietrich and Möller (2015) for more details.

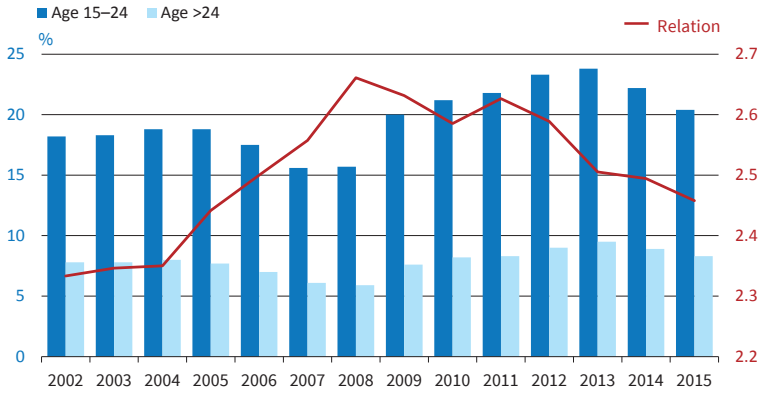
DATA AND DESCRIPTIVES

The Data

In the empirical analysis, we use Eurostat data for EU28 countries plus Iceland, Norway and Switzerland. Eurostat publishes the unemployment rates of young (15 to 24 years old) and older workers (25 and up) for these countries at the regionally disaggregated level (NUTS1 to NUTS3).[2] Here, we confine our analysis to the NUTS2 level. The data are available for the years 1999 to 2015. Unfortunately, there are regional re-definitions for a small number of countries, which generates some missing values for these countries (e.g. Greece, Bulgaria). The two Spanish exclaves in North Africa and the French overseas territories are excluded. The sample includes between 193 and 274 non-missing observations per year.

Figure 1

Unemployment Rate by Age and Relation of Youth Unemployment Rate to Unemployment Rate of Workers above the Age of 24, EU28



Source: Eurostat; own calculations. © ifo Institute

Aggregate Evidence

Figure 1 shows the general evolution of the unemployment rate for the two groups of workers, those between age 15 and 24 (the 'youth') and those above age 24 (the 'non-youth'). Additionally, the graph depicts the ratio of the two (right axis). It is evident that the average youth unemployment rate is substantially higher than the non-youth unemployment rate. The ratio of the two rates was between 2.33 in 1999 and 2.66 in the pre-crisis year 2008 where the youth unemployment rate decreased to almost 15 percent. Although both unemployment rates move closely together – the correlation coefficient is 0.95 – the youth unemployment rate responded more sensitively to the Great Recession, i.e. in the years after 2008. Youth unemployment in the EU28 countries reached its highest level (23.8) in 2013. In the recent recovery, the rate has declined to approximately 20 percent, still without reaching the pre-crisis level. The ratio of the two unemployment rates has more or less steadily fallen since its peak in 2008 and is only slightly above the value of the early 2000s at the end of the observation period.

Evidence at the Regional Level

The range between the lowest and the highest youth unemployment in the NUTS2 regions of European countries is enormous. In 2014 and 2015, there were two Spanish regions (Castilla-la Mancha, Andalucía), three Greek regions (Dytiki Ellada, Ipeiros, Thessalia)

[2] NUTS: *Nomenclature des unités territoriales statistiques.*

Table 1

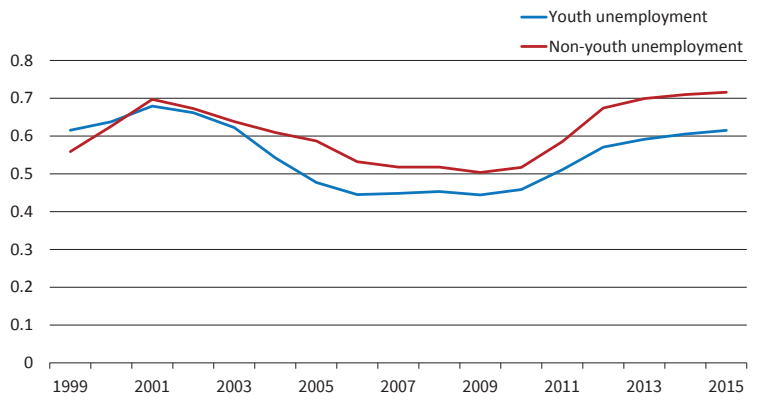
Youth and Non-youth Unemployment Rates: EU28 Countries Plus Iceland, Norway and Switzerland (1999-2015)

	Youth unemployment rate				Non-youth unemployment rate			
	Mean	Standard deviation	Min	Max	Mean	Standard deviation	Min	Max
1999	20.3	12.5	2.6	65.2	7.8	4.4	1.2	23.5
2000	19.4	12.4	3.5	64.1	7.4	4.6	1.2	22.4
2001	18.6	12.6	2.0	60.2	6.6	4.6	1.0	21.0
2002	18.4	12.2	3.4	59.4	7.0	4.7	1.5	23.7
2003	18.7	11.7	5.5	59.6	7.2	4.6	1.8	23.8
2004	19.3	10.4	4.0	52.8	7.4	4.5	1.9	23.2
2005	18.9	9.0	5.5	46.1	7.2	4.2	1.6	21.4
2006	17.7	7.9	3.7	38.9	6.6	3.5	1.7	19.0
2007	15.7	7.1	4.6	37.7	5.7	3.0	1.2	17.1
2008	15.9	7.2	4.1	39.1	5.4	2.8	1.4	15.8
2009	19.7	8.8	4.6	47.8	6.9	3.5	1.5	23.7
2010	21.4	9.8	4.8	52.0	7.5	3.9	2.0	26.3
2011	22.7	11.6	4.2	54.1	7.6	4.5	1.5	27.5
2012	24.7	14.1	4.1	72.3	8.3	5.6	1.9	31.6
2013	25.5	15.1	4.3	70.4	8.8	6.2	1.9	33.4
2014	24.0	14.5	3.7	69.8	8.4	5.9	2.1	32.4
2015	22.5	13.8	3.4	65.1	7.8	5.5	1.6	29.4

Source: Eurostat; own calculations.

Figure 2

Coefficient of Variation for Unemployment Rates in Europeans NUTS2 Regions by Age Group



Source: Eurostat; own calculations. © ifo Institute

and one Italian region (Calabria) where the youth unemployment rate even exceeded 60 percent in at least one year. Table 1 contains the mean, standard deviation, minimum and maximum of NUTS2 unemployment rates by age group. Not only the mean rates but also the difference between the maximum and minimum rates are much higher for youth unemployment rates.

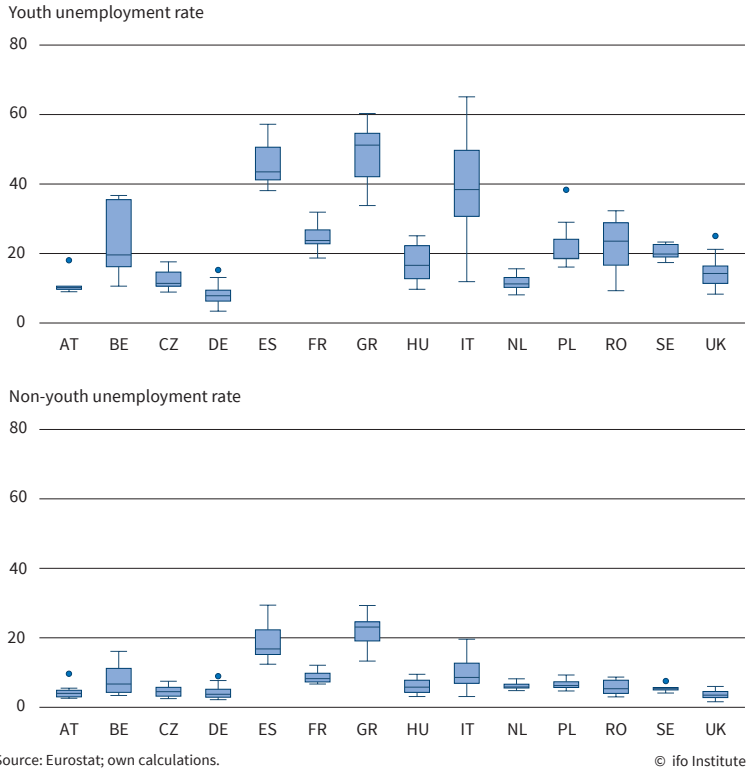
The coefficients of variation for youth and non-youth unemployment rates are shown in Figure 2. Again, both series are highly correlated. As seen from the graph, the indicator fell before the Great Recession and started to rise in the aftermath of the tremendous economic shock in 2008/2009. As a rising coefficient of variation means increasing disparities among the European NUTS2 regions, it indicates divergent tendencies with respect to labour market conditions. These tendencies were especially strong in the time period 2009 to 2012.

Figure 3 contains box plots for the 14 EU countries consisting of at least eight NUTS2 regions. Using the same scale, the graph gives an impression of the magnitude and dispersion of youth and non-youth unemployment rates at the regional level. Non-youth unemployment rates are at extraordinary high levels in Spain and Greece; at intermediate levels in Belgium, France and Italy; and at relatively low levels in the rest of the countries. Except for France, the regional dispersion of non-youth unemployment rates is elevated in the countries with a higher median non-youth unemployment rate. The youth unemployment rate is highest in Greece, Spain and Italy; at intermediate levels in France, Romania, Belgium, Hungary, Poland and Sweden; and lowest in Germany, Austria, the Czech Republic, the Netherlands and Britain. The dispersion is highest in Italy, Belgium, Greece, Spain and Romania. In most of the countries with low youth unemployment, the regional dispersion is also low.

Figure 4 depicts the ratio of the youth to non-youth unemployment rates for the NUTS2 regions of the selected countries. These ratios could be seen as an indicator for the relative power of prime-age and older insiders against young outsiders. With Italy, Romania, Sweden and Britain, the group of countries with the highest ratios is diverse. In contrast, the group of countries with the lowest youth unemployment rates (Germany, Austria and the Netherlands) has the lowest ratios and low dispersion. Notably, the two countries with the highest youth unemployment rates, Spain and Greece, are not among the countries with an indicator of insider power above the average. The highest regional dispersion with respect to this indicator is found for Britain, Romania, Belgium, Italy and the Czech Republic.

Figure 3

Box-Plots of Youth and Non-youth Unemployment Rates
at NUTS 2 Level for 14 EU Countries (2015)

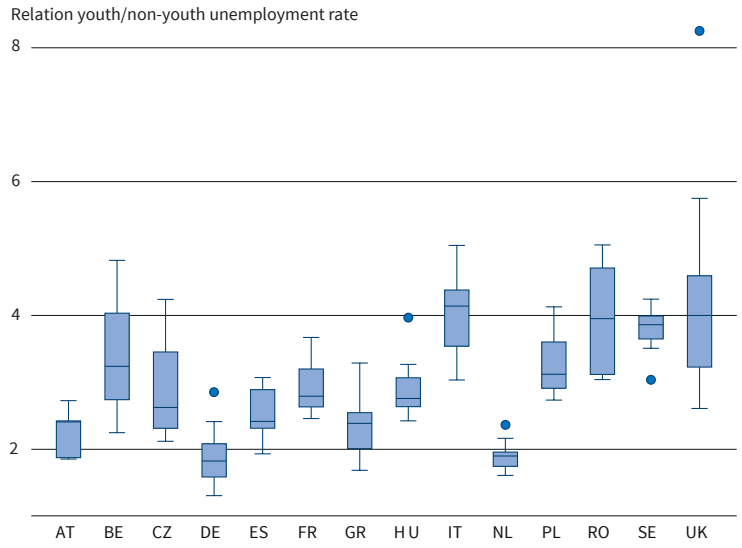


Source: Eurostat; own calculations. © ifo Institute

Figure 4

Ratio of Youth to Non-youth Unemployment Rate

NUTS2 regions, 14 EU countries (2015)



Source: Eurostat; own calculations.

We conclude the descriptive analysis by showing that the unemployment rates of the two age groups are highly correlated not only at the aggregate but also at the regional level. Figure 5 depicts the relationship of the unemployment rates of workers of the two age groups for a cross-section of NUTS2 regions in 2015. The relationship appears to be slightly concave. A simple quadratic function yields a coefficient of determination of 84 percent. If the unemployment rate of workers ages 25 and above can be taken as an indicator of labour market slackness, it is evident that youth employment is not primarily an isolated phenomenon but depends heavily on aggregate labour market conditions. Thus, the regional analysis supports our main conclusion from our study at the country level (see Dietrich and Möller 2015).

Figure 5

Relationship between the Youth and Non-youth Unemploymet Rates, 2015

261 European NUTS2 regions

Source: Eurostat; own calculations.

ECONOMETRIC ANALYSIS

We take the regional non-youth unemployment rate as an indicator of labour market slackness in general. The aim of the econometric analysis is to analyse the idiosyncratic response of youth unemployment to labour market slackness and other factors.

Using the panel structure of the data, we apply a fixed-effects model using the regions' youth unemployment rate as the dependent variable and the non-youth unemployment rate and time fixed effects as right-hand side variables (model 1). In an alternative specification, we additionally include the squared non-youth unemployment rate (model 2). The regressions are run for the entire observation period as well as for two sub-periods with 2009 as the dividing year. The results are shown in Table 2.

Even when controlling for unobserved time-invariant heterogeneity of regional entities, the relationship between youth and non-youth unemployment appears to be strong in all variants. The quadratic term is statistically significantly negative only if all observations are used but not for the two subsamples. Thus, for the latter, model 1 might be preferable. The coefficient of determination is 0.7 for the complete sample and somewhat lower than 0.6 for the early and almost 0.8 for the later sub-period. With values of approximately 1.9 in model 1 and 2.3 in model 2, the coefficient of the non-youth unemployment rate is fairly stable across the subsamples. Therefore, on average, the youth unemployment rate responds to a one percentage-point change in the non-youth unemployment rate by approximately twice that amount.

The influence of factors not related to non-youth unemployment can be termed 'youth-specific structural factors'. These factors are calculated from the constant and the time effects in the fixed-effects regression and are shown in Figure 6. The structural factors increased slightly from 2 to 3 percent in the period 2000 to 2007. Between 2007 and 2011, a steep increase of 3.4 percentage points can be observed. After 2012, the youth-specific structural factors in youth unemployment started to decline and again came down by almost 1.5 percentage

points. To what extent this was due to youth-specific labour market policy measures cannot be determined from this analysis. It should be stressed, however, that despite the slight improvement over the past couple of years, structural factors as calculated here still account for approximately a quarter of total youth unemployment on average.

Decomposition Analysis

By using an HP filter, the total non-youth unemployment rate in region r at time t, u_{rt}, is divided into a cyclical component $\tilde{u}_{rt}$ a structural or trend component u_{rt}^{τ}. Consider the hypothesis that the youth unemployment rate in the different countries responds to the cyclical and trend components of u_{rt} in an idiosyncratic way. Additionally, allowing for fixed effects, the corresponding model is

$$(1)\ y_{rt} = a_0 + a_1^c \tilde{u}_{rt} + a_2^c u_{rt}^{\tau} + \delta_r + \delta_t + \varepsilon_{rt},$$

where y_{rt} is the youth unemployment rate, a_1^c and a_2^c are specific parameters for country c; and δ_r and δ_t are the fixed effects for region r and time period t. In principle, the model enables us to divide the youth unemployment rate into

- time-specific general factors, $\alpha_0 + \delta_t$,
- region-specific structural factors, δ_r,
- cyclical labour market slackness, $a_1^c \tilde{u}_{rt}$, and
- structural labour market slackness, $a_2^c u_{rt}^{\tau}$.

Using data for the period 1999 to 2015, the model is estimated for 14 European countries containing at least eight NUTS2 regions.[3] A Wald test with a statistic of F(13,186) = 8.08 clearly rejects the null for equal coefficients $a_1^c = a_2^c$ ($c = 1,\cdots,13$). Moreover, the hypotheses that a_1^c and a_2^c are equal across countries are also rejected at high levels of significance (F(12,186) = 6.34 and F(12,186) = 19.83, respectively). Hence, empirical evidence supports the country-specific idiosyncrasy hypothesis for the response of youth unemployment to the cyclical and trend components of u_{rt}. We interpret this finding as a reflection of country-specific institutional and structural factors determining the response of youth unemployment to cyclical shocks and structural factors.

The results of a panel regression with regional and time fixed effects are shown in Table 3. We present the estimated coefficients for a_1^c and a_2^c graphically in Figure 7. As shown, the country-specific coefficients vary widely. Germany, France and the Netherlands exhibit low coefficients for the cyclical component (approximately 1.5) and for the trend component (approximately 1.0). Austria has the lowest coefficient of the cyclical component but a coefficient of the trend component that is above average. In six countries (BE, ES, PL, RO, UK and HU), the response of the youth unemployment rate to non-youth unemployment is

Table 2

Results of Fixed-Effects Estimates of the Youth Unemployment Rate on the Non-youth Unemployment Rate for 31 European Countries by Observation Period

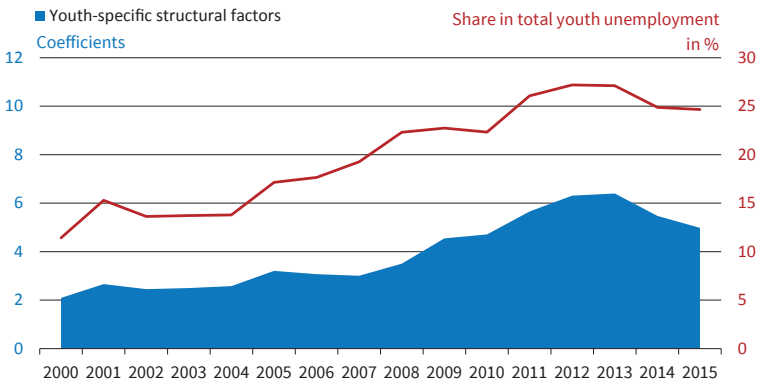
	Dependent variable: youth unemployment rate			
	Model 1		Model 2	
	coeff.	s.e.	coeff.	s.e.
	Observation period 1999-2015			
Constant	5.037**	1.112	2.768(*)	1.385
Non-youth unemployment rate	1.886**	0.139	2.362**	0.259
Non-youth unemployment rate squared#	–	–	– 1.806*	0.764
R^2 (overall)	0.695		0.702	
N	4199			
	Observation period 1999-2008			
Constant	4.393**	0.831	2.995*	1.352
Non-youth unemployment rate	1.964**	0.119	2.285**	0.246
Non-youth unemployment rate squared#	–	–	– .387	1.100
R^2 (overall)	0.571		0.578	
N	2308			
	Observation period 2009-2015			
Constant	7.351**	1.610	4.638	2.483
Non-youth unemployment rate	1.820**	0.191	2.382**	0.410
Non-youth unemployment rate squared#	–	–	– 1.972	1.267
R^2 (overall)	0.778		0.793	
N	1891			

Notes: All models include time fixed effects and a constant (not reported); s.e.: robust standard errors adjusted for country cluster; coefficients of squared non-youth unemployment rate times 100.

Source: Eurostat; own calculations.

Figure 6

Estimated Youth-specific Structural Factors in Youth Unemployment



Note: The graph depicts constant and period effects from the panel fixed effect regression.

Source: Eurostat; own calculations.

[3] In some of the estimates Greece was excluded because of major revisions in the demarcation of NUTS2 regions.

Table 3

Results of Panel Regression of Youth Unemployment Rates on Cyclical and Trend Components of Non-Youth Unemployment at NUTS2 Level, 13 EU Countries (1999–2015)

	Dependent variable: Youth unemployment rate			
	Cyclical component		Trend component	
Country	coeff.	s.e.	coeff.	s.e.
AT	1.177	0.644	2.420	0.570
BE	2.138	0.522	1.396	0.298
CZ	2.519	0.236	2.304	0.806
DE	1.515	0.090	0.812	0.159
ES	1.907	0.083	2.116	0.128
FR	1.465	0.122	1.147	0.407
HU	2.097	0.079	3.001	0.215
IT	2.717	0.254	3.561	0.430
NL	1.524	0.119	0.921	0.174
PL	2.039	0.122	2.200	0.143
RO	1.767	0.204	2.647	0.788
SE	2.463	0.423	1.730	0.932
UK	1.891	0.146	2.786	0.522
Time fixed effects	yes			
Constant	yes			
Adj. R-squared	0.943			
N	2965			
F(42,186)	184.13			

Notes: Results of a panel regression with fixed regional and time fixed effects; standard errors are clustered at the regional level.

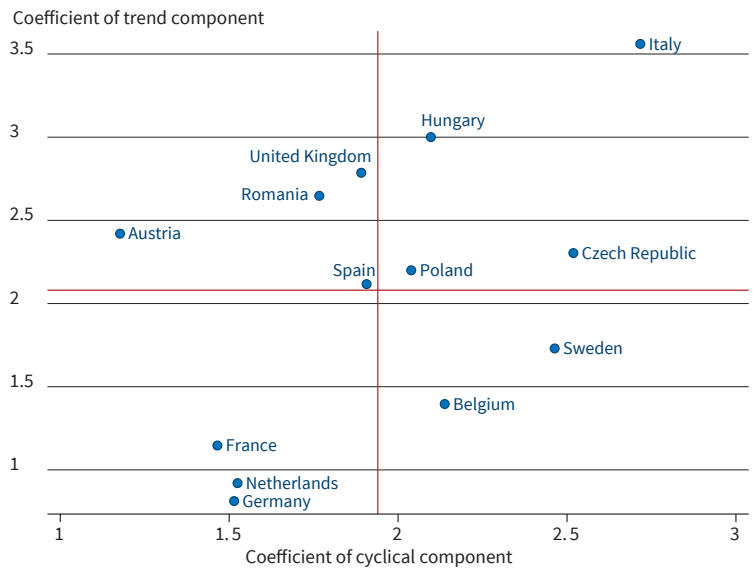
Source: Eurostat; own calculations.

close to the average value of approximately 2. Whereas Belgium, however, exhibits a coefficient of the trend component well below average, the opposite is the case for Romania, Britain and Hungary. The highest responsiveness to cyclical non-youth unemployment is found for Sweden, the Czech Republic and Italy. Italy shows the highest coefficients in both dimensions, whereas the trend coefficient in Sweden is somewhat below the average and that in the Czech Republic is slightly above the average.

Figure 7

Estimated Coefficients of the Cyclical and Trend Components of Non-Youth Unemployment in the Youth Unemployment Equation

NUTS2 regions for 13 European countries (1999-2015)



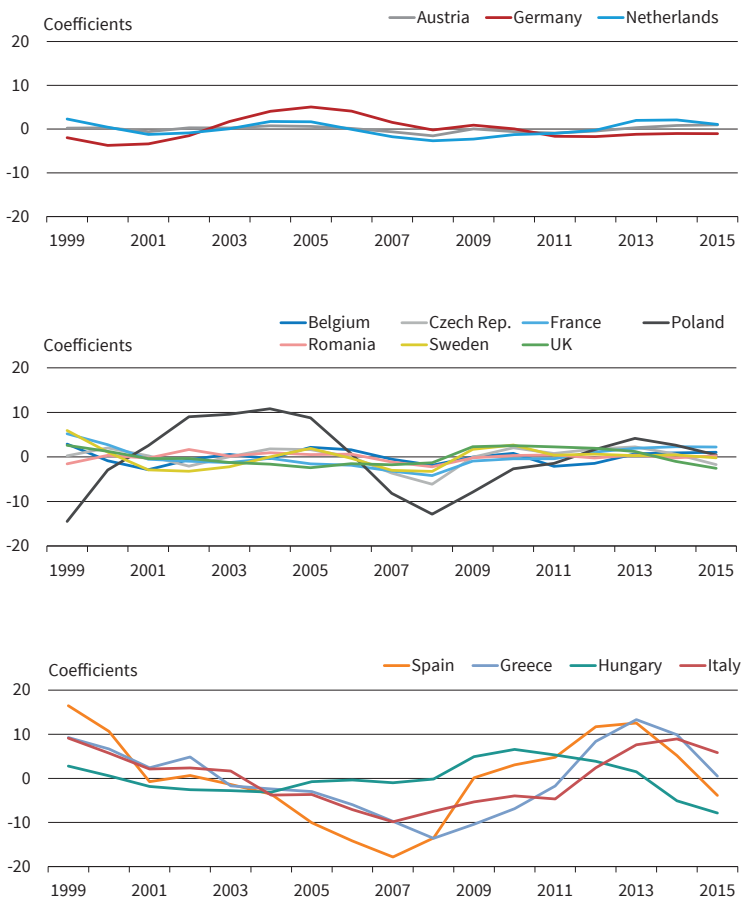
Note: The horizontal and vertical lines represent the average coefficients for the selected countries. Greece was excluded here.

Source: Own calculations.

Figure 8 and Figure 9 show the average of cyclical and non-cyclical components in regional youth unemployment rates for the selected countries. According to the level of youth unemployment in recent years, I divide the countries into three groups: (i) low level: Austria, Germany, and the Netherlands; (ii) intermediate level: Belgium, the Czech Republic, France, Poland, Romania, Sweden and Britain; and (iii) high level: Spain, Greece, Hungary and Italy. In Figure 8, one can see that the countries differ significantly with respect to the cyclical behaviour of youth unemployment. In the countries of categories (i) and (ii), the response of youth unemployment to cyclical movements in non-youth unemployment is moderate and does not exceed a range of plus/minus 5 percent. The only exception is Poland, where the strong cyclical swings in the first half of our observation period appear dampened in the second. In the group of countries with high youth unemployment, we see pronounced cyclical swings. The patterns for Spain, Greece and Italy are similar. They reach their trough in the cyclical component of youth unemployment in 2007/2008 – i.e. just before the Great Recession – and their peaks in 2013/2014. In all countries of category (iii), the cyclical component is declining at the end of the observation period. Hungary exhibits the opposite development from Poland. Here, the cyclical component was moderate in the first half of the observation period but much more pronounced in the second.

Figure 9 shows the regional average of non-cyclical components in youth unemployment according to our decomposition method by country. These components reflect structural factors. In 11 of 14 countries, structural youth unemployment increased from the beginning to the end of the observation period. The only exceptions are the Czech Republic, Germany and Poland (Table 4). The case of Poland is remarkable because the structural component of youth unemployment decreased by not less than 24 percentage points. For the vast majority of countries, structural factors led to an increase in youth

Figure 8
Cyclical Components of Youth Unemployment for Three Different Groups of Countries



Source: Eurostat; own calculations.

unemployment. This was especially the case for Spain (plus 39 percentage points), Greece (plus 24 percentage points), Hungary (plus 15 percentage points) and Italy (plus 10 percentage points). Additionally, in Sweden, Britain and the Netherlands, the increase in the structural component exceeds 5 percentage points. Note that in 1999, the regional average of the non-cyclical youth unemployment rate exceeded 20 percent in only three countries (Poland, Italy and France). At the end of our observation period, this is the case for eight countries. Figure 9 shows that in contrast to the cyclical component, the structural component of youth unemployment in the category (iii) countries has continued to increase in recent years. This is not the case in the countries in the two other categories.

Table 4
Average Regional Non-cyclical Component of Youth Unemployment by Country

Country	1999	2015	Change
Category (i): low youth unemployment			
AT	7.5	8.8	1.4
DE	11.8	7.4	– 4.3
NL	5.6	10.9	5.3
Category (ii): intermediate youth unemployment			
BE	18.6	22.2	3.6
CZ	17.3	15.1	– 2.3
FR	20.1	22.4	2.3
PL	44.6	20.6	– 24.0
RO	19.4	23.4	4.0
SE	11.8	18.0	6.2
UK	11.8	18.0	6.2
Category (iii): high youth unemployment			
ES	10.7	49.6	38.9
GR	17.0	41.1	24.1
IT	25.0	34.8	9.8
HU	11.5	26.7	15.1

Source: Eurostat; own calculations.

SUMMARY AND CONCLUSIONS

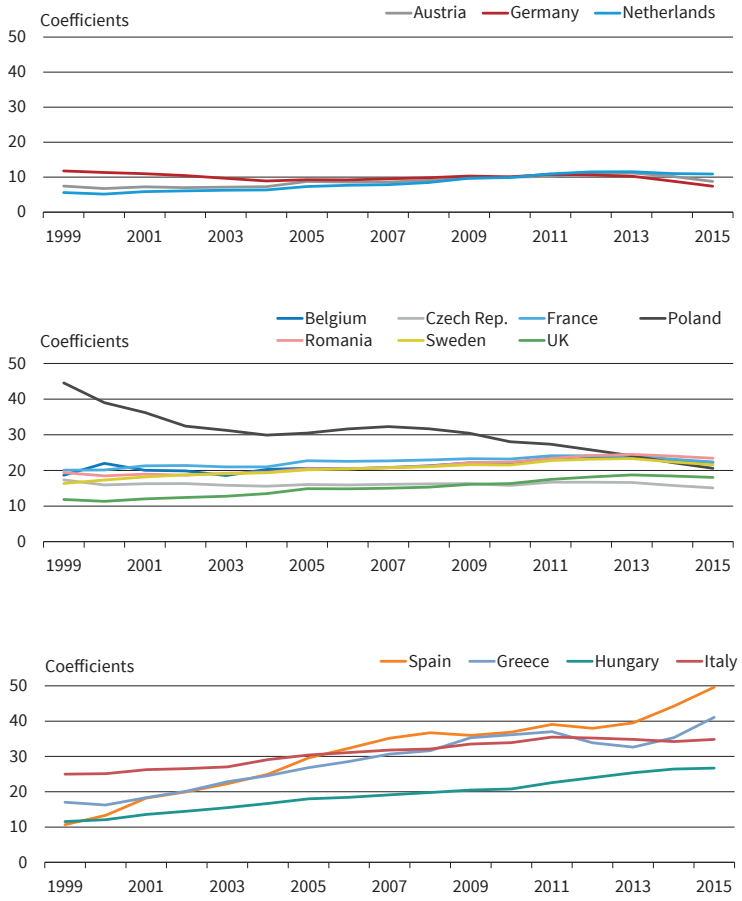
High youth unemployment is an increasing challenge for social adhesion in many European countries. With data at the regional level, we show that on average, youth unemployment rates are twice as sensitive to cyclical shocks as non-youth unemployment rates. Insider-outsider mechanisms and last-in/first-out rules for workforce adjustment in economic crises are the primary explanations for this pattern.

We decomposed the regional non-youth unemployment rates into a cyclical and a trend component and showed that the youth unemployment rate responded idiosyncratically in the different countries. Italy, the Czech Republic and Sweden have the highest sensitivity to cyclical shocks, and Austria, France, Germany and the Netherlands have the lowest. The response of youth unemployment to the trend component of non-youth unemployment is the highest for Italy, Hungary and the UK. These results point to the importance of country-specific institutions and conditions.

Based on the econometric estimates, we calculated a cyclical and a structural component of youth unemployment in the selected countries. For countries with an extremely high risk of unemployment for young workers, we find some similarities. In these countries, the swings of the cyclical component are very high and there is a strong rising trend in the structural component. Although there has been some easing of tension from the cyclical component in recent years, the structural component shows no sign of improvement. In contrast, for most of the other countries, the structural component of youth unemployment has decreased slightly in recent years.

Figure 9

Non-cyclical Components of Youth Unemployment for Three Different Groups of Countries



Source: Eurostat; own calculations.

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The policy conclusions are mixed. For the majority of the selected European countries, there are some indications that the corrective measures that have been adopted to combat the structural causes have started to bear fruit. Unfortunately, this is not the case for the high-risk countries. Corrective measures include a wide range, from improving the educational system to additional training programmes and administrative measures for better monitoring of and assistance for young people in the school-work transition process to changes in the labour law and other institutions to improving the relative hiring chances of young workers.

It seems that there is no one-size-fits-all solution to the severe problem of youth unemployment in European countries. For example, the dual training system for young workers, which is successful in Austria, Switzerland and Germany, has a long tradition of requiring institutions and behavioural patterns that cannot easily be transferred to other countries. In our view, the key lessons of the previous experience consist of four elements: first, the combination of theoretical and practical knowledge should be strengthened in the country-specific educational systems. Second, there should be better monitoring of and assistance for young people in the school-work transition process. In this context, there are some best practices in some European regions that could be taken as models.[4] Third, there should be attempts to reduce the institutional disadvantages of young workers at labour market entry, which might require adjustment of labour laws. Fourth, the problematic situation of young workers in several European countries also hinges on general labour market slackness in these countries. Hence, measures to improve competitiveness and the general establishment of an employment-friendly framework will help young workers more than others.

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[4] In Germany, the city of Hamburg is a pioneer in this respect. The region has established a comprehensive monitoring and assistance system for young people at the transition from school to work. This is done within a new administrative unit (*Jugendberufsagentur,* young workers labour agency), which was created to respond flexibly to the specific needs of this group.