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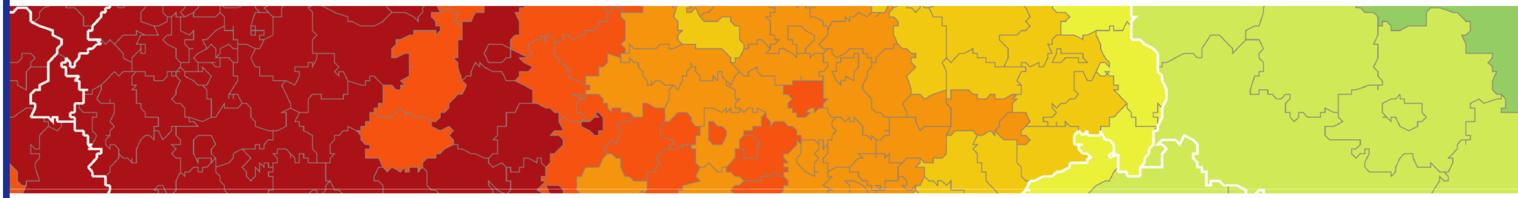

YUTRENDS – Youth unemployment: Territorial trends and regional resilience

ANNEX 1
METHODOLOGICAL NOTE

Applied Research

This applied research activity is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

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Contents

1 Measuring Regional Resilience in Youth Integration in Labour Markets

Methodology Note concerning the analysis of changes per period

In order to investigate appropriately the main changes per period (2000-08 / 2008-12 / 2012-16) as regards the degree of Youth participation in the Labour Force, we implemented a comparative analysis. In order to effectively compare regions at different periods, the analysis had to be conducted on exactly the same number of spatial units over time.

After the imputation of missing values, the full set of data for each year was 267 NUTS2 in 2008, 268 in 2012 and finally 271 in 2016. Considering the three years together, the full set of data (data for all variables and all years) corresponds now to 262 observations, which mean a loss of 14 NUTS[1], concerning 6 countries (Table 1).

Table 1: Regions omitted from the analysis

Country	Number of Regions not included in the analysis	List of Regions	
Bulgaria	2	BG31 BG32	Severozapaden Severen tsentralen
Spain	2	ES63 ES64	Ciudad Autónoma de Ceuta (ES) Ciudad Autónoma de Melilla (ES)
France	5	FRA1 FRA2 FRA3 FRA4 FRA5	Guadeloupe Martinique Guyane La Réunion Mayotte
Poland	2	PL43 PL52	Lubuskie Opolskie
Portugal	2	PT20 PT30	Região Autónoma dos Açores (PT) Região Autónoma da Madeira (PT)
Finland	1	FI20	Åland

The analysis of changes concerning Youth Resilience in Youth Integration in the labour market during the period 2008-2016 is based on a Scoreboard Methodology[2], an approach quite often used in order to evaluate and compare the regional resilience scores, whatever the field of study. For example, this method is employed by the European Commission in order to evaluate the National as well as the Regional Innovation Performance, producing at regular intervals,

[1] On the basis of the 2013 NUTS Classification, the total number of NUTS2 regions for the 28 EU countries is 276 without including the 28 NUTS2 EXTRA REGIO.
[2] Monfardini et al. (2012), http://www.clusterobservatory.eu/eco/uploaded/pdf/1368191396040.pdf

the European Innovation Scoreboard as well as the Regional Innovation Scoreboard[3]. The same type of approach is also employed for evaluating the Regional Ecosystems in Europe[4]

Treatment of indicators' values

In the present study, nine (9) initial indicators have been retained (Table 2). Concerning education level, the percent of Youth employment with educational attainment level 3-4 has been omitted for two main reasons: (i) as intermediate level, it is the complementary percentage of the two other levels that can be more easily interpreted and consequently, (ii) its interpretation is not obvious contrarily to the two other indicators: a low percentage of level 0-2 can be considered as a «positive» resilience score for the region and a high percentage as a «negative» one and vice versa for the percentage relative to the level 5-8.

Table 2: List of Indicators

Indicators	Definition
FId1	Youth Unemployment Rate (Total 15-24 years old)
FId2	NEET's Youth Rate (Total 15-24 years old)
FId3	Ratio 15-24 unemployed on 25 - 64 years old unemployed (Total)
FId4	Youth Economic Activity Rate (Total 15-24 years old)
FId5	Youth employment by average number of usual weekly hours of work in main job
FId6a	% of Youth Employment with educational attainment level 0-2
Fid6c	% of Youth Employment with educational attainment level 5-8
Fid7	GDP per capita in PPS
Fid8	Growth rate of GDP (2 years lag)

Based on these nine indicators, an average index for resilience (composite indicator) is calculated. No weighting has been used because in some extend, weighting process contains a part of subjectivity.

When calculating a composite indicator, it is suggested to verify the shape of the initial indicators' distribution and the degree of normality of the data. This is done through Skewness analysis. In case of skew distribution, it is possible, under some conditions[5], to proceed to a Root Square Transformation, taking into consideration whether it is a positively or negatively skew distribution (Box 1).

[3] Hollanders & Es-Sadki (2017), http://www.eustat.eus/elementos/ele0014400/Methodology_Report_EIS_2017/inf0014422_c.pdf

[4] León et al. (2016), https://eco2.inno-projects.net/res/ECOII-RES2016-Methodology.pdf

[5] When the absolute value of Skewness is between 0.8 and 1.5. For highest values of Skewness, it is suggested to use log transformation.

Box 1. Root Square Transformation	
Skewed distribution	Transformation
Positively	From Id to $\sqrt{\boldsymbol{Id}}$
Negatively	From Id to $\sqrt{\max + 1 - \mathrm{Id}}$

Most of the initial indicators present skewed distribution (non-Normal distribution) except the 2 indicators: (i) Youth Economic Activity Rate and (ii) % of Youth Employment with educational attainment level 0-2. Consequently, for the other 7 indicators, it was necessary to transform the data through the implementation of Square Root Transformation in order to reduce, as far as possible, the degree of Skewness (Howell, 2007; Tabachnick & Fidell, 2007).

As the indicators are not defined in the same measurement unit and in order to normalize the data, the min-max procedure was applied to all indicators, taking into account that the meaning of the minimum (respectively maximum) value is not the same according to the indicators (Box 2).

Box 2. Normalization process	
Meaning of minimum value	Calculation
Min = Lowest Score	$ZId = \frac{Id \ - min}{\max - min}$
Min = Highest Score	$ZId = 1 \ - \frac{Id \ - min}{\max - min}$

All the indicators are now defined according to the same measurement unit and their values are between 0 and 1 where 0 concerns the region with the lowest resilience score and 1, the region with the highest resilience score.

Measurement of Regional Resilience

Initially, the Regional Resilience Indicator is calculated as the average value of the 9 normalised indicators. Considering that the resilience score of one region is partially affected by the situation of its own country, a Correction Factor (CF) was calculated as the ratio of the National Resilience Score comparatively to the EU Resilience Score (Table 3). In other terms, the same composite indicator (based on the average of the nine initial indicators) was calculated at National and EU level.

Two countries (Netherlands and United Kingdom) remain, during all period, in the Top 5 while four countries (Croatia, Bulgaria, Italy and Greece) are systematically in the Bottom 5. For a large part of the countries, changes in the ranking from one period to the other are observed, further justifying the application of the correction factor to the regions' scores.

Table 3: Absolute and Relative Resilience of the 28 EU countries

COUNTRY	ABSOLUTE RESILIENCE SCORES			RELATIVE RESILIENCE SCORES Correction Factor for Regions		
	2008	**2012**	**2016**	**2008**	**2012**	**2016**
EU average	**0,474**	**0,474**	**0,466**			
Belgium	0,465	0,561	0,503	0,981	1,183	1,080
Bulgaria	0,361	0,292	0,318	0,761	0,616	0,683
Czechia	0,502	0,448	0,508	1,059	0,944	1,091
Denmark	0,621	0,647	0,574	1,309	1,365	1,232
Germany	0,526	0,600	0,543	1,109	1,266	1,166
Estonia	0,472	0,442	0,456	0,995	0,932	0,978
Ireland	0,558	0,580	0,701	1,175	1,224	1,505
Greece	0,342	0,290	0,242	0,720	0,613	0,520
Spain	0,404	0,465	0,403	0,851	0,980	0,864
France	0,520	0,573	0,521	1,097	1,209	1,119
Croatia	0,364	0,249	0,332	0,766	0,526	0,713
Italy	0,322	0,322	0,295	0,678	0,679	0,634
Cyprus	0,560	0,463	0,394	1,181	0,977	0,846
Latvia	0,458	0,415	0,426	0,965	0,876	0,915
Lithuania	0,520	0,466	0,507	1,096	0,984	1,087
Luxembourg	0,410	0,484	0,427	0,863	1,022	0,917
Hungary	0,366	0,366	0,415	0,771	0,772	0,891
Malta	0,455	0,520	0,519	0,958	1,097	1,115
Netherlands	0,732	0,738	0,661	1,543	1,556	1,418
Austria	0,533	0,582	0,599	1,124	1,229	1,286
Poland	0,477	0,451	0,461	1,005	0,952	0,989
Portugal	0,361	0,398	0,386	0,761	0,840	0,828
Romania	0,387	0,352	0,292	0,816	0,742	0,626
Slovenia	0,515	0,457	0,469	1,085	0,964	1,006
Slovakia	0,436	0,357	0,391	0,920	0,753	0,840
Finland	0,510	0,525	0,484	1,074	1,107	1,038
Sweden	0,530	0,590	0,584	1,118	1,246	1,254
United Kingdom	0,578	0,638	0,634	1,218	1,346	1,361

Finally, the initial Regional Resilience Indicator of each NUTS 2 is multiplied with the Correction Factor of its country (i.e its Relative Resilience Score) in order to obtain the Final Regional Resilience Indicator (FRP).

2 Additional analysis on factors predicting highest and lowest regional resilience

On request of ESPON and to provide more substantial economic interpretations to the findings, a deeper analysis was conducted on the data to identify patters that could better explain the reasons behind a region's high or low resilience.

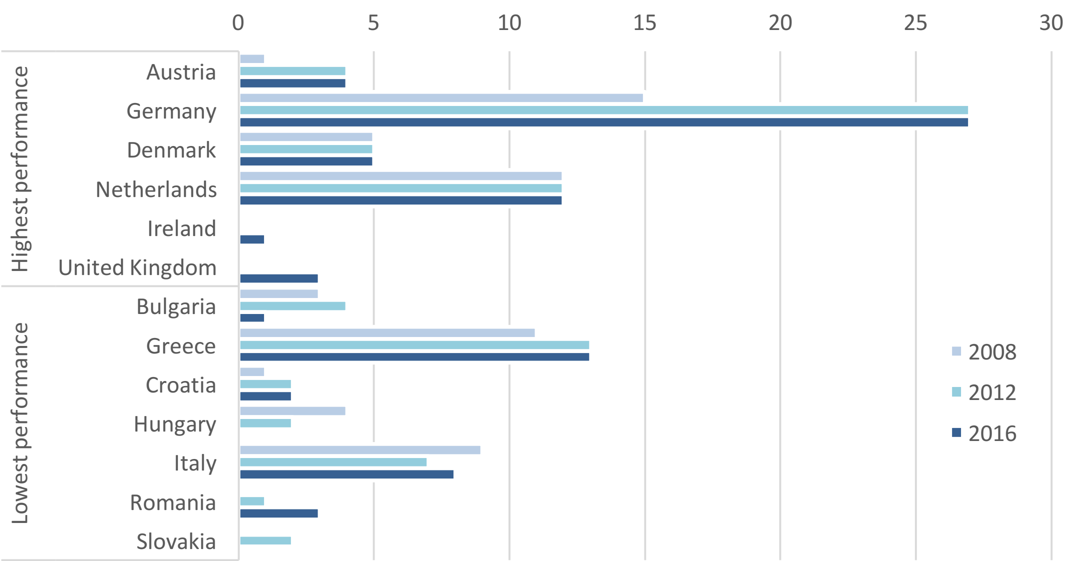
In order to do so, we first took in consideration the regions that had either highest or lowest resilience, for the three years considered. We assigned a dummy variable to each region if they were in the highest performing group, and another dummy variable if they were in the lowest performing group.

As mentioned in the report and shown in more detail here, these regions are concentrated in a few countries.

Table 4: Highest and lowest resilience regions, per country

Resilience score	**Country**	**2008**	**2012**	**2016**
Highest	Austria	1	4	4
	Germany	15	27	27
	Denmark	5	5	5
	Netherlands	12	12	12
	Ireland	0	0	1
	United Kingdom	0	0	3
	Total	**33**	**48**	**52**
Lowest	Bulgaria	3	4	1
	Greece	11	13	13
	Croatia	1	2	2
	Hungary	4	2	0
	Italy	9	7	8
	Romania	0	1	3
	Slovakia	0	2	0
	Total	**28**	**31**	**27**

Figure 1: Number of highest and lowest resilience regions, per country



Secondly, we ran two sets of logistic regressions to correlate each of the dummy variables to the factors composing the RPYI indicator. The codes used for each factor are summarized in table 5.

Table 5: Regression independent variables

Variable name in regression[6]	RPYI factor
highperf	Dummy variables for regions in the highest performing subgroup
lowperf	Dummy variable for regions in the lowest performing subgroup
v1	Youth Unemployment Rate (15-24 years old)
v3	Youth ratio of young unemployed (15-24) to working age 25-64
v4	Neet's rate
v5	Youth economic activity
v11a	Youth employment per education attainment (Level 0-2)
v11c	Youth employment per education attainment (Level 5-8)
v13	Youth average weekly hours of work in main Job
v15a	GDP pc in PPP
v15b	Growth rate

The results of the regressions are summarized in the following tables.

Table 5: Regression 1 – 2008, highest resilience

Dependent variable	Highperf08	Number of obs = 262 LR chi2(-1) = 198,4 Prob > chi2 = . Pseudo R2 = 1 Log likelihood = 0				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_08	0,00	.	.	.	.	.
v3_08	0,01	.	.	.	.	.
v4_08	0,00	.	.	.	.	.
v5_08	67,34	.	.	.	.	.
v11a_08	11100,00	.	.	.	.	.
v11c_08	0,00	.	.	.	.	.
v13_08	0,00	.	.	.	.	.
v15a_08	1,00	.	.	.	.	.
v15b_08	0,00	.	.	.	.	.
_cons	2,50E+269	.	.	.	.	.

[6] The same codes were used consistently for the three years considered

Table 6: Regression 2 – 2008, lowest resilience score

Dependent variable	lowperf08	Number of obs = 262 LR chi2(9) = 158,3 Prob > chi2 = 0 Pseudo R2 = 0,8887 Log likelihood = -9.9099344				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_08*	1,58	0,3999009	1,81	0,071	0,9616416	2,594354
v3_08*	1,34	0,2347938	1,65	0,099	0,9467768	1,885458
v4_08*	1,73	0,4927271	1,94	0,053	0,9939002	3,026713
v5_08**	0,43	0,1461618	-2,48	0,013	0,2192344	0,8359078
v11a_08	0,97	0,0481339	-0,7	0,484	0,8758549	1,064836
v11c_08**	0,61	0,1375209	-2,21	0,027	0,3884526	0,9454735
v13_08**	3,58	2,021214	2,26	0,024	1,186488	10,82457
v15a_08	1,00	0,0000618	0,16	0,872	0,9998888	1,000131
v15b_08**	0,51	0,1478689	-2,32	0,02	0,2907646	0,9018437
_cons	1,86E-17	3,77E-16	-1,9	0,058	9,94E-35	3,469803

Table 7: Regression 3 – 2012, highest resilience score

Dependent variable	Highperf12	Number of obs = 262 LR chi2(-1) = 249,54 Prob > chi2 = . Pseudo R2 = 1 Log likelihood = 0				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_12	0,00	.	.	.	.	.
v3_12	136,97	.	.	.	.	.
v4_12	0,00	.	.	.	.	.
v5_12	0,00	.	.	.	.	.
v11a_12	299,00	.	.	.	.	.
v11c_12	0,02	.	.	.	.	.
v13_12	0,00	.	.	.	.	.
v15a_12	1,00	.	.	.	.	.
v15b_12	114700,00	.	.	.	.	.

Table 8: Regression 4 – 2012, lowest resilience score

Dependent variable	lowperf08	Number of obs = 262 LR chi2(9) = 158,3 Prob > chi2 = 0 Pseudo R2 = 0,8887 Log likelihood = -9.9099344				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_12	1,23	0,26245	0,99	0,322	0,8138314	1,872645
v3_12	0,76	0,2012506	-1,02	0,308	0,4563808	1,280736
v4_12*	3,53	2,582992	1,73	0,084	0,8430331	14,80668
v5_12**	0,55	0,1668211	-1,98	0,047	0,2992316	0,9930785
v11a_12*	0,58	0,1879866	-1,69	0,091	0,3043519	1,092426
v11c_12	0,88	0,1000609	-1,08	0,278	0,7086229	1,104076
v13_12*	3,61	2,77E+00	1,67	0,095	0,798512	16,28115
v15a_12	1,00	0,0001845	0,62	0,538	0,9997521	1,000475
v15b_12*	0,33	0,1935222	-1,89	0,059	0,1059621	1,040615

Table 9: Regression 5 – 2016, highest resilience score

Dependent variable	highperf16	Number of obs = 262 LR chi2(9) = 244,03 Prob > chi2 = 0 Pseudo R2 = 0,9346 Log likelihood = -8.5363789				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_16*	0,26	0,1811713	-1,94	0,052	0,0691271	1,012569
v3_16	0,68	0,1591971	-1,65	0,098	0,4281677	1,074453
v4_16*	0,18	0,1602466	-1,95	0,052	0,0336255	1,012299
v5_16**	3,20	1,557291	2,39	0,017	1,23261	8,305929
v11a_16**	1,53	0,2968956	2,2	0,028	1,047867	2,239863
v11c_16	0,81	0,1475086	-1,13	0,258	0,5712843	1,161721
v13_16**	0,28	1,78E-01	-2	0,046	0,0776812	0,97665
v15a_16	1,00	9,92E-05	0,83	0,407	0,9998878	1,000277
v15b_16*	2,17	8,91E-01	1,88	0,06	0,9675021	4,849742

Table 9: Regression 6 – 2016, lowest resilience score

Dependent variable	lowperf16	Number of obs = 262 LR chi2(9) = 160,89 Prob > chi2 = 0 Pseudo R2 = 0,9256 Log likelihood = -6.4687427				
Independent variables	**Odds Ratio**	**Std. Err.**	**z**	**P>z**	**[95% Conf. Interval]**	
v1_16*	1,78	0,5846959	1,76	0,078	0,9374003	3,390502
v3_16	1,01	0,1364309	0,06	0,95	0,7736978	1,314784
v4_16	3,42	2,743224	1,53	0,125	0,7101782	16,47263
v5_16	0,88	0,2036257	-0,55	0,582	0,5594607	1,385282
v11a_16	0,75	0,1483255	-1,47	0,142	0,5063381	1,102545
v11c_16	1,02	0,1980095	0,1	0,922	0,6965638	1,491636
v13_16**	6,01	5,458622	1,98	0,048	1,014555	35,63204
v15a_16	1,00	0,0000998	1,56	0,118	0,9999604	1,000351
v15b_16	0,69	0,3135725	-0,81	0,416	0,2842237	1,681806

3 Selection of regions with most positive trend and largest contractions

To analyse the evolution of regional labour markets and their characteristics, a group of NUTS2 regions was selected from the total population of such regions that demonstrated improved resilience in terms of the reduction in youth unemployment and the growth in youth employment over the period 2012-2016. It is important that the reduction in youth unemployment coincided with an improvement in youth employment, to ensure inclusion of those cases where the reduction in unemployment reflects good labour market resilience rather than negative factors, such as emigration or a reduction in the youth activity rate. A group of regions that exhibited relatively poor resilience over the same period was also chosen. The analyses comprised groups of regions rather than individual regions since employment in most NUTS2 regions is too small to produce statistically reliable results from the type of in-depth analyses applied.

The criteria for selecting the groups of regions with most positive employment trend and regions with largest employment contractions was as follows[7]:

- Change (increase or decline) in employment over the period of at least 2%;
- Difference in employment over the reference period had to be at least 5,000;
- Employment in the base year (2012) had to be at least 40,000[8];
- Difference in unemployment over the period must be at least 5,000;
- Unemployment in the base year must be at least 10,000.

Achieving a significant reduction in youth unemployment over the period was not considered sufficient for a region to qualify as a high performer. This is because a reduction in unemployment may paradoxically reflect a poor resilience in the youth regional labour market. Two examples may illustrate how this rather perverse result may occur. Firstly, a lack of job opportunities often results in young jobseekers migrating to other regions, or indeed to other countries in search of employment. Secondly, it has been observed that many young people extend their engagement in education or training when employment opportunities are relatively scarce. In both these cases, the decline in the number of young job-seekers in the youth regional labour force will ceteris paribus result in a decline in the youth unemployment rate, but in these cases, the decline reflects a poor rather than a strong regional labour market resilience.

The criteria applied to the selection of the highest resilience regions is designed to control for these anomalies. Specifically, only those regions which over the period have generated a volume of jobs for young people which is more or less sufficient to account for the reduction in youth unemployment qualify for inclusion in the highest resilience regions. The focus is on creating sustainable solutions for the problem of regional youth unemployment and in the approach taken in this analyses, sustainable solutions means the ability to create a sufficient volume of employee related employment or self-employment to absorb the numbers of young job-seekers.

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[7] The inclusion of minimum thresholds is to ensure that regions with small labour forces, which tend to create large swings in unemployment and employment, do not influence the composition of the groups.

[8] An exception was made of Opolskie, in Poland, which didn't quite meet the criteria but because of a break in the time series, it was decided to include it.

Finally, the relatively small size of many regional labour markets means that a reduction in youth unemployment even when accompanied by a corresponding increase in employment, may in some cases give a misleading impression that the youth labour market is performing well. The labour force may be so small that even a modest decline in their numbers – brought about for example by the location of a new factory or office complex - can produce a significant drop in the unemployment rate. To contrast this possibility, a number of thresholds were introduced into the selection criteria to ensure that both the creation of employment in the region and the subsequent reduction in unemployment are of reasonable magnitude.

As a result of applying these constraints to the regions, a group of 57 NUTS2 regions were selected in which over 90% of the significant reduction in unemployment over the period 2012-2016 was created exclusively from an increase in employment in those regions. Of these, 28 had significantly improved resilience scores and 29 had significantly reduced resilience scores.

Table 1: Youth employment trends in the regions with most positive trends[9]

Country	Number of regions	Youth employment 2016 (total numbers, thousands)			% youth employment change 2012-2016		
		Regions with most positive trend	Other regions	Total	Regions with most positive trend	Other regions	Total
UK	15	1.896,5	1.961,4	3.857,9	10,0%	3,4%	6,5%
IE	2	201,9	40,4	242,3	23,7%	19,2%	22,9%
PL	3	168,1	968,8	1.136,9	8,9%	-2,7%	-1,1%
SK	2	66,2	94,1	160,3	14,7%	6,1%	9,5%
SE	2	160,6	360,1	520,7	7,1%	3,6%	4,6%
HU	1	120,7	180,4	301,1	43,4%	37,4%	39,7%
HR	1	83,9	37,3	121,2	45,4%	25,6%	38,7%
ES	1	173,7	646,7	820,4	11,8%	-7,3%	-3,8%
PT	1	66,2	196,2	262,4	14,7%	-3,1%	0,9%
Total	**28**	**2.937,8**	**4.485,4**	**7.423,2**	**12,8%**	**1,4%**	**5,6%**

Source: based on Eurostat employment in NUTS2 regions.

Table 2: Youth employment trends in the regions with largest contraction

Country	Number of regions	Youth employment 2016 (total numbers, thousands)			% youth employment change 2012-2016		
		Regions with largest contraction	Other regions	Total	Regions with largest contraction	Other regions	Total
IT	11	616,8	360,7	977,5	-15,6%	-4,1%	-11,7%
FR	6	305,4	1.779,7	2.085,1	-14,9%	2,8%	-0,2%
AT	3	196,7	304,5	501,2	-10,6%	-0,8%	-4,9%
BE	3	126,0	171,1	297,1	-11,2%	-11,4%	-11,3%
DE	2	194,6	3.696,4	3.891,0	-16,4%	-2,6%	-3,4%
RO	2	74,8	407,2	482,0	-33,1%	-12,1%	-16,2%
FI	1	82,7	175,2	257,9	-4,6%	-3,4%	-3,8%
NL	1	29,1	1.227,0	1.256,1	-2,4%	1,7%	1,6%
Total	**29**	**1.626,1**	**8.121,8**	**9.747,9**	**-15,0%**	**-1,6%**	**-4,1%**

Source: based on Eurostat employment in NUTS2 regions.

Table 3: List of regions with most positive trend and regions with largest contraction, 2012-2016

Regions with most positive trend	Regions with largest contraction

[9] Between 2013 and 2016 there was a change in the classification of six of the twenty-eight regions, two In Ireland, three in the UK and one in Poland. Therefore, it is advisable to regard the trend data in these regions as approximations.

Východné Slovensko (SK)	Flevoland (Netherlands)
Podkarpackie (PL)	Thüringen (Germany)
Border, Midland and Western (IE)	Steiermark (Austria)
Západné Slovensko (SK)	Prov. Oost-Vlaanderen (Belgium)
Tees Valley and Durham (UK)	Oberösterreich (Austria)
Área Metropolitana de Lisboa (PT)	Freiburg (Germany)
Sydsverige (SE)	Franche-Comté (NUTS 2013) (France)
Dolnoslaskie (PL)	Abruzzo (Italy)
Kontinentalna Hrvatska (HR)	Prov. Antwerpen (Belgium)
Östra Mellansverige (SE)	Kärnten
Outer London - East and North East (UK)	Liguria (Italy)
Kent (UK)	Marche (Italy)
Opolskie (PL)	Prov. Hainaut (Belgium)
Leicestershire, Rutland and Northamptonshire (UK)	Sud-Vest Oltenia (Romania)
Alföld és Észak (HU)	Helsinki-Uusimaa (Finland)
West Wales and The Valleys (UK)	Champagne-Ardenne (NUTS 2013) (France)
Inner London – East (UK)	Bourgogne (NUTS 2013) (France)
South Western Scotland (UK)	Sardegna (Italy)
Derbyshire and Nottinghamshire (UK)	Midi-Pyrénées (NUTS 2013) (France)
West Yorkshire (UK)	Vest (Romania)
Gloucestershire, Wiltshire and Bristol/Bath area (UK)	Alsace (NUTS 2013) (France)
Northumberland and Tyne and Wear (UK)	Calabria (Italy)
Cataluña (ES)	Toscana (Italy)
Greater Manchester (UK)	Piemonte (Italy)
Surrey, East and West Sussex (UK)	Lazio (Italy)
Southern and Eastern (IE)	Puglia (Italy)
East Wales (UK)	Auvergne (France)
West Midlands (UK)	Lombardia (Italy)
	Sicilia (Italy)

4 The selection of relevant labour market indicators

There are many reasons why a particular region may exhibit a strong youth labour market resilience. Some of these reasons may not be directly related to the labour market. For example, the national fiscal policy may designate a particular region for qualifying for a range of tax exemptions which in turn may attract foreign direct investment to that region.

The focus in this of this work is exclusively on identifying those features of the regional labour market which have contributed to a strong performing youth labour market, and which can be influenced by labour market institutions and practitioners. Four significant features are explored in detail in the following sections namely:

- The skills composition of the youth work-force in each group of regions
- The entrepreneurial culture in each group of regions
- The quality of employee jobs in each group of regions
- The level of labour mobility in each group of regions

A number of labour market indicators are selected to act as a reasonable proxy of the labour market feature which is being analysed. With regard to the *skills composition of the youth labour market*, two indicators are chosen; the occupation structure of youth employment and the education attainment of young workers. In the absence of a more refined occupation classification system, the combination of an occupation and a qualification is widely regarded as the best proxy of skills.[10]

The share of employment which is composed of the self-employed - distinguishing between those with and without employees - is used to explore the extent to which the strong recovery in the youth labour market recorded in some regions was characterised *by a spike in entrepreneurial activity*.

With regard to the third labour market feature, it is difficult to develop appropriate proxies for the *quality of employment* in regional labour markets. While it is possible in principle to use data from the Labour Market Survey (LFS) to decompose part-time employment across a range of 'hours worked', it is not possible to create this level of refinement in regional labour markets because the absolute values for some of the categories of 'hours worked' are too low. Consequently, it was only possible to explore this feature more broadly through a distinction between full-time and part-time employment.

The extent of *labour mobility* within regions was explored using a nationality variable. The assumption implicit in including this feature is that it is more feasible to avoid skills bottlenecks if the regional youth labour market is characterised by a high degree of mobility. Therefore, the hypothesis which is tested is that the share of foreign nationals in the highest performing regions was higher than in the lowest resilience regions.

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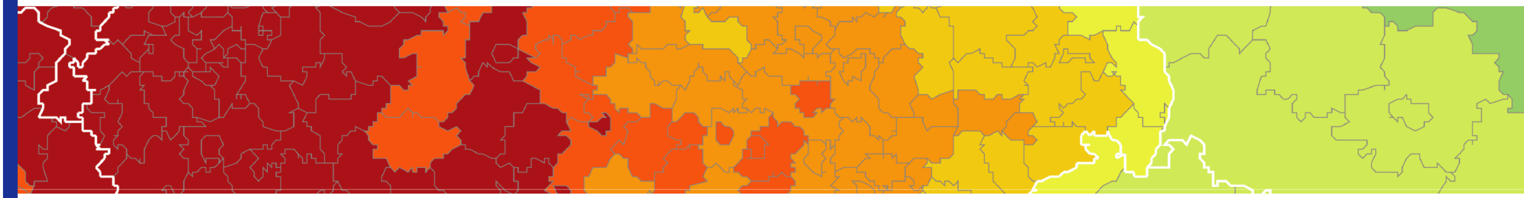
[10] It is to be hoped that the new ESCO system will - after many years of widespread use - provide a more granular and refined system of identifying skills. Currently, labour market analysts use the combination of occupation and qualification as a proxy of skills



ESPON 2020 – More information

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