Spatial Variations and Clustering in the Rates of Youth Unemployment and Neet: A Comparative Analysis of Italy, Spain and the UK

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Introduction

- Varied youth unemployment experience of OECD countries
- Over the period 1995-97 to 2005-07 Italy and Spain had higher than average YU rates, but also the greatest decline over the decade.
- Britain had lower than average YU rates but higher than average increases.
- Level and amplitude of the YU rate exceeds that for adults.
  - In 2008, the youth-adult unemployment ratio was 2.8 for the OECD area.

Motivation

- High rates of YU major policy concern because of long-term damaging effects, or scarring effects, such as
  - higher likelihood of repeat unemployment
  - lower future earnings and
  - possible detachment from the labour market.
- Gregg (2001): for the UK 3 additional months of U before age 23 leads to 2 extra months of U or inactivity between ages 28 and 33.
- De Fraja et al. (2017): U shocks during the ages of 18-20 cause a permanent income loss of 2% with some differences for men and women.

Motivation

- Great interest in the numbers of young people who are neither employed, in education or in training (NEET).
- This group comprises the unemployed but also the economically (and educationally) inactive
  - hence an agreed definition has proved elusive (Maguire, 2015).
- Since NEET do not engage in any form of meaningful human capital accumulation, it is likely that the *scarring effects,* referred to above, will be at least as great or greater for them.

Our work

- Few studies investigate spatial variations in YU within countries
- no studies that analyse the effect of spatial clustering on YU and NEET rates.
- **Aim of our work**: to fill this gap in the literature, identifying the determinants of variations in YU and NEET rates
  - between regions within countries
    - Indeed, unemployed and inactive tend to be concentrated in particular regions and sub-regions
    - disparities btw regions greater than either disparities between countries
  - and over time within countries
  - in order to gain a better understanding of potential causal mechanisms.

Choice of countries

- Well known persistence of regional disparities in adult U rates in the three EU countries (Taylor and Bradley, 1996; Bande et al. 2007 and 2014; Zeilstra and Elhorst, 2014).
- Scarpetta et al (2010): Italy, Spain and UK clustered at the upper end of the OECD league table for the percentage of youths inactive and NEET, exceeded only by Turkey and Mexico.
- Moller, 2017: in 2014 and 2015 two Spanish regions (Castilla-La Mancha and Andalucia) and one Italian region (Calabria) had YU rates in excess of 60%.

Main Findings

- Several common factors which increase YU and NEET rates, especially in Spain and the UK.
  - all age regional YU rates tend to rise when adult U increases, and this group is more sensitive to aggregate labour market conditions than the teenage group.
  - a larger % of immigrants in a region increases YU rates in the UK and Spain, especially for teenagers.
  - Industry mix and the % of SMEs in a region reduce YU rates, reflecting demand-side effects.
  - UK and Spain have positive spill over effect between regional YU rates, whereas in the case of Italy the effect is negative.

Literature Review

Equilibrium approach includes among the causes of spatial disparities in U rate

- demographic factors
    - e.g. proportion of youths or females in the labour force
- industry mix
- stock of human capital

Regions have different underlying mean unemployment rates

- asymmetric shocks move away from these mean values but eventually regions converge back.

If the equilibrium is not achieved is due to supply-side factors

- role of unions, benefit systems and worker preferences for local amenities and climate.

- Disequilibrium approach suggests that regional disparities in unemployment persist because of weak labour market adjustment mechanisms.

- In the EU context, low geographical mobility and real wage rigidities are often blamed for this

  ➔ unemployment disparities are history dependent.

- Ammermuller et al (2010) show for Italy that labour market attachment varies spatially within Italy
  - females in the south are less attached than males, possibly due to the lack of job opportunities
  - workers at the lower end of the wage distribution, such as youths, more likely to leave the LM and become inactive rather than accepting lower wages.

- Lopez-Bazo and Artis (2005) find that equilibrium factors drive regional unemployment rates in Spain
  - In particular, the unequal distribution of amenities.

- Green and Livanos (2013) analyse the increase in part time and/or temporary employment pre- and post-Great Recession for UK regions
  - with the largest increases observed in regions of the North and Northern Ireland.
  - Young people and females who take these types of job have a higher risk of unemployment and NEET.

- YU rate is more pro-cyclical than the adult unemployment rate and youths suffer more during recessions.
- Marelli and Signorelli (2014) show that NEET rates are persistent
  - falling as regional economies grow
  - but less persistent during the crisis period.
- Differences in the pro-cyclicality reflect demand shocks and differences in firms responses
  - by cutting recruitment, especially in branch plants, and/or adopting last-in-first-out redundancy policies,
  - both of which disproportionately affect younger workers.

- Young people also tend to concentrate in certain cyclically sensitive industries
  - are more likely to be in non-standard employment

- Perugini and Signorelli (2010) find for western regions of the EU that
  - higher shares of primary and construction industry do not have a statistically significant effect on regional YU
  - whereas a higher share of manufacturing industry reduces YU.

Less educated and less skilled youths will face a higher risk of unemployment.

OECD *Jobs for Youth* review identified two groups

1. "youth left behind" : lack qualifications, come from an immigrant or minority background and live in disadvantaged backgrounds.
   - proxied by the number of young people in NEET
2. "poorly-integrated new entrants" : move between unemployment, inactivity and temporary work
   - and may have some qualifications and work experience.

- In countries with a strong apprenticeship system and/or a less regulated labour market (e.g. UK)
  - Young people perform better
  - In Spain and Italy instead difference in U rates between those young people with tertiary and lower secondary education is more compressed and graduate unemployment rates higher.

Data

- We use individual level Labour Force Survey (LFS) data
  - collected quarterly, for Italy, Spain and the UK.
    - Each of these datasets contains random samples of the workforce over 5 consecutive quarters

      (80,000-120,000 obs per period) .
  - for the time-period 1993-2011,
  - which we aggregate to the regional level for each country.
  - We consider the youth (all age) 16-24 age group, and the teenage group (aged 16-19)

Definition of NEET

- We regard them as the unemployed plus the so-called economically inactive:
  - Spain: young people potentially active, including those not motivated, but excluding students, retired or pre-retired, housewives or disabled individuals who are not available for work.
  - Italy: young people looking for their first job, out of labour force but looking for a job, out of labour force not looking for a job but available to work, and those out of the labour force but not currently available to work.
  - UK : young people economically inactive but looking for, or willing, to work excluding the retired and those individuals who are looked after and/or injured.

Table 1 Descriptive statistics for the five worse and five best performing regions by country

Panel A:	Italy						
Ranking	Region	UR 16-25	NEET rate 16-24	% youths with HEQ	% young	marriedfemale25	manufconstr
1	Trentino-Alto Adige	10.56	6.72	3.32	8.06	26.01	17.73
2	Veneto	19.28	9.88	3.59	6.52	28.58	13.54
3	Friuli-Venezia Giulia	19.79	10.14	3.37	5.36	28.20	14.06
4	Lombardia	20.14	9.94	4.64	5.99	27.89	12.47
5	Emilia Romagna	22.11	10.50	3.61	5.43	26.45	12.30
	Mean	*28.86*	*14.47*	*3.20*	*6.47*	*28.02*	*13.09*
	Median	*25.29*	*10.95*	*3.37*	*6.31*	*28.20*	*12.57*
6	Basilicata	38.89	18.64	2.31	6.71	29.48	12.20
7	Calabria	41.23	23.78	2.90	6.89	29.22	10.86
8	Sicilia	43.65	25.94	1.64	8.21	28.97	10.03
9	Sardegna	43.93	21.81	1.66	7.01	26.48	13.69
10	Campania	46.08	25.04	2.38	7.37	28.38	10.11

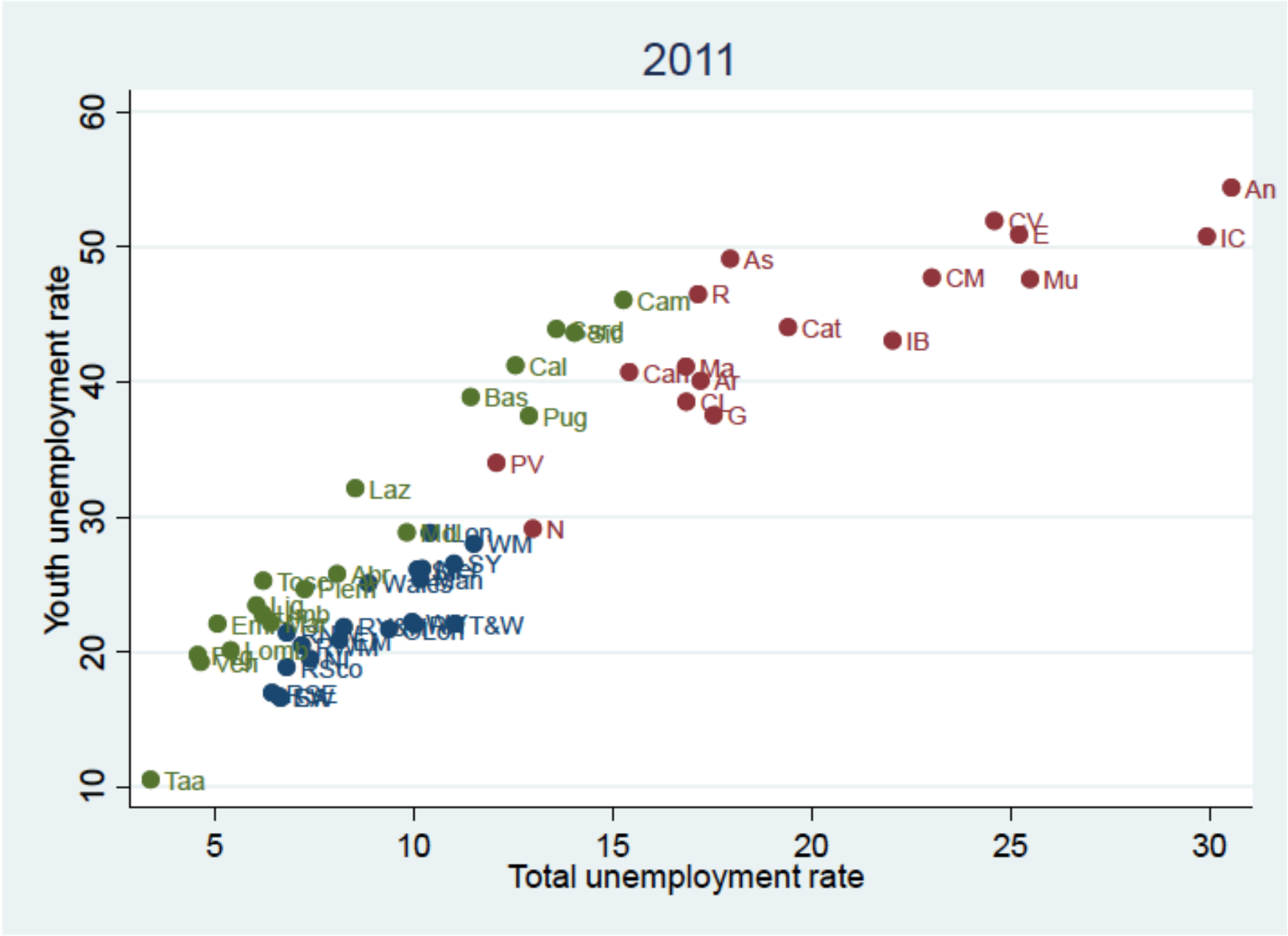

Figure 1 The correlation between adult and youth unemployment rates by region, 2011

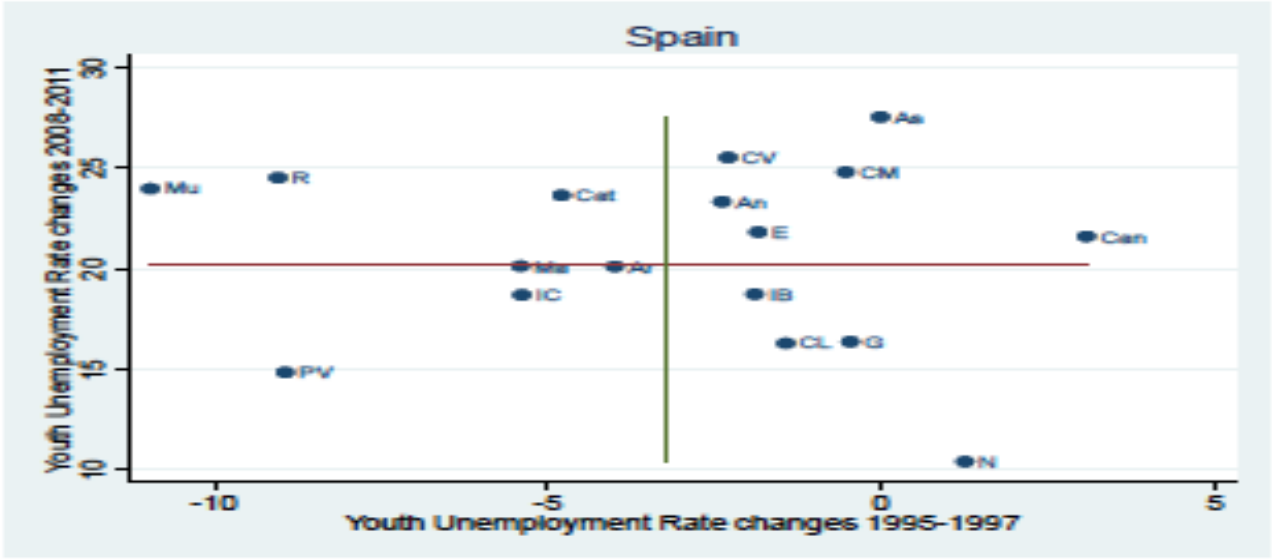

Figure 2 The relationship between changes in youth unemployment rates, 1995-97 versus 2008-11, Spain

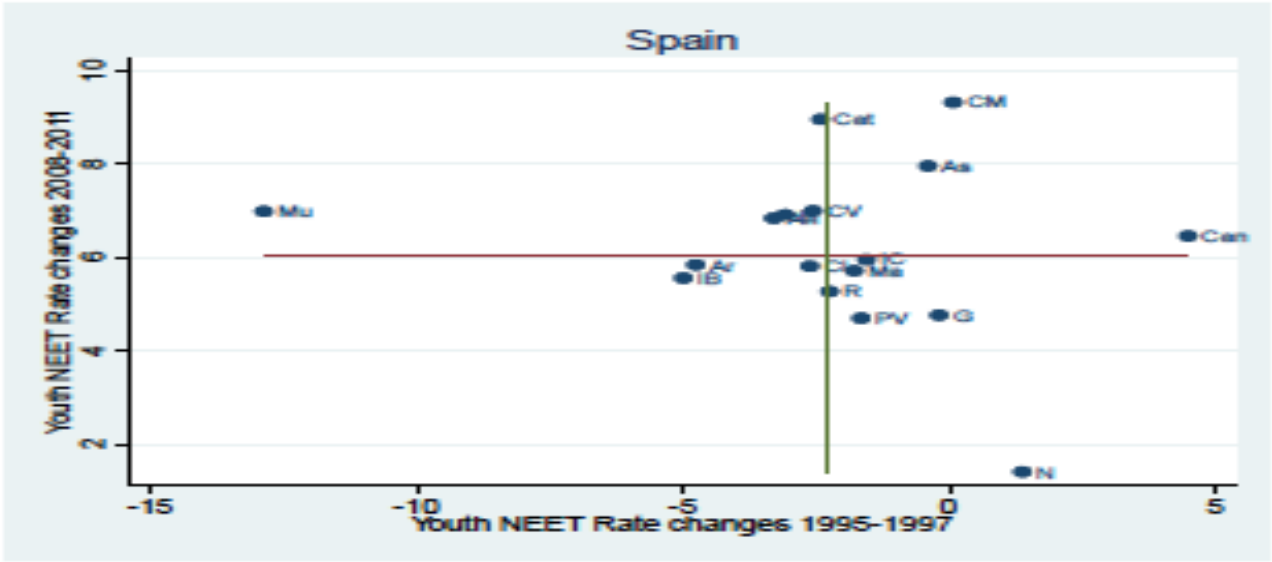

Figure 3 The relationship between changes in youth NEET rates, 1995-97 versus 2008-11, Spain

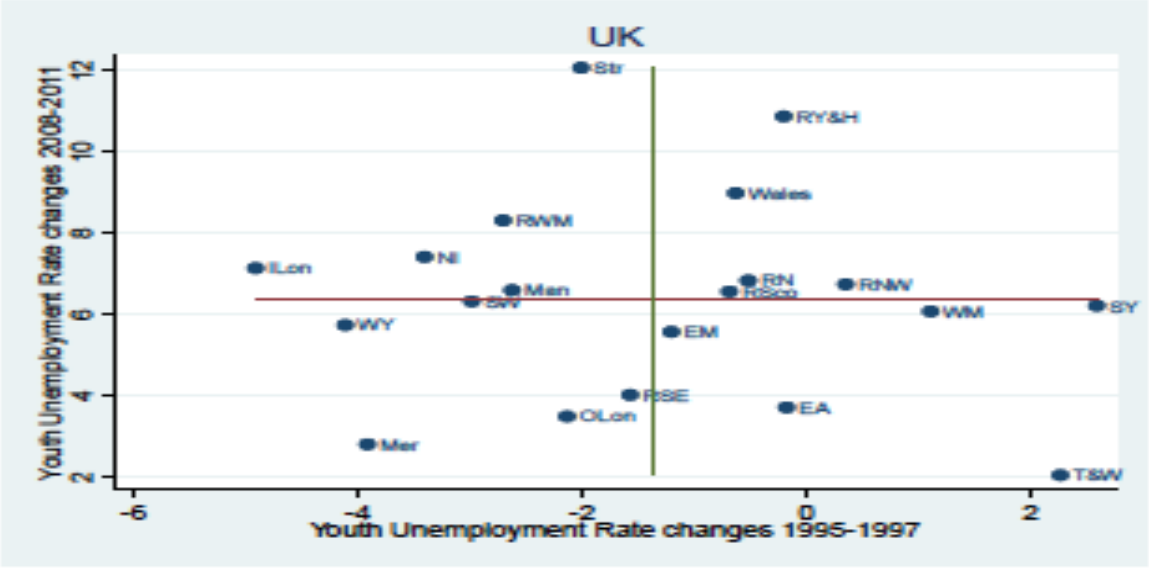

Figure 4. The relationship between changes in youth unemployment rates, 1995-97 versus 2008-11, UK

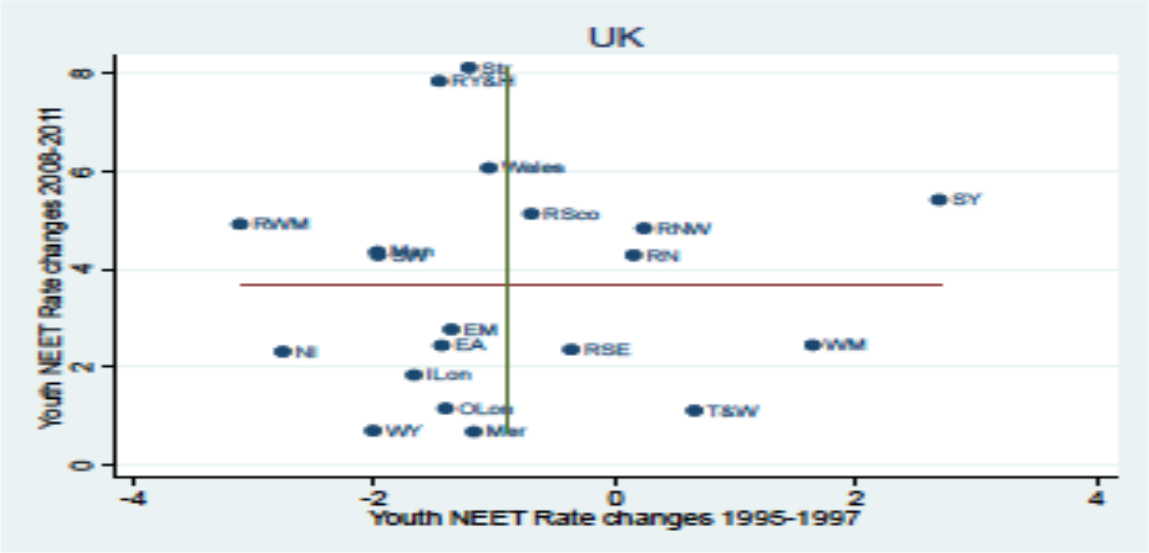

Figure 5 The relationship between changes in youth NEET rates, 1995-97 versus 2008-11, UK

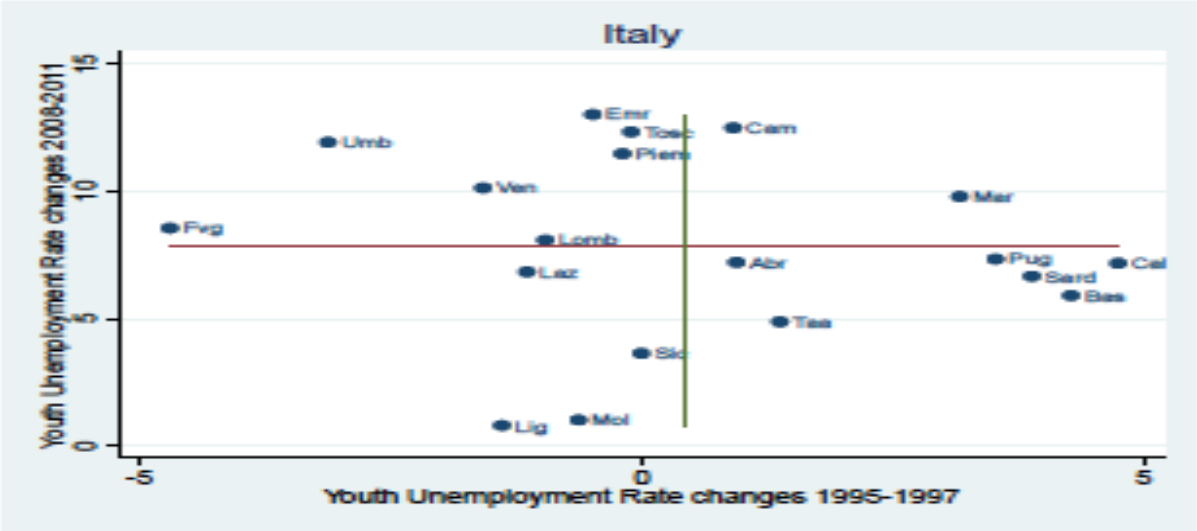

Figure 6 The relationship between changes in youth unemployment rates, 1995-97 versus 2008-11, Italy

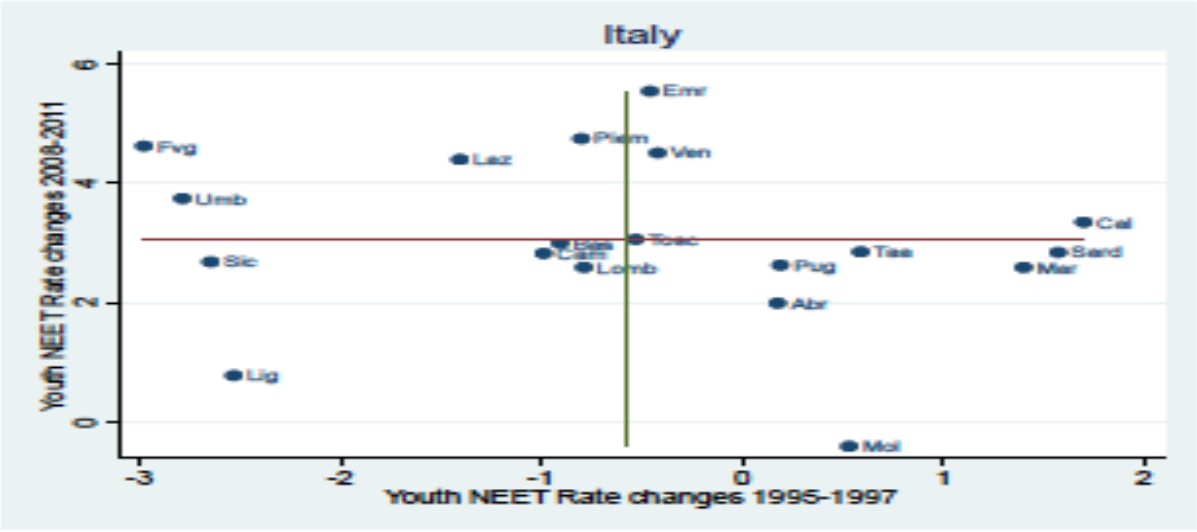

Figure 7 The relationship between changes in youth NEET rates, 1995-97 versus 2008-11, Italy

EMPIRICAL FRAMEWORK

- Our econometric strategy has two parts.
  1. OLS model for each country with FE

$$U_{ith} = \alpha + \beta U^{a}_{th} + \rho X_{ith} + \mu_{ih} + \tau_t + \varepsilon_{ith}$$

  - where U_{ith} youth unemployment rate of region *i* in year t in country *h*,
  - U^{a}_{th} the national adult unemployment rate for country *h,* at time *t*.
  - *X* variables that capture equilibrium determinants of regional youth unemployment rates
  - μ_{ih} region specific fixed effects
  - τ_t are time dummies for each quarter

- The second econometric strategy is based on the estimation of a spatial autoregressive panel model (Anselin, 2008)

$$U_{ith} = \alpha + +\gamma WU_{-ith} + \rho X_{ith} + \mu_{ih} + \tau_t + \varepsilon_{ith}$$

  - Where $WU_{-i,th}$ weighted average unemployment rate of the neighboring region *j* at time *t* in country *h*
  - ω_{ij} are exogenously chosen weights, =1 if regions are contiguous
  - γ spatial interdependence in the regional unemployment,
    - reaction of the U rate of a given region to a one per cent increase in the average unemployment rate of its neighbours.

Identification

- WU_{-ith} is endogenous because unemployment interactions are symmetric and simultaneous:
  - the behaviour of each region's U directly affects that of its neighbours and it is similarly affected by their behaviour.
  - because of trade linkages between industries in spatial clusters
    - which results in a common response to economic shocks
  - and because of competition for jobs, particularly from adults, in neighbouring regions.

Instrumental variable approach

The endogenous variable WU_{-ith} is instrumented by the weighted average of the proportion of young people in the neighboring regions.

Hypothesis:

- in a given region, the variation in the number of young individuals has a direct effect on the unemployment rate of that region
- but it does not significantly affect the neighbouring regions' rates of unemployment.
- Young people in region *j* do not compete for jobs in region *i*, because
  - they are less mobile than their adult counterparts, due to income constraints with respect to transportation,
  - because they are less likely to migrate from high unemployment to low unemployment regions.
  - Evidence that older youths are more likely to live with parents for longer, especially in Italy (around 88 per cent of those aged 16-29) and Spain (Billari, 2004; Iacovou, 2001).

Results

We focus on the following effects

- *The effects of the business cycle* : national adult unemployment rate
- *The effect of competition for jobs* : young people face competition
  - from married females, more willing over time to take on entry level jobs
  - immigrant workers
- *The quality of jobs* : % of the regions' workforce in temporary jobs and in part-time jobs
  - regarded for young people as more 'marginal' jobs in terms of the prospects and wages

- *The effect of skills and education* : % of youths in the workforce with a higher education qualification
  - Regions with a greater stock of higher educated workers should have lower rates of youth unemployment and NEET.
- *The effect of industry mix and labour demand* : % of regional employment in manufacturing and construction industry and SME.
  - to capture the availability of jobs that have typically been entered by young people.
- *The effect of youth labour supply :* % of youths in the working age population.

Table 2 The determinants of quarterly variations in regional unemployment rates (16-19 year olds), 1993-2011

VARIABLES	UK		Spain		Italy	
	Without	with Region FE	without	with Region FE	Without	with Region FE
URnational adult	0.745***	0.681***	2.253***	2.350***	-0.497	0.064
	(0.258)	(0.218)	(0.145)	(0.124)	(0.343)	(0.293)
% youths with HEQ workforce	0.377***	0.052	-0.359	0.051	-0.385***	-0.364***
	(0.114)	(0.064)	(0.276)	(0.156)	(0.123)	(0.116)
% young	1.064***	0.275*	-0.760	1.030	-0.424	0.544**
	(0.317)	(0.145)	(0.658)	(0.643)	(0.383)	(0.225)
% Marriedfemale25	-0.368***	-0.075**	-0.416	0.379*	-1.303***	-1.682***
	(0.087)	(0.036)	(0.352)	(0.217)	(0.321)	(0.213)
% Immigr	0.291	0.814***	0.172	0.551***		
	(0.185)	(0.219)	(0.121)	(0.104)		
% Manufconstr	-0.177***	-0.164***	-0.135	-0.178	-0.828***	-0.265**
	(0.031)	(0.018)	(0.157)	(0.134)	(0.212)	(0.107)
Log (SME)	-4.286***	-0.089	-3.634	11.513*		
	(0.781)	(0.483)	(2.109)	(5.911)		
% Temp	0.069	-0.488*	0.242	-0.509***	0.388***	-0.020
	(0.331)	(0.264)	(0.211)	(0.115)	(0.110)	(0.112)
% PartTime	0.071	0.318	0.995	0.886**	-0.399*	-0.005
	(0.308)	(0.210)	(0.598)	(0.346)	(0.217)	(0.137)
Firstq	-0.232	-0.713**	0.311	-0.133	-1.443***	-1.647***
	(0.299)	(0.313)	(0.826)	(0.625)	(0.448)	(0.449)
Secondq	0.268	-0.600	0.451	0.849	-2.177***	-2.183***
	(0.328)	(0.390)	(0.796)	(0.649)	(0.434)	(0.433)
Thirdq	1.708***	2.279***	-0.791	-1.012**	-1.047***	-0.934**
	(0.401)	(0.296)	(0.549)	(0.434)	(0.316)	(0.338)
Regional real GDP lagged	0.035	-0.005	0.104**	-0.125*	0.009	0.137***
	(0.030)	(0.028)	(0.042)	(0.063)	(0.007)	(0.046)
Constant	56.726***	13.141	58.039**	-124.810	72.593***	57.517***
	(18.336)	(11.157)	(21.635)	(74.200)	(13.187)	(7.673)
Observations	1,512	1,512	1,368	1,368	1,406	1,406
R-squared	0.634	0.757	0.605	0.745	0.220	0.376

Table 3 The determinants of quarterly regional unemployment rates (16-24 year olds), 1993-2011

VARIABLES	UK		Spain		Italy	
	without	with Region FE	without	with Region FE	without	with Region FE
URnational adult	1.109***	1.160***	1.736***	1.790***	1.471*	2.906***
	(0.210)	(0.116)	(0.134)	(0.129)	(0.776)	(0.508)
% youths with HEQ workforce	0.072	-0.090*	-0.396**	-0.103	-0.704*	0.251
	(0.084)	(0.051)	(0.187)	(0.132)	(0.354)	(0.237)
% young	0.817***	0.165*	-0.754	1.178*	-1.333*	0.400
	(0.219)	(0.089)	(0.608)	(0.661)	(0.724)	(0.522)
% Marriedfemale25	-0.231***	-0.026	-0.572*	0.257	-3.863***	-1.417*
	(0.063)	(0.027)	(0.324)	(0.169)	(1.151)	(0.693)
% Immigr	0.103	0.379***	-0.028	0.433***		
	(0.149)	(0.115)	(0.107)	(0.083)		
% Manufconstr	-0.103***	-0.083***	-0.442***	-0.127	-2.256***	-0.708***
	(0.023)	(0.010)	(0.150)	(0.123)	(0.364)	(0.174)
Log (SME)	-3.372***	-0.930**	-1.860	-2.276		
	(0.611)	(0.332)	(1.697)	(7.807)		
% Temp	0.179	-0.093	0.251	-0.505***	2.289***	-0.296
	(0.239)	(0.141)	(0.211)	(0.109)	(0.323)	(0.199)
% PartTime	0.054	0.467***	0.490	0.418	-2.535***	-0.128
	(0.181)	(0.141)	(0.540)	(0.330)	(0.547)	(0.295)
Firstq	0.003	-0.278	0.350	-0.115	0.364	-1.479***
	(0.263)	(0.254)	(0.455)	(0.318)	(0.564)	(0.351)
Secondq	0.277	-0.279	-0.119	0.027	-1.663**	-1.693***
	(0.192)	(0.221)	(0.454)	(0.263)	(0.625)	(0.424)
Thirdq	0.990***	1.476***	0.157	-0.337	-2.835***	-1.416***
	(0.194)	(0.156)	(0.277)	(0.284)	(0.796)	(0.408)
Regional real GDP lagged	0.031	-0.001	0.059	-0.064	-0.006	0.148
	(0.023)	(0.017)	(0.037)	(0.042)	(0.018)	(0.139)
Constant	39.797***	8.505	54.241***	25.398	171.559***	50.524*
	(11.405)	(6.677)	(16.632)	(91.345)	(43.565)	(26.269)
Observations	1,512	1,512	1,368	1,368	1,406	1,406
R-squared	0.584	0.758	0.716	0.877	0.656	0.901

Table 4 The determinants of spatial variations in regional NEET rates (16-19 year olds), 1993-2011

VARIABLES	UK		Spain		Italy	
	without	with Region FE	without	with Region FE	without	with Region FE
URnational adult	0.098	-0.046	0.302***	0.329***	-0.079	0.304***
	(0.186)	(0.112)	(0.055)	(0.086)	(0.212)	(0.093)
% youths with HEQ workforce	-0.023	-0.098**	-0.247***	-0.124***	-0.222***	-0.034
	(0.051)	(0.044)	(0.042)	(0.043)	(0.076)	(0.055)
% young	1.354***	0.784***	0.878***	1.062***	0.265	0.636***
	(0.245)	(0.149)	(0.121)	(0.105)	(0.231)	(0.130)
% Marriedfemale25	-0.169***	-0.010	-0.197**	-0.222**	-0.936**	-0.442**
	(0.046)	(0.029)	(0.070)	(0.094)	(0.331)	(0.159)
% Immigr	0.100	0.232**	0.074*	0.160***		
	(0.092)	(0.096)	(0.037)	(0.031)		
% Manufconstr	-0.088***	-0.092***	-0.112**	-0.100	-0.601***	-0.200***
	(0.022)	(0.014)	(0.040)	(0.060)	(0.112)	(0.040)
Log (SME)	-1.199*	-0.427	-1.462***	2.304		
	(0.671)	(0.378)	(0.315)	(1.978)		
% Temp	0.533**	-0.056	-0.066	-0.200***	0.590***	-0.017
	(0.231)	(0.132)	(0.055)	(0.061)	(0.088)	(0.071)
% PartTime	0.269	0.296**	0.523***	0.402***	-0.518***	-0.008
	(0.272)	(0.141)	(0.125)	(0.111)	(0.143)	(0.061)
firstq	-0.112	-0.417**	-0.542*	-0.516*	-0.327*	-0.761***
	(0.193)	(0.167)	(0.303)	(0.284)	(0.173)	(0.171)
secondq	-0.215	-0.668**	-0.513**	-0.335*	-1.031***	-1.021***
	(0.271)	(0.285)	(0.223)	(0.190)	(0.179)	(0.169)
thirdq	2.311***	2.766***	3.634***	3.647***	0.042	0.370**
	(0.328)	(0.259)	(0.415)	(0.422)	(0.191)	(0.142)
Regional real GDP lagged	0.028	-0.015	0.041***	-0.040**	0.006	0.047
	(0.019)	(0.013)	(0.012)	(0.015)	(0.004)	(0.037)
Constant	2.561	6.307	19.226***	-17.661	39.357***	13.274**
	(17.817)	(8.288)	(4.914)	(22.104)	(12.775)	(6.103)
Observations	1,512	1,512	1,368	1,368	1,406	1,406
R-squared	0.442	0.604	0.585	0.624	0.674	0.847

Table 5 The determinants of spatial variations in NEET rates (16-24 year olds), 1993-2011

VARIABLES	UK		Spain		Italy	
	without	with Region FE	without	with Region FE	without	with Region FE
URnational adult	0.716***	0.698***	0.674***	0.710***	0.306	1.005***
	(0.171)	(0.094)	(0.067)	(0.066)	(0.369)	(0.145)
% youths with HEQ workforce	-0.025	-0.101**	-0.269***	-0.095*	-0.394**	0.055
	(0.060)	(0.043)	(0.079)	(0.046)	(0.170)	(0.098)
% young	0.970***	0.495***	0.235	0.923***	-0.166	0.473*
	(0.187)	(0.098)	(0.197)	(0.132)	(0.353)	(0.228)
% Marriedfemale25	-0.147***	-0.003	-0.340**	-0.080	-1.538**	-0.451
	(0.041)	(0.027)	(0.136)	(0.085)	(0.607)	(0.279)
% Immigr	0.094	0.199***	0.021	0.229***		
	(0.097)	(0.061)	(0.057)	(0.028)		
% Manufconstr	-0.063***	-0.056***	-0.174**	-0.054	-1.175***	-0.444***
	(0.018)	(0.009)	(0.072)	(0.052)	(0.181)	(0.062)
Log (SME)	-1.939***	-0.916***	-2.182**	-0.516		
	(0.559)	(0.259)	(0.777)	(1.484)		
% Temp	0.302	-0.044	0.079	-0.266***	1.197***	-0.145
	(0.182)	(0.094)	(0.083)	(0.057)	(0.166)	(0.092)
% PartTime	0.157	0.360***	0.395*	0.247***	-1.108***	0.018
	(0.177)	(0.094)	(0.193)	(0.073)	(0.275)	(0.121)
firstq	-0.056	-0.285	-0.228	-0.338	0.050	-0.903***
	(0.178)	(0.166)	(0.268)	(0.198)	(0.262)	(0.163)
secondq	0.166	-0.221	-0.698***	-0.517***	-0.951***	-0.915***
	(0.174)	(0.198)	(0.236)	(0.137)	(0.276)	(0.183)
thirdq	1.775***	2.142***	2.713***	2.588***	-0.677*	0.122
	(0.199)	(0.141)	(0.319)	(0.332)	(0.353)	(0.144)
Regional real GDP lagged	0.026	-0.000	0.060***	-0.032	0.000	0.055
	(0.017)	(0.016)	(0.018)	(0.019)	(0.008)	(0.068)
Constant	15.063	6.006	35.930***	10.601	71.275***	20.323*
	(11.651)	(5.074)	(9.918)	(16.496)	(23.231)	(11.513)
Observations	1,512	1,512	1,368	1,368	1,406	1,406
R-squared	0.532	0.697	0.705	0.809	0.709	0.929

Table 6 Spatial clustering and youth unemployment rates (16-19 year olds), AR IV models

	UK			Spain			Italy		
	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage
ln Wyoung		17.825***			8.025***		b/se	1.403***	
		-2,744			(0.884)			(0.197)	
ln young	5.735**	1,949	4,450	4,680	-3,334	4,808	0.025	-0.028	0.006
	-2,457	-2,445	-3,362	-4,292	-3,876	-3,839	(0.049)	(0.029)	(0.060)
Wur 1619	0.251***		0.344*	0.319***		0.558***	0.051		-0.608**
	(0.041)		(0.193)	(0.033)		(0.109)	(0.053)		(0.279)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1444	1444	1444	1368	1368	1368	1425	1425	1425
LM stat		41,880			79,400			28,133	

Table 7 Spatial clustering and youth unemployment rates (16-24 year olds), AR IV models

	UK			Spain			Italy		
	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage
ln Wyoung		13.531***			6.922***			4.046***	
		-1,936			(0.657)			(0.538)	
ln young	4.229***	1,607	3.886*	7.342***	1,326	7.480***	0.002	-0.189***	-0.104
	-1,398	-1,725	-2,018	-2,773	-2,881	-2,402	(0.077)	(0.055)	(0.088)
Wur 1624	0.428***		0.461***	0.263***		0.226***	0.173***		-0.381***
	(0.036)		(0.152)	(0.027)		(0.079)	(0.027)		(0.112)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes
Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	yes
Observations	1444	1444	1444	1368	1368	1368	1425	1425	1425
LM stat		48,268			104,784			29,660	

Table 8 Spatial clustering and NEET rates (16-19 year olds), AR IV models

	UK			Spain			Italy		
	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage	OLS	1st stage	2nd stage
ln Wyoung		11.524***			0.963**			2.298***	
		-1,901			(0.389)			(0.237)	
ln young	6.423***	5.404***	3,256	0.351	0.108	-0.017	-0.037*	-0.061***	-0.054**
	-1,848	-1,694	-3,192	-1,818	-1,707	-2,273	(0.022)	(0.019)	(0.022)
Wneet 1619	0.202***		0.444**	0.150***		0.980*	0.035		-0.241***
	(0.040)		(0.216)	(0.039)		(0.537)	(0.027)		(0.057)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region FE		Yes	yes		yes	yes		yes	yes
Observations	1444	1444	1444	1368	1368	1368	1425	1425	1425
LM stat		36,601			6,226			36,522	

Table 9 Spatial clustering and NEET rates (16-24 year olds), AR IV models

	UK			Spain			Italy		
		1st stage	2nd stage		1st stage	2nd stage		1st stage	2nd stage
ln Wyoung		12.464***			2.507***			2.987***	
		-1,574			(0.374)			(0.343)	
ln young	5.499***	2,112	5.728***	-0.501	-1,646	-0.413	-0.067**	-0.135***	-0.114***
	-1,248	-1,403	-1,783	-1,519	-1,641	-1,436	(0.027)	(0.027)	(0.028)
Wneet 1624	0.341***		0.318**	0.206***		0.320**	0.140***		-0.201***
	(0.035)		(0.140)	(0.030)		(0.131)	(0.022)		(0.055)
Controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1444	1444	1444	1368	1368	1368	1425	1425	1425
LM stat		61,351			44,416			33,891	

CONCLUSIONS

- There are a number of common factors which increase youth unemployment and NEET rates, especially in the cases of Spain and the UK.
- More muted effect on NEET rate
  - expected, given the higher proportion of discouraged workers in this group.
- Evidence for the UK and Spain of positive spill over effect between regional YU, negative for Italy.

- Providing structured work experience and training to reconnect young people in NEET is a priority
  - otherwise risk of developing clusters of permanently excluded groups in society.

- Governments at all levels should seek to influence the demand side of their regional economies.
- Attracting inward investment and assistance with the creation of SMEs, and support for their growth, is also important.
- A general improvement in each country's national economy will help, as our results show, but this is unlikely to improve all regions equally.