The Spatial Effects of the Youth Unemployment Rate for Russia and Italy¹

Olga Demidova^{*}, Enrico Marelli^{**} and Marcello Signorelli^{***}

Abstract

Russia and Italy are very different economies in several aspects; however they share some similarities in the regional differentiation of labour market performance. The focus of this paper is on youth employment conditions: in both countries, youth unemployment rates are higher than adult (or total) unemployment rates. Despite these general trends, there are significant regional differences in youth unemployment rates (YUR) in both countries and higher than average YUR regions tend to cluster close to each other. Moreover, a distinction between "North and South" regions seems appropriate for both Russia and Italy.

The purpose of this study is to identify some of the – common or different – determinants of youth unemployment rates for the Russian and Italian regions. We consider some structural variables that affect unemployment in general and youth unemployment in particular. We also search for the existence of distance spatial effects, distinguishing between Northern and Southern regions.

The first part of the study contains a review of the relevant literature: we highlight the existence of very few studies on youth unemployment at a sub-national level of investigation. In fact, regional studies usually consider the total unemployment rate, while the investigations on youth unemployment rate are normally realised at a national level.

The second part of the paper contains, first of all, some descriptive evidences and, then, the key econometric results. As for the latter, we estimate random effect panel data models for regional youth unemployment rate including some explicative and control variables (e.g., regional GDP in PPP, regional population density, regional total unemployment rate), together with year dummies and North/South dummies. The use of distance matrixes allows an important analysis on the role played by the spatial effects. The estimations are made for the period 2000-2009 and the same control variables are used for the two countries. The negative impact of the 2009 crisis has been statistically confirmed in the case of Italy.

In the final section some hints are given for possible advances in the empirical analysis; key policy implications are also discussed.

Key words: youth unemployment, Russian and Italian regions, spatial correlation **JEL Classification:** G01, R23, E24

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^{*} Department of Applied Economics, National Research University Higher School of Economics, Moscow, Russia; e-mail: demidova@hse.ru

^{**} Department of Economics and Management, University of Brescia, Italy; e-mail: enrico.marelli@unibs.it

^{****} Department of Economics, Finance and Statistics, University of Perugia, Italy; e-mail: signorel@unipg.it

1. Introduction

Youth unemployment rate (YUR) is, in most European countries, twice or three times as high as the total unemployment rate (UR). In Italy, like many other countries in South of Europe, YUR are much higher than adult rates. Also in Russia, YUR are particularly high. In general, the recent economic crisis abruptly ended the gradual decline in global YUR during the period 2002–07 (ILO, 2012a).

Unemployment and youth unemployment have been extensively investigated, also in international comparisons at the country level. However, the studies of unemployment, in general, and youth unemployment, in particular, at a regional (sub-national) level are rare. In order to contribute to fill this gap, the main purpose of this paper is to analyse the regional differentiation of YUR in two major countries, Russia and Italy, to investigate for the 2000-2009 period the key determinants in both countries and to detect the spatial effects of possible mutual influence across the regions.

The regional breakdown focuses on the North/South dichotomy for both countries. In the case of Italy this distinction is natural, since there is a huge literature concerning the gap of Southern (Mezzogiorno's) regions both in general economic terms and with reference to the labour market situation. As far as Russia is concerned, other types of sub-national disaggregations have been considered: for example Demidova et al. (2013) focused on East-West differentiation, that turned out to be statistically significant. However, there have also been some studies concerning the possible existence of a North/South distinction also in the case of Russia: for example Demidova and Signorelli (2011) highlighted the worse performance of Southern Russian regions, especially in the 1998-99 crisis period. Nevertheless, the present paper is one of the first focusing explicitly on the North-South dichotomy in Russian labour markets.

While the focus of our empirical investigation is on spatial (regional) differences, the inclusion of time dummies in our estimations allows us to detect the possible impact of the 2008-09 financial crisis and consequent Great Recession. The negative impact has been found statistically significant for Italy (in the year 2009). For Russia, it is probably necessary to consider a longer period, including many years after the crisis. Notice that the labour market impact of recessions is always delayed (in normal recessions unemployment reaches top values 18 months after the start of the recession); but it is even longer in case of financial crises (see IMF, 2010).

In Section 2 there is a literature review focusing on the youth unemployment problem and on the regional differences. In Section 3 we present the data used in the empirical analysis, some descriptive evidence and the general econometric approach. The econometric specification and results of estimation are presented in Section 4. Section 5 concludes.

2. Literature Review

The first strand of literature which is worth to explore refers to the causes of high and persistent YUR. As stated in the Introduction, YUR is, in most countries, at least twice as high as the total UR; but in some countries the ratio is more than 3 (notice that most of empirical studies refer to individuals aged 15-24 years but other ages are sometimes considered). In addition to macroeconomic, demographic and structural determinants of unemployment, policies and institutions play a major role.² The importance of active labour market policies (ALMP) and of unemployment benefits (amount, duration, and replacement ratio) has been detected in many empirical studies. With specific reference to young workers, the implication of the wide adoption of temporary contracts has been especially investigated (e.g. Booth et al., 2002). In fact, following a recession, young workers are among the first to lose their job, because of the reduction in labour demand, and school-leavers compete with more jobseekers for fewer vacancies (Scarpetta et al., 2010).

This is one reason why youth unemployment seems especially sensitive to cyclical economic conditions. Also the long run consequences of big recessions – loss of work experience and human capital, lower employability and reduced earnings, poorer job quality and precarious employment – are particularly worrying.³ After the recent crisis, the increase in the YUR has been generally larger than the rise in the total rate: young workers, who have weaker work contracts, lower qualifications and less experience than older workers, have borne the brunt of the "Great Recession".⁴

Some studies focus on the more specific variables relevant for the determination of YUR (as compared to general unemployment rates). They refer to human capital levels, skill mismatches, school-to-work transition processes. Young people with low human capital and less skills are frequently exposed to long-term unemployment, unstable and low quality jobs, and social exclusion (OECD, 2005); but, besides education, also the "youth experience gap" reduces in many cases the employability of young people.

 $^{^{2}}$ OECD (2006) found that almost two-thirds of non-cyclical unemployment changes over two decades can be explained by changes in policies and institutions.

³ Choudhry et al. (2012), considering approximately 70 countries, found that the financial crises' impact on youth unemployment rate is significant and robust; youth unemployment increases until five years after a financial crisis, with the largest effects in the second and third years. The gender-specific effect of crises on young workers has also been investigated in this paper.

⁴ Persistent unemployment is likely to become structural, especially in countries affected by a lengthy recession, and for young people it raises the risk of a "lost generation" (Scarpetta et al. 2010). According to Quintini and Manfredi (2009), the crisis has pushed young people, even those who performed well in good times, into the group of "poorly-integrated new entrants" and possibly into the group of "youth left behind". Thus, there is a problem for young people of being more vulnerable to a crisis' effects, than older adults; but a second more important problem is that these effects are more long-lasting for the young (O'Higgins, 2012).

The second strand of literature we review in this section concerns the regional analysis of the labour market problems. The regional dimension of unemployment was initially considered in the seminal work by Blanchard and Katz (1992). Elhorst (2003) provides a comprehensive review of theoretical and empirical studies on regional unemployment. Marelli et al. (2012) show that regional unemployment differentials are wide and persistent and low unemployment regions tend to cluster close to each other; in addition, such differentials show a clear core-periphery pattern, since high and persistent unemployment is concentrated in peripheral regions. Some other authors attempted at identifying, within and across countries, some groups of regions with specific characteristics.⁵

Much more scarce are the studies concerning "youth" unemployment (rather than general unemployment) at the regional level. We mention here Perugini and Signorelli (2010a) for the EU regions, Perugini and Signorelli (2010b) for the transition countries⁶, Demidova and Signorelli (2012), Demidova et. al. (2013) for the Russian regions.⁷ Even with reference to the unemployment impact of the recent crisis there is a lack of studies at the regional level.⁸

Finally, we spend some words in justifying the North vs. South breakdown of the regions in our empirical analysis of the two countries. As to Italy, the North/South divide has been typical in the studies concerning the economic and social development of the country. The so-called Mezzogiorno problem – i.e. the problem of lagged development of Italian regions located in the South of the country and in the Islands – has been widely studied. Notice that, despite a certain catching-up accomplished by the Southern regions from the '50s to the '70s of last century and notwithstanding the literature devoted to the "endogenous" development of the "Third Italy" (i.e. of the regions belonging to the North-East and Centre, mainly located close to the Adriatic coast, in most cases benefiting from the presence of a diffused system of Small and medium enterprises), the North-Centre vs. South dichotomy has remained present and even extended in the new century.

This dichotomy concerns also labour markets, because of the much lower activity and employment rates in Southern regions (compared to the national averages and even more to the Northern regions) and the correspondingly higher unemployment rates; both occurrences refer – to a much greater extent – to female workers and to young people. We just mention some recent studies, e.g. Basile and Kostoris Padoa Schioppa (2002), who compare the unemployment

⁵ See, for example, Basile and De Benedectis (2008), Marelli (2006), Overman and Puga (2002). Some of these studies employ advanced econometric techniques (e.g. spatial dynamic models) to investigate how spatial links between regions affect the performance of regional economic systems and labour markets.

⁶ A thorough survey of regional labour market developments in transition countries can be found in Huber (2007).

⁷ Also Kolomak (2011) is worth to be mentioned: although this paper does not deal with labour market issues, it includes an interesting application of spatial econometrics and compares Eastern with Western regions.

⁸ Marelli, Patuelli and Signorelli (2012) is an exception: they investigated the impact of the crisis on unemployment with a detailed analysis at the regional (NUTS-2) level for the EU countries.

situation of Italy's Mezzogiorno with that of other "Mezzogiornos" of Europe. Cracolici et al. (2007) carry out an econometric investigation at the provincial level (much finer than the usual regional breakdown and corresponding to the Nuts-3 level of Eurostat) and show that areas characterised by high (or low) unemployment tend to be spatially clustered. Finally, De Sanctis (2008) focuses particularly on youth employment and unemployment, by comparing the situation of Mezzogiorno with that of other European regions.

Also in the case of Russia there have been studies on the uneven development across regions, that has somehow increased in the transition period. Polarisation trends consisting in concentration in Western regions and de-population of Eastern regions have been explained both in terms of natural regional endowments and on the basis of agglomeration economies (e.g. Benini and Czyzewski, 2007). The regional disparities concern, of course, also the labour markets, although the studies on this issue are rare (see the works by Demidova et al. mentioned above concerning East and West Russian regions).

In addition to the East-West divide, other types of polarisation can be found in Russia, for instance contrasting the urbanised centres (especially Moscow's region) to the rural regions, affected by economic and demographic decline. For example Shilov and Möller (2009) notice that "one can observe substantial variation across regions; in 2005 the Moscow region evidently experienced an unemployment rate of only 1%, whereas the Dagestan region in the Northern Caucasus had unemployment as high as 22.6%". Demidova and Signorelli (2011), in an investigation on the impact of crises on youth unemployment of Russian regions, found – among others – some interesting results: (i) the huge differences in terms of total and youth unemployment rates across Russian regions; (ii) the problem of youth and general unemployment is more serious for South and Siberian federal districts; (iii) during the 1998-99 crisis the problem of youth unemployment in Southern districts has become more aggravated.

Before ending this section, let us mention some specific feature of the Russian labour market. The first one is the relatively high stability of employment and unemployment over time, even in presence of significant economic shocks. The key explanation has to be found in the broad implementation of "flexible working time" and "flexible pay", that makes it possible to offset pressures on the labour market during a crisis without a drastic readjustment of employment (Kapelyushnikov et al., 2012). The overall flexibility comes from the willingness and ability of both employers and employees to curtail their exposure to formal rules and rely on informal arrangements (Gimpelson et al., 2010). This is also consistent with the evidence that law implementation has been extremely flawed in Russia.

The second feature worth mentioning is low interregional mobility. Thus, "about a third of Russian regions are actually locked in 'poverty traps', and even in other regions the effect creates significant obstacles. Russian regions may therefore be more plausibly considered isolated labor markets than U.S. regions" (see again Shilov and Möller, 2009).

3. Data and Descriptive Evidence

In our research we have used the data for 20 Italian and 75 Russian regions during the period 2000 - 2009. We divided both Italian and Russian regions in Non-Southern and Southern ones (correspondingly 14 and 6 regions for Italy; 65 and 10 regions for Russia).

Our focus, i.e. the variable to be explained, is "youth unemployment". Taking into account available official datasets, for Italy we used the unemployment rate in age group 15-24, whereas for Russia in age group 20-29.

We started our analysis from studying descriptive statistics for all Italian and Russian regions and separately for Non-Southern and Southern regions. According to the figures from Table 1I and Table 1R, youth unemployment in Southern regions is higher than in the Non-Southern ones both in Italy and in Russia.

All Italian regions	200	00	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	30.0	00	27.35	26.00	25.92	22.86	23.42	20.84	19.87	21.35	25.14
Median	22.	4	18.7	18.3	16.55	18.5	19.25	16.1	15.85	17.3	23.3
Min	6.3	5	7.35	5.4	4.85	7.85	8.8	8.3	7.74	7.09	10.2
Max	63.	.4	59.8	59.5	58.4	42.9	46.1	39	37.2	39.3	44.7
Northern and											
Central	200)0	2001	2002	2003	2004	2005	2006	2007	2008	2009
regions of											
Italy											
Mean	19.0	52	17.22	15.82	16.23	16.40	16.71	15.13	14.31	15.56	19.92
Median	16.	.8	14.35	13.45	14.45	15.55	15.9	13.45	13.3	14.15	18.85
Min	6.3	5	7.35	5.4	4.85	7.85	8.8	8.3	7.74	7.09	10.2
Max	44.	9	38.7	34.3	40.7	31.9	31.8	28	24.9	28.8	30.6
Southern											
regions	2000	2001	20	002	2003	2004	2005	2006	2007	2008	2009
of Italy											
Mean	54.23	51	49	9.73	48.53	37.93	39.05	34.18	32.83	34.86	37.33
Median	55.5	50.9	49	9.75	48.55	36.65	37.7	33.8	32.15	34.55	38.2
Min	42.1	39.5	3	7.8	38.6	35.4	32.6	31	31.4	31.6	31.8
Max	63.4	59.8	5	9.5	58.4	42.9	46.1	39	37.2	39.3	44.7

Table 11. Descriptive Statistics for Youth Unemployment Rate in Italy

Source: our elaboration on Rosstat and Istat data

Table 1R. Descriptive Statistics for Youth Unemployment Rate in Russia

All Russian	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
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Regions										
Mean	15.84	13.53	11.68	12.49	10.5	11.1	10.99	9.48	10.06	13.18
Median	14.93	12.67	10.58	12.46	9.61	9.88	10.37	8.66	9.35	12.74
Min	4.9	3.42	2.59	1.68	2.5	1.4	2.44	2.06	1.26	4.2
Max	33.71	31.85	26.48	31.91	26.46	30.29	29.74	27.56	24.91	27.86
Non										
Southern regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	14.85	12.66	10.91	11.58	9.80	10.41	10.02	8.61	9.27	12.83
Median	14.72	12.38	10.15	11.06	9.35	9.61	9.55	8.14	9.12	12.56
Min	4.90	3.42	2.59	1.68	2.50	1.40	2.44	2.06	1.26	4.20
Max	33.71	27.17	24.29	27.92	26.14	30.29	27.05	27.56	24.91	27.86
Southern										
regions of	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Russia										
Mean	22.30	19.17	16.66	18.42	15.06	15.61	17.32	15.18	15.18	15.44
Median	20.45	18.12	14.33	16.47	11.43	13.14	14.10	14.28	14.19	13.85
Min	13.10	11.73	10.14	9.10	8.79	8.73	10.43	8.66	6.43	11.52
Max	32.24	31.85	26.48	31.91	26.47	30.23	29.74	27.50	24.76	23.53

Source: our elaboration on Rosstat and Istat data

This is not a special feature of youth unemployment. According the results in Table A11 and Table A1R (in Appendix), the same tendency took place for total unemployment rate both in Italy and in Russia. So, we add total unemployment rate as explanatory variables in all our models.

It is also interesting to look at the ratios of youth to total unemployment rates. In the case of Italy (Table A2I) the ratio is close to the level of 3 in almost all years. It is a little lower in Southern regions compared to Northern and Central regions; but this is due to the much higher total rate in Southern regions. In Russia (Table A2R) the ratio, although greater than 1, is lower than in Italy: thus the relative situation of young people, compared to adults, is not so bad as in Italy. Also in Russia the ratio of youth to total unemployment rate in Southern regions is not much worse than in the remaining regions of the country.

As to the other explanatory variables we used density of population in the regions and per capita GRP (Gross regional product). The description of all variables is given in Appendix, Table A3.

According the descriptive statistics (see tables A4I, A4R), the density in Southern and Non-Southern regions of Italy did not differ to a great extent, whereas for Russia we have sufficient difference in population density for Non-Southern and Southern, both for mean values and variance.

Comparing Southern and Non-Southern per capita Gross regional product (see Tables A5I, A5R), we can note that for both Italy and Russia the Southern regions exhibit lower percapita product. We also analyzed scatter diagrams for youth unemployment and other variables (see Tables A6I, A6R) and concluded that the dependence of youth unemployment from the total unemployment seems linear, whereas the dependence of youth unemployment from density and GRP per capita may be nonlinear (we used quadratic specification).

We also assume that youth unemployment rate in one region may depend on youth unemployment rates in other regions. To test this assumption, we calculated the Moran's indices for inverted distance weighted matrices. We used distance by auto roads (in km) between capitals of regions for Russia and Euclidean distances (in km) between region centroids (not region capitals) for Italy.⁹

According the results in Tables 2I, 2R we can note that Moran's indexes are positive for Non-Southern regions and insignificant for Southern regions both in Italy and Russia. However, the last fact may be the consequence of small number of Southern regions (6 in Italy and 10 in Russia). So, additional studies are necessary.

Table 21. Dynamics of Moran's Spatial Correlation Index for the youth unemployment inItaly (inverted distance weighted matrix)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Moran's I for All Italian regions	0.279***	0.287***	0.277***	0.268**	0.319***	0.318***	0.315***	0.275***	0.284***	0.235***
Manania Lfan										
Noran's I for Northern and Central part of Italy	0.128***	0.114 ***	0.127***	0.040*	0.181***	0.185***	0.159***	0.056**	0.11***	0.122***
Moran's I for Southern part of Italy	-0.152	-0.164	-0.173	-0.163	-0.066	-0.107	-0.13	-0.117	-0.054	-0.139

Source: our elaboration on Rosstat and Ista data

Table 2R. Dynamics of Moran's Spatial Correlation Index for for the youth unemployment inRussia (inverted distance weighted matrix)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Moran's I for all Russian regions	0.306***	0.306***	0.249***	0.307***	0.41***	0.201**	0.332 ***	0.431***	0.372***	0.318***
Moran's I for Non Southern part of Russia	0.112***	0.108***	0.096***	0.129***	0.255***	0.126***	0.171***	0.156***	0.168***	0.139***
Moran's I for Southern part of Russia	-0.088	-0.098	-0.141	-0.204	-0.217	-0.176	-0.213	-0.095	-0.043	-0.07

Source: our elaboration on ROSSTAT and Istat data

*** - significant at 1%, ** - significant at 5%, * - significant at 10%

We also estimated the Moran scatter plot for Italy and Russia. If the dependence of weighted youth unemployment from youth unemployment is linear, we can talk about spatial lag. However, according to the scatter diagrams (see Table A7) we can doubt that the dependence is

⁹ We thank Elena Samoilova and Roberto Patuelli for providing this information.

linear. Additionally, we can assume that the dependence is not the same for Southern and Non-Southern regions.

Table A8 contains scatter diagrams for youth unemployment separately for Southern and Non-Southern regions and visually confirm the hypothesis about possible non-linearity.

Previous discussion (see the literature review above) and preliminary data analysis allowed us to formulate the following main hypotheses to test empirically.

H1: There exists sufficient difference in the determinants of youth unemployment in Non-Southern and Southern regions both for Italy and Russia.

H2. The mutual influence of Non-Southern and Southern regions of Italy and Russia may be asymmetric.

4. Econometric Approach and Results of Estimation

Taking into account that we use spatial lags of youth unemployment rate as explanatory variables (they are endogenous) the Arellano-Bond specification models were chosen. The use of instrumental variables in this method helps to avoid the problem of endogeneity. The details could be found in (Greene, 2012) and (Cameron et al., 2010).

Attempting to identify the difference between Southern and Non-Southern regions we split all variables in two parts, Non-Southern and Southern; thus, for example for Russia:

$$gdp^{n} = \begin{cases} gdp, if \ i = 1, \dots, 65 (no \ south regions) \\ 0, if \ i = 66, \dots, 75 (south \ regions) \end{cases};$$
$$gdp^{s} = \begin{cases} 0, if \ i = 1, \dots, 65 (no \ south \ regions) \\ gdp, if \ i = 66, \dots, 75 (south \ regions) \end{cases}.$$

Weighted matrices both for Italy and Russia were spitted into four parts, for example for Russia:

$$\underbrace{W}_{(75\times75)} = \begin{pmatrix} \underbrace{W}_{nn} & 0\\ (65\times65) & \\ 0 & 0 \end{pmatrix} + \begin{pmatrix} 0 & W_{ns}\\ 0 & 0 \end{pmatrix} + \begin{pmatrix} 0 & 0\\ W_{sn} & 0 \end{pmatrix} + \begin{pmatrix} 0 & 0\\ 0 & \underbrace{W}_{ss}_{(10\times10)} \end{pmatrix}$$

And the spatial lag of the dependent variable was also decomposed in four parts:

$$WYUR = \begin{pmatrix} W_{nn} & 0 \\ 0 & 0 \end{pmatrix} YUR + \begin{pmatrix} 0 & W_{ns} \\ 0 & 0 \end{pmatrix} YUR + \begin{pmatrix} 0 & 0 \\ W_{sn} & 0 \end{pmatrix} YUR + \begin{pmatrix} 0 & 0 \\ 0 & W_{ss} \end{pmatrix} YUR =$$
$$= YUR^{nn} + YUR^{ns} + YUR^{sn} + YUR^{ss}$$

With the help of such decomposition we try to reveal possible spatial differences between Non-South and South of Italy and Russia. We also tried to take into account possible nonlinear dependence of youth unemployment factors from the explanatory variables.

So, our modified Arellano-Bond model has the following functional form:

$$YUR_{it} = \sigma YUR_{it-1} + \beta_n TUR_{it}^n + \beta_s TUR_{it}^s + f_{nn}(YUR_{it}^{nn}) + f_{ns}(YUR_{it}^{ns}) + f_{sn}(YUR_{it}^{sn}) + f_{ss}(YUR_{it}^{sn}) + g_s(gdp_{it}^n) + g_s(gdp_{it}^s) + h_n(density_n) + h_s(density_s) + \sum_{k=1}^{10} \gamma_k d_{200k} + \alpha_i + \varepsilon_{it},$$

where i = 1, ..., n, (n = 20 for Italy and 75 for Russia), t = 2000, ..., 2009, $d_{2001} - d_{2009}$ are dummy variables for the corresponding year¹⁰, α_i , i = 1,...,n are individual regional effects¹¹, and $\varepsilon_{it} \sim iid(0, \sigma_{\varepsilon}^2)$ are disturbances. All functions $f_{\mu}, g_{\mu}, h_{\mu}$ have linear (bx) or quadratic $(ax^{2} + bx)$ functional form.

For estimation of each model we started from quadratic form and after that we tested the hypothesis $H_0: a = 0$. The acceptance of such hypothesis $(H_0: a = 0)$ corresponds to the linear functional form (bx).

Tables 3I, 3R contain the results of the models estimated for Italy and Russia.

Variables	Model 1	Variables	Model 2	Variables	Model 3
	Italy		Italy		Italy
		With incorporated		With the account of	
		restrictions		outlier	
		βdensityn=			
		$=\beta$ densitys			
L1.	-0.037	L1.	-0.034	L1.	-0.026
yurnn	-1.959***	yurnn	-1.958***	yurnn	-2.0064***
yursq	0.037**	yursq	0.037**	yursq	0.0377**
uyrss	0.05	uyrss	0.033	uyrss	0.098*
yurns	0.278***	yurns	0.277***	yurns	0.276***
yursn	-0.371	yursn	-0.41	yursn	-0.495
yursnsq	0.042***	yursnsq	0.048***	yursnsq	0.049***
turn	3.156***	turn	3.144***	turn	3.128***
turs	2.056***	turs	2.098***	turs	2.039***
densityn	0.001	density	-0.001	density	-0.003
densitys	-0.211	gdpn	0.004	gdpn	0.004
gdpn	0.004	gdpnsq	-0.000*	gdpnsq	-8.16e-08*
	-8.131e-				
gdpnsq	08*	gdps	0.042***	gdps	0.024
gdps	0.040***	gdpssq	-0.000***	gdpssq	-7.30e-07
	-1.328e-				
gdpssq	06***			gdpsardegna	-0.005
Year effects	Yes	Year effects	Yes	Year effects	Yes
_cons	-96.467			_cons	-69.456
				Turning point for yurnn	26.6
				Min for yurnn	13
				Max for yurnn	26.7
	1		1		

Table 31. The results of estimation for Italy

¹⁰ Notice that in initial estimates we included all year dummy variables in our models. However, to avoid the problem of data multicollinearity and to increase the efficiency of our estimates, in the final estimations we excluded year dummy with insignificant coefficients. ¹¹ Furthermore, a dummy for Sardegna GDP (gdpsardegna) has been introduced to avoid the problem of outliers.

Tested	p-value	Tested	p-value	Tested	p-value
hypothesis		hypothesis		hypothesis	
βturn =βturs	0.0008	βgdpn=βgdps,	0.000	Arellano-Bond test for	Order p-v
		βgdpnsq=βgdpssq		zero autocorrelation	1 0.002
					2 .067
					3 0.49
βdensityn=	0.47				
$=\beta$ densitys					
βgdpn=βgdps,	0.0014				
βgdpnsq=βgdpssq					

Table 3R. The results of estimation for Russia

Variables	Model 1	Variables	Model 2	Variables	Model 3
	Russia		Russia		Russia
		With incorporated		With incorporated	
		restrictions		restrictions	
		βtotunn =βtotuns,		βgdpnsq=βgdpssq	
		βdensityn=			
		=βdensitys		1	
L1.	-0.047	L1.	-0.048	L1.	-0.048
yurnn	0.991***	yurnn	0.971***	yurnn	0.961***
yurss	-0.482	yurss	-0.179	yurss	-0.112
yurns	-4.649*	yurns	-3.842	yurns	-3.813
yursn	1.380***	yursn	1.238***	yursn	1.211***
turn	1.051***	tur	1.015***	tur	1.025***
turs	0.942***	density	0.007	density	0.007
densityn	7.94E-06	gdpn	-1.8E-05	gdpn	1.87E-06
densitys	-0.00165	gdpnsq	5.32E-11	gdps	5.28E-05
gdpn	-1.8E-05	gdps	-0.00011	Year effects	Yes
gdpnsq	5.58E-11	gdpssq	1.91E-09	_cons	-2.44086
gdps	-0.00029	Year effects	Yes		
gdpssq	3.48E-09	cons	-1.452		
Year effects	Yes	_			
cons	9.781				
_					
Tested	p-value	Tested	p-value	Tested	p-value
hypothesis	1	hypothesis	•	hypothesis	1
β totunn = β totuns	0.58	βgdpn=βgdps,	0.02	Arellano-Bond test for	Order p-v
		βgdpnsq=βgdpssq		zero autocorrelation	10.0017
					2 0.75
					3 0.38
βdensityn=β	0.24	βgdnpsq=βgdpssq	0.32		
densitys					
βgdpn=βgdps,	0.06				
βgdpnsq=βgdpssq					

The main results can be summarized as follows:

 The situation with youth unemployment is more serious, relative to the adult one, both in Italy and in Russia. However the situation in Italy is even worse. For Russia we did not reveal significant differences between Southern and Non-Southern regions, for Italy the difference between youth and adult unemployment is more strongly revealed in the North (although the level of both youth and adult unemployment is much higher in the South).

- 2) The hypothesis that the higher the density of population in the region the lower the level of youth unemployment was rejected both for Italy and Russia, the coefficients of density variables were insignificant.
- 3) The hypothesis that the higher GDP per capita, the lower the youth unemployment was confirmed only for Non-Southern regions of Italy. For Russia we did not found linear or quadratic dependence.
- 4) We also revealed different spatial effects for Southern and Non-Southern regions, both for Italy and Russia. For Non-South of Russia we revealed positive spatial lag (positive dependence of the unemployment in the region from the unemployment rate in other Non-Southern regions) and positive influence of Non-Southern youth unemployment on the Southern one.

For Italy we revealed the negative spatial influence of Non-Southern regions on the other Non-Southern regions and positive influence on Southern regions. For Southern regions we also revealed positive spatial lag (= positive influence on other Southern regions) and positive influence on Non-Southern regions. There is a difference in the functional form of such dependence: for Southern regions the dependence is linear, for Non-Southern regions the dependence is quadratic.

5) Considering the impact on youth unemployment rate (YUR) of macroeconomic shocks in individual years, the analysis of year dummies reveals that the YUR has been significantly reduced in Russia in 2004, the year of the presidential election; on the contrary, the evidence of the financial crisis impact is clearly detected in Italy for 2009.¹² In the case of Russia, probably the period is too short to detect significant effects of the crisis. The impact would be more easily detected considering a longer period.¹³

5. Conclusions

Russia and Italy are very different economies in several aspects; however they share some similarities in the regional differentiation of labour market performance. The focus of this paper is on youth unemployment: in both countries, youth unemployment rates (YUR) are higher than adult (or total) unemployment rates. Despite these general trends, there are significant

¹² Since year effects are not shown in the tables, we specify here that for the final Italian model we had the following time effects: -0.870** for 2002, 1.228*** for 2005, 4.029*** for 2009. For final Russian model we found the following time effects: -0.962*** for 2004 and -0.385 for 2009.

¹³ For example 2000-2010, as confirmed by results in Demidova et al. (2013).

regional differences in YUR: in both countries higher than average YUR regions tend to cluster close to each other. Moreover, a distinction between Southern and non-Southern regions seems appropriate for both Russia and Italy.

The empirical part of this paper focuses on the period 2000-2009. Youth unemployment refers to slightly different age classes (20-29 for Russia and 15-24 for Italy), because of data availability. The same control variables are used for the two countries: total unemployment rate, GDP per capita, density of population.

The main findings of our paper is that the unemployment situation of young people in Italy is worse than in Russia. Moreover, for Italy the ratios of youth to total unemployment rates are higher in the North, although the level of both youth and adult unemployment is higher in the South. For Russia we did not reveal significant differences between Southern and Non-Southern regions in terms of such ratios. As to time effects, we found for Italy a significant negative impact (i.e. an increase in youth unemployment) of the crisis in 2009, while for Russia there were positive effects in 2004, the year of the presidential election.

The relation between GDP per capita and unemployment has been statistically confirmed only for Non-Southern Italian regions. Even less significant is the role played by the density of population. As to the spatial effects, strong interdependences have been found both within the regions of the same territorial area (North or South) and also across the areas of a given country (i.e. spillovers from North to South or vice-versa). An example of within-area interdependence is found in the Non-Southern Russian regions, while in Italy the links are positive in Southern regions and negative in Non-Southern. Example of across-area spillovers are found in Russia from Non-Southern to Southern regions; in Italy across-area interdependences are in both directions

The main policy implication refers to the need to adopt appropriate labour policies to tackle the unemployment problem of young people, that has become even more worrying after the recent crisis, especially affecting the European countries. Although the active labour market policies are often micro-based and implemented at the local level, such policies, although differentiated across regions, can produce significant spillover effects on nearby regions. The main finding of this paper is that the spatial effects cannot be overlooked.

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Appendix

All Italian regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	10.71	9.77	9.30	8.99	8.04	7.76	6.90	6.32	7.04	7.97
Median	7.01	5.44	5.83	5.15	5.66	5.89	4.88	4.69	5.20	6.77
Min	2.63	2.54	2.55	2.41	2.91	3.15	2.8	2.73	2.81	3.18
Max	25.95	25.56	24.4	23.26	16.32	15.24	12.93	12.4	13.21	13.53
Northern and										
Central regions of	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Italy										
Mean	6.24	5.47	5.23	5.01	5.36	5.26	4.77	4.39	4.89	6.06
Median	5.47	4.69	4.59	4.345	5.16	4.605	4.22	4.175	4.72	5.73
Min	2.63	2.54	2.55	2.41	2.91	3.15	2.8	2.73	2.81	3.18
Max	13.83	13.57	12.5	12.08	11.02	9.77	9.73	8.05	9.01	9.03
Southern	2000	2001	2002	2002	2004	2005	2006	2007	2008	2000
of Italy	2000	2001	2002	2003	2004	2003	2000	2007	2008	2009
Mean	21.15	19.80	18.79	18.26	14.30	13.59	11.86	10.83	12.05	12.42
Median	22.02	19.99	19.12	18.36	14.31	13.82	12.46	11.05	12.12	12.62
Min	16.12	14.57	13.9	13.67	12.37	11.7	10.2	9.48	11.03	11.21
Max	25.95	25.56	24.4	23.26	16.32	15.24	12.93	12.4	13.21	13.53

Table A1I. Descriptive Statistics for Total Unemployment Rate in Italy

Source: our elaboration on Istat data

Table A1R. Descriptive Statistics for Total Unemployment Rate in Russia

All Russian Regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	11.77	10.02	8.85	9.29	8.85	8.19	7.75	6.7	7.31	9.16
Median	11.4	9.7	8.3	8.7	8.7	7.6	7.3	6.4	7.1	8.8
Min	3.9	2.1	1.4	1.3	1.6	0.8	1.6	0.8	0.9	2.7
Max	28.5	23.8	20.3	22.6	25.7	23.4	20.7	18.3	19.2	21.5
Non										
Southern regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	11 04	9 42	8 32	8.57	8 04	7 63	7 10	6 1 1	6 85	8 94
Median	10.8	9.4	8.1	8.3	7.9	7.4	6.8	5.9	7	8.7
Min	3.90	2.10	1.40	1.30	1.60	0.80	1.60	0.80	0.90	2.70
Max	23.60	23.80	20.30	20.70	19.70	21.80	20.50	17.10	19.20	21.50
Southern										
regions of	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Russia										
Mean	16.46	13.91	12.33	13.98	14.1	11.86	11.98	10.53	10.29	10.64
Median	14.65	13.6	11.75	11.8	11.35	10.4	8.75	9.3	7.95	10.2
Min	9.5	9.5	7.6	10.1	8.6	6.8	7.4	6.4	4.8	7.2
Max	28.5	18.9	19.1	22.6	25.7	23.4	20.7	18.3	18.3	16.6

Source: our elaboration on ROSSTAT data

Table A2I. Descriptive Statistics for Ratio of Youth and Total Unemployment Rate in Italy

	All Italian Mean Median Min	regions	2000 2.90 2.80 2.36	2001 2.95 2.79 2.32	2002 2.86 2.81 2.12	2003 2.97 2.93 1.99	2004 2.93 2.94 2.39	2005 3.06 3.07 2.56	2006 3.09 2.99 2.58	2007 3.20 2.98 2.24	2008 3.07 3.01 2.52	2009 3.21 3.18 2.62	
	Max		3.85	3.82	3.74	3.99	3.59	3.72	3.88	4.32	4.10	3.84	
Northern and Central	n 2000	2001	200	2	2003	2004	2	005	2006	2(07	2008	2009
regions o Italy	of	2001	200	2	2005	2004	-	.005	2000	20	507	2000	2007
Mean	3.0	5 3.0	9 2.	94	3.09	3.04		3.14	3.1	7	3.27	3.14	3.30
Median	3.0	5 3.0	4 2.	97	3.08	3.06		3.15	3.1	9	3.08	3.05	3.26
Min	2.3	6 2.6	2 2.	12	1.99	2.51		2.57	2.6	1	2.24	2.52	2.93
Max	3.8	6 3.8	2 3.	74	3.99	3.59		3.72	3.8	8	4.32	4.10	3.84
Southern													
regions of Italy	2000	2001	2002	20	003	2004	200)5	2006	2007	7	2008	2009
Mean	2.57	2.60	2.67		2.67	2.66	2.	88	2.89	3	.04	2.90	3.01
Median	2.58	2.61	2.68		2.64	2.62	2.	83	2.89	2.	.96	2.92	2.91
Min	2.44	2.32	2.39		2.44	2.39	2.:	56	2.58	2	.84	2.62	2.62
Max	2.69	2.79	2.86		2.92	2.93	3.	33	3.14	3	.31	3.14	3.42

Source: our elaboration on Istat data

Table A2R.	Descriptive Statistics for Ratio of Youth and Total Unemployment Rate in Russia
All Duration	

All Russian Regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	1.35	1.37	1.34	1.35	1.19	1.38	1.44	1.45	1.41	1.47
Median	1.33	1.36	1.32	1.33	1.17	1.36	1.42	1.41	1.37	1.41
Min	0.91	0.94	0.91	0.85	0.43	0.83	0.97	0.50	0.86	1.13
Max	2.25	1.92	2.26	1.94	1.87	2.35	2.17	3.07	2.49	2.14
Non										
Southern regions of	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Russia										
Mean	1.35	1.37	1.33	1.36	1.21	1.39	1.44	1.45	1.39	1.47
Median	1.31	1.36	1.32	1.34	1.19	1.38	1.41	1.38	1.37	1.41
Min	0.91	0.94	0.91	0.85	0.43	0.83	0.97	0.50	0.86	1.13
Max	2.25	1.92	2.26	1.94	1.87	2.35	2.17	3.07	2.49	2.14
Southern										
regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	1.38	1.37	1.35	1.30	1.06	1.31	1.48	1.44	1.53	1.47
Median	1.38	1.36	1.29	1.33	1.07	1.29	1.46	1.49	1.37	1.47
Min	0.95	1.13	0.93	0.90	0.96	1.11	1.18	1.19	1.19	1.19
Max	1.65	1.69	1.87	1.57	1.19	1.62	1.84	1.58	2.13	1.72

Source: our elaboration on ROSSTAT data

Table A3. List of variables and regions

Variable	Description for Italy	Description for Russia
YUR – youth unemployment rate	Unemployment in age group 15-24	Unemployment in age group 20- 29
TUR -Total unemployment rate	Adult unemployment rate	Adult unemployment rate (in age group 15-72
Density	People per km squared	People per km squared
GDP	GDP per cap at chained prices Constant prices are obtained by directly factoring changes over time in the values of flows or stocks of goods and services into two components reflecting changes in the prices of the goods and services concerned and changes in their volumes (i.e. changes in "constant price terms"); the term "at constant prices" commonly refers to series which use a fixed-base Laspeyres formula	Gross regional product per capita in the base price of 2000 year corrected for different purchasing power
d200i, i=0,,9	Dummy variable for correspondent year	
north	Indicator for North and central regions in Italy (=1 for 14 regions and 0 for 6 regions)	Indicator for no southern regions of Russia (=1 for 65 regions and 0 for 10 regions)

List of Italian regions

Number	Name	Number	Name
	No southern regions		Southern regions
1	Abruzzo	15	Basilicata
2	Emilia-Romagna	16	Calabria
3	Friuli-V.Giulia	17	Campania
4	Lazio	18	Puglia
5	Liguria	19	Sardegna
6	Lombardia	20	Sicilia
7	Marche		
8	Molise		
9	Piemonte		
10	Toscana		
11	Trentino-A.Adige		
12	Umbria		
13	Valle d' Aosta		
14	Veneto		

List of Russian regions

Number	Name	Number	Name
	No southern regions	39	Penza region
1	Belgorod region	40	Samara region

2	Bryansk region	41	Saratov region
3	Vladimir region	42	Ulyanovsk region
4	Voronezh region	43	Kurgan region
5	Ivanovo region	44	Sverdlovsk region
6	Kaluga region	45	Tumen region
7	Kostroma region	46	Chelyabinsk region
8	Kursk region	47	Republic of Altay
9	Lipetsk region	48	Republic of Buryatia
10	Moscow region	49	Republic of Tyva
11	Orel region	50	Republic of Khakassia
12	Ryazan region	51	Altay Territory
13	Smolensk region	52	Krasnoyarsk Territory
14	Tambov region	53	Irkutsk region
15	Tver region	54	Kemerovo region
16	Tula region	55	Novosibirsk region
17	Yaroslavl region	56	Omsk region
18	Moscow	57	Tomsk region
19	Republic of Karelia	58	Republic of Sakha (Yakutia)
20	Republic of Komi	59	Kamchatka territory
21	Arkhangelsk region	60	Primorsky Territory
22	Vologda region	61	Khabarovsk Territory
23	Kaliningrad region	62	Amur region
24	Leningrad region	63	Magadan region
25	Murmansk region	64	Sakhalin region
26	Novgorod region	65	Jewish autonomous area
27	Pskov region		
28	Saint-Petersburg		Southern regions
29	Republic of Bashkortostan	66	Republic of Adygea
30	Republic of Marii El	67	Republic of Kabardino-Balkaria
31	Republic of Mordovia	68	Republic of Kalmykia
32	Republic of Tatarstan	69	Republic of Karachaevo-Cherkessia
			Republic of Northen Osetia – Alania
33	Republic of Udmurtia	70	
34	Republic of Chuvashia	71	Krasnodar Territory
35	Perm territory	72	Stavropol Territory
36	Kirov region	73	Astrakhan region
37	Nizhny Novgorod region	74	Volgograd region
38	Orenburg region	75	Rostov region

Table A4I. Descriptive Statistics for Density in Italy

All Italian regions	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	178.30	178.35	178.84	180.16	181.83	183.13	184.12	185.36	186.70	187.74
Median	155.2	155.4	156	157.25	158.6	159.6	160.3	161.55	163.2	164.4
Min	36.8	36.9	37.1	37.5	37.8	38.1	38.4	38.7	39.1	39.4
Max	426.5	426	426.6	428.8	431.2	432.3	432.4	433.2	434	434.5
Northern and										
Central	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
regions of Italy										
Mean	176.13	176.37	177.08	178.69	180.74	182.45	183.89	185.56	187.34	188.74
Median	155.2	155.4	156	157.25	158.6	159.6	160.3	161.55	163.2	164.4
Min	36.8	36.9	37.1	37.5	37.8	38.1	38.4	38.7	39.1	39.4
Max	394.2	395.6	397.9	402.5	408.8	413.8	417.1	420.8	425.1	429.1
Southern										
regions of Italy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	183.37	182.97	182.95	183.58	184.37	184.72	184.67	184.88	185.22	185.42
Median	166.75	166.15	165.85	166.25	166.7	166.7	166.55	166.75	167.1	167.3
Min	61.8	61.6	61.4	61.4	61.4	61.3	61	60.8	60.8	60.7
Max	426.5	426	426.6	428.8	431.2	432.3	432.4	433.2	434	434.5

Source: our elaboration on Istat data

Table A4R. Descriptive Statistics for Density in Russia

All										
Russian	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Regions										
Mean	194.91	197.42	197.24	197.06	198.21	198.03	197.87	197.77	197.70	198.99
Median	24.20	24.07	23.93	23.77	23.60	23.43	23.28	23.16	23.06	22.98
Min	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Max	9100	9300	9400	9400	9500	9500	9500	9500	9500	9600
Non										
Southern regions of	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Kussia Meen	217.00	220.87	220.66	220 47	221.82	221.64	221 /8	221.36	221.20	222.76
Median	217.99	10.08	10.00	10.83	10 7/	19.65	10 56	10/10	10 /6	10 11
Min	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Max	9100	9300	9400	9400	9500	9500	9500	9500	9500	9600
Southern										
regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	44.86	44.96	44.97	44.88	44.72	44.56	44.42	44.37	44.39	44.42
Median	42.72	42.61	42.47	42.30	42.09	41.88	41.67	41.53	41.47	41.43
Min	4.12	4.05	3.95	3.90	3.89	3.87	3.85	3.83	3.81	3.80
Max	87.37	88.37	88.71	88.54	88.21	87.92	87.74	87.74	87.77	87.67

Source: our elaboration on ROSSTAT data

Table A5I. Descriptive Statistics for GDP per capita in Italy

All										
Italian	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
regions										
Mean	20291.71	20651.77	20627	20462.03	20545.53	20489.45	20830.46	21010.35	20641.25	19553.53
Median	21098.7	21610.95	21575.28	21360.4	21384.79	21314.58	21701.71	22078.85	21775.24	20793.85
Min	12921.81	13438.35	13442.4	13598.57	13696.22	13624.97	13788.65	13907.95	13510.11	12791.29
Max	27488.02	27929.02	28066.98	28065.64	28163.27	27555.18	27836.03	28208.26	28236.23	26784.08
Northern and										
Central regions of Italy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	22990.77	23365.21	23313.5	23088.94	23163.74	23101.54	23476.09	23684.49	23281.78	21973.8
Median	23241.49	23644.27	23481.87	23251.86	23314.26	23330.04	23799.79	24021.7	23433.27	22142
Min	15235.64	15587.15	15676.66	15390.86	15616.39	15696.26	16244.32	16616.28	16546.33	15967.4
Max	27488.02	27929.02	28066.98	28065.64	28163.27	27555.18	27836.03	28208.26	28236.23	26784.0
Southern										
regions of Italy	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	13993.91	14320.39	14358.5	14332.6	14436.37	14394.57	14657.32	14770.69	14480.03	13906.1
Median	13628.71	13982.76	13967.16	13837.41	13902.71	13968.96	14215.46	14249.51	14002.7	13447.5
Min	12921.81	13438.35	13442.4	13598.57	13696.22	13624.97	13788.65	13907.95	13510.11	12791.2
Max	15883.18	16203.07	16128.75	16409.6	16488.03	16434.28	16477.08	16807.19	16548.12	15913.5

Source: our elaboration on Istat data

Table A5R. Descriptive Statistics for GDP per capita in Russia

All										
Russian	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Regions										
Mean	32411.4	34418.13	36444.84	39662.63	45694.42	50878.75	57967.69	64178.23	68243.66	61941.51
Median	27291	30049	33487.5	36281.9	39438.7	42566.7	48857.7	53034.7	58255.2	54549.6
Min	11633	13896.9	14463.9	15941.2	17902.1	18552.1	22412.2	26312.2	27054.3	27735.6
Max	143836	157473	161816	180923	225942	290836	299536	295780	298642	250598
Non										
Southern regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	34189.04	36323.27	38478.41	41980.61	48639.4	54191.73	61617.4	68127.06	72238.34	65356.67
Median	30502.3	32244.8	35223.6	38690.5	40733	44089.5	51712	58300.9	63283.1	58221.1
Min	11633	14646.7	17612.7	18728.8	20305.4	21976	26470.8	30793.2	32302.8	29903.3
Max	143836	157473	161816	180923	225942	290836	299536	295780	298642	250598
Southern										
regions of Russia	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	20856.78	22034.72	23226.69	24595.76	26552.04	29344.4	34244.6	38510.86	42278.24	39743.0
Median	21623.7	21340.75	21496.3	23304.9	25528.75	28507.25	34053.25	36966.35	37399.85	36312.7
Min	13752.3	13896.9	14463.9	15941.2	17902.1	18552.1	22412.2	26312.2	27054.3	27735
Max	28974.3	30049	31543.8	33966.2	36945.5	42670.8	48857.7	57741.8	64263.8	5823

Source: our elaboration on ROSSTAT data

	All regions	Non Southern regions	Southern regions
Total unemployment			R 5 2 8 4 10 10 10 10 10 10 10 10 10 10 10 10 10
Density			
GDP per cap	8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		

Table A6I. Scatter diagrams for the youth unemployment rate and independent variables in Italy

Table A6R. Scatter diagrams for the youth unemployment rate and independent variables in Russia

	All regions	Non Southern regions	Southern regions
Total unemployment	and the second s	a definition of the second sec	of the second se
Density	8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		
GDP per cap	a contraction of the second se		

Table A7I. Moran's scatter plot for Italy and Russia



Table A8. Scatter diagrams for the youth unemployment rate regions and we	ighed
unemployment rate in other regions in Italy and Russia	

		Weighted unemployment rate in other regions			
Unemploment		Italy		Russia	
rate in base region		No southern	Southern	No southern	Southern
	No southern			A definition of the second sec	and a second sec
	Southern		R 59 9 9 10 10 20 weary 22 20 20 20 20	under the second	