

Università degli Studi di Salerno
Centro di Economia del Lavoro e di Politica Economica

Floro Ernesto Caroleo – Gianluigi Coppola
CELPE - DISES

The Impact of the Institutions on Regional Unemployment Disparities

Discussion Paper 98
October, 2005

CELPE

Centro di Economia del Lavoro e di Politica Economica

Università degli Studi di Salerno

Via Ponte Don Mellillo, 84084 Fisciano, I- Italy

Web Page:<http://www.celpe.unisa.it/>

E-mail: celpe@unisa.it

Scientific Commitee:

Adalgiso Amendola, Guido Cella, Ugo Colombino, Cesare Imbriani, Giancarlo Marini, Pasquale Persico, Nicola Postiglione, Enrico Pugliese, Salvatore Vinci

Indice

<i>Introduction</i>	5
1. <i>The stylized facts</i>	6
2. <i>The independent variables</i>	6
3. <i>The Estimation Method:The Panel Data analysis</i>	13
4. <i>Results</i>	15
5. <i>Summary and Conclusion</i>	15
<i>Referenesi</i>	21

The Impact of the Institutions on Regional Unemployment Disparities

Floro Ernesto Caroleo* Gianluigi Coppola*
CELPE- DISES

October, 2005

Abstract

The main aim of this paper is to study European regional disparities in unemployment, considering regional productive structures and some regional institutional variables. It is widely known that one most important stylized facts concerning the EU consists in regional disparities among regions. Such differences relate to both income per capita and the labour market, the latter generally measured in terms of unemployment rates. In a recent paper (Amendola, Caroleo Coppola, 2004) we have analyzed the economic structure of the EU's regions using proxies for the productive structure and the labour market. In this paper we estimate a panel data model where the dependent variable is the regional unemployment rate and the independent variables relate to the productive structure and some regional institutional aspects. The results confirm that institutional variables, such as the centralization of wage bargaining, the decentralization of public expenditure and the level of bureaucracy, have important impacts on unemployment rates.

Jel Codes: R23, C23, H70

Keywords: Unemployment, Regional Disparities, Institutions, Multivariate Analysis, Panel data

*CELPE Centro di Economia del lavoro e di Politica Economica. Dises Dipartimento di Scienze Economiche e Statistiche. E mail: caroleo@unisa.it , glcoppola@unisa.it

Introduction

The problem of regional disparities is a crucial theme in the debate on the economic and political process of constructing the European Union. In fact, if we compare the United States with the European Union, we find that the convergence process is slower in the latter. Moreover, in the same period, disparities among regions have persisted or increased.

It is possible to cite numerous examples of the persistence of regional disparities: the unsolved problem of German unification (Marani, 2004), the absence of growth recorded by many less-developed regions in Mediterranean Europe (Caroleo and Destefanis 2005), and the slow transition of the East European countries (Perugini e Signorelli 2004).

The implications in terms of economic theory and policy are of great significance. In fact, no growth theory developed so far, neither for instance the neoclassical theory nor the endogenous theory, nor the new economic geography, are able fully to explain the European case (European Commission 2000; De la Fuente 2000). As regards economic policy aspects, to be noted is that the EU's cohesion policy has been unable to promote economic integration, although this is the prerequisite for the full operation of the European Union's fiscal and monetary policy (Boldrin and Canova 2001; Ederveen and Gorter 2002). There is almost unanimous agreement in the debate that the institutional and economic conditions regulating the labour market exert major effects on the convergence process. In fact, regional convergence is measured in terms of GDP per capita and/or in terms of the employment rate and productivity level. Econometric estimates confirm that the slow convergence process and the existence of clusters of homogenous regions – internally convergent but mutually divergent – in the EU is caused by employment rate dynamics (European Commission 2004; for a survey see Daniele 2002), and consequently by labour market characteristics. It is consequently important to study the institutional mechanisms that regulate the labour market, as well as the characteristics of labour demand and supply, and their dependence on spatial factors (Nienhur, 2000)

As said, studies on economic development and regional convergence regard the employment rate as the variable that seems best able to represent labour market conditions. Since the Lisbon European Council, the European employment strategy itself has set quantitative objectives based on the employment rate. At the same time, an increasing number of studies (Marelli 2004 and 2005; Garibaldi and Mauro 2002) have analysed regional disparities on the basis of this variable.

On the other hand, there is broad consensus in Europe on the OECD's contention that the 'Eurosclerosis problem' of the 1990s was due to institutional rigidities in the European labour market which generated the growth of the equilibrium unemployment. The theoretical underpinning of this thesis is that there exists a structural unemployment rate: that is, an equilibrium rate to which the labour market converges when, in the absence of exogenous shocks, all prices and wages have been completely adjusted (Layard et al. 1991). Within this theoretical framework, empirical analysis has sought to demonstrate that the different unemployment dynamics of the European countries depend mainly on micro-level real labour market frictions, such as the wage bargaining power of workers and/or of unions, information and incentives at firm-level, job search and matching efficiency (Nickell, 1997; Nickell e Layard, 1999; Blanchard and Wolfers, 2000; for a survey see also Caroleo, 2000).

The basic idea of this study is that the regional and/or national disparities in Europe are caused not only by differences among productive structures and the technological

and economic conditions that determine employment levels but also by differences among the institutional arrangements that regulate labour markets. In other words, we maintain that these factors may contribute to creating or sustaining the divergence or persistence of disparities among regions.

The next section sets out some stylized facts showing that the unemployment rate may be a better indicator of regional labour-market differences. The third section describes the variables chosen to explain the functional relationship among the unemployment rate, as the dependent variable, the productive structure, and labour-market institutions. Then explained is the methodology used to obtain those variables. The last section reports the results of the econometric estimations. The conclusions contain some final remarks.

1. The stylized facts

The most important stylized fact concerning the European Union is depicted by Figures 1 and 2, which show the index numbers of the mean, mean square error, and coefficient of variation of the employment rate (Figure 1) and of the unemployment rate (Figure 2) relative to 130 European regions for the period 1991 to 2000. Two important stylized facts can be observed: the first is that during the 1990s the unemployment rate displayed a more marked cyclicity than did the employment rate; the second is that the variability of the unemployment rate at regional level was much higher than that of the employment rate.

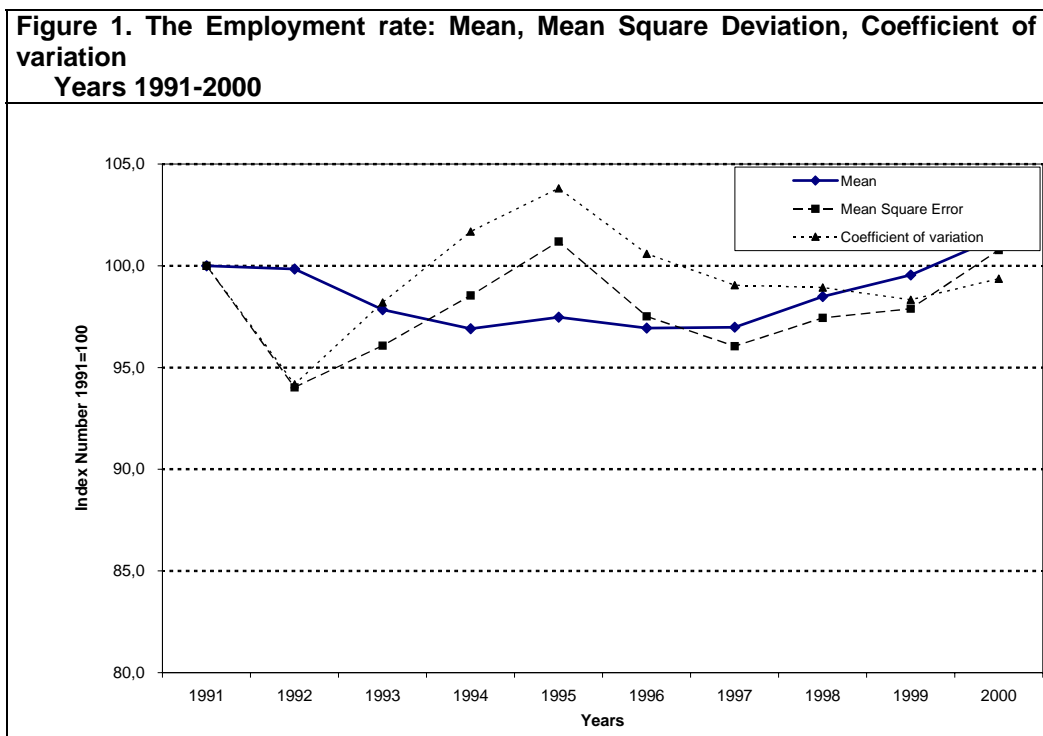
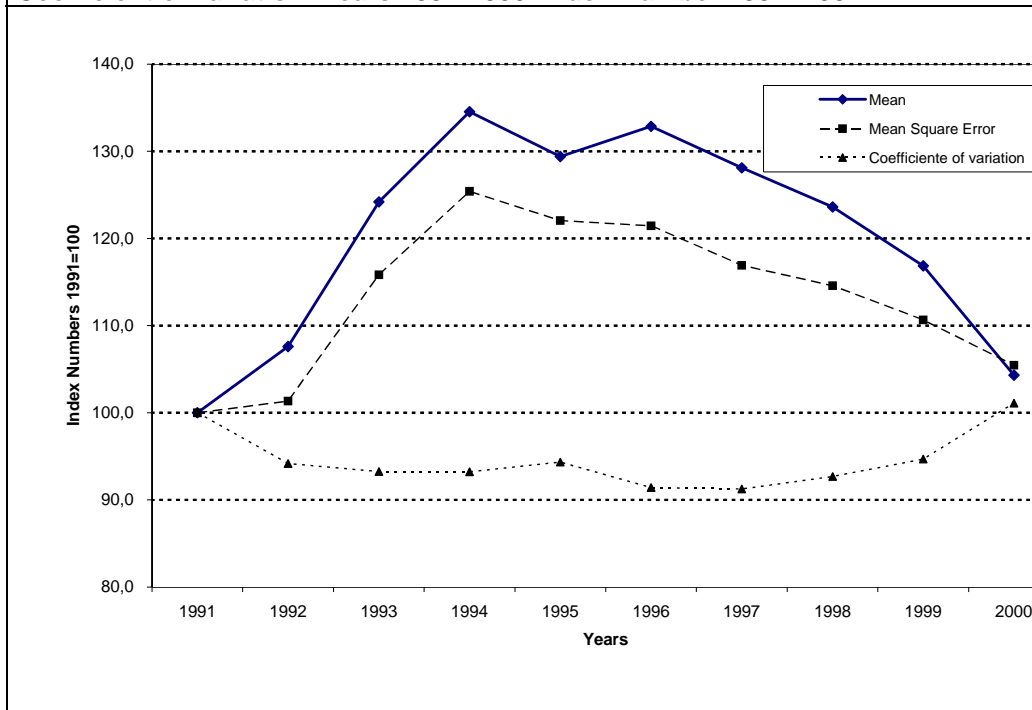


Figure 2. The Unemployment rate: Mean, Mean Square Deviation, and Coefficient of variation. Years 1991-2000. Index Number 1991=100



This second stylized fact suggests that analysis of regional disparities should focus on the variables that affect the unemployment rate. Elrhost (2000) lists regional variables connected with the labour market that may generate divergence processes among regions. These variables can be summarized as follows: the endowment of production factors and 'fundamentals'; the structure of local labour markets (Genre and Gómez-Salvador, 2002) in terms of demographic growth, population age-structure, migration, and commuting (Greenway, Upward and Wright, 2002); the employment level; the productive structure (Marelli, 2003; Paci and Pigliaru, 1999; Paci, Pigliaru and Pugno, 2002); demographic density and urbanization (Taylor and Bradley 1997); economic and social barriers; human capital; the institutional structure regulating the goods markets and the labour market; and the wages composition (Pench, Sestito and Frontini, 1999; Hyclack and Johnes 1987).

With no claim to exhaustiveness, in what follows we shall test some of the hypotheses outlined above. To this end, we shall estimate the relationship between the unemployment rate, measured at the regional level, and a set of variables that includes some institutional indicators and the most important regional economic characteristics.

2. The independent variables

The independent variables used for our analysis may be classified into three groups: (a) productive structure and labour market indicators, (b) institutional indicators, and (c) variables relative to regional economic performance.

Indicators of the productive structure and labour market

We began by estimating a proxy for the labour market and productive structures of the regions. For this purpose, we calculated two indicators by applying a dynamic multivariate factorial analysis. This method is well suited to the study of multidimensional phenomena like regional disparities because the regions (cases) can be analyzed on the basis of a set of indicators (variables) that change over the years (time).

We decided (Amendola, Caroleo, Coppola 2004) to apply the STATIS (Structuration des Tables A Trois Indeces de la Statistique) method (Escoufier 1985 and 1987). This is a dynamic multivariate method able to cluster regions year by year on the basis of a set of variables comprising labour market and income indicators, as well as indicators of the population structure and the structure of the productive sector. It is thus possible to study how the interaction between the labour market structure and economic growth changes over time, and also to analyze the dynamics of regions.

The variables used for this analysis are listed in Table 3.2. They were taken from the Eurostat REGIO database and the European regions database of Cambridge Econometrics Ltd. and they are, as said, indicators characteristic of the labour market and the production system (Wishlade and Yuill, 1997). Labour demand was measured by the employment rate (TOT), while the labour supply was measured by the labour-force participation rate (TAT). The percentage of the long-term unemployed (ULR) was used as a proxy for the structural gap between labour demand and supply. The percentage of part-time employment (PTT) was used as a measure of the flexibility of the regional labour market.

The production system was represented by four variables corresponding to the percentages of employed persons in agriculture (AGR), industry (IND), traditional services – commerce, hotels and non-market services (GHM) – and advanced services – transport, financial services and others (IJA). The other variables considered were population density (DEN), as a proxy for the gravitational force of a region, and per capita income (PPS), which is the indicator most frequently used to represent regional disparities.

N	Proxy	Variable	Measure	Acr.
1	Gravitational force of the region	Population density	Inhabitants /sq km	DEN
2	Labour Supply	total activity rate	labour force/population aged over 15	TAT
3	Labour demand	employment rate	employed/population aged over 15	TOT
4	Structural gap between Labour and Supply	Long-term unemployment rate	long-term unemployed/total unemployed	ULR
5	Flexibility of the regional labour market	part-time employment rate	part-time employed/total employed	PTT
6	Productive structure of the regional economy	percentage employment in agriculture	employed in agriculture/total employed	AGR
7		percentage employment in industry	employed in industry/total employed	IND
8		percentage employment in traditional services	employed in retail trade, hotels and non-market services /total employed	GHM
9		percentage employment in advanced services	employed in transport, financial and other services/total employed	IJA
10	Regional Economic performance indicator	per capita income	per capita GDP in Purchasing Power Standard	PPS

The European regions represent 130 cases. The European regions selected were disaggregated at a level intended to cover the entire territory and to provide the maximum disaggregation possible with the data available. This level corresponded to the Nuts 2 level for Greece, Spain, France, Italy, Austria and Portugal; Nuts 1 for Belgium, Germany, Holland, Finland, the United Kingdom; Nuts 0 for Denmark, Ireland, Luxembourg and Sweden, for which countries there are no Nuts 1 and Nuts 2 disaggregations (or there are no data available with which to perform such disaggregations)¹. We must point out that, unfortunately, does not exist a unique regional disaggregation for Europe generally adopted in the empirical literature on regional disparities. The regional disaggregation that we use depends on the availability of statistics and is similar to the those that can be found in other papers (i.e. Paci Piglaru Pugno, 2002; Basile et al. 2003).

The time period was 1991- 2000².

¹ The complete list of the 130 regions is given on request.

² It is not possible to extend our analysis over 2000, since the value of some institutional variables that we use in the econometric estimation exists only until this year.

The STATIS methodology, as said, consists in the analysis of the three-way matrix (tXij), where t denotes the temporal observations, i the regions, and j the variables (i=1,2...I; j=1,2...J; t=1,2...T), obtained by the succession of T matrices ${}^tX_{i,j}$ of the same dimensions.

The analysis moves through three phases: interstructure, compromise and infrastructure. The output from the interstructure phase describes the structure of the T matrices in a vectorial space smaller than T. This is reduced to two dimensions but still maintains a good similarity to the initial representation. The compromise phase consists in the estimation of a synthesis matrix which yields a representation, in the two-dimensional space identified, of the characteristic indicators and of the average positions of the regions in the time-span analysed (1991-2000). The result of this infrastructure phase is a representation of the trajectories followed by the individual regions in the same period of time.

Axis	Eigenvalue	Variance explained	Cumulated variance explained
1	3.75547	36.76	36.76
2	1.99895	19.56	56.32
3	1.18853	11.63	67.95

In order to evaluate the goodness of the factorial representation yielded by construction of the compromise matrix, Table 2 shows the first three highest eigenvalues and the percentage of the total variance explained by the first three factorial axes.

To be noted first is that 36.8% of the variance is explained by the first factor, and 19.6% by the second, for a total of 56.3% of the variance expressed by the set of all the variables. In other words, the first factor alone explains more than one-third of the total variability, while the first three factors jointly explain almost 68%. Consequently, the reduction of the phenomenon's variability, obtained by representing it in a two or three dimensional space, is a meaningful synthesis of the information considered.

In order to interpret the two figures, we may refer to Table 2, which shows that minimum and maximum period values of the correlations between the variables and the factorial axes. It will be seen that the variables most closely correlated with the first factor are, on the one hand, the employment rate (TOT), the activity rate (TAT), the percentage of part-time employment (PTT), per capita income (PPS), and the percentage of employment in advanced services; and on the other (positive quadrant), the percentage of long-term unemployment (ULR), and the percentage of employment in agriculture (AGR). In other words, along the first axis one observes a clear polarization between the labour market indicators and those relative to the production structure.

Along the second axis one observes a close correlation among, on the one hand, population density (DEN), per capita income (PPS), and the percentages of employment in traditional services (GHM) and advanced services (IJA), and on the other, the percentage of employment in industry (IND) and in agriculture (AGR), and the employment rate (TOT). In this case, we may state that the second axis identifies in marked manner only the phenomena representing variables located in the positive quadrant, namely those correlated with the territorial dimension. In fact, the indicators in this quadrant represent highly urbanized areas, or ones which contain rail or road infrastructures or sea ports, or with high levels of tourism. The negative quadrant, by contrast, comprises indicators which are more difficult to interpret and concern a mix of

factors, such as low population density, the presence of agricultural employment, and high levels of industry³

	Factor 1		Factor 2			Factor 3		
	Min	Max		Min	Max		Min	Max
TAT	-0.83	-0.75	IND	-0.51	-0.47	IND	-0.77	-0.71
TOT	-0.78	-0.72	TOT	-0.42	-0.37	PPS	-0.36	-0.27
PTT	-0.76	-0.69	AGR	-0.36	-0.34	ULR	-0.18	0.07
PPS	-0.69	-0.63	TAT	-0.34	-0.30	GHM	-0.09	-0.04
IJA	-0.66	-0.64	PTT	-0.11	-0.03	TOT	0.14	0.25
IND	-0.34	-0.22	IJA	0.27	0.30	IJA	0.14	0.20
DEN	-0.30	-0.29	ULR	0.30	0.38	DEN	0.15	0.16
GHM	-0.17	-0.07	PPS	0.33	0.36	TAT	0.19	0.32
ULR	0.58	0.64	GHM	0.64	0.73	PTT	0.21	0.33
AGR	0.70	0.72	DEN	0.73	0.73	AGR	0.47	0.49

Source: Our calculations on Eurostat REGIO data and on the Cambridge Econometrics database

In conclusion the European regions seem to lie along the two factorial axes that represent certain characteristics of the labour market and the productive structure. The first factor (**FF**) can be interpreted as being a proxy for the 'bad' performance of the labour market. It should be pointed out that the variable has an opposite sign with respect to the development indicator: the regions that achieve a good performance in terms of activity rate and employment rate, and higher per capita income levels, have negative values for this factor. By contrast, those regions that have high long-term unemployment rates and high percentages of employed in agriculture have positive values.

The second factor (**SF**) may be interpreted as a factor that is positive correlated with urbanization and a highly developed tertiary sector.

Institutional Variables

If the first factor obtained by STATIS can be interpreted as the labour market's level of efficiency and flexibility, further indicators of the rigidity/flexibility of the labour market are the degree of decentralization of its regulatory institutions and, particularly, the level of wage bargaining centralization (Calmfors, 1993; Calmfors and Driffil, 1988).

The 'European model' has long been characterized by a centralized wage bargaining structure strictly related to industrial relations, that is, an institutional framework centred on employment protection and also centralized, universalistic and egalitarian. Nevertheless, in recent years there has been a tendency to decentralize labour market policies to a subnational (i.e. regional) level, the reason being that that participation in bargaining by the local institutions is viewed as a way to achieve a higher level of regional cohesion in the EU (Buti, Pench and Sestito, 1998; Soltwedel, Dohse and Kreige-Boden, 1999).

The debate on bargaining has usually focused on centralized or decentralized wage bargaining in its vertical form (i.e from national to firm level) (Freeman and Gibbson 1993). Firm-level bargaining is considered by the OECD (OECD,1999) as the only arrangement able to reduce regional disparities because it ties the bargained wage to local labour market conditions and to regional labour productivity levels (for the Italian

³ See Amendola, Caroleo, Coppola 2004) for a more complete analysis.

case see Antonelli and Paganetto 1999; Biagioli, Caroleo and Destefanis 1999 and, more recently, Dell'Aringa 2005).

There are many possible objections to this approach. It has been pointed out that there is a variety of bargaining systems available (at regional level or by occupation), and on the other hand that there is a coordination problem (Amendola, Caroleo and Garofalo, 1997). If we consider these two aspects together, it is possible to show that economic performance can be improved by both centralized and decentralized bargaining, in that each enables account to be taken of structural elements determining unemployment, such as regional differences among occupations, age and gender.

It should be borne in mind that bargaining decentralization cannot be separated from industrial relations arrangements. This aspect is of crucial importance in understanding the reasons for a reform which aims at decentralizing the wage bargaining system but at the same time takes account of different institutional frameworks and coordination issues.

In other words, industrial relations concern the system of employment protection which provides security against (i) the risk of future unemployment and job precariousness, (ii) barriers to human capital development, (iii) restriction of the right to work, and (iv) obstacles to worker representation. These components of the industrial relations system should be adjusted according to the characteristics of local labour markets. Indeed, active labour market policies are aimed at implementing arrangements appropriate to particular local labour market characteristics and which also involve several actors and procedures.

A decentralized industrial relations system must go beyond mere decentralization of the administrative bureaucratic system. It should involve the most important local actors, and it should implement consensus-based actions with shared responsibilities (Ragini, 2002, Arrighetti and Seravalli, 1999). Only in this way can a kind of employment growth that is both quantitative and qualitative be obtained; in other words, only in this way can greater flexibility be given to the labour market without losing the necessary protections. For this reason, recent tendencies to decentralize industrial relations have been interpreted as a shift to local and territorial concertation taking the form of a pact among the social partners.

For the purposes of our analysis, the best proxy for the institutional decentralization of the labour market would have been a variable related to the level of decentralized bargaining and of the extent to which the industrial relations system is regionally organized. Unfortunately, homogeneous data at the European level were not available. We could consequently only use the standard indicator of bargaining centralization (**CENTR**), which combines the levels of wage bargaining centralization and of wage coordination among the most important trade unions (Checchi and Lucifora 2002⁴; Boeri, Brugiavini and Calmfors 2002).

The underlying hypothesis was that the more the bargaining on wages takes place at the level of the individual firm, the more account must be taken of that firm's productivity level, given that it is necessarily affected by the local economic conditions.

A further institutional aspect considered in our analysis was the administrative decentralization of the public administration. We chose two indicators for this aspect: the first was the degree of centralization of public expenditure (**CFG**); the second was an index of bureaucracy (**BUREAUCRACY**). The former was calculated as the ratio between expenditure by the central administration and total public expenditure.⁵ The lower this ratio, the higher will be the percentage of expenditure by the local administration. This ratio represents, in our opinion, a good proxy of the decentralization

⁴ This dataset contains annual data until 1998 with a low variability along the time, as the centralized or decentralised bargaining systems have not changed very much year by year.

⁵ The variable was calculated as the ratio between total expenditure minus local expenditure and total expenditure. (Sources: IMF Government Finance Statistics Yearbook & supplement Finance statistics Yearbook 2003).

of public expenditure powers to the regional level. The index of bureaucracy was not disaggregated at national level and can be considered a proxy of the public administration's efficiency.⁶

Variables for the economic performances of regions

The third group of variables comprised two widely-used regional development indexes: the percentage variation of the Gross Value Added at constant price (**GRPR**) and per capita investment, measured as investment per inhabitant (**INVPOP**)⁷⁸

List of the Dependent Variables	
Acronym	Variables
CONS	Constant
FF	Index factor of the labour market's performance (the variable has an opposite sign related to development's index)
SF	Index factor of tertiary/urbanization
CENTR	bargaining centralization index
CGF	Level of public expenditure centralization
BUREAUCRACY	Bureaucracy index
GDPG	GDP annual growth at constant price
INVPOP	investment/population

3. The Estimation Method: The Panel Data analysis

Our dataset was a Panel where the cases were regions and the time units were the years from 1991 to 2000. We accordingly used panel data econometric methods in order to study the relationship between the unemployment rate and the set of independent variables.

The model may be written as

$$y_{it} = \alpha_0 + x_{it}'\beta + z_{it}'\alpha + \varepsilon_{it} \quad [1]$$

where $i = 1, \dots, n$, $t = 1, \dots, T$. α_0 is the constant, β is the vector of coefficients, x_{it} contains K regressors and the matrix z_{it} , is a set of non-observable variables that captures the specific effects due to the characteristics of the individuals, which in our study were 109 European regions⁹. ε_{it} is the error term.

The variables in z_{it} are not observed and may be correlated or not correlated with the regressors. In the former case, in model [1] the intercept is group specific and is constant over time. This is the Fixed Effects model and may be written as:

$$y_{it} = a_0 + x_{it}'\beta + \alpha_i + \varepsilon_{it} \quad [2]$$

⁶This variable is contained in the www.countrydata.com databank and is an indicator of the quality of bureaucracy at national level.

⁷The last two variables are from European Regions databank of Cambridge Econometrics Ltd.

⁸The values of the variables CENTR, CGF, BUREAUCRACY are at national level and we assumed that they are the same for the regions of the same country. Our econometric estimations did not consider Luxembourg (1 region), Greece (13 regions) and Portugal (7 regions). Twenty-one regions were excluded from the econometric analysis because the CENTR variable was not available from them.

⁹As said, the CENTR variable was not available for some countries.

In the latter case, the model is defined as a Random Effects model. The variables of the matrix z_{it} are unobservable and uncorrelated with the x_{it} . In this case the model becomes

$$y_{it} = \alpha_0 + x_{it}'\beta + u_i + \varepsilon_{it} \quad [3]$$

where u_i is the group-specific stochastic term.

The difference between the fixed effect and the random effect model resides in the nature of the individual component α_i (in the fixed model) and u_i in the random model. In the fixed effects model, α_i is deterministic and captures the individual's characteristics. It assumes different values for each single individual; it is constant over time; and because it is related to the characteristics of the individual, it is correlated with the variables x_i . In the Random Effects model, the term u_i has a group specific random distribution. The term u_i is a stochastic variable and is not correlated with the x_i because these variables are not stochastic.

The Fixed Effect model is useful for territorial – inter-country or inter-regional – comparisons, as in our case, because it can be plausibly supposed that the non-observed characteristics captured by the variables are constant over time (Green, 2003). However, it is possible to determine which is the better specification – fixed effect or random effect – by using the Hausmann test.¹⁰

The model estimated is as follows:

$$UNRATE_{it} = a + \beta_1 FF_{it} + \beta_2 SF_{it} + \beta_3 GDP_{it} + \beta_4 INVPOP_{it} + \beta_5 BUREAUCRACY_{it} + \beta_6 CENTR_{it} + \beta_7 CGF_{it} + \beta_8 CGF2_{it} + v_i + \varepsilon_{it}$$

where a is the constant, β_1, \dots, β_8 are the parameters, v_i is the individual component and ε_{it} the error term¹¹. The acronyms of the variables are reported in the above list. The variable that measures the level of public expenditure centralization (CFG) is also considered in its quadratic form (CFG2) in order to test the hypothesis of a quadratic relationship of this variable with the unemployment rate and, consequently, the existence of an optimal dimension in the degree of centralization of public expenditure.

¹⁰ This Test is based on the statistics $W = (\beta_f - \beta_r)'(V_f - V_r)^{-1}(\beta_f - \beta_r)$ where β_f and β_r are respectively the fixed effects and the random effect coefficients and V_f, V_r are their relative variance-covariance matrixes. Under the null hypothesis the statistics W is distributed as a $\chi^2(k)$ where k is the number of coefficients in β , intercept excluded. The null hypothesis is no correlation between the stochastic term and x_{it} , and hence the absence of any systematic difference between the random effects and fixed effects coefficients. In the former case, random effects are better than fixed effects because they are more efficient. In the opposite case the fixed effects are better because the estimates are consistent. ¹¹ We do not use the level of the GDP per capita as regressor, because this variable has been already used in the STATIS analysis and is partly represented by the first factor.

4. Results

Table 4 sets out the results. Reported in the third and fourth columns are respectively the Random Effects and the Fixed Effects estimates. For the sake of completeness, this table also includes the OLS estimation (column 1), and the Random effect model is obtained by using the Maximum Likelihood Estimation (columns 1).

The signs of the coefficients obtained with the four estimation methods are always the same. The Hausmann test rejects the null hypothesis of absence of correlation between the dependent variables and the error terms. This is the fundamental hypothesis of the random effects model, and because it is rejected, we may conclude that the Fixed Effect model is the well-specified model.

The result confirms the theoretical hypotheses formulated in the previous sections. In particular, the coefficients in the Fixed Effect Model are all statistically significant and they have the expected sign. Only the variable GDPR – the annual growth rate of gross value added per capita – is significant only at the 8% level.

The dependent variables are expressed in different measures. Accordingly, in order to compare the magnitude of their effects on the unemployment rate, we calculated the standard coefficients¹² of the variables and the elasticity to their mean value (tab. 5).¹³

5. Summary and conclusions

The results obtained seem to confirm our initial hypothesis: namely that the unemployment rate is correlated with the extent to which wage bargaining is decentralized¹⁴, with the institutional efficiency of regions, and also with the bureaucracy level, although the impact of this last variable on the unemployment rate is small.

The centralization level of the public expenditure has a quadratic relationship with the unemployment rate. This means that the unemployment level grows together with the degree to which public expenditure is centralized, but in a less than proportional way, until the value of the centralization ratio is equal to 75%. Above that value unemployment

¹² A standard coefficient is equal to $\beta_{x_i}^s = \beta_{x_i} \frac{s_{x_i}}{s_y}$ where β_{x_i} is the parameter of the variable x_i ,

s_x and s_y are respectively the standard deviations of the variable x_i and y . It may be useful to make an example to better understand the meaning of the standard coefficients. The standard coefficient of the variable SF (Table 5) is 0.6; this means that a unit standard deviation of SF causes a standard deviation of the unemployment rate equal to 0.6.

¹³ The elasticity of an independent variable to its mean value is $E_x = \beta_x \frac{\bar{X}}{\bar{Y}} = \frac{\partial X}{\partial Y} \frac{\bar{X}}{\bar{Y}}$. It may

be useful to point out that standard coefficients, even if they are more difficult to analyse, are constant for all the values of the relative independent variable. On the contrary, in our estimations the elasticity of a dependent variable is not constant because the model is linear.

¹⁴ On the contrary we do not find a non linear relationship between unemployment rate and centralization. Therefore we cannot prove the traditional theoretical hypothesis (Bruno Sachs, 1985) that both highly-centralized systems and strongly decentralized systems perform better than any intermediate bargaining systems in causing unemployment.

decreases. Nevertheless, we should be cautious in interpreting this result because the signs of the variables CGF and CFG2 are the opposite in the OLS Method.

Also the economic performances of regions – measured by GDP growth and investment per capita (INVPOP) – have negative impacts on unemployment rates. The latter variable has a standard coefficient which is double that of the former.

Also interesting are the values of the two structural factors coefficients. As to be expected, the unemployment rate is negatively correlated with the good performance of the regional labour market (high activity and employment rate, high share of employment in the industrial and advanced services sectors) measured by the first factor (FF).

It is more difficult to explain the positive relationship between the unemployment rate and the second factor, which relates to the large share of services and high demographic density. In this case the results seem to confirm the empirical evidence – as also reported in the third Progress Report on Economic and Social Cohesion in the EU – that “*cities act as centres of employment for a widely-drawn population, with one in every three jobs being taken by someone commuting into the city*” (Commission of the European Communities, Third Progress Report on Cohesion, page 22). For this reason, unemployment and social problems in the European Union are more severe in urban centres, as well as in regard to the tertiarization process now characterizing economic development in the EU.

Table 4 Results of the Panel Data Estimation Dependent Variable: Unemployment rate								
	(1)		(2)		(3)		(4)	
	OLS		MLE		Random Effects		Fixed Effects	
	coefficient	P-level	Coefficient	P-level	coefficient	P-level	coefficient	P-level
CONS	10.763	0.01	-16.871	0.00	-12.303	0.00	-24.931	0.00
FF	2.233	0.00	1.706	0.00	1.849	0.00	1.183	0.00
SF	1.388	0.00	1.784	0.00	1.578	0.00	2.633	0.00
GDPR	0.181	0.00	-0.046	0.02	-0.044	0.04	-0.037	0.08
INVPOP	-0.002	0.01	-0.002	0.00	-0.002	0.00	-0.001	0.00
BUREAUCRACY	2.646	0.00	1.855	0.00	2.064	0.00	1.558	0.00
CENTR	-0.083	0.00	0.047	0.00	0.029	0.01	0.077	0.00
CGF	-0.179	0.02	0.528	0.00	0.402	0.00	0.753	0.00
CFG2	0.001	0.13	-0.004	0.00	-0.003	0.00	-0.005	0.00
Num. obs.	1090		1090		1090		1090	
Num. groups			109		109		109	
R2	0.5777							
R2corr	0.5746							
F(8,1081)	184.87	0.00						
Log likelihood			-2399.9584					
LR chi2(8)			378.58	0.00				
R-sq within					0.2704		0.2929	
R-sq between					0.4689		0.2909	
R-sq overall					0.4466		0.2861	
Random effect u_i								
Corr(u_i,X)					0		-0.392700	
Sigma u					3.1659		5.289283	
Sigma e					1.7714		1.771356	
rho (% of the variance due to u)					0.7616		0.899155	
Wald chi2(8)					479.46			
F(8,973)							50.39	0.000
Hausmann Test (Ho : corr (ui, X)=0) CHI2 (8); Prob>CHI2							113.92	0.000

Table 5 Mean, Standard deviation (s.d), parameters (fixed effect), standard coefficients (s.c.), elasticity at mean value (el.)					
<i>Variable</i>	<i>Mean</i>	<i>s.d .</i>	<i>parameter</i>	<i>s. c.</i>	<i>el.</i>
UNEMPLOYMENT RATE	10.885	6.064			
CONSTANT			-24.931		
FF	-0.300	1.766	1.183	0.344	-0.033
SF	0.171	1.384	2.633	0.601	0.041
GDPR	2.029	3.260	-0.037	-0.020	-0.007
INVPOP	50.239	178.694	-0.001	-0.044	-0.007
BUREAUCRACY	3.974	0.143	1.558	0.037	0.569
CENTR	25.747	16.247	0.077	0.207	0.183
CGF	73.082	8.256	0.753		
CGF2	5409.132	991.429	-0.005	0.199	0.289

APPENDIX

The 130 European regions.			
acronym	Regions	acronym	Regions
	Belgium – NUTS 1 – Regions		
be1	Région Bruxelles-capitale/Brussels hoofdstad gewest	be2	Vlaams Gewest
be3	Région Wallonne		
dk	Denmark – NUTS 0 – Nation		
	Federal Republic of Germany (including ex-GDR from 1991) - NUTS 1 – Lander		
de1	Baden-Württemberg	de2	Bayern
de3	Berlin	de4	Brandenburg
de5	Bremen	de6	Hamburg
de7	Hessen	de8	Mecklenburg-Vorpommern
de9	Niedersachsen	dea	Nordrhein-Westfalen
deb	Rheinland-Pfalz	dec	Saarland
ded	Sachsen	dee	Sachsen-Anhalt
def	Schleswig-Holstein	deg	Thüringen
	Greece – NUTS 2 – Development regions		
gr11	Anatoliki Makedonia, Thraki	gr12	Kentriki Makedonia
gr13	Dytiki Makedonia	gr14	Thessalia
gr21	Ipeiros	gr22	Ionia Nisia
gr23	Dytiki Ellada	gr24	Stereia Ellada
gr25	Peloponnisos	gr3	Attiki
gr41	Voreio Aigaio	gr42	Notio Ai gaio
gr43	Kriti		
	Spain – NUTS 2 – Comunidades autonomas		
es11	Galicia	es12	Principado de Asturias
es13	Cantabria	es21	Pais Vasco
es22	Comunidad Foral de Navarra	es23	La Rioja
es24	Aragón	es3	Comunidad de Madrid
es41	Castilla y León	es42	Castilla-la Mancha
es43	Extremadura	es51	Cataluña
es52	Comunidad Valenciana	es53	Baleares
es61	Andalucia	es62	Murcia
es63	Ceuta y Melilla (ES)	es7	Canarias (ES)
	France – NUTS 2 – Régions		
Fr1	Île de France	fr21	Champagne-Ardenne
Fr22	Picardie	fr23	Haute-Normandie
Fr24	Centre	fr25	Basse-Normandie
Fr26	Bourgogne	fr3	Nord - Pas-de-Calais
Fr41	Lorraine	fr42	Alsace
Fr43	Franche-Comté	fr51	Pays de la Loire
Fr52	Bretagne	fr53	Poitou-Charentes
Fr61	Aquitaine	fr62	Midi-Pyrénées
Fr63	Limousin	fr71	Rhône-Alpes
Fr72	Auvergne	fr81	Languedoc-Roussillon
Fr82	Provence-Alpes-Côte d'Azur	fr83	Corse
le	Ireland – NUTS 0 – Nations		
	Italy – NUTS 2 – Regioni		
It11	Piemonte	it12	Valle d'Aosta
It13	Liguria	it2	Lombardia

It31	Trentino-Alto Adige	it32	Veneto
It33	Friuli-Venezia Giulia	it4	Emilia-Romagna
It51	Toscana	it52	Umbria
It53	Marche	it6	Lazio
It71	Abruzzo	it72	Molise
It8	Campania	it91	Puglia
It92	Basilicata	it93	Calabria
Ita	Sicilia	itb	Sardegna
Lu	Luxembourg		
Netherlands – NUTS 2 – Provinces			
nl1	Noord-Nederland	nl2	Oost-Nederland
nl3	West-Nederland	nl4	Zuid-Nederland
Austria – NUTS 2 – Bundesländer			
at11	Burgenland	at12	Niederösterreich
at13	Wien	at21	Kärnten
at22	Steiermark	at31	Oberösterreich
at32	Salzburg	at33	Tirol
at34	Vorarlberg		
Portugal - NUTS 2 groupings			
pt11	Norte	pt12	Centro (P)
pt13	Lisboa e Vale do Tejo	pt14	Alentejo
pt15	Algarve	pt2	Açores (PT)
pt3	Madeira (PT)		
Finland- NUTS 1 – Manner-Suomi/Ahvenanmaa			
Fi1	Manner-Suomi	fi2	Åland
se Sweden- NUTS 0 – Nation			
United Kingdom –NUTS 1 – Nation			
ukc	North East	ukd	North West (including Merseyside)
uke	Yorkshire and The Humber	ukf	East Midlands
ukg	West Midlands	ukh	Eastern
uki	London	ukj	South East
ukk	South West	ukl	Wales
ukm	Scotland	ukn	Northern Ireland

References

- Amendola A., Caroleo F.E., Coppola G., (2005) *Regional Disparities in Europe* in Caroleo and Destefanis (eds), (2005) *Regions, Europe and the Labour Market. Recent Problems and Developments*, Physica Verlag, Heidelberg.
- Amendola A., Caroleo F.E., Garofalo M. (1997), “Labour Market and Decentralized Decision Making: an Institutional Approach”, *Labour*, (11), 3, 497-516.
- Antonelli G., Paganetto L. (a cura di) (1999), *Disoccupazione e basso livello di attività*, il Mulino, Bologna.
- Arrighetti A., Seravalli G. (a cura di) (1999), *Istituzioni intermedie e sviluppo locale*, Donzelli, Roma
- Biagioli M., Caroleo F. E., Destefanis S. (eds.) (1999), “Introduzione” a *Struttura della contrattazione, differenziali salariali e occupazione in ambiti regionali*, ESI, Napoli.
- Blanchard O., Wolfers J. (2000), “The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence”, *Economic Journal*, March. C1-C33.
- Bodo G., Sestito P. (1991), *Le vie dello sviluppo*, il Mulino, Bologna.
- Boeri T., Brugiavini A., Calmfors L. (2002) *Il ruolo del sindacato in Europa*, Università Bocconi Editore, Milano.
- Boldrin M. and Canova F. (2001), “Inequality and Convergence in Europe’s Regions: Reconsidering European Regional Policies”, *Economic Policy*, April 2001.
- Bruno M., Sachs J. (1985), *Economics of worldwide stagflation*, Basil Blackwell, Oxford
- Buti M., Pench L. R., Sestito P. (1998), “European Unemployment: Contending Theories and Institutional Complexities” , DGII, Working paper n. 81, Brussels.
- Calmfors L. (1993), “Centralization of Wage Bargaining and Macroeconomic Performance: a Survey”, *OECD Economic Studies*, n. 2, 161-191.
- Calmfors L., Driffill J. (1988), “Bargaining Structure, Corporatism and Macroeconomic Performance”, *Economic Policy*, 6, 15-61.
- Caroleo F. E., Destefanis S. (eds) (2005) *Regions, Europe and the Labour Market. Recent Problems and Developments*, Physica Verlag, Heidelberg.
- Caroleo F.E. (2000), “Le politiche per l'occupazione in Europa: Una tassonomia istituzionale”, *Studi Economici*, n. 71, 2, 115-152.
- Checchi D., Lucifora C., (2002), “Unions and labour market institutions in Europe”, *Economic Policy* 2002, 362-408
- Daniele V. (2002), “Integrazione economica e monetaria e divari regionali nell’Unione Europea” *Rivista economica del Mezzogiorno*, 3:513–550.
- De la Fuente A (2000), “Convergence across countries and regions: theory and empirics”, *European Investment Bank Papers* 2.
- Dell’Aringa C. (2005), “Industrial Relations and Macroeconomic Performance” , *Paper presentato alla Conferenza Internazionale su “Social Pacts, Employment and Growth: A Reappraisal of Ezio Tarantelli’s Thought”*, Roma.

- Ederveen S., Gorter J. (2002), "Does European Cohesion Policy Reduce Regional Disparities? An empirical Analysis", CPB Netherland Bureau for Economic Policy Analysis, CPB Discussion Paper, n. 15.
- Elhorst JP. (2000), "The mystery of regional unemployment differentials: a survey of theoretical and empirical explanations" *Research Report 00C06*, University of Groningen, Research Institute SOM-Theme C: Coordination and Growth in Economics.
- Escoufier Y. (1985), "Statistique et analyse des données", *Bulletin des Statisticiens Universitaires* 10.
- Escoufier Y. (1987), *Three-mode data analysis: the Statis method*. in Methods for multidimensional data analysis, European Courses in Advanced Statistics.
- European Commission (2005), *Third Progress Report on Cohesion*, Brussels
- European Commission (2000), *Real convergence and catching up in the EU*, in the EU economy: 2000 Review, European Commission, Luxembourg.
- European Commission (2004), "A New Partnership for Cohesion: Convergence, Competitiveness, Cooperation", *Third Report on Economic and Social Cohesion*, Brussels.
- Freeman R. B., Gibbson R. (1993), "Getting Together and Breaking Apart: the Decline of Centralized Collective Bargaining", *NBER Working Paper*, n. 4464, Cambridge, Mass.
- Freeman R.B. (1988) "Labour Markets", *Economic Policy*, 6, pp. 64-80
- Garibaldi P. and Mauro P., (2002), "Anatomy of Employment Growth", *Economic Policy*, Vol. 17, pp. 67-113.
- Genre V, Gòmez-Salvador R., (2002), "Labour force developments in the Euro area since the 1980s". ECB Occasional Paper Series 4.
- Green W. H., (2003), *Econometric Analysis*, Fifth edition, Prentice Hall International Edition
- Greenway D, Upward R., Wright P. (2002), "Structural adjustment and the sectoral and geographical mobility of labour. Leverhulme Centre for Research on Globalisation and Economic Policy" *Working Paper n.3*, University of Nottingham.
- Hausman J. (1978), "Specification Tests in Econometrics", *Econometrica*, 46, 1978, pp.1251-1271
- Hyclak T, Johnes G., (1987), "On the determinants of full employment unemployment rates in local labour markets", *Applied Economics* 19:615-645.
- International Monetary Found *Government Finance Statistics Yearbook & Supplement Finance statistics Yearbook*, 2003
- Layard R., Nickell S., Jackman R., *Unemployment. Macroeconomic Performance and the Labour Market*, Oxford University Press, Londra, 1991.
- Marani U. (a cura di) (2005), *L'economia della Germani Unificata: uno sguardo interessato dal Mezzogiorno d'Italia*, Donzelli Editore, Roma.
- Marelli E. (2004a), "Evolution of Employment Structures and Regional Specialisation in the EU", *Economic Systems*, 28, 35-59
- Marelli E. (2005), 'Regional Employment Dynamics in the EU: Structural Outlook, Co-movements, Clusters and Common Shocks', in Caroleo F.E., Destefanis (Eds): *Regions, Europe and the Labour Market: Recent Problems and Developments*, Heidelberg, Physica-Verlag
- Nickell S. (1997), "Unemployment and Labor Market Rigidities: Europe versus North America", *Journal of Economic Perspectives*, vol. 11, n. 3, 1997, 55-74.

- Nickell S., Layard R., (1999), "Labour Market Institutions and Economic Performance", in Ashenfelter, Card (1999). Ashenfelter O., Card D. (a cura di), *Handbook of Labor Economics*, North Holland.
- Niebuhr A., (2002), *Spatial dependence of regional unemployment in the European Union*. HWWA Discussion Paper 186.
- Oecd, (1999), *Employment Outlook*, Paris, .
- Paci R, and Pigliaru F., (1999), *European regional growth: do sectors matter?* In: Adams J, Pigliaru F. (eds), *Economic growth and change, national and regional patterns of convergence and divergence*, Edward Elgar, Celthenam.
- Paci R, Pigliaru F, Pugno M., (2002), *Le disparità nella crescita economica e nella disoccupazione tra le regioni europee: una prospettiva settoriale*. In: Farina F, Tamborini R (eds), *Da nazioni a regioni: mutamenti istituzionali e strutturali dopo l'Unione Monetaria Europea*, Il Mulino, Bologna.
- Pench LR, Sestito P, Frontini E., (1999), "Some unpleasant arithmetics of regional unemployment in the EU, are there any lessons for EMU?". European Union DG XII, Brussel.
- Perugini C., Signorelli M. (2004), "Employment Performance and Convergence in the European Countries and Regions", *The European Journal of Comparative Economics*, vol. 1, n. 2, 2004, pp. 243-278) .
- Rouwthorne, R. (1992), "Centralization employment and wage dispersion", *The Economic Journal* 102, 506-523
- Soltwedel R., Dohse D., Krieger-Boden C. (1999), "EMU Challenges European Labor Markets", IMF Working Paper n. 99/131, Washington D.C., 1999.
- Taylor J, Bradley S., (1997), "Unemployment in Europe: a comparative analysis of regional disparities in Germany, Italy and the UK". *Kyklos*, 50(2):221–245.

Discussion Papers

- 2005, 97 Carlo ALTAVILLA, Antonio GAROFALO, Concetto Paolo VINCI
Is the Discouraged Worker Effect Time-Varying?
- 2005, 96 Francesco Busato, Bruno CHIARINI, Pasquale DE ANGELIS, Elisabetta MARZANO
Capital Subsidies and Underground Production
- 2005, 95 Lucio Valerio SPAGNOLO, Mario CERRATO
No euro please, We're British!
- 2005, 94 Roberto BASILE, Mauro COSTANTINI, Sergio DESTEFANIS
Unit root and cointegration tests for cross-sectionally correlated panels. Estimating regional production functions
- 2005, 93 Sergio DESTEFANIS, Raquel FONSECA
Matching Efficiency and Labour Market Reform in Italy. A Macroeconometric Assessment
- 2005, 92 Cesare IMBRIANI, Antonio LOPES
Banking System Efficiency and the Dualistic Development of the Italian Economy in the Nineties
- 2005, 91 Carlo ALTAVILLA, Antonio GAROFALO, Concett Paolo VINCI
Designing the Optimal Length of Working Time
- 2005, 90 Marco MANACORDA, Barbara PETRONGOLO
Regional Mismatch and Unemployment: Theory and Evidence from Italy, 1977-1998
- 2004, 89 Roberta TROISI
Teoria dell'impresa e responsabilità parapenale: le implicazioni organizzativo-gestionali
- 2004, 88 Roberta TROISI
Enti non profit: tipologie ed opzioni organizzative
- 2004, 87 Lavinia PARISI
La povertà: una rassegna sul confronto tra due approcci. Capability vs. Unidimensionalità
- 2004, 86 Giuseppe CELI
Quality Differentiation, Vertical Disintegration and The Labour Market Effects of Intra-Industry Trade
- 2004, 85 Niall O'HIGGINS
Recent Trends in Youth Labour Markets and Youth Employment Policy in Europe and Central Asia
- 2004, 84 Carlo ALTAVILLA, Floro Ernesto CAROLEO
Evaluating Asymmetries in Active Labour Policies: The Case of Italy
- 2004, 83 Floro Ernesto CAROLEO, Francesco PASTORE
La disoccupazione giovanile in Italia. La riforma dei sistemi d'istruzione e di formazione professionale come alternativa alla flessibilità numerica per accrescere l'occupabilità
- 2004, 82 Francesco PASTORE, Izabela MARCINKOWSKA
The Gender Wage Gap among Young People in Italy
- 2004, 81 Elisabetta MARZANO
Dual Labour Market Theories And Irregular Jobs: Is There a Dualism Even in The Irregular Sector?
- 2004, 80 Corrado ANDINI
Unemployment and Welfare Partecipation in a Structural VAR: Rethinking the 1990s in the United States
- 2004, 79 Floro Ernesto CAROLEO
Fondamenti teorici della rigidità salariale nell'ambito dei "Non Market clearing Models"
- 2004, 78 Adalgiso AMENDOLA, Floro Ernesto CAROLEO, Gianluigi COPPOLA
Regional Disparities in Europe

- 2003, 77 Fernanda MAZZOTTA
Flessibilità, povertà e istruzione: un approccio Sen – istituzionale
- 2003, 76 Adalgiso AMENDOLA., Annamaria NESE
Mobilità intergenerale nel livello d'istruzione nella società femminile italiana ed endogenità de titolo di studio in un modello di partecipazione alla Forza Lavoro.
- 2003, 74 Antonio LOPES
Innovazione nel Sistema Creditizio del Mezzogiorno negli Anni Novanta
- 2003, 73 Sergio DESTEFANIS - Vania SENA
Public Capital and Total Factor Productivity New Evidence from the Italian Regions
- 2003, 72 Giuseppina AUTIERO - Bruna BRUNO
Social Preferences in Wage Bargaining: a Neocorporatist Approach
- 2003, 71 Gianluigi COPPOLA - Maria Rosaria GAROFALO - Fernanda MAZZOTTA
Industrial Localisation and Economic Development. A Case Study
- 2002, 70 Francesco Giordano - Fernanda Mazzotta
Salario di Riserva, Probabilità di Occupazione ed Efficacia dell'Istruzione Universitaria: un'Analisi sugli Studenti dell'Università di Salerno
- 2002, 69 Giuseppe Russo
Istituzioni del Mercato del Lavoro e Occupazione: dai Costi di Aggiustamento all'Appropriabilità
- 2002, 68 Floro Ernesto Caroleo - Francesco Pastore
Training Policy for Youth Unemployed in a Sample of European Countries
- 2002, 67 Maria Rosaria GAROFALO - Maria Rosaria SUPINO
Il Disegno Normativo del Welfare Municipale in Italia come Strumento per lo Sviluppo Economico e l'Allargamento delle Opportunità Occupazionali. Una Lettura Neoistituzionale della L. 328/00
- 2002, 65 Pietro SENESI
Cyclical dynamics under continuous time equilibrium
- 2001, 64 Marcello D'AMATO - Vincenzo GALASSO
E' la Riforma Dini Politicamente Sostenibile?
- 2001, 63 Sergio DESTEFANIS - Ornella Wanda MAIETTA
"Assessing the Productive Efficiency of Non-Profit Organisations: a Comparative Analysis"
- 2001, 62 Floro Ernesto CAROLEO - Francesco PASTORE
How fine targeted is ALMP to the youth long term unemployed in Italy?
- 2001, 61 Paolo COCCORESE
Strategic Advertising for Entry Deterrence Purposes
- 2001, 60 Alessandra AMENDOLA
Modelling Asymmetries in Unemployment Rate
- 2001, 59 Sergio DESTEFANIS
Differenziali Territoriali di Produttività ed Efficienza negli Anni '90: i Livelli e l'Andamento
- 2001, 58 Giuseppina AUTIERO - Fernanda MAZZOTTA
Job Search Methods: the Choice between the Public and the Private Sector
- 2001, 57 Giuseppina AUTIERO - Bruna BRUNO - Fernanda MAZZOTTA
A Correspondence Analysis of Labour Market Institutions
- 2000, 56 Giuseppina AUTIERO
Governmental Organized Learning and Coordination Problems: The case of Japan in 1950s

- 2000, 55 Giuseppina AUTIERO - Fernanda MAZZOTTA
The Choice of Search Methods: Some Empirical Evidence from Italy
- 2000, 54 Giuseppe CELI
The Impact of International Trade on Labour Markets. The Case of Outward Processing Traffic between the European Union and Central Eastern European Countries.
- 2000, 53 Giuseppe RUSSO - David VEREDAS
Institutional Rigidities and Employment on the Italian Labour Market: the Dynamic of the Employment in the Large Industrial Firms.
- 2000, 52 Floro Ernesto CAROLEO
Le Politiche per l'Occupazione in Europa: una Tassonomia Istituzionale
- 2000, 51 Andrew NEWELL - Francesco PASTORE
Regional Unemployment and Industrial Restructuring in Poland
- 1999, 50 Giuseppe CELI - Alasdair SMITH
Quality Differentiation and the Labour Market Effects of International Trade.
- 1999, 49 Giuseppe CELI
Vertical and Horizontal Intra-Industry Trade: What is the Empirical Evidence for the UK?
- 1999, 48 Cesare IMBRIANI - Filippo REGANATI
Productivity spillovers and regional differences: some evidence on the italian manufacturing sector.
- 1999, 47 Adalgiso AMENDOLA, Annamaria NESE
L'impatto del background familiare sul livello d'istruzione dei figli.
- 1998, 46 Adalgiso AMENDOLA, Annamaria NESE
Mobilità intergenerazionale nella società femminile italiana.
- 1998, 45 Floro Ernesto CAROLEO, Fernanda MAZZOTTA
Youth Unemployment and youth employment policies in Italy.
- 1997, 44 Annamaria NESE
Mobilità intergenerazionale in Italia
- 1997, 43 Adriana BARONE, Concetto Paolo VINCI
Fairness: un concetto relativo nell'analisi del mercato del lavoro
- 1997, 42 Adriana BARONE, Concetto Paolo VINCI
Wage differentials and factor intensity reversals
- 1997, 41 Rosa CAPOLUPO
L'ipotesi di convergenza nel recente dibattito sulle teorie della crescita
- 1997, 40 Rosa CAPOLUPO
Endogenous Vs exogenous models of growth: the convergenze debate
- 1997, 39 Fernanda MAZZOTTA, Annamaria NESE
Transizioni "In and Out" il mercato del lavoro in Italia: un'analisi microeconomica
- 1997, 38 Fernanda MAZZOTTA
Disoccupazione e probabilità di occupazione in Italia: un'analisi su microdati
- 1997, 37 Maria Rosaria GAROFALO, Bruna BRUNO
Equivalenza istituzionale" dei modelli di contrattazione sul salario: oltre il dibattito tra centralizzazione e decentramento

- 1997, 36 Adalgiso AMENDOLA, Floro Ernesto CAROLEO, Gianluigi COPPOLA
Differenziali territoriali nel mercato del lavoro e sviluppo in Italia
- 1996, 35 Adalgiso AMENDOLA
Istituzioni e mercato del lavoro. Deregolazione, occupazione e paradigma istituzionale
- 1996, 33 Annamaria NESE
Modelli microeconomici per l'analisi della domanda abitativa
- 1996, 32 Annamaria NESE
Test semiparametrici per modelli parametrici
- 1996, 31 Giuseppe CELI
Vertical intra-industry trade and skill intensity in Europe: a cross sector analysis
- 1996, 30 Sergio DESTEFANIS
Nominal rigidities and real activity. A cross-industry analysis for Italy, 1951-93
- 1996, 29 Cesare IMBRIANI, Filippo REGANATI
International technology transfer into the Italian manufacturing sector
- 1996, 28 Stefania di SERAFINO, Alberto GANDOLFI
The choice of the Government optimal procurement mechanism: the first-price sealed bid auction with one and/or two winners.
- 1996, 27 Raul de LUZENBERGER
Redistribution, and public debt with liquidity constraints
- 1996, 26 Bruno CHIARINI
Un modello VAR per la domanda di lavoro
- 1995, 25 Maria Rosaria CARILLO, Alberto ZAZZARO
Innovazione tecnologica e distruzione di capitale umano in un modello neo-shumpeteriano di crescita.
- 1995, 24 Raul de LUZENBERGER
Macroeconomia e politiche redistributive: il caso di vincoli di liquidità
- 1995, 23 Annamaria NESE
Tenure choice and demand for housing in Italy
- 1995, 22 Filippo REGANATI
La struttura delle preferenze per prodotti orizzontalmente differenziati.
- 1995, 21 Sergio DESTEFANIS, Michele LA ROCCA, Cosimo VITALE
Forecasting train ticket sales with linear model-based approaches and with edats
- 1995, 20 Stefania di SERAFINO
Bounded rationality and incomplete contracts
- 1995, 19 Adalgiso AMENDOLA, Floro Ernesto CAROLEO, Maria Rosaria GAROFALO
Istituzioni, mercato del lavoro e decentramento delle decisioni.
- 1995, 18 Niall O'HIGGINS
Why did the youth training scheme reduce reduce the wages of young people? A story of human capital formation, reservation wages and job offers.
- 1994, 17 Antonio CARDONE
Misure di efficienza: alcuni aspetti teorici
- 1994, 16 Maria Rosaria GAROFALO, Luisa ZANCHI

Neo-corporativismo, centralizzazione e dispersione inter-settoriale dei salari.

- 1994, 15 Sergio DESTEFANIS
Allowing for frequency of negotiation in the aggregate wage equation. A study for Italian manufacturing, 1973/92.
- 1994, 14 Marcello D'AMATO
Tariffs for a foreign industry with market power under incomplete information on demand
- 1994, 13 Raul DE LUZENBERGER, Cesare IMBRIANI, Giancarlo MARINI
Sustainability Issues in the process of European Integration
- 1994, 12 Riccardo MARSELLI, Antonio CARDONE
Interdipendenza tra regioni: un'analisi su dati di Panel
- 1993, 11 Adriana BARONE, Concetto Paolo VINCI
Dilemma del prigioniero e persistenza della disoccupazione involontaria
- 1993, 10 Maria Rosaria CARILLO
Mutamenti strutturali ed offerta di lavoro.
- 1993, 9 Niall O'HIGGINS
The effectiveness of YTS in Britain: an analysis of sample selection in the determination of employment and earnings
- 1993, 8 Giuseppe CELI
Politiche valutarie ed integrazione commerciale: l'esperienza dello SME negli anni '80
- 1992, 7 Paolo COCCORESE
Attività innovativa e configurazione industriale
- 1992, 6 Maria Rosaria GAROFALO, Gian Luigi CORINTO
La Razionalità dell'Allocazione del Tempo di Lavoro in Agricoltura. Con un'Applicazione Empirica ad un Sistema Locale attraverso la PL..
- 1992, 5 Adalgiso AMENDOLA, Maria SCATTAGLIA
Disoccupazione e Tassi di Attività nel Mezzogiorno
- 1992, 4 Floro Ernesto CAROLEO
La Disoccupazione Strutturale
- 1991, 3 Giovanni URGA
Dynamic Models of Labour Demand in the Italian Industrial Sector: Theories and Evidence from Panel Data
- 1991, 2 Adalgiso AMENDOLA
Teoria dei Contratti Impliciti. Rigidità del Salario e Disoccupazione
- 1991, 1 Guido CELLA
Sulla Integrazione Produttiva Interregionale: il Caso del Mezzogiorno

CELPE- Centro di Economia del Lavoro e di Politica Economica
Università degli Studi di Salerno

Depositato ai sensi di Legge.