

Employment Differences, Convergences and Similarities in Italian Provinces

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Abstract

The objective of the paper is to provide some empirical evidence on the differences in the employment performance and dynamics of the Italian provinces. In the first part of the paper, after having recalled the most recent empirical literature about regional labour market performance, we carry out a convergence (of σ - and β -type) analysis of the provincial employment rates (total and female) over the period 1995-2002. In the second part of the paper, using a wide set of employment indicators, a cluster analysis is implemented in order to draw some provincial labour market profiles. Our outcomes confirm a deep diversification of labour market performance across the country but also some signs of a weaker persistence of it: the generalised improvement of labour market performances is indeed accompanied by a clear (even though weak) convergence dynamic of the employment rates.

J.E.L. Classification: R.23, J.21, E.24

Key words: provincial labour markets, employment performance and convergence

1. Introduction

The extent of “regional” differences in terms of labour market performance and economic development of the Italian economy is widely known. This evidence corresponds to a multiplicity of local development pathways that are also decisively characterised by extra-economic (social, cultural and institutional) factors that can, under certain conditions, assure economic potential that may translate into localised competitive advantages.

In this sense, the labour market provides a privileged field for observing and showing patterns of territorial diversification. It is indeed the principal link between the productive system and the local society, and is therefore influenced by the interaction of their organisational options. Consequently, the expectation of “regional” institutional and performance diversities among labour markets is consistent with the observation of real economic facts: labour demand/supply matching mechanisms, relational structures for job accession, efficiency of information circulation, quantitative and qualitative aspects of mobility, contractual and bargaining varieties, role of public and private subjects, etc.

In this paper we focus on the (static and dynamic) differences of labour market performances of the 103 Italian Provinces. In the next paragraph we recall some empirical literature about regional labour market diversification in Italy and on the studies that focused on the convergence/divergence patterns of the labour market indicators at regional level. A discussion of the opportunity to use employment indicators along with the traditional unemployment ones is also provided. In section 3 we supply some empirical evidences about the dynamics (from 1995 to 2002) of the main provincial employment indicators, using σ and β type convergence analysis. Section 4 provides a deeper insight of the provincial labour market structure and performance using a rich set of indicators in a cluster analysis.

2. Recent Literature and Methodology

An important preliminary methodological choice in the study of sub-national labour markets concerns the proper identification of the analytical reference unity. Although the functional repartitions (i.e. the Travel To Work Areas, TTWA) can be considered the most suitable level of aggregation in order to allow for the existence of the above mentioned economic and extra-economic factors, the administrative repartitioning are often a compromise between availability of statistical data and territorial detail. With reference to Italy, the provincial level (corresponding to the NUTS III of the European classification) seems to provide an acceptable proxy of the complex territorial articulation of economic phenomena. Moreover, it should be reminded that the intense process of labour market policies decentralisation demands a necessary effort for research at this administrative spatial unit level.

In recent years the well-known debate on “dualism” of Italian development dedicated a growing attention to the labour market performance differences (e.g. De Nardis – Galli, 1997; Biagioli – Caroleo – Destefanis, 1999; Lucifora, 2003; Favaro, 2003) by distinguishing the country in the two parts North-South (e.g. Bodo – Sestito, 1991; Borzaga – Bonatti, 1998), or in the four/five/six macro-regions (e.g. Attanasio – Padoa Schioppa, 1991; Signorelli – Vercelli, 1994; Genda – Pazienza – Signorelli, 2001; Bollino – Signorelli, 2003), or the 20 Regions (e.g. Borzaga, 1989; Cristini, 1999, Kostoris Padoa Schioppa, 1999) or a subset of the 784 “Local Labour Systems” (e.g. Frey – Croce – Tagliaferri, 1998; Gambarotto – Maggioni, 2003; Perugini – Pieroni – Signorelli, 2005). However the 103 Provinces have not been largely investigate (e.g. Baffigi, 1999; Amendola – Caroleo – Coppola, 1999), especially with regard to the convergence dynamics and the cluster polarisation. In this paper, following the example of some recent contributions (e.g., Marelli 2000; Perugini – Signorelli, 2004), the convergence analysis of provincial employment performances are based on the traditional instruments of the empirical growth literature (e.g. Barro - Sala-I-Martin, 1995). In particular, the σ and β convergence are analysed with respect to two “new” labour market indicators: total employment rate and female employment rate. In fact, it should be noted that traditional economic literature considers unemployment indicators to be the main proxies of labour market performance. Although already in the late 1960s the usefulness of considering also employment dynamics

was emphasized (Valli, 1970), only recently have many authors started to prefer the use of employment indicators (e.g. Frey, 1994; Signorelli, 1997; Moro, 1998; Tronti, 2002; Marelli, 2004). It is argued here that, for various reasons, employment indicators are preferable to unemployment indicators. This is because, first of all, there are well-known difficulties in defining the unemployed condition, especially “active search for a job”. Second, unemployment rate depends on participation rate (labour supply), which in turn depends on employment rate (job opportunities). In particular, compared evidence shows that similar unemployment rates are compatible with significant differences in employment rates. In addition, considering the importance of the fiscal wedge on labour (social contributions and labour income tax), total employment rates are also important indicators of the sustainability of welfare systems. Finally, the European Employment Strategy, launched during the 1997 Luxembourg Job Summit, also defined two quantitative objectives¹ at the Councils of Lisbon (2000) based on the following indicators: (1) total employment rate (= total employment x 100 / working age population²) of 70% by 2010; (2) female employment rate (= female employment x 100 / female working age population) higher than 60% by 2010. In this paper, we mainly use these two indicators to analyse provincial employment performance and convergence. However, in the cluster analysis we use a wider set of indicators, derived from the INPS (National Social Security Institute) databases, in order to identify some provincial labour market profiles.

3. Employment Performance and Convergence Dynamics: Empirical Evidences

In order to compare the employment performances dynamics we used the well-known ISTAT labour force surveys data (time period 1995-2002, available on-line at www.istat.it)³. In particular, the distance from the European objectives of the main geographical repartitions are considered together with an analysis of the σ - and β -type convergence dynamics.

With respect to the first “Lisbon objective”, the gaps in total employment rates are huge in South and Islands (-25 and -26 respectively). Notwithstanding the general progress of the period 1995-2002 (more than +4 points), the distance of Italian economy is still considerable (-14 points in 2002). The distinction of the 103 Provinces in eight groups (Figure A1 in Appendix) highlighted a complex characterisation of significant differences in total employment rates together with an evident geographical “dualism”.

As for the female employment rates, the distance from the Lisbon objective is remarkable (-18 points), with levels extremely low in the South and Islands (27 and 26), notwithstanding the significant net job creation in the considered period.

Table 1 – Employment rates (mean) and European Objectives

	ER 2002	Δ ER 1995-2002	Lisbon gap (goal =70%)	FER 2002	Δ FER 1995-2002	Lisbon gap (goal >60%)
Italy	55.40	+4.48	-14.60	42.03	+6.61	-17.97
Northeast	64.78	+4.95	-5.22	54.19	+8.58	-5.81
Northwest	62.27	+5.07	-7.73	51.25	+8.25	-8.75
Center	58.17	+4.93	-11.83	46.02	+7.83	-13.98
South	44.43	+3.33	-25.57	27.43	+2.91	-32.57
Islands	43.01	+4.17	-26.99	26.00	+5.93	-34.00

Source: Istat - LFS

¹ A third objective has been defined in the Stockholm Council (2001): older worker employment rate (= employed persons from 55 to 64 years old x 100 / population between 55 and 64 years old) exceeding 50% by 2010.

² The working-age population is considered as the population between the ages of 15 and 64.

³ Details about the characteristics of the information contained in these data sets and of their evolution over last years are available in Istat (1999) and (2003).

In the case of Italy, the existence of “irregular employment” cannot be ignored, especially in the Southern part of Italy. This hidden economy constitutes an important phenomenon that is difficult to estimate (e.g. Dallago, 1990). Some estimates attribute an additional 30% to “irregular employment” in the South. So, a significant negative correlation exists between total (regular) employment rate and size of shadow economy. Without going into detail about this complex and elusive phenomenon, it is obvious that the (regular) employment rates underestimate the effective “labour volume”, especially in the Southern Provinces.

Table 2 - Irregular Employment

	Irregular ER		Share on total employment	
	2002	Δ 1995-2002	2002	Δ 1995-2002
Italy	8.87	0.48	14.20	-0.30
Northeast	7.63	-0.07	10.30	-0.90
Northwest	6.55	-0.66	9.50	-1.80
Center	8.85	0.12	13.30	-0.90
South	11.22	1.78	23.10	2.40

Source: Istat – National Accounts

Table 3 – Main Statistics for the employment rates in the 103 provinces (2002)

	Mean	Min.	Max	1 st Quartile	Median	3 rd Quartile	Standard Deviation	Coefficient of variation
ER	56.38	37.21	70.38	47.63	60.27	63.68	9.30	16.50
FER	43.34	16.48	62.34	32.20	47.92	52.88	12.37	28.56

Source: elaboration on Istat - LFS

The dynamics of the two main employment indicators in the (103) Italian Provinces, distinguished in the four main geographical repartitions (North-west, North-east, Centre and South and Islands), are analysed with regards to sigma, Lowess beta (non parametric) and parametric beta convergences. The Kernel density estimations permitted a brief investigation of the shape and changes in the distributions of total and female employment rates (1995-2002).

Sigma convergence consists of analysing the evolution of the dispersion of the two national basic employment performance indicators over time. This type of convergence is measured by the standard deviation of the variable transformed into natural logarithms. Lowess (locally weighted scatterplot smoothing) is a non-parametric technique for estimating the relationship between employment growth and initial employment level, and can (graphically) reveal the existence of beta convergences/divergences or more complex relationships. The suitability and usefulness of extending these analytical instruments to employment variables were already stressed (e.g. Marelli, 2000; Perugini – Signorelli, 2004).

Regarding total employment rate (Figure 1 and Table 4), the data show a lower level of dispersion in the Northern repartitions with respect to Centre and, especially, Southern Provinces. In the period 1995-2002 the Italian Provinces showed extremely stable sigma values, while weak converging trends emerged for the four repartitions (club convergence). As for female employment rate the same ranking in the level of dispersion and similar weak sigma converging trends in the four group of Provinces are highlighted (Figure 2 and Table 5).

Table 4. Sigma convergence of provincial total employment rates

	1995	1996	1997	1998	1999	2000	2001	2002
Italy	0.178	0.182	0.182	0.179	0.183	0.184	0.178	0.176
North-west	0.065	0.061	0.061	0.057	0.051	0.044	0.047	0.047
North-east	0.072	0.066	0.070	0.064	0.056	0.058	0.049	0.056
Centre	0.087	0.091	0.090	0.095	0.094	0.093	0.094	0.094
South and Islands	0.143	0.142	0.141	0.135	0.132	0.131	0.132	0.130

Figure 1. Trends of Sigma convergence index of provincial total employment rates

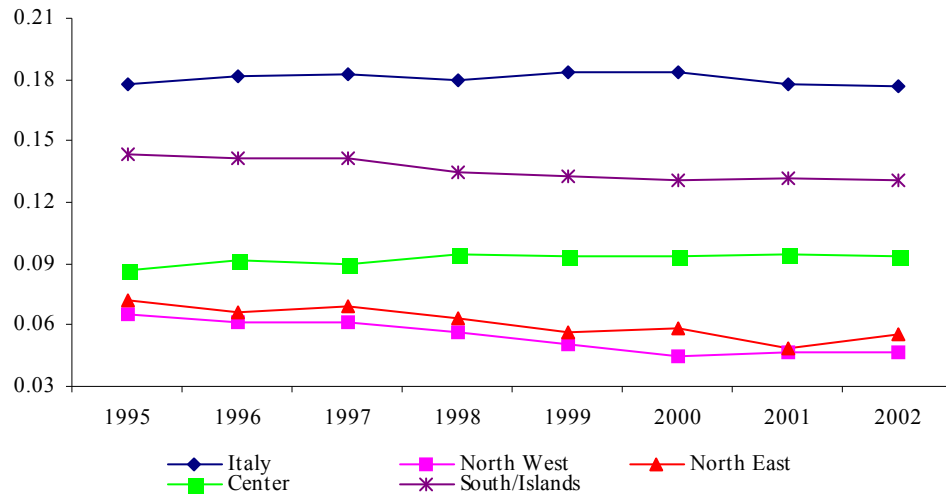
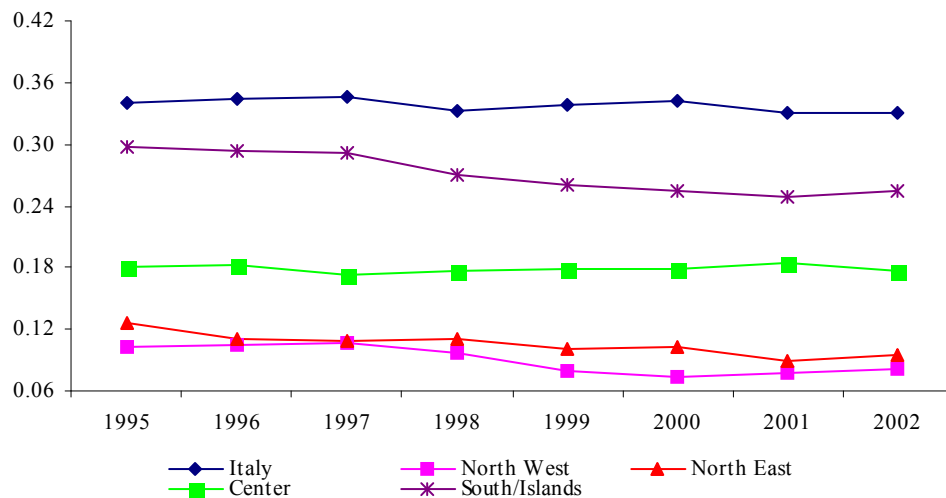


Table 5. Sigma convergence of provincial female employment rates

	1995	1996	1997	1998	1999	2000	2001	2002
Italy	0.340	0.344	0.346	0.333	0.338	0.342	0.331	0.330
North-west	0.103	0.104	0.108	0.097	0.079	0.073	0.078	0.081
North-east	0.126	0.111	0.109	0.110	0.100	0.104	0.088	0.095
Centre	0.180	0.183	0.172	0.178	0.178	0.179	0.184	0.176
South and Islands	0.298	0.294	0.292	0.271	0.261	0.255	0.248	0.255

Figure 2. Trends of Sigma convergence index of provincial female employment rates



Considering the total employment rate, the Lowess technique, with a 0.8 span, shows a weak general beta convergence and a clear beta-convergence in North-west and North-east: in this two repartitions the Provinces with the worst initial performances (1995) showed the highest employment growth (in 1995-2002). In the two remaining group of Provinces (Centre and South) a Lowess beta converging trend does not exist (Figure 3), but some of the worst performing Southern Provinces in 1995 tend to converge.

Considering female ER (Figure 4), a diverging path emerges at national level, while a weak convergence is recorded for North-east and the best performer Provinces in North-west. Instead, the absence of any clear relationship emerged in the Centre and Southern groups.

Figure 3. Lowess beta convergence estimates of total employment rate

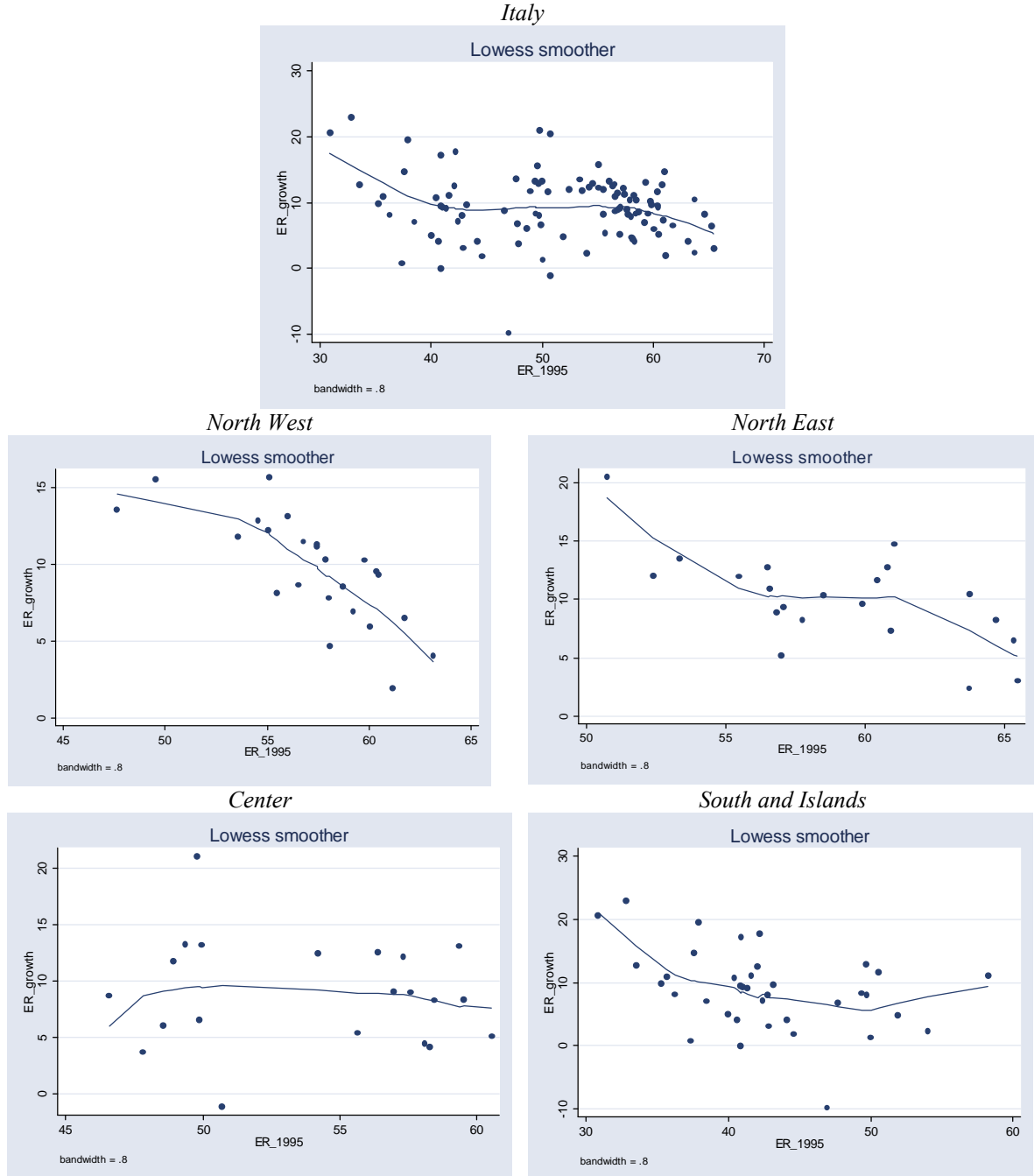
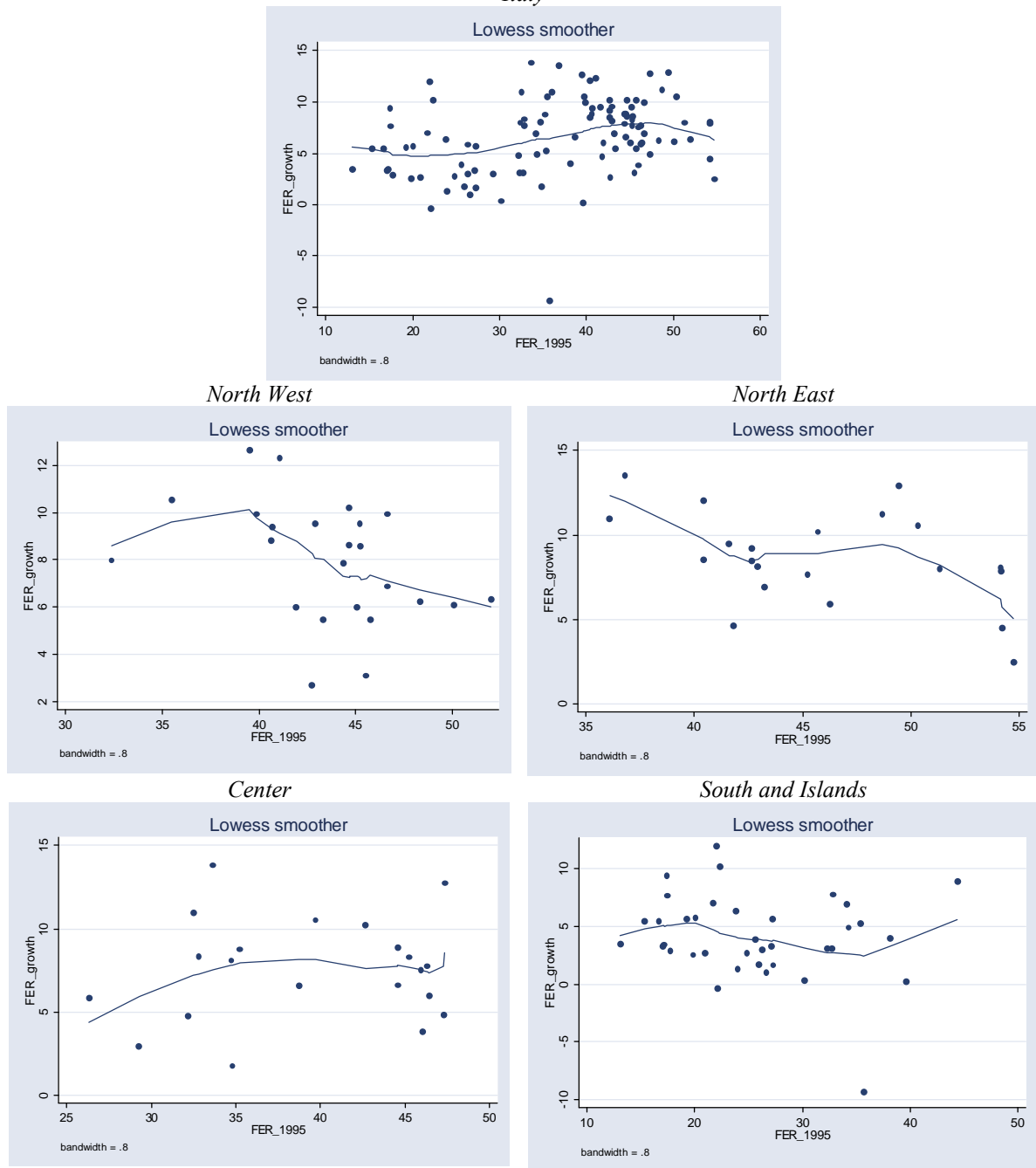


Figure 4. Lowess beta convergence estimates of female employment rate
Italy



To help identify major changes, kernel density estimations (Silverman, 1986) are used in Figure 5 and 6 to represent and compare the shapes of total and female employment rate distributions in 1995 and 2002. The plots are densities that can be considered as the continuous equivalents of histograms, in which the number of intervals tends towards infinity⁴. The first feature that emerges from the figures is the forward shift of both total and female employment rates distributions in all the four repartitions, which is driven by the general net job creation of the period 1995-2002. Considering the total employment rate, the well-known bimodal

⁴ So, the point on the curve associated with any employment rate level can be interpreted as the likelihood that a given Province will have that employment rate.

distribution existing for the entire aggregation of Italian Provinces (103), also emerged in the repartitions of Centre and, partly, of North-east. As for the female employment rate, the bimodal distribution of Centre Provinces existing in 1995 disappeared in 2002; while a more evident bimodal distribution emerged in North-east Provinces.

Figure 5. Kernel Density estimations for the total employment rate (1995 and 2002)

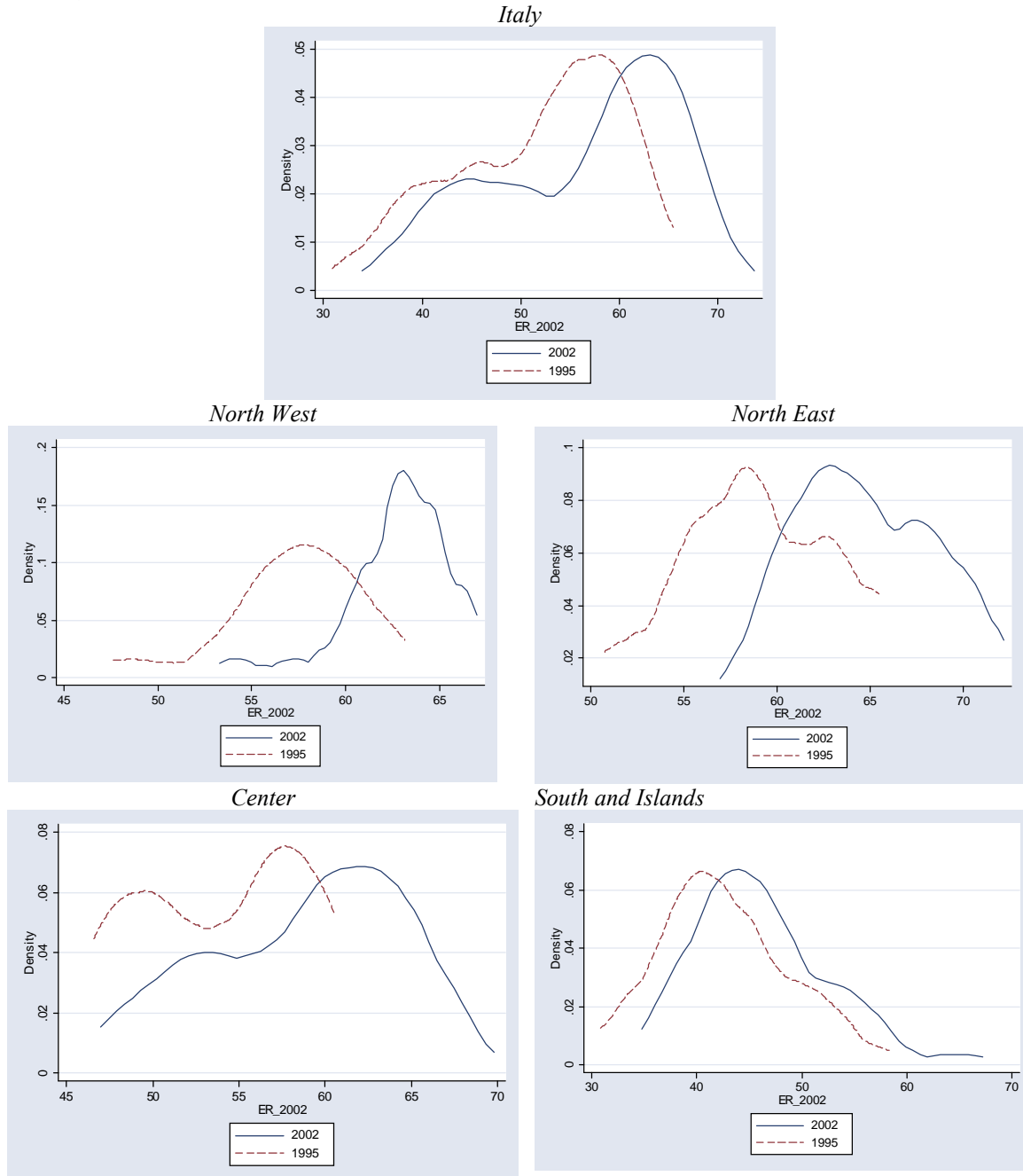
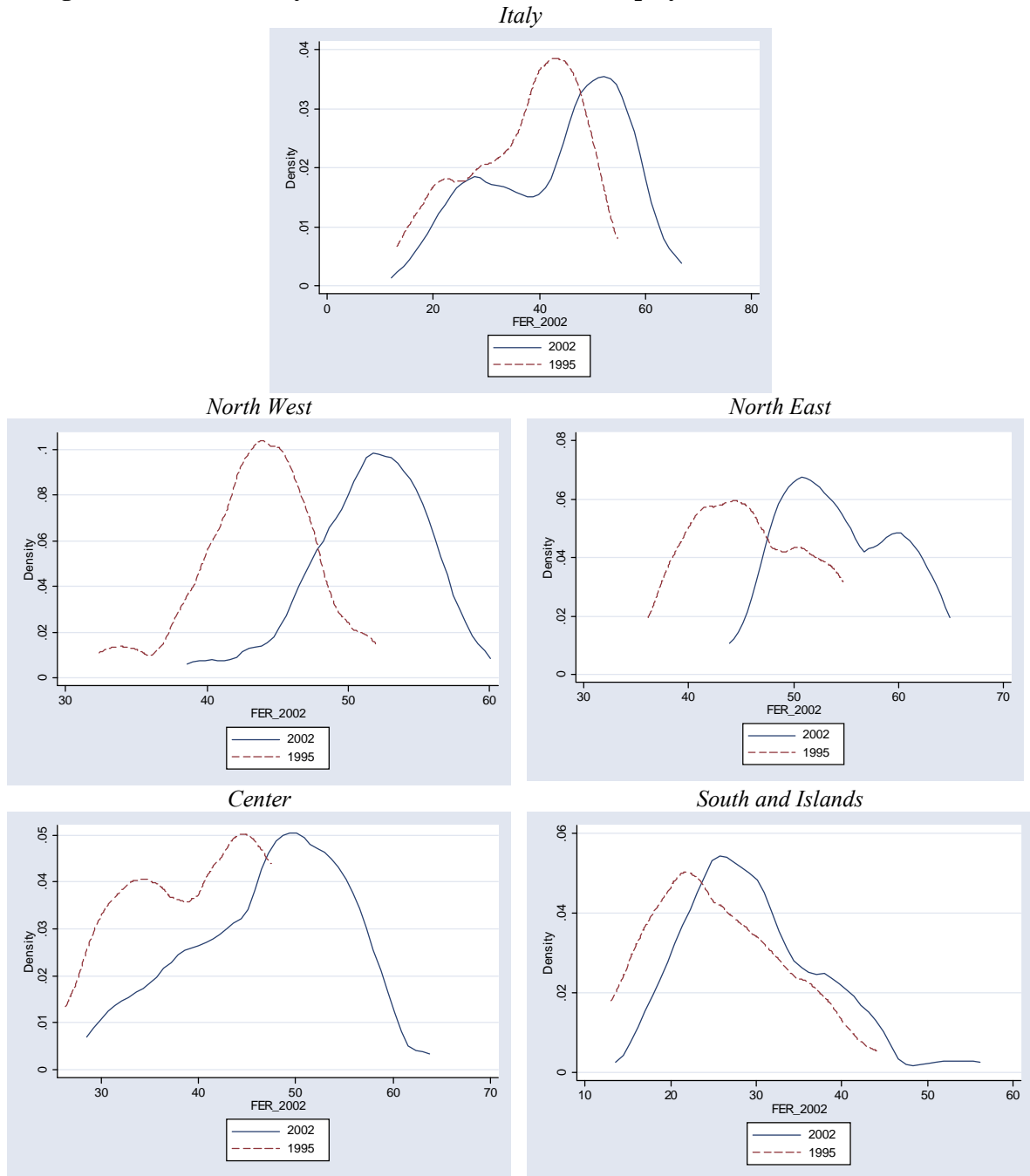


Figure 6. Kernel Density estimations for the female employment rate (1995 and 2002)



The beta (parametric) convergence estimates supply further information for the definition of the characteristics of the complex dynamic trends. In particular, the regression model shows the link between growth rate and initial level of the variable (total or female employment rate, in our case):

$$\Delta E_{1995-2002} = \alpha + \beta E_{1995} + \varepsilon \quad [1]$$

where E_{1995} is the (total or female) employment rate in 1995 and $\Delta E_{1995-2002}$ is its change over the interval 1995-2002. Parameter β describes the converging (if negative) or diverging (if positive) trend of provincial employment rates toward the mean.

A converging trend emerged for the total employment rate (with statistical significance at 10%), while the female employment rates are characterised for a significant beta diverging dynamic (Table 6). The conditional beta convergence analysis (Table 7) highlighted, for both total and female employment rates, that the Provinces where agricultural sector played a relatively more important role in 1995 performed worse in terms of employment rates improvements over the subsequent seven years. In other words, the net job destruction of the oversized primary sector still negatively affects the whole employment performance. On the contrary, the Provinces where service sector played a relatively more important role in 1995 performed better in terms of employment rates improvements in the period 1995-2002.

Table 6. Beta Convergence of provincial (total and female) employment rates

Dependent	Total employment rate	Female employment rate
<i>Variable growth 1995-2002</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>
Dep. 1995	-0.097 (0.095)	0.112 (0.001)
Constant	14.279 (0.000)	2.497 (0.045)
	<i>Observations: 103</i>	<i>Observations: 103</i>
	<i>Adjusted R²: 0.018</i>	<i>Adjusted R²: 0.098</i>
	<i>Prob F: 0.0953</i>	<i>Prob F: 0.0007</i>

Source: elaboration on Eurostat Regio data

Table 7. Conditional convergence of provincial (total and female) employment rate (employment share of the three macro-sectors)

Dependent	Total employment rate			Female employment rate		
<i>Variable growth 1995-2002</i>	<i>Coefficients and P-values</i>			<i>Coefficients and P-values</i>		
Dep. 1995	-0.181 (0.006)	-0.079 (0.317)	-0.031 (0.632)	0.047 (0.166)	0.102 (0.016)	0.144 (0.000)
Agri 1995	-0.246 (0.011)	-	-	-0.245 (0.000)	-	-
Ind 1995	-	-0.023 (0.739)	-	-	0.017 (0.695)	-
Serv 1995	-	-	0.148 (0.032)	-	-	0.101 (0.032)
Constant	20.780 (0.000)	14.103 (0.000)	2.197 (0.728)	6.977 (0.000)	2.295 (0.089)	-4.565 (0.191)
	<i>Observations: 103</i>	<i>Observations: 103</i>	<i>Observations: 103</i>	<i>Observations: 103</i>	<i>Observations: 103</i>	<i>Observations: 103</i>
	<i>Adjusted R²: 0.070</i>	<i>Adjusted R²: 0.009</i>	<i>Adjusted R²: 0.052</i>	<i>Adjusted R²: 0.209</i>	<i>Adjusted R²: 0.091</i>	<i>Adjusted R²: 0.131</i>
	<i>Prob F: 0.0099</i>	<i>Prob F: 0.2370</i>	<i>Prob F: 0.0250</i>	<i>Prob F: 0.0000</i>	<i>Prob F: 0.0032</i>	<i>Prob F: 0.0003</i>

Source: elaboration on Eurostat Regio data

The regression with dummies for the repartitions (Table 8) allows showing how the information about the belonging to a geographical repartition helps to specify the relationship between the variable growth and its initial level; the size of the coefficients of the dummies informs about the relative strength of the relationship in the various contexts. The contribution of the dummy variables to the specification of the model is relevant (as witnessed by the improvement of the Adjusted R²) and the coefficients show how the convergence process is relatively stronger in the northern repartitions.

Table 8. Beta Convergence of provincial (total and female) employment rates with Dummies for repartitions

Dependent	Total employment rate	Female employment rate
<i>Variable growth 1995-2002</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>
Dep. 1995	-0.425 (0.000)	-0.093 (0.058)
North-west	7.120 (0.000)	5.500 (0.000)
North-east	8.204 (0.000)	6.413 (0.000)
Centre	4.996 (0.003)	4.749 (0.000)
Constant	26.897 (0.000)	6.471 (0.000)
	<i>Observations: 103</i> <i>Adjusted R²: 0.149</i> <i>Prob F: 0.0005</i>	<i>Observations: 103</i> <i>Adjusted R²: 0.2775</i> <i>Prob F: 0.0000</i>

Source: elaboration on Eurostat Regio data

As regards total employment rates, the separate regressions for the four repartitions highlighted a significant beta convergence in the North-west, North-east and South groups. As for female employment rates, a beta convergence is significant (at 10%) for North-east and North-west. So, a beta converging trend emerged within the two Northern groups for both employment rates.

Table 9. Beta Convergence of provincial total employment rates (ER) in the four repartitions

Dependent	Northwest	Northeast	Center	South
<i>ER growth 1995-2002</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>
ER 1995	-0.733 (0.000)	-0.620 (0.002)	-0.098 (0.681)	-0.410 (0.016)
Constant	51.595 (0.000)	46.561 (0.000)	14.224 (0.279)	26.260 (0.001)
	<i>Observations: 24</i> <i>Adjusted R²: 0.543</i> <i>Prob F: 0.0000</i>	<i>Observations: 21</i> <i>Adjusted R²: 0.383</i> <i>Prob F: 0.0016</i>	<i>Observations: 21</i> <i>Adjusted R²: -0.043</i> <i>Prob F: 0.6810</i>	<i>Observations: 37</i> <i>Adjusted R²: 0.131</i> <i>Prob F: 0.0158</i>

Source: elaboration on Eurostat Regio data

Table 10. Beta Convergence of provincial female employment rates (FER) in the four repartitions

Dependent	Northwest	Northeast	Center	South
<i>FER growth 1995-2002</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>	<i>Coefficient and P-values</i>
FER 1995	-0.238 (0.054)	-0.212 (0.047)	0.048 (0.642)	-0.088 (0.275)
Constant	18.260 (0.002)	18.360 (0.001)	5.628 (0.189)	6.348 (0.005)
	<i>Observations: 24</i> <i>Adjusted R²: 0.0119</i> <i>Prob F: 0.0543</i>	<i>Observations: 21</i> <i>Adjusted R²: 0.149</i> <i>Prob F: 0.0471</i>	<i>Observations: 21</i> <i>Adjusted R²: -0.040</i> <i>Prob F: 0.6418</i>	<i>Observations: 37</i> <i>Adjusted R²: 0.006</i> <i>Prob F: 0.2755</i>

Source: elaboration on Eurostat Regio data

4. Labour Market Profiles of the Italian Provinces

We now shift to a static empirical analysis targeted at identifying some possible profiles of the provincial labour markets and at studying how our 103 territorial units classify into the groups.

4.1 Data and Methodology of Analysis

The analysis has been implemented using the on-line INPS data, that provide a wide set of provincial labour market features (see Lucifora, 1995). The year 1998⁵ was selected in order to compromise between the demand to update and the availability of provincial data. The data used in this paper were drawn from the section “Observatory on firms” (regarding employees, wages for non-agriculture employees according to the size of the firm and its economic activity)⁶, the “Observatory on self employment” (regarding the trade business and artisan sector according to age class, gender and skills) and the “Observatory on ‘para-subordinate’ workers” (collaborators, professionals and professional collaborators). For a detailed description of the characteristics of the data, see the documents available on-line (www.inps.it). However one of them needs to be underlined for its relevant consequences on the outcomes of the empirical analysis: the INPS administrative mechanism (the companies with several local units pay the employee benefits in the Province in which they have their legal head offices) induced the institute to adopt the legal head offices for the identification of the location of the firm. This produces a distortion in the attribution of data to certain provinces. For example, the data for bigger cities (like Milan) are overestimated due to the presence of a great number of legal head offices of the enterprises, compared to the importance of the local units of production⁷.

Using the large amount of data collected along with the corresponding indicators [obtained by standardizing the amount of workers in the various categories on the working age population (15-64 years) of the corresponding province; as regards the wage levels, relating them to the corresponding average Italian levels], it is possible to draw profiles of the employment structure and performances at the provincial level. To do this, a *cluster analysis*, from the family of multivariate statistics, is used in an attempt to identify distinct clusters of observations, whose composition and features are not known *a-priori*, and which represent the possible articulation of the observed phenomenon (Fabbris 1997, p. 301).

In order to limit the number of variables included in the analysis and to simplify the interpretation of the outcomes, the indicators concerning the wage levels distinguished by sectors of activity and firm size classes were not included in the cluster analysis. The still relevant size of the starting data matrix [95 rows (provinces) and 33 indicators] and the high levels of correlation registered between couples of variables, suggested a preliminary correlation

⁵ The choice of 1998 involves a complication related to the more recently instituted Provinces (Biella, Verbania, Lecco, Lodi, Rimini, Prato, Crotone, Vibo Valentia). Due to the characteristics of the available data, we consider the national universe as aggregated into 95 Provinces, ignoring the more recent institutional changes which increased that number to 103.

⁶ We consider a total of 21 “employment variables” for the 95 provinces: one variable regarding the total number of employees; 10 variables concerning the distribution of the employees according to firms’ dimensional classes; 9 variables concerning the distribution of employees by sector of economic activity of the firm; one variable concerning the employees in artisan enterprises; and, finally, one variable concerning the percentage change of employees in the period 1994-1998. To these 21 variables we added the following “wage variables”: 20 variables concerning the wage levels according to firm size classes (10 classes for 2 categories of “blue collar” and “white collar” workers), 18 variables regarding the wage levels according to activity sector; and, finally, the four variables of the average wage levels for provinces.

⁷ It must be noted that this mechanism eliminates the problem of cleaning up the archives regarding those employment movements within the enterprises (transfers of employees among establishments, etc.) that would have been otherwise mistakenly counted as new creations and cessations of enterprises or as new hirings and firings.

analysis, aimed at identifying the most evident redundancies, that were associated with the correlation coefficients higher than 0.80.

The reduction of variables consequent to the correlation analysis led to a new matrix of 95 observations and 16 indicators⁸, which, with a minimum loss of information, was able to describe the quantitative and qualitative characteristics of the considered portion of employment (including the average wage levels for the macro qualifications of “blue collar workers” and “white collar workers”).

Working on the 16 x 95 matrix, and considering the attributes of the outcomes that can be obtained from the *cluster analysis* (Fabbris, pp. 301-302), the data elaboration was organized into two connected levels, taking into account the clustering options available in the SPSS package. Firstly, through the *hierarchic Ward method*, a satisfying classification of the units (in 13 groups) (dendrogram inspection and consistency with the available ex-ante information) was attained. In order to test the stability of the outcome, such clustering was subsequently optimised through a new cluster analysis, using the *non-hierarchic k-means method*, with the instruction to classify the observations into thirteen groups with the centres coinciding with those of the groups from the previous application (Ward). This procedure gave a classification that was substantially coincident with the previous one (only seven provinces out of 95 changed the group of classification, moving to the next most similar one), that for this reason was considered sufficiently reliable and finally adopted.

4.2. Outcomes

The cluster analysis described in the previous section led to the identification of the thirteen groups of Provinces (Figure A2 in Appendix). The first observation that can be drawn is the marked differences among the northern and central provinces (articulated into eleven groups), compared to the southern ones which, with the partial exception of the provinces in the region of Abruzzo, can be grouped into just two clusters.

In Table 11 the composition of the thirteen groups is described, while the groups are characterised in Table 12 with respect to the considered variables, identified as the difference between the group and the general mean of each indicator⁹.

⁸ The correlation analysis revealed some interesting outcomes. All the indicators relative to the “employee ER” for the different firm size classes show a positive correlation with the corresponding general indicator (employees / population 15-64) and among themselves (except for the size class of more than 500 employed). This suggests that where higher employment rates occur, they are equally distributed across all the dimensional classes of firms. The same could be said referring to employee ER in the artisan firms. The correlations between self-employment rate and its components (by sex, qualifications, category) and between ‘para-subordinate’ employment rate and its components (professionals, collaborators, professionals / collaborators) can be interpreted analogously.

⁹ In particular, 100 being the general average of the variable, no +/- sign shows a value of the group average between 90 and 110; one + sign, values between 110 and 140; two + signs, between 140 and 170; three + signs between 170 and 200; four + signs, beyond 200. On the other hand, a - sign shows average values of the group between 60 and 90; two - signs, between 30 and 60, and three, lower than 30. With reference to the employment rate change (1994 – 1998), the +/- signs simply correspond to a better / worse net job creation compared to the average value.

Table 11 - Composition of the Clusters

Cluster 1 Agrigento, Benevento, Brindisi, Caltanissetta, Caserta, Catania, Catanzaro, Enna, Lecce, Messina, Nuoro, Oristano, Ragusa, Reggio Calabria, Salerno, Taranto and Trapani
Cluster 2 Alessandria, Chieti, Cuneo, Ferrara, Forlì, Genoa, Gorizia, Livorno, Piacenza, Ravenna, Sondrio, Udine and Venice
Cluster 3 Ancona, Bergamo, Brescia, Florence, Padova, Pordenone, Treviso, Varese, Verona and Vicenza
Cluster 4 Aosta, Bolzano and Trento
Cluster 5 Arezzo, Ascoli Piceno, Lucca, Macerata, Mantova, Perugia, Pesaro e Urbino, Pisa, Pistoia, Rovigo and Teramo
Cluster 6 Avellino, Bari, Cagliari, Campobasso, Cosenza, Foggia, Frosinone, Isernia, L'Aquila, Latina, Matera, Naples, Palermo, Potenza, Rieti, Sassari and Siracusa
Cluster 7 Belluno, Bologna and Turin
Cluster 8 Como, Novara and Vercelli
Gruppo 9 Asti, Cremona, Grosseto, Imperia, La Spezia, Massa-Carrara, Pavia, Pescara, Savona, Terni and Viterbo
Cluster 10 Milan
Cluster 11 Modena, Parma and Reggio Emilia
Cluster 12 Rome
Cluster 13 Siena and Trieste

Source: our elaboration on INPS data

The first and sixth clusters contain, with the exception of three provinces in the region of Abruzzo, all of Southern Italy and the Islands. They show varying degrees of below average performances for all the variables considered (including the 1994-1998 EER change, with a decreasing trend). In cluster one, a relevant negative margin compared to the average level is recorded for all the employment rates of the labour categories considered (employees, self-employment and 'para-subordinate'); the same happens with regards to the sectors of activities of the firms, and with the wage levels. In particular the employees E.R. is 35% of the Italian average. The negative gap is less evident in some variables for group 6, where a more diversified picture emerges relative to the wage level convergence in some sectors (especially *construction and the metal manufacturing* industries and *public and private services*). In this case the EER is 51% of the Italian average. Although the outcome (with reference to regular employment registered by INPS) must be cautiously interpreted, it tends to show, also at the provincial observation level, a marked and persistent fracture in the overall picture of the employment features between the South and the rest of Italy. As already emphasized, these results probably stem from (i) the well-known characteristics of the structural economic situation of Southern Italy (higher unemployment and lower employment rates), which correspond to the effective diversity with respect to the rest of the country; and (ii) from the scarce informative capacity of the available data, which is unable (by definition) to represent a large share of the irregular labour. In addition, it should be noted (and this limitation applies to the whole analysis) that observation at the provincial level can, by itself, only partially explain the existing diversities in the functioning and efficiency of the local labour markets. Consequently, from this perspective, particular local contexts with characteristics distinct from

those envisaged and already noted, which are frequently proposed in the literature reporting in-depth studies of socio-economic phenomena at a more detailed territorial level, could be completely overlooked [see for instance, among the ample literature, Bàculo (1997 and 1998), Cersosimo (1999), Pizzi (1998), Gaudino (1996), Meldolesi-Molinari (1998), Viesti (1995)].

Table 12 – Characterization of the clusters

Variables	Clusters												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Employee empl. rate (EER)	--		+	+		--	++	+	-	+++	++	+	+
EER change 1994-1998	-	+	+	+	+	-	+	+	-	+	+	-	-
EER firms beyond 500 empl.	---	--	-	--	--	---	+++		---	++++	++	++++	++++
EER Energy, gas, water supply	---	--	--	--	---	---	--	---	--	+	--	++++	--
EER Mining and quarrying and chemical industries	--	-	+		-	--	-	+		++++	++++	-	+
EER Metal manufacturing industries	---		+++	-	-	--	++++	++	-	+++	+++	--	
EER Other manufacturing industries	--		+++	-	++++	--		++++	--	++	++	--	-
EER Construction	-	+		++++			+			+	+		
EER Wholesale and retail sale and hotels	--	+	+	+++		--	+	+	-	++++	+		+
EER Transport and communication	--	+	-	+	--	--		--	-	+	-	++++	+
EER Financial intermediation	--	-			-	--	+		--	++++	++	+++	++++
EER Public and private services	--			+		-	++		-	++	+	++++	
“Blue collars” wage level												+	
“White collars” wage level	-	-			-				-			+	+
Self employment rate	-	+	+	++	++	-	+	-	+		++	-	+
Para-subordinate employment rate	--		+	++	+	-	+	-		+++	++	+	++

Source: our elaboration on INPS data

A third group (9) is the cluster with the worst performance among the central and northern provinces with regards to EERs (in particular, the EER is 72% of the Italian level); it shows instead an above-average level of self-employment and an on-average ‘para-subordinate’ labour.

The two punctiform groups (10, Rome; and 12, Milan), and cluster 11 (Modena, Parma and Reggio Emilia), are found at the opposite extreme of the classification. In these three clusters, all or most of the variables show meaningful above-average performances. The positioning of the two most important metropolitan areas of the country into distinct groups is favoured by their own features, as well as by the nature of the database used in the analysis,

which tends to overestimate the number of employees in those contexts where the firms' legal head offices are concentrated. If the two provinces (Rome and Milan) emerge jointly with respect to the level of employment rate in large enterprises, the latter (Milan) diverges from the former in terms of total employee ER incidence (significantly higher) and EER change (1994-1998). This suggests that together with the more pervasive existence of other contractual categories (especially the 'para-subordinate' ones), there is a stronger dynamism compared to the province of Rome, that, in turn, shows higher employment rates in a set of service sectors and better wage levels for both "blue collar workers" and "white collar workers". The group made up of the three Emilian provinces (cluster 11) clearly shows a better employment performance of the productive systems; the employment rates are significantly higher for all the labour categories (in particular the EER is 58% above the Italian average); moreover well-established growth of employee ER and a strong specialization in the traditional industries are recorded. This outcome must also be assessed in relative terms, considering the minor distorting effect of the use of the legal head office rather than the location of the production plants. This specification exalts the performance of this cluster compared to the case of Rome and Milan.

Clusters 7 (Bologna, Belluno and Turin) and 13 (Siena and Trieste) are located not too far from the characteristics of cluster 11, but have distinctive features in terms of sector employment distribution. The two groups have respectively an EER 151% and 125% of the Italian average. Cluster 7 shows a strong incidence of employees in the enterprises of metal manufacturing (and of the manufacturing sector as a whole); cluster 13 shows a strong incidence in financial intermediation. Another distinctive feature is an opposite EER dynamics (positive for group 7 and negative in cluster 13), which corresponds, in the second case, to a higher permeability to 'para-subordinate' labour options.

Cluster 2 looks like the classic "grey" aggregate, and is the most dispersed at the spatial level (always in the north-central area), without huge differences compared to the average levels of the indicators.

Cluster 8, which is geographically compact (Como, Novara, Vercelli), emerges only with reference an above average EER (135% of the Italian level) and in particular for a strong incidence of employee ER in the manufacturing industry; it also has a relatively poor performance of self-employment and 'para-subordinate' labour.

The provinces of Aosta, Bolzano and Trento (cluster 4), with an average EER at 115% of the Italian mean, are marked by a strong sectoral employment specialisation, significantly connected to the traditional tertiary-tourist potential of these areas. The greater incidence of 'para-subordinate' labour contracts is probably related to this feature. Another important sector specialisation of the cluster is in the construction industry.

The two remaining clusters (5 and 3) tend to combine provinces with a traditional presence of a manufacturing industry, which still turns out to be significant in terms of employment absorption capacity. More in general the EERs are respectively at 104 and 137% of the Italian average). These contexts also show a remarkable openness to other contractual and organizational solutions. In addition, the provinces (prevalently of central Italy) of group 5 are characterized by wage levels that are below the general average; while cluster 3 (classifying Firenze-Prato and Ancona, along with a wide strip of the neighbouring northeast provinces) shows, besides the higher employee ER, a meaningful incidence of metal manufacturing industries and extra-manufacturing sectors.

5. Summary of the Outcomes and Final Remarks

The outcomes of our empirical analysis suggest first of all a strong persistence, over the time period 1995-2002, of the employment disparities among the 103 Italian provinces, both in terms of total employment and female employment rate. This evidence is accompanied by a weak trend of sigma convergence inside the single geographical repartitions that seems to envisage a growing polarisation among the well-known spatial differentiation of economic and employment performance in Italy. As regards the Beta convergence outcomes, at the most general level both the parametric and non-parametric techniques evidence a weak converge of

the Italian provinces in terms of total employment rate and a divergence trend for the female employment rates. So, in the considered period, a catching-up process in terms of general labour market performance (ER) is coupled with a diverging trend of the female employment performance (FER). This outcome is very interesting since it is placed in a framework of generalised improvement of both the total and the female ERs (as evidenced by the kernel density estimations). This means that the speed of this progress has been relatively higher for the worst performing provinces in 1995 in the case of the ER and that the opposite dynamic happened for the FER. The parametric beta converge estimates conditioned to structural factors (sector employment and spatial diversification patterns) show that the northern provinces tend to converge inside their repartitions (north-west and north-east), while no clear trends emerge inside the groups of the central and the southern provinces.

The cluster analysis, based on 16 variables of employment structure, showed the existence of thirteen highly differentiated groups of provinces (eleven groups in Centre and North and two in the South). In particular, the employment structure of the two (similar) groups of the southern provinces is extremely different from that of central-northern groups and, besides, the differences in the latter are much more relevant.

Both the dynamic and static empirical analysis of employment showed the existence of huge provincial gaps and complex dualism. The results suggest the need for an effective economic policy target first of all to increase the (regular) employment rate, especially in some southern areas. We also argue that this goal is at least in part different from the traditional one concerning the economic development in the areas that are lagging behind, since increases in the GDP growth rates in these contexts (for instance GDP per capita increase and/or its convergence towards the levels of the more developed areas) do not necessarily imply the desired quantitative and qualitative employment impacts. This strong and persisting diversification within the Italian economy also suggests attributing a crucial role to (both employment and development) "locally-implemented policies" that are able to consider the effective territorial differences, even though the national (and sovra-national) policy level also plays an important role. Therefore, the identification of a complex set of (national and territorial) policy measures is preferable.

With specific reference to the employment policies the priority should be attributed to the reduction of the relevant inefficiency and iniquity of labour markets in vast areas of the country, improving the matching mechanism (in qualitative and quantitative terms) between labour demand and supply and increasing the efficiency of the channels for accessing regular employment positions. From this point of view, national and "territorial" policies must be understood as complementary, rather than alternatives. The national level, in particular, seems more suitable for adopting institutional policies and a general normative framework for the labour market, and, according to the financial balance constraints, for progressively reducing the fiscal wedge on labour. The huge differences with respect to the spatial employment performance and the less pronounced differences with respect to the wage levels which emerged from the INPS data, seem to indicate that there is a need for greater decentralization of collective bargaining. The active employment policies, devolved to the Regions and Provinces, must be considered, by definition, as policies of a territorial nature. Actually, they will be "territorial" to the degree that the various implementation structures recognize the real articulation in local labour markets of the sub-regional contexts. From this point of view, some policy improvements, in the framework of the more general European Employment Strategy, should be recognised, e.g. in terms of the provision of services by the "employment centres" and in the supply of training services (also thanks to the constraints imposed by the European Social Fund: broad partnerships, the requirement of integrated training projects that are consistent with other local development policies, etc.).

In conclusion, in order to achieve the "Lisbon objectives", the development policy by itself (national and/or territorial), or the policy (national and/or territorial) for regular employment alone, will probably not be sufficient. This means that increased efforts to define an effective mix of development and employment policies are needed. We argue that a

preliminary step in this direction is the integration (at territorial level) of the development policies (aimed at increasing the competitiveness of local systems) and the active labour policies (aimed at raising the quantity and the quality of regular employment).

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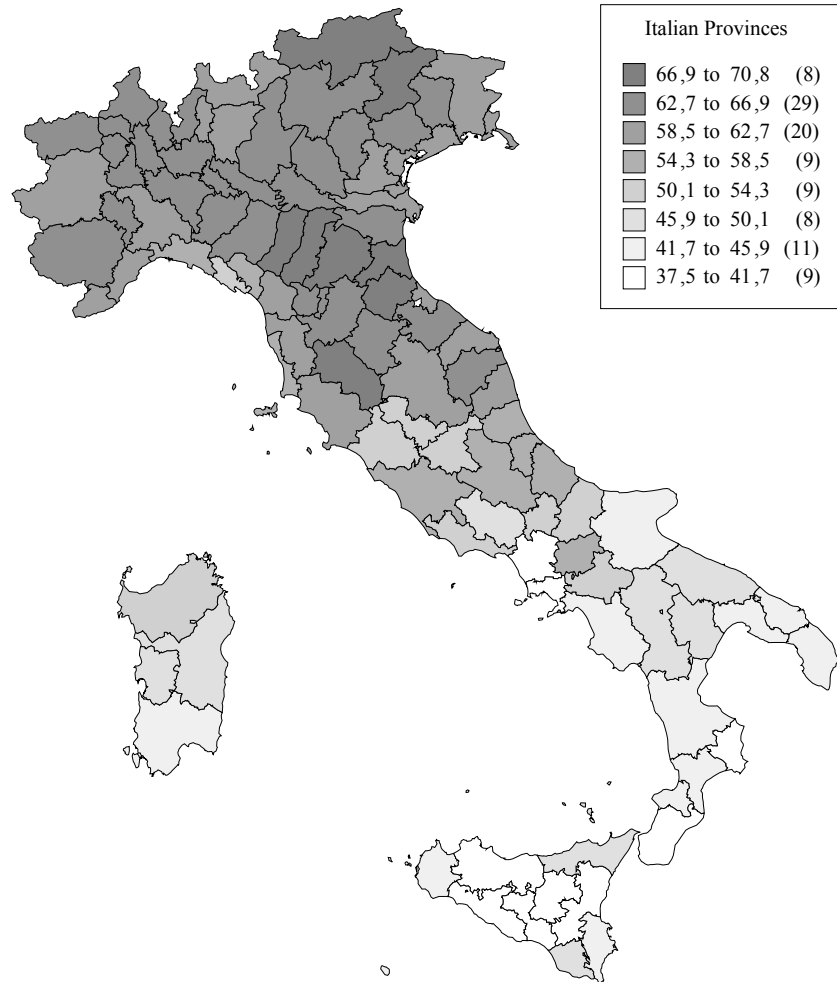
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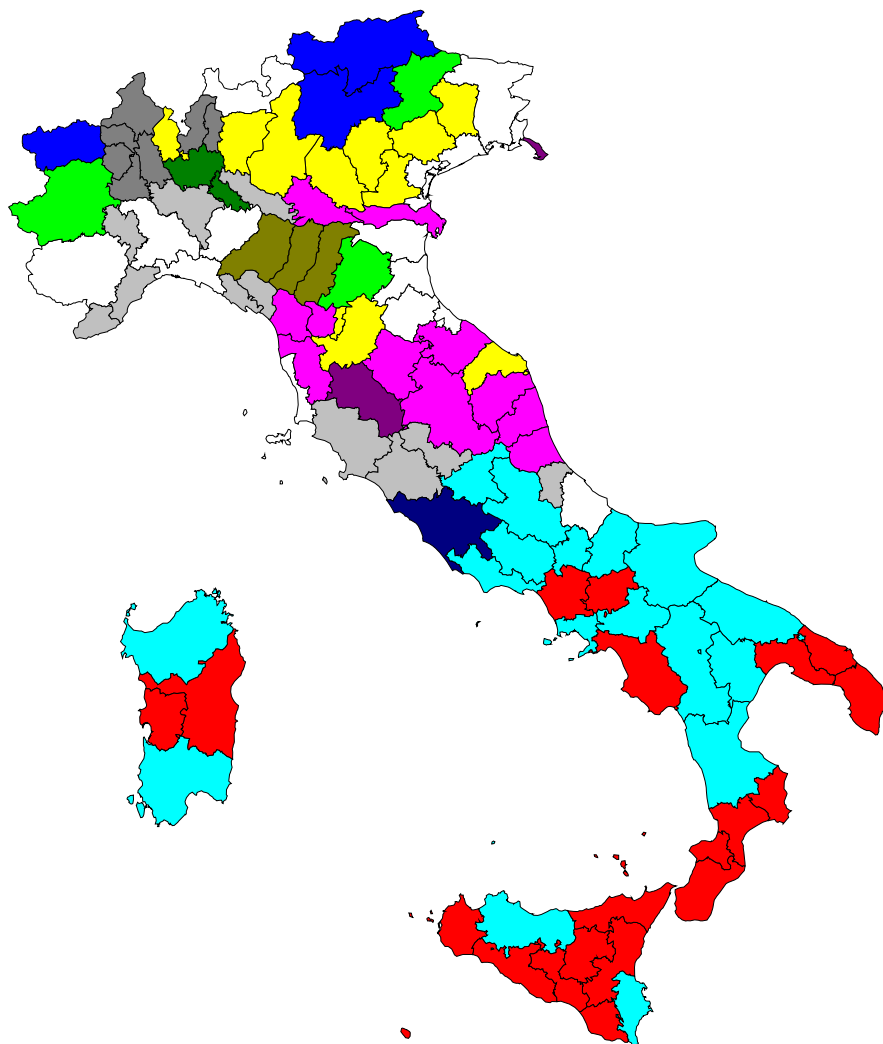
Appendix

Figure A1 - Groups of provinces according to the total employment rate (2002)



Source: Elaboration on Istat data (2003)

Figure A2 – Groups of Provinces according to the results of cluster analysis



Source: our elaboration on INPS data