Institutional rigidities and employment rigidity on the Italian labour larket

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Institutional Rigidities and Employment Rigidity on the Italian Labour Market*

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Abstract

A well-established result in the theoretical literature on labour market flexibility is that the employment should be more volatile in "flexible" labour markets. Over the last 35 years, Italy gives a good example of a transition from an over-regulated labour market into a quite more flexible one. According to the theory, the deregulation is expected to increase the employment variance. Despite the anecdotal evidence reported in the press, the literature hardly finds any evidence for such an effect. This paper exploits time-series of several employment indicators since 1980, allowing us to compare decades with different labour market regulation. All the considered series show evidence of a structural break with an increase in their variance after the deregulation, confirming the expected pattern. This gives some support to the concerns for increased job insecurity.

Keywords: Labour market flexibility, volatility, breaks.
JEL Classification: C22, J23

1 Introduction

The theoretical literature on the consequences of labour market regulation finds that the main result of job-protection is to smooth the path of the employment over the cycle. In fact, while the impact of job-protection on the employment level is unclear,[1] its effect on the employment variance is well-known (Bentolila and Bertola, 1990; Lazear, 1990).

In 1994 the OECD publications "Employment Outlook" and "The OECD Jobs Study" ranked Italy in the first position according to the main indicators of labour market rigidity, namely employment protection and labour market regulation. After the deregulation started in 1991-92, the updating of these indicators in OECD (2004) indicates a substantially more flexible labour market. The Fraser Institute's economic freedom index for Italy confirms this pattern, being its value 3.7 in 1970, 4.1 in 1980, 4.2 in 1990 and 5.5 in 2004.[2]

The aim of this paper is to investigate the effectiveness of the Italian labour market deregulation. This is an important issue because the debate as to whether changes in employment regulation could imply job instability is still controversial. Several authors find that the overall job stability has not decreased in the recent years (see Winkelmann and Zimmermann, 1998; Erlinghagen, 2002; Auer, 2005; L'Horty, 2004, among others). To analyse whether flexibility-oriented reforms have changed the behaviour of the Italian labour market, we use some recent developments in time-series analysis. Our approach is based on the idea that more freedom to hire and fire intensifies the responsiveness of the employment to macroeconomic fluctuations by increasing its variance (Bertola, 1990; Abraham and Houseman, 1994). We search for evidence of this effect in several aggregate employment measures. Then, we check whether changes in the variance correspond to the timing of labour market reforms.

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[1] To affect the employment level, other distortions -like wage rigidities- are needed (see, for example, Lazear 1990).

[2] The Fraser Institute: Economic Freedom of the World, Annual Report, 2006.

This paper presents evidence of the effectiveness of Italian labour market deregulation, with an increase in the variance of employment indicators after the institutional reforms. This outcome is stronger when we isolate the industrial sector. Furthermore, this paper also helps to explain why it is not easy to find any change in the average job tenure or in job stability over the last decade given that institutional differences only emerge when we go back to the 1980s.

The paper is organised as follows. Section 2 reviews the Italian labour market regulation. Section 3 describes the methodology. Section 4 reports our empirical findings, and Section 5 report draws some concluding remarks.

2 Regulation and deregulation of the Italian labour market

A useful starting point to summarize the history of the Italian labour market regulation is 1962, when severe limitations were introduced for temporary contracts. In 1966 a law prohibited "unfair" dismissals. Since 1969 the main device to adjust the employment was a temporary lay-off (Cassa Integrazione Guadagni, CIG) conceived to accommodate transitory fluctuations in production. In the 70s further controls were established: the most pervasive regulation is law n.300/1970 (Statuto dei Lavoratori) which specified the hiring and firing procedures, the working environment and the workers' mobility inside the firms, the use of overtime, and even wages with respect to the workers' seniority. Moreover, it established the reinstatement obligation[3] for workers subject to unfair dismissals.

In 1974 the appeal procedure for unfair dismissal was made easier, and in 1975, after the oil shocks, wages were indexed to inflation.

In 1984 we observe some attempts of deregulation: the wage indexation was reduced by 15%, and part-time and training contracts (Contratti di Formazione e Lavoro, henceforth CFLs), were introduced. The CFL, conceived as a form of paid apprenticeship, quickly became a way to reduce wages for new hirings. In 1986 a referendum succeeded in further reducing the indexation. In the 1990s, a wave of innovations restructured the labour market. In 1991 a law specified new procedures for collective firing, and it set new limits to the use of the CIG. The following year the wage indexation was definitively abolished. In 1993, the so-called *Giugni agreement* between unions, industrialists (Confindustria) and the government defined a two-stage wage bargaining: a national-level bargaining to preserve the purchasing power, and a firm-level bargaining to share productivity gains. Remarkably, the 1992-93 reforms were intended to increase wage flexibility, which -as it is well-known- allows to circumvent job protection (Lazear, 1990). In 1994 the use of the CFL was allowed for a much wider range of situations. Another key innovation was the introduction of the ongoing collaboration contracts in 1995, since these contracts allow total freedom of hiring and firing.

In 1997 the introduction of temporary work agencies broke the monopoly of public employment agencies. In 1998 law n. 196 (the so-called "Pacchetto Treu") introduced new "atypical" contracts, such as the job-sharing and the staff leasing. In 2001 leg. decree 368 made possible the use of fixed-term contracts for subordinate workers as well; then, in 2003, the Biagi law has given the variety of "atypical" labour contracts a common framework. This reform has specified and eased the regulation of the following subjects: staff-leasing, fixed-term contracts, intermittent work, job-sharing, work on project, and occasional work.

Currently, "flexible" work contracts are the overwhelming majority of new hirings (Contini and Trivellato, 2005, chapter IX and the references quoted therein).

3 Methodology

To study the effectiveness of the Italian labour market deregulation, we analyse the properties of the real GDP (used as a proxy of economic activity) and the main employment indicators. Our approach considers not only changes in the variance, but also in the level and/or the trend. This is necessary because although the final effect of job-protection over the employment level is undetermined, this *does not mean that there is no effect* (Bentolila and Bertola, 1990).

The literature provides for several techniques for testing and locating structural breaks in the intercept and trend (see, for example, Bai and Perron, 1998, 2003). However, only few are able to consider breaks in the variance (see, for example, Inclán and Tiao, 1994, McConnell and Pérez-Quirós, 2000, Herrera and

[3] Reinstatement is different from re-hiring because in the former case the employer has to repay the wage for the whole period of unfair firing.

Pesavento, 2005, and Wang and Zivot, 2000). To our aim, we have chosen the Bayesian technique developed by Wang and Zivot (2000) given that their approach allows to detect multiple structural breaks in the level, trend and variance *at the same time*, and thus it fits perfectly our needs.[4]

Wang and Zivot (2000) consider a segmented deterministically trending and heteroskedastic autoregressive model

$$y_t = a_t + b_t t + \sum_{i=1}^{p} \phi_i y_{t-i} + s_t u_t, \tag{1}$$

for $t = 1, 2, ..., T$, where $u_t|\Omega_t \sim i.i.d.N(0,1)$ and Ω_t denotes the information set at time t. It is assumed that the parameters a_t, b_t and s_t are subject to $m < T$ structural changes, m initially known, with break dates $k_1, k_2, ..., k_m$, $1 < k_1 < k_2 ... < k_m \leq T$, so that the observations can be separated into $m+1$ regimes. Let $k = (k_1, k_2, ..., k_m)$ denote the vector of break dates. For each regime i ($i = 1, 2, ..., m+1$), the parameters a_t, b_t and s_t are given by

$$a_t = \alpha_i, \ b_t = \beta_i, \ s_t = \sigma_i \geq 0$$

for $k_{i-1} \leq t < k_i$ with $k_0 = 1$ and $k_{m+1} = T + 1$.

Let I_A denote an indicator variable such that I_A is equal to one if the event A is true and zero otherwise. Then (1) can be re-written as

$$y_t = \sum_{i=1}^{m+1} I_{\{k_{i-1} \leq t < k_i\}} (\alpha_i + \beta_i t) + \sum_{i=1}^{p} \phi_i y_{t-i} + s_t u_t,$$

or, alternatively, as

$$y_t = x_t' B + s_t u_t, \tag{2}$$

where

$$x_t = \begin{bmatrix} I_{\{k_0 \leq t < k_1\}} \\ ... \\ I_{\{k_m \leq t < k_{m+1}\}} \\ t \cdot I_{\{k_0 \leq t < k_1\}} \\ ... \\ t \cdot I_{\{k_m \leq t < k_{m+1}\}} \\ y_{t-1} \\ ... \\ y_{t-p} \end{bmatrix}$$

and $B = (\alpha_1, ..., \alpha_{m+1}, \beta_1, ..., \beta_{m+1}, \phi_1, ..., \phi_p)'$. Let $\sigma = (\sigma_1, \sigma_2, ..., \sigma_{m+1})'$ and define $\theta = (B', \sigma', k')'$ as the vector of unknown parameters of (2), Y_0 as the vector of p initial values of y_t, and $Y = (y_1, ..., y_T)'$ as the vector of observed data. Given the normality of the errors u_t, the likelihood function of (2) takes the form

$$L(\theta|\mathbf{Y}, \mathbf{Y}_0) \ \propto \ (\prod_{t=1}^{T} s_t)^{-1} \exp\{-\frac{1}{2} \sum_{t=1}^{T} \frac{(y_t - x_t' B)^2}{s_t^2}\} \tag{3}$$

$$= \ |S|^{-1} \exp\{-\frac{(Y - XB)' S^{-2} (Y - XB)}{2}\}, \tag{4}$$

where S is a diagonal matrix with $(s_1, ..., s_T)$ on the diagonal and X is a $T \times (2m + 2 + p)$ matrix with t-th row given by x_t'. The estimation is obtained by using the Gibbs sampler.

4 Empirical Results

The above-mentioned methodology for detecting structural breaks has been applied to the following seasonally-adjusted quarterly time series: employment index (OECD); civilian employment (absolute value) (ISTAT);

[4] The possibility of several breaks in the time series leads us to reject the McConnell and Pérez-Quirós (2000) methodology, which was developed to detect the existence of only one break in volatility. Furthermore, the possible existence of breaks in mean/trend and variance at the same time leads us to reject the Inclán and Tiao (1994) or Herrera and Pesavento (2005) methodologies. The Bayesian technique developed by Wang and Zivot (2000), instead, has been developed for detecting multiple structural breaks in the level, trend and variance at the same time.

employment in services (OECD); employment in industry (Datastream); standard units of dependent labour (ISTAT);[5] real GDP (IFS); industrial production index (IFS). The common available sample runs from 1980:1 to 2007:2.

To determine the number and the type of structural changes, we estimate structural break models with one autoregressive term allowing for breaks in the intercept, trend and variance with $m = 1, ..., 4$ breaks. Model choice based on minimizing BIC favors the $m = 1$ over any other model in all cases but the employment in Industry, where two breaks are found. Figure 1 presents the plot of all the series and their corresponding posterior probability of the change point. Table 1 reports the estimates of the parameters for the chosen models and the date with the highest posterior probability. Our indicator for the overall economic variance (the real GDP) shows a structural change in 1990:2, corresponding to an increased variance.[6] We find structural changes in 1992 for the employment index, the civilian employment, employment in Services and the Standard Labour Units.

Years 1991-93 coincide with the start of the second, and most important, wave of labour market deregulation (see section 2).[7]

Moreover, employment in Industry shows a structural change in 1985 and another in 1991, with increased variance in each sub-period, even though the variance of the industrial production is constant since 1983. This result is particularly significant: in this series we detect the predicted effect for both waves of institutional reforms even though the variance of the industrial production is unchanged.

Summing up, our findings are consistent with the hypothesis that institutional reforms have affected the labour market behaviour by conveying the increased economic fluctuations to the employment.[8] This conclusion is even stronger for the industrial employment, whose variance increases regardless of a constant variance of the production.

5 Concluding remarks

After 1990 the Italian real GDP has become more volatile with respect to the 1980s, and most of our employment indicators do so after 1992. The two-year lag necessary to observe some effects of the augmented economic volatility on the employment coincide with a turning point in labour market legislation. The dismantling of the wage indexation, the introduction of the so-called *Giugni agreement* and the start of a deep deregulation for newly hired workers were supposed to affect the transmission of macroeconomic shocks to the employment. Thus, our results are consistent with the hypothesis that the employment indicators mirrored the increased macroeconomic variance.

This outcome is even stronger when we isolate the industrial sector, where it is possible to detect an effect of *both* deregulation waves even though the variance of the production is unchanged. This means that after the reforms we find an increase of the employment variance without any increase of the economic variance.

Our conclusions help to explain why it is difficult to find any change in the average job tenure or in job stability over the last decade: institutional differences only emerge when we go back to the 1980s. From the point of view of this paper, the 1990s are a decade with homogeneous institutions, thus we should not expect striking differences in the labour market behaviour. Our findings give some support to the widespread perception of increased job insecurity reported in the press.

[5] More precisely, we have two series: the standard labour units and the standard units of dependent labour. Unlike the other employment measures, the standard labour units are based on the working time of a full-time worker, rather than on employees. Therefore, they also include working time adjustments. The estimates are the same for the two series, thus we present only one.

[6] Two breaks (1980:4 and 1990:4) are found when the sample starts in 1970:1. The estimated variances are 0.615183 for 1970:1-1980:4, 0.318946 for 1981:1-1991:4, and 0.477441 for 1991:1-2007:2. This result is consistent with the recent literature on the reduction of aggregate volatility in most OECD countries after 1980. However, the real GDP variance increases again in the last period, even though it does not reach its pre-1980 level.

[7] In 1992 we observe also the SME crisis and the subsequent recession. However, it is not possible that we are detecting a simple break in the trend due to the recession: in such a case we should observe *another* break as the economy recovers.

[8] Leombruni and Quaranta (2005) compute the gross worker turnover (GWT) over the period 1987-99. They construct a GWT measure net of the effect of population ageing, and they find a structural increase in the Italian labour market mobility from 1993 onwards. This finding supports to our results.

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Table 1: *Parameter estimates and breaks*

	Civilian employment		Employment index	
	(1992 : 3)		(1992 : 3)	
Parameters	*Mean*	*Standard Error*	*Mean*	*Standard Error*
α_1	3.351133	0.406615	16.064341	2.028747
α_2	2.558531	0.349217	12.253724	1.718155
β_1	0.004888	0.001095	0.023405	0.005473
β_2	0.012162	0.001117	0.058439	0.005781
ϕ	0.833315	0.020075	0.833218	0.020981
σ_1	0.084588	0.006541	0.409285	0.031961
σ_2	0.091586	0.006748	0.434084	0.033591

	SUDL		Real GDP	
	(1992 : 3)		(1990 : 2)	
Parameters	*Mean*	*Standard Error*	*Mean*	*Standard Error*
α_1	0.168271	0.051993	6.008615	1.922348
α_2	0.134982	0.044857	6.681354	2.045440
β_1	0.000367	0.000120	0.059738	0.013439
β_2	0.000645	0.000151	0.032611	0.010308
ϕ	0.887812	0.034334	0.907912	0.028929
σ_1	0.007544	0.000556	0.320505	0.037463
σ_2	0.007734	0.000572	0.482163	0.037395

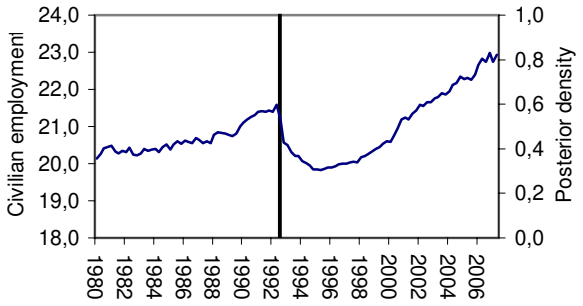
	Employment in Services		Employment in Industry	
	(1992 : 3)		(1985 : 1 and 1991 : 2)	
Parameters	*Mean*	*Standard Error*	*Mean*	*Standard Error*
α_1	2.569123	0.590480	1.044905	0.682523
α_2	1.951581	0.470673	0.875671	0.596944
α_3	–	–	0.865055	0.597791
β_1	0.016726	0.003764	−0.00867	0.017232
β_2	0.018108	0.004004	0.001673	0.001322
β_3	–	–	−0.00035	0.000593
ϕ	0.741222	0.060535	0.834676	0.108721
σ_1	0.077646	0.007296	0.026359	0.008524
σ_2	0.116745	0.009945	0.029210	0.005147
σ_3	–	–	0.031067	0.002839

	Industrial Production	
	(1983 : 2)	
Parameters	*Mean*	*Standard Error*
α_1	0.285615	0.302812
α_2	0.304825	0.315829
β_1	−0.00023	0.009427
β_2	0.000076	0.000224
ϕ	0.931770	0.071560
σ_1	0.012938	0.004965
σ_2	0.013600	0.001107

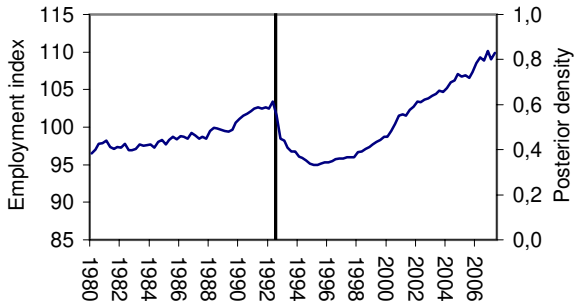
Note: This Table presents the numerical moments of the parameters referred to the autoregressive term, intercept, trend and variance, and the date with the highest posterior probability (in parenthesis).

Figure 1: Time Series and Posterior Probablility Mass of the Change Point

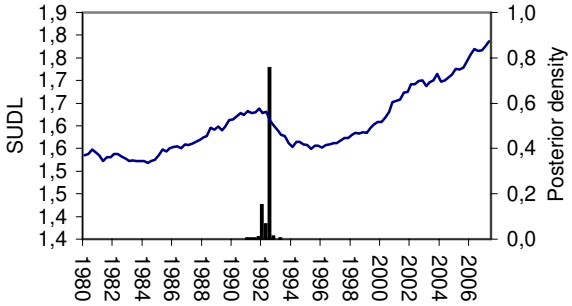
Civilian Employment (absolute value)



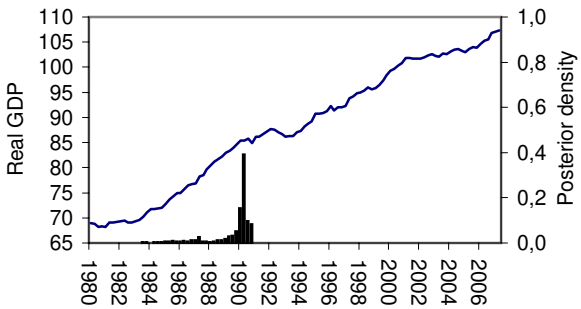
Employment index



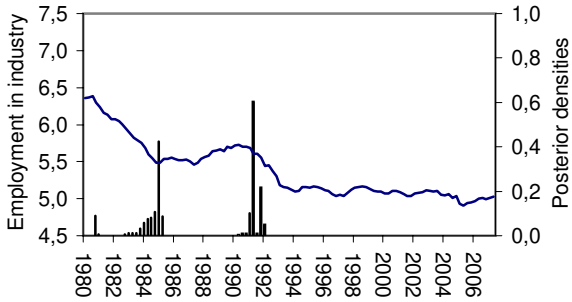
Standard Units of Dependent Labour



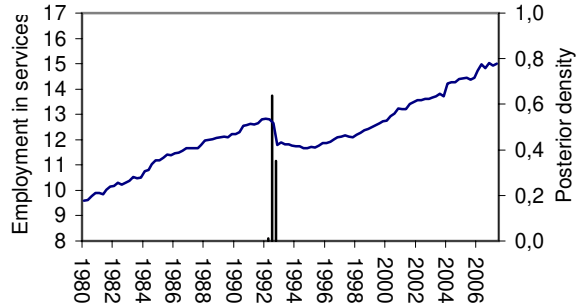
Real GDP



Civilian Employment in Industry



Civilian Employment in Services



Industrial Production