Institutional Rigidities and Employment Rigidity on the Italian Labour Market[*]

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Abstract

A well-established result in the literature about labour market flexibility is that in flexible and deregulated labour markets employment is more volatile. 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, labour market regulation and deregulation should translate into changes in employment volatility. Anecdotal evidence reported in the press shows indeed growing concerns for increased uncertainty and short-tenured jobs. To check whether institutional reforms have really changed the labour market volatility, we test for the existence of breaks in the variance of different employment indicators. We find that while employment has indeed become *less* volatile, standard units of labour have become more volatile *at the same time*. We argue that this is due to increased job-to-job mobility, rather than to mobility from employment to unemployment. This seems to confirm the concerns for increased job insecurity.

Keywords: Labour market flexibility, volatility, breaks.

JEL Classification: C22, J23

1 Introduction

The efforts to analyze the effects of labour market regulation and institutions have produced a great deal of literature, and one of the most important results (Nickell, 1978; Bentolila and Bertola, 1990; Bentolila and Saint-Paul, 1994) is that job protection does not entail *per se* a bad employment performance, its main effect being to smooth the path of the employment over the cycle. For job protection to affect average employment, other distortions -like wage rigidities- are needed (see, for example, Lazear 1990, or Bertola and Ichino 1995)

The Italian labour market has been for decades one of the world's most regulated, with quite stringent limitations to firing. OECD (1994a, b) reports a ranking of labour market regulation and job-protection for some OECD countries. Italy was ranked first according to both indicators. The bulk of the rigidities was set up in the 70s, following a period of strong political power in favor of workers and unions. However, starting from 1984, we observe an upturn in the labour market legislation in favour of labour flexibility. Some flexibility-oriented reforms, like those that introduced temporary apprenticeship contracts (1984) and eased limitations to real wage flexibility (1986), were the first steps towards flexibility. This trend continued in the 90s until the end of the twentieth century. Since 1991-92 we observe a wave of reforms which have eventually changed the labour market: they have reduced employment protection levels and enhanced real wage flexibility.[1]

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[1]It is worth noting that this pattern has been common to many other European countries.

OECD (2004) updates the indicators of labour market rigidity. The Italian indicators show a slight reduction in the late 80s, and another reduction in the 90s. After two decades of reforms, the final result is a substantially more flexible labour market.[2]

The empirical literature finds little evidence that the first wave of labour market deregulation in Europe yielded any change. Bertola (1990) finds that employment is less volatile in countries with high job-protection[3]. Abraham and Houseman (1994) find no evidence of increased volatility after labour market deregulation initiated in many European countries in the mid 80s. Moreover, they show that employment tracks closely production in the US; however, in Belgium, Germany and France changes in production are less correlated with changes in employment. Hunt (1994) obtains similar results for Germany: the 1985 "law for employment promotion" decreased the firing costs and eased the use of fixed-term contracts; nonetheless, it had no visible impact on the employment.

After a decade, the evidence about changes in employment volatility and job security is still unclear. In spite of the widely held view of increased job insecurity, the empirical evidence on the extent of job instability is still limited, in particular for countries whose labour market is traditionally flexible.[4] Recently, Auer (2005) reports clear evidence that the average employment tenure did not change between 1992 and 2002 for 16 countries.[5] According to this author, however, "while the average remains unchanged, the different elements that make it up have been subject to change [...]. For example, we observed in many countries an increase in shorter tenured jobs that is often compensated by an increase in longer tenured jobs, pointing to continuing and possibly increasing segmentation, especially between younger and older workers" (page 7). L'Horty (2004) surveys the literature about job insecurity in France, and points out that measures of job insecurity based on transitions from employment to unemployment come to different results depending on the time span considered. Using data based both on panels and surveys, he concludes that overall job instability in France does not show significant changes in the last 20 years. Nonetheless, despite the stability at the aggregate level, the risk of job loss shows a convergence between precarious and protected workers. This result is compatible with the findings of Auer (2005).[6]

In the present work, we use an alternative approach to study the behaviour of the Italian labour market. Our idea is based on the well-known fact that labour market flexibility makes employment more responsive to shocks, thus effective institutional innovations are supposed to affect the the relation between employment volatility and output volatility. Since our data start from 1980, we are able to compare two decades with quite different labour market regulation.

Our aim is, first, to search for structural breaks in some employment indicators to check whether employment has become more responsive to economic shocks, and then relating the possible breaks to the timing of reforms. We exploit time-series data about the employment rate, the absolute number of employees, the standard labour units, and the real GDP. According to our break estimates, years 1991-93 mark a watershed in the behaviour of our series. This period coincides with the most important labour market reforms.

Unexpectedly, however, we find that Italian employment has indeed become less volatile in the last decade, while the overall volatility of the economy, -**proxied by the real GDP variance**- apparently, has increased in the 90s with respect to the 80s.[7]

Since standard units of labour become more volatile *at the same time*, we argue that this is due to an increased mobility from one job to another, rather than from employment to unemployment. Therefore, from this point of view, the widespread perception of increased job instability is not ill-founded.

The paper is organised as follows: Section 2 reviews the regulations in Italian labour market; Section 3 describes the estimation; Section 4 presents our data; Section 5 reports our findings, and Section 6 concludes.

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[2] Next Section reports a brief history of labour market regulation in Italy.

[3] To control for institutional changes over time, Bertola (1990) splits his sample in different sub-periods, but this does not affect his findings.

[4] Sousa-Poza (2004) contains a nice review of the literature.

[5] The countries considered are: UK, US, Denmark, Spain, Netherlands, Ireland, Finland, Sweden, Germany, France, Luxembourg, Belgium, Portugal, Italy, Japan, and Greece.

[6] Authors like Winkelmann and Zimmermann (1998) and Erlinghagen (2002), however, conclude that job stability in Germany was indeed increased in the 90s.

[7] Notice that output volatility in the 70s was much larger than that found after 1980.

2 Regulation and deregulation of the Italian labour market

The Italian labour market has been traditionally heavily regulated. Since 1960 the public administration had the monopoly of workers placement: private intermediation in the labour supply was strictly forbidden until 1997. In 1962 severe limitations have been introduced for temporary contracts, and, four years later, a law prohibited "unfair" dismissals, making it very difficult to fire. The 70s are characterised by the introduction of further regulations. The most important one is law n.300/1970 (*Statuto dei Lavoratori*) which regulated 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[8] for workers subject to unfair dismissals, which is maybe still the most important limit to individual firing.

In 1974 the appeal procedure for unfair dismissal was made easier, and in 1975, following the oil shocks and because of sustained political momentum in favor of unions, the "*Scala Mobile*" was introduced. It was a wage indexation system that gave every worker the same compensation for inflation, irrespective of his wage.[9] This mechanism froze the evolution of the relative wages until the late '80s.

For more than 20 years the main flexibility device has been the "*Cassa Integrazione Guadagni*" (CIG), a lay-off device (introduced in 1969) that allowed firms to stop the workers for a temporary period, without termination of the employment contract. The CIG provides for a subsidy to inactive workers equal to 80% of the wage at the beginning, subject to reduction after a year. The benefits are funded using both a tax levied on firms and public funds. Originally conceived to accommodate transitory fluctuations in production, in 1975 the CIG began its transformation into a form of "shadow firing", with indeterminate prolongation of the benefits.

In 1984 we can observe some first steps toward a less restrictive legislation:[10] regulation was weakened both on wages and labour contracts. First, the government decided to reduce by 15% the Scala Mobile. At the same time, some "atypical" contracts, i.e. part-time and training contracts (*Contratti di Formazione e Lavoro*, henceforth CFLs), were introduced.[11]

The *CFL* was conceived as a form of paid apprenticeship inside the firm, to make easier the acquisition of labour skills by young workers. Finally, it was basically used in order to reduce the wage for newly hired workers.

On the other hand, part-time contracts were still heavily regulated, and thus little used.

After 1984, we can see other institutional reforms: in 1986 a referendum succeeded in further reducing the *Scala Mobile*. This made relative wages less rigid. The following year a new law reforming the 1962 regulation of temporary contracts was approved. The new law was also intended to meet the flexibility needs of the firms. Unlike the previous legislation, it gave a loose definition of the situations under which temporary contracts were allowed, delegating to collective bargaining the power to indicate new areas of admissibility.

In the 90s, a second wave of innovations re-forced the deregulation process. In 1991 a new law specified the procedures for collective firing, and it set new limits to the use of the *Cassa Integrazione Guadagni*. The following year the *Scala Mobi*le was definitively abolished. In 1993, the the so-called Giugni agreement between the government, the unions and the industrialists set up an income policy committed to the reduction of inflation. The agreement defined a comprehensive reform of wage bargaining in order to reduce inflation and to achieve higher wage flexibility. In short, the agreement defined a two-stage wage bargaining: national-level centralized bargaining was intended to preserve the wages purchasing power, while firm bargaining was supposed to mirror productivity. In 1994 the use of the CFL was allowed for a much wider

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[8] It is important to stress that the reinstatement is different from a simple re-hiring because in the former case the employer has to repay the wage for the whole period of unfair firing.

[9] To be more precise, the *scala mobile* indexation was higher for low wages. This fact may strongly compress wage differentials in periods of high inflation (see Erickson and Ichino 1995).

[10] Notice that the first step towards a slackening of the regulation was the 1984 reform, which allowed the firms to directly hire new workers, without using the list of the public employment agencies (*Uffici di collocamento*). This repealed the severe prohibition of nominative hiring, considered one of the most restrictive laws: before 1983 firms were compelled to hire new workers from the list given by the *Uffici di collocamento*.

[11] Part-time work did not exist in the Italian law until 1984. Its regulation was designed to give the part-time workers the right to choose a full-time contract if the employer proceeded to new hirings. Part-time contracts could be either "horizontal" (reduced working hours over the entire year) or "vertical" (full-time working hours but for few months). The law provided for a seasonal part-time, too.

range of situations.[12] Moreover, the age of the workers entitled to it was extended from 29 to 32.

These reforms eased the constraints to the use of flexible contracts introduced in 1984, and they were essentially an extension of previously existing forms of flexibility. Thus, a key innovation was the introduction of the temporary work agencies in 1997. This has marked a watershed in the Italian labour market law. In fact, temporary work agencies have broken the monopoly of public employment agencies, which was one of the most prominent features of the Italian labour market. According to Bertola and Garibaldi (2002) temporary jobs are being used extensively, and already in 2000, "administrative sources estimated more than 2 million contracts".

In 1998 law n. 196 (the so-called "Pacchetto Treu") introduced several "atypical" contracts, such as the job-sharing and the staff leasing.

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, occasional work.

Nowadays, the once "atypical" contracts have become "typical" for most new hirings.

3 Methodology

As we have explained above, our aim is to investigate whether flexibility-oriented reforms have changed the behaviour of the Italian labour market. The theoretical literature surveyed in the introduction predicts that more freedom to hire and fire increases the responsiveness of the employment to economic shocks. In order to verify this hypothesis, we proceed as follows: first, we analyse the volatility of different employment-related series; then, we analyse the volatility of real GDP to have an idea of the evolution of the economy's overall volatility. Our idea is that

1) labour market flexibility is supposed to affect the volatility of the employment. *Effective* reforms, therefore, should be observable as a break in the variance of the employment after their introduction.

2) Since flexibility implies a higher correlation between the variance of the output and the variance of the labour input, we check for breaks in the variance of real GDP series. We suppose that, after the reforms, changes in the variance of the employment track closely the changes in the economy's variance.

Several techniques has been developed in the literature for testing and locating structural breaks in the intercept and trend (see, for example, Bai and Perron, 1998, 2003). However, only few have been focused on testing and locating breaks in the variance (see, for example, Inclan and Tiao, 1994, McConnell and Pérez-Quirós, 2000, and Wang and Zivot, 2000). To our aim, we have chosen the Bayesian technique developed by Wang and Zivot (2000): 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.

Wang and Zivot (2000) consider a segmeted 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 $k_{m+1} = T + 1$.

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[12]Originally, the CFL was to be applied to young workers aged from 15 to 29. Its use was limited to state-owned firms, private firms, and groups of firms. The duration of the contract was up to 24 months, and after the employer had the choice whether to hire the worker permanently or not. Moreover, the law granted a series of fiscal benefits that reduced the labour cost for the firms. The tranformation of the CFL into a permanent contract was incentivated with an extension of the fiscal benefits for one year.

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 inicial 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

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

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

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'.

4 Data

We use quarterly data of the following time series:
1) Italian civilian employment (absolute value) from 1959:1 to 2003:4 (Source: ISTAT)
2) Italian employment index from 1960:1 to 2003:4 (Source:OECD)
3) GDP from 1970:1 to 2003: 4 (source: IFS)
4) Standard Units of Labour, from 1980:1 to 2003:1 (Source: ISTAT)
5) Standard Units of Dependent Labour, from 1980:1 to 2003:1 (Source: ISTAT)

The standard units of labour (SUL) are a measure of labour input. They differ from measures of employment because they are based on jobs, rather than on employees. For example, an employed individual may have two jobs, thus he is worth two units of labour. More precisely, SULs are given by the number of full-time equivalent jobs. To compute these figures, ISTAT converts part-time jobs into equivalent full-time jobs according to some coefficient based on the average hours worked in a full-time job.

The Standard Units of Dependent Labour (SUDL) differ from the SUL because they do not include self-employment.

Since the series do not cover the same time span, the most important part of our analysis has been carried out for the 1980-2003 period. The first three series, however, have been useful to check for breaks over quite different periods. Unfortunately, data for the Standard Units of Labour are not available before 1980, and this makes impossible some very interesting comparisons to the previous decades. The 23 years between 1980 and 2003, however, include the whole process of the Italian labour market reform, thus they are likely to contain some useful information.

5 Empirical Results

The above-mentioned methodology has been applied to the seasonally-adjusted time series: 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. Table 2 displays the log marginal likelihood and BIC values for each series. Model choice based on minimizing BIC favors the $m = 1$ over any other model **in all cases, but the Italian employment index,** where the model with 2 breaks is preferred.

Considering the model seleted by BIC, Figure 1 presents the plot of all the series and their correponding posterior probability of the change point.

The estimates of the parameters for the chosen models are reported in Table 3.

By observing Figure 1, we see that structural changes lie in 1990:2 for the real GDP, and between 1992 and 1993 for the employment indicators,[13]**. These dates coincide with the starting of the second, and most important, wave of labour market deregulation (see Table 1).**

Years 1992-93 mark indeed a turning point in labour market legislation: the suppression of the remaining wage indexation and the so-called Giugni agreement increased the real wage flexibility and opened the way to the liberalization of "atypical" contracts in 1994, 97, 98.

Our estimates -reported in Table 3- find an increase in the output volatility in the 90s. Given the enhanced labour market flexibility, we can expect that this increase is translated into a rise of the employment volatility. This increase, however, is not observed: rather, we find a *decrease* in the variance term for the employment rate and for the number of employees. When looking at both series of the Standard Units of Labour, however, it is possible to identify the expected increase.

Institutional innovations help us to explain this empirical puzzle: as it happens in dual labour markets, the increase in volatility hit especially non-protected workers. Since unemployment The final result has been an increased mobility from one job to another, rather than from employment to unemployment.

6 Concluding remarks

Our estimations over the period 1980-2003 give clear-cut results: between 1992 and 1993 the series of the employment rate, the number of employees, the SLUs and the SUDLs show a variance break. The estimated variance is reduced in the case of the former two series, but it increases in the latter two series. Moreover, the economy's variance -proxied by the variance of real GDP- rises after 1990:2. As a consequence, institutional innovations are an appealing explanation for the different behaviour of the series. Years 1992-93 mark indeed a turning point in labour market legislation: over this period we observe the suppression of wage indexation and the so-called Giugni agreement.

It is well-known that wage flexibility can be used to undo firing costs, thus we can expect that these reforms have been an important step towards a more "flexible" labour market. Moreover, as we have stressed in section 2, starting from 1992-93 a wave of reforms put more and more flexibility into the market, contributing not only to relax the previous regulation, but also to form clear expectations about the irreversibility of such reforms. Therefore, it seems reasonable to argue that breaks in the variance of our series coincide with important institutional innovations.

Strikingly enough, we have found that aggregate employment has become *less* volatile over the last 14 years. The analysis of Standard Labour Units (SLUs) helps us to solve this empirical puzzle: while employment has become less volatile, volatility of SLUs has increased. Since SLUs concern the different jobs an individual may have at the same time, we conclude that the increased stability of aggregate employment is caused by more movement from one job to another.

Our results help to explain why it is difficult to find any change in the average job tenure or in job insecurity over the last decade: institutional differences only emerge when we go back to the 1980s, and

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[13]Specifically, we observe the break dates between $1992 : 3$ and $1993 : 3$ for civilian employment (with the highest posterior probability being 0.66 at $1993 : 2$), between $1992 : 1$ and $1992 : 3$ for Standard Units of Dependent Labour (with the highest posterior probability being 0.80 at $1992 : 3$), in $1992 : 2$ for Standard Units of Labour (with the posterior probability being 0.98), and in $1992 : 3$ and $1993 : 1$ for employment index.

this is true not only for Italy. From the point of view of this paper, 1990s are a decade with homogeneous institutions, thus, in absence of dramatic shifts of aggregate volatility, we should not expect big differences in the labour market behaviour.

Finally, our findings seem to confirm the perception of increased job insecurity, and this could be the reason why the political debate is focused on *job* insecurity rather than on *employment* insecurity. "Atypical" contracts provide for lower wages and lower job security with respect to permanent contracts, thus they can be quite unsatisfactory for risk-averse individuals.

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Table 1: Main innovations in labour market regulation*

Year	
1960	Prohibition of intermediation in hiring (law 1369)
1962	Restriction on temporary labour contracts (l.230)
1966	Regulation of firing procedures (l.604)
1969	Introduction of Cassa Integrazione Guadagni
1970	Charter of worker's rights (*Statuto dei Lavoratori*)(l.300)
1972	Removal of temporal limits to CIG programme
1974	Reform of procedures for labour litigations (l.533)
1975	Wage indexation system (*Scala Mobile*)
1975	Reform of the CIG programme (l.164)
1977	First introduction of CFL (l.285)
1977	Possibility of fixed-term contracts in tourism
1978	More freedom of access to CIG programme
1978	Restrictions on workers' mobility across firms
1980	Payroll tax reduction (*Fiscalizzazione degli oneri Sociali*)
1983	Reduction of wage indexation
1984	Temporary training contracts (CFL) (l.863)
1984	Solidarity contracts and Part-time contracts (l.863)
1984	Freedom of choice in hiring procedures (l.863)
1985	Extension of CIG benefits
1986	Reform of the indexation system
1987	More possibilities of temporary contracts (l.56)
1990	Reform of firing regulations for small firms (l.108)
1991	Restrictive reform of access toCIG (l.223)
1991	Reform of layoff procedures (l.223)
1992	Elimination of indexation
1993	Relaxation of the constraints to CIG access (l.236)
1993	Collective wage bargaining (Giugni agreement)
1994	More possibilities of using CFL (l.451)
1997	Introduction of temporary-job agencies (l.196)
1997	Extensions of training contracts (l.196)
1997	Annualization of working hours (l.196)
1998	Job-Sharing (l.196, "Pacchetto Treu")
1998	Compulsory preventive arbitration for individual dismissals
2000	Deregulation of part-time employment (Salvi law)
2003	Common framework for "atypical" jobs (Biagi law)

Note:This table is an update of Bertola and Ichino (1995)

Table 2: The log marginal likelihood and BIC values (quarterly data, 1980:I-2003:I)

	Civilian Employment (abs. val.)			Employment Index	
	$lnf(Y\|m=j)$	$BIC(m=j)$		$lnf(Y\|m=j)$	$BIC(m=j)$
$j=1$	72.948	-109.584		-78.481	193.116
$j=2$	73.692	-95.510		-64.204	180.055
$j=3$	77.700	-87.964		-59.023	185.188
$j=4$	84.485	-85.972		-57.988	198.612

	Standard Units of Labour			Standard Units of Dependent Labour	
	$lnf(Y\|m=j)$	$BIC(m=j)$		$lnf(Y\|m=j)$	$BIC(m=j)$
$j=1$	304.067	-576.481		286.933	-537.779
$j=2$	306.189	-567.161		292.613	-535.607
$j=3$	300.299	-541.816		287.871	-512.590
$j=4$	305.712	-539.075		291.210	-505.736

	Real GDP	
	$lnf(Y\|m=j)$	$BIC(m=j)$
$j=1$	-57.300	148.936
$j=2$	-54.230	157.513
$j=3$	-49.108	161.985
$j=4$	-42.728	163.941

Note: This Table reports the log marginal likelihood and BIC values for each time series.

Table 3: Parameter estimates for each time series with changes in the intercept, trend and variance (quarterly data, 1980:I-2003:I)

Parameters	Civilian employment (abs. val.)		Employment index	
	Mean	Standard Error	Mean	Standard Error
α_1	2.938820	1.062238	7.943934	3.169064
α_2	2.273350	0.913500	66.89678	6.905740
α_3	—	—	5.355536	2.781382
β_1	0.003691	0.001708	0.014049	0.007828
β_2	0.011780	0.003287	−1.208998	0.071733
β_3	—	—	0.039976	0.008775
ϕ	0.850308	0.054418	0.917621	0.032869
σ_1	0.106932	0.008665	0.541076	0.044347
σ_2	0.093281	0.008756	0.018788	0.009579
σ_3	—	—	0.413146	0.036935

Parameters	Standard Units of Labour		Standard Units of Dependent Labour	
	Mean	Standard Error	Mean	Standard Error
α_1	0.177941	0.059507	0.377762	0.075966
α_2	0.139652	0.053071	0.315341	0.071149
β_1	0.000365	0.000140	0.000665	0.000177
β_2	0.000747	0.000241	0.001170	0.000190
ϕ	0.881500	0.039470	0.690671	0.114098
σ_1	0.008431	0.000674	0.009813	0.000773
σ_2	0.009549	0.000783	0.009827	0.000866

Parameters	Real GDP	
	Mean	Standard Error
α_1	6.666903	2.038989
α_2	7.032953	2.036413
β_1	0.064548	0.013500
β_2	0.041900	0.014126
ϕ	0.897764	0.030853
σ_1	0.319962	0.033789
σ_2	0.500783	0.038984

Note: This Table presents the numerical moments of the parameters referred to the autoregressive term, intercept, trend and variance.