A Comparison of Employment Adjustment Patterns in France, Germany, Great Britain and Italy

Kornelius Kraft*

May 1994
ISSN Nr. 1011-9523

* University of Essen, Department of Economics, D-45117 Essen

I am grateful to Hugh Mosley, Antonia Niederprüm and seminar participants at the Social Science Research Center Berlin for very helpful comments and to Andreas Beschomer for computational assistance. This research was supported by the Commission of the European Communities, Directorate-General for Employment, Industrial Relations, and Social Affairs (DGV).
Kornelius Kraft

A Comparison of Employment Adjustment Patterns in France, Germany, Great Britain and Italy

Discussion Paper FS I 94 - 207
Wissenschaftszentrum Berlin für Sozialforschung 1994

Forschungsschwerpunkt: 
Arbeitsmarkt und Beschäftigung

Research Area:
Labour Market and Employment

Abteilung:
Arbeitsmarktpolitik und Beschäftigung

Research Unit:
Labour Market Policy and Employment

Wissenschaftszentrum Berlin für Sozialforschung
Reichpietschufer 50
D-10785 Berlin
Abstract

This paper reports the results of a comparison of employment adjustment in four major EC countries. Output and real wages are used in explaining the optimal employment level or change in employment. Short- and long run responses to alterations of the exogenous variables are estimated and compared. Surprisingly Germany has a quite rapid adjustment of labour while France and Italy show a much slower adjustment pattern. Great Britain's speed of adjustment is rather similar to that in Germany.

Zusammenfassung

In dieser Arbeit werden die Ergebnisse eines Vergleichs der Beschäftigungsanpassung in den vier wichtigsten EU Staaten vorgestellt. Das Produktionsniveau und die Reallöhne werden hierbei zur Erklärung der optimalen Beschäftigung herangezogen. Es werden sowohl kurz- wie auch langfristige Reaktionen gemessen und miteinander verglichen. Überraschenderweise weist Deutschland eine relative hohe Beschäftigungsflexibilität auf, während Frankreich und Italien viel langsamer reagieren. Die Anpassungsgeschwindigkeit in Großbritannien ähnelt derjenigen in Deutschland.
1. Introduction

In recent years an intensive discussion has centered on the question of whether employment has become less flexible in Europe. It is argued that, due to legislative and collective bargaining influences, adjustment of employment to its desired level is nowadays more difficult than it used to be. This problem has been named "Euroscclerosis", which implies that other countries like, for example, the USA have in this respect a better way of dealing with employment relationships.

The question of employment adjustment has obvious policy implications. Employment protection regulations are regarded by some people as at least one among several, if not the most important, causes of the supposed inflexibility of the labour market. Employment protection regulations encompass individual protection against unfair dismissal as well as restrictions on firms' behaviour in case of mass dismissals. As a result of legislative action and collective agreements these regulations have changed in important ways during the last decades. These developments have not only been in the direction of more restrictive rules; in some countries there was a tendency to de-regulate employment protection.

The neo-classical view on the effects of restrictions on employment adjustment is clearly sceptical. If dismissals cannot be carried out, or are at least delayed, employment is above its necessary level and the affected firm incurs losses. These labour costs are in turn anticipated by the employers and lead to reduced employment. Lazear (1990) finds empirical evidence for this hypotheses in a study on 22 countries.

Of course it is very difficult to measure all the different dimensions of employment protection in different countries, which include notice periods, mandatory consultation with employee representatives, notification of dismissals to a public agency, a right to appeal against unfair dismissal, special protection for certain groups or redundancy payments, and to construct on this basis something like a ranking of the imposed rigidities. Despite this obvious difficulty the purpose of the reported study is a cross-national comparison of employment adjustment pattern in light of differences
in the regulatory frameworks. In particular France, Germany, Great Britain and Italy are considered, the most important economies in the EC. The basis of the comparison is data on several industries, for which information for all four countries exists. These data were provided by the OECD and Eurostat. Unfortunately the Eurostat data permit merely an analysis of France, Germany and Great Britain since in the case of Italy data is not available for sufficient industries.

2. Institutional settings

It is not intended to give a detailed overview on the individual institutional contexts since this has been done already by other authors like Emerson (1988) and Mosley (1994).

2.1 France

In France no consultation requirements exist in case of individual dismissals, however officials have to be informed after the fact. Severance payments have to be made. Reinstatement after an unfair dismissal is only possible if the employer agrees. Those unfairly dismissed are entitled to compensation.

The statutory notice period depends on the length of service. The minimum notice requirement is one month if a person has been employed for at least six months. After two years of employment this period is two months. Sanctions for unfair dismissals are, since 1989, not less than six months earnings and reimbursement of the unemployment insurance fund. French employers are obligated to offer redundant employees with more than two years service a retraining agreement. Collective redundancies have to be notified to public authorities and consultation with employee representatives has to take place. Redundancies in larger firms are constrained by extended periods of notice and consultation.

White collar workers with two years tenure or more receive severence payments of 10% of a month's salary for each year of service. Blue collar workers get 20 hours' wages per year employed. Special agreements exist for employees with at least 10 years service, who receive 10% of a month's
for employees with at least 10 years service, who receive 10% of a month’s salary for each year employed and one fifteenth of a months salary for each year over ten.

Sanctions for unfair dismissal are at minimum six months earnings if an employee has at least six months of service.

2.2 Germany

The employment protection regulations can be divided into individual and collective dismissal rules. In Germany the works council has to be consulted on every dismissal. (A works council can be demanded by the employees if the firm employs at least 5 persons. The codetermination rights are somewhat stronger if the firm consists of at least 20 employees.) If the works council objects to the proposed dismissal, employment must be continued until the case is decided. If the works council has not been consulted, the dismissal is invalid. If a labour court decides that a dismissal was unfair reinstatement is possible. However in the majority of cases the dismissed worker gets compensation for back wages and one month’s pay per year of service. The maximum allowable compensation depends on age and is 12 months' pay in case of employees below 50, 15 months for workers between 50 and 55, and 18 months if the person is over 55.

If collective redundancies are planned, the works council has of course to be consulted as well. In this case the codetermination rights are extended. If 6 or more persons are involved and the firm presently employs between 21 and 59 persons, a so-called social plan is mandatory. This means the redundant workers receive compensation. In firms with 60 to 499 employees a social plan is mandatory if 25 (or 10%) workers are made redundant. Different thresholds apply if the reason for the redundancies is rationalisation. Only the existence of a works council secures the payment of a social plan. The dismissals have to be announced at least 30 days in advance.
2.3 Great Britain

Great Britain implemented quite intensive deregulation in the area of labour law. The focus was an extension of the qualifying period for coverage under unfair dismissal legislation. In 1979 this was lengthened from 26 to 52 weeks and from 52 to 105 weeks of employment in 1985. Firms with less than 20 employees were exempted from coverage during the first two years of operation in 1980. The costs of financing severance payments under the Redundancy Payments Act were shifted directly onto employers after 1986. Trade union power was reduced by a number of changes in trade union legislation.

In the United Kingdom usually voluntary redundancy programs are used in managing downward adjustments in the labour force. The statutory benefits are frequently supplemented by extra-statutory payments in order to induce quits. Early retirement is of little relevance in the UK. Labour market policy concentrates on problem groups especially youth and the long-term unemployed.

According to the Redundancy Payments Act statutory redundancy payments, which are in part reimbursed by public authorities, depend on the age of the person in question, length of service and previous earnings. The state subsidies were gradually reduced from initially 59% to 41% in 1978 and 35% in 1985. Later the subsidy was eliminated for firms employing 10 employees or more. As of 1990 they are entirely abolished.

The extra-statutory redundancy payments are frequently more important. Unions strategy focuses on getting the best possible redundancy package for their members instead of opposing dismissals. Employers are now able to achieve redundancies without strong resistance. Because of the dependence of redundancy payments on age and length of service, nowadays older workers are more frequently made redundant than used to be the case.
2.4 Italy

Consultation and information rights are low with respect to individual dismissals. The sanctions for unfair dismissals depend on firm size. Firms with at least 16 employees have to re-employ the person in question or continue to pay wages. The minimum damage award is the equivalent of 5 months wages. Smaller firms have to continue employment only if the employer agrees. The compensation depends on length of service as well as firm size and ranges between a 8 months pay and 14 months pay.

If large scale redundancies are intended the unions have information and consultation rights. The advance notice period is 15 to 45 days. Eligible for severance payments are all employees with at least one year of service irrespective of the reason why employment is terminated. The payment is $1/13.5$ of earnings for each year of service.

All countries show differences in the employment protection regulation according to the length of service. Both the application of employment protection regulation and the magnitude of the severance payments depend on the length of employment.

In addition to the aforementioned regulations, there are a number of other varying aspects like flexibility of working time (sometimes restrictions on overtime working exist), early retirement programs or governmental subsidies for short-time working. Another example is the practice in Italy, where the public employment service regulates who is to be recruited by private firms (Emerson 1988, 784).

It is rather difficult to weight the several regulations in order to construct something like an index on the rigidity of employment contracts. Another possibility to compare the flexibility of employment adjustment is the use of opinion polls among employers in the different countries. In 1985 the Commission of the European Communities undertook a detailed survey of 50000 companies in 9 EC countries (cf. Emerson 1988). One question centered on the importance attached to "insufficient flexibility in hiring and shedding labour as a reason for not employing more staff". 83% of the respondents considered this to be an important obstacle in Italy, 81% of the
firms in France, 56% in Germany and only 26% did so in the United Kingdom. The International Organisation of Employers reported in 1985 how each country’s employers’ organisation assessed the severity of rules restricting the termination of employment. These obstacles are considered to be “fundamental” in France, Germany and Italy, while they are regarded as “insignificant” in the United Kingdom.

On the question whether a positive employment impact is expected from a shortening of the periods of notice, Italian employers answered with 88% in the affirmative, as did 63% in Germany, 48% in France but only 28% in Great Britain. A similar question on the adverse effect of redundancy payments on employment was agreed upon by 78% of employers in Italy, 46% in Germany, 23% in the United Kingdom and 22% in France.

Clearly such surveys are subjective and in part the answers reflect the intensity of the discussion in the public, independent of objective criteria. Nevertheless the results point to a ranking of the four countries with Great Britain having the least adjustment rigidities and Italy protecting its employees the most. Germany and France are in the middle.

The intensive discussion on the possibly negative impact of employment protection regulation led in France and Germany to legislative action. France introduced in 1975 a general requirement of prior official authorization of all dismissals for economic reasons. Although most requests were approved, the delay and uncertainty involved by this system led to criticism by employers. This regulation was abolished in 1986. In 1985 the maximum duration of temporary employment was expanded and in 1986 it was further liberalized by eliminating the requirement that temporary work contracts be justified by the existence of an exceptional situation.

The German government liberalized fixed-term and temporary work in 1985 by passing the Employment Promotion Act (EPA). Previously fixed-term contracts were strictly limited to certain well-defined situations like seasonal work, temporary replacement of absent employees or temporary peaks in demand. The EPA permits the use of such contracts without giving a specific reason. The maximum duration of the fixed-term contracts were largely extended to 18 months respectively 24 months for small firms. However,
apparently the effect of this liberalization was rather limited (Büchtemann 1989).

3. Empirical Specification

The purpose of this study is to investigate differences in employment adjustment among the four countries considered. Secondly, whether the adjustment speed has changed over time is investigated. In order to make such a comparison possible, the following methodology is applied.

An econometric model on labour market dynamics has the problem of matching the lag reactions of a postulated theoretical model to the autocorrelation structure of the associated observed time-series data. For a long time econometricians analysed time series data not very different from traditional cross-section data. A regression model was formulated and attention focused on simultaneity and autocorrelation of the errors. Little attention was paid to the dynamic structure of the time series. Implicitly stationarity of the economic data was assumed which is questionable in many cases. One solution for working with data which is not stationary in levels is to difference it and to use these variables to test hypotheses. The problem with this approach is that useful information on long-run relations is lost. This is a drawback insofar as many economic theories model long-run equilibrium situations and to a lesser extent the adjustment to deviations from this equilibrium.

Recently, the concept of the error-correction model has been suggested as one solution to this problem. This approach measures both short and long run responses to changes in the exogenous variables. As a simple example consider the following relationship:

\[ y_t = \beta_0 + \beta_1 x_t + \beta_2 x_{t-1} + \beta_3 y_{t-1} \]
If \( y_t = y_{t-1} \) and \( x_t = x_{t-1} \) is assumed, that means the variables are in their long run equilibrium, the following relation emerges:

\[
y^* = \frac{\beta_0 + (\beta_1 + \beta_2) x^*}{1 - \beta_3}
\]

with the long-run multiplier \( (\beta_1 + \beta_2)/(1 - \beta_3) \). The original equation can be manipulated by subtracting \( y_{t-1} \) from each side, adding and subtracting \((\beta_1 + \beta_2)x_{t-1}\) on the right hand side to produce:

\[
\Delta y_t = \beta_0 + \beta_1 \Delta x_t + \left(1 - \beta_3\right) \left(\frac{\beta_1 + \beta_2}{1 - \beta_3} x_{t-1} - y_{t-1}\right)
\]

This is the error correction representation of the original specification. Note that the term in brackets is the long-run equilibrium relation represented by equation (2). If the variables have reached their equilibrium values, the error correction term falls out. Otherwise (the normal case) the last term is not equal to zero and leads to an adjustment of the dependent variable. If, for example, \( y \) grows too quickly, the last term becomes bigger and \( \Delta y_t \) is reduced. The contrary happens if \( x \) is larger than \( y \). The response to an "error" in the previous period is sometimes interpreted as a reaction to disequilibrium and the \( \beta_1 \Delta x_t \) term is regarded as an equilibrium response. Another and, in this connection, more useful distinction is to measure by the error correction term long run relationships and by the coefficients of the differenced variables short run responses.

The ideas underlying this model are in part drawn from classical control literature and their importation into econometrics seems to trace back to Phillips (1954). Classical control theory considered the design of a controller and the control rule expresses the relation between a control variable \( y_t \) and a target \( y^*_t \) as the sum of the derivative of the target \( \Delta y^*_t \), a proportional \((y^*_{t-1} - y_{t-1})\) and integral \(\int (y^*_{t-1} - y_{t-1})\) control actions. The third term is usually neglected. In case of differences between the actual and the target values
the system is corrected by use of feedback control rules. The derivative control action means the reaction to a change in the target while the proportional control action refers to a difference between the target and the actual value in the last period.

Another derivation of the error correction model is an optimal adjustment path by an economic agent seeking to minimize a discounted cost function over time. The costs are composed of differences between the target $y_t^*$ and $y_t$ as well of rapid adjustment costs. This means both deviations from equilibrium and adjustment towards this equilibrium cause costs. If the optimal value changes both kinds of costs necessarily exist and the economic agent has to find the cost minimizing adjustment strategy. Nickell (1985) derives the error correction model on this basis and the use of a particular form of the stochastic process driving the target ($y^*$ follows a second order autoregression with unit root). The error-correction-model has as well some desirable econometric properties which, however, will not be discussed here in detail.

What is of prime importance is the differentiation of the coefficients into long and short run effects. The expression in brackets gives the long run relation between the exogenous and the endogenous variable. The coefficient $\theta=(\beta_1+\beta_2)/(1-\beta_3)$ is interpreted as the long-run equilibrium relation. The coefficient of the variable in first differences is an estimate of the short run impact. The coefficient $\lambda=(1-\beta_3)$ of the error correction term is an estimate of the adjustment lag. The mixing of differenced and level data is the major advantage of this model as both the short and long run response are measured. There exist several ways to implement the error-correction model in the estimation process. A popular method is the two-step approach suggested by Engle and Granger (1987). In this case the "error" (variables in levels) is estimated in the first place and the lagged value of it is used in the second step as one explanatory variables in addition to the other variables, which are in first difference form. In this case non-linear estimation is avoided and OLS can be applied. The long-run relationship is consistently estimated despite the complete omission of all dynamics. The problem is the loss of information if not all variables are included simultaneously (Engle and
Yoo 1987, Stock 1987). Therefore here a non-linear one-step approach is applied.

The empirical investigation is based on data from Germany, France, Italy and Great Britain. These are the largest economies in the EC. The data is derived from two sources. On the one hand the International Sectoral Data Base collected by the OECD is used. The industries included are: Ferrous and non-ferrous ores and metals, Non-metallic minerals and mineral products, Chemical products, metal products, agricultural and industrial machinery, office and data processing machines, precision and optical instruments; electrical goods, transport equipment, food, beverages and tobacco, textiles and clothing, leather and footwear; paper and printing products; rubber and plastic products, other manufactured products.

For all countries except Great Britain yearly data on 13 industries from the manufacturing sector over the time period 1972 to 1988 is used which yields 221 observations. In case of Great Britain only 12 industries are available. It is obvious that an international comparison makes only sense if the same industries are considered as otherwise special technological restrictions or customer relations render any conclusion questionable.

The second source is data collected by Eurostat on behalf of the EC. An important condition for the data is that in all countries the same industries and the same periods are covered in order to make a comparison possible. This condition cannot be met by the Eurostat-data for Italy. Only six industries are available for this country and thus Italy has been omitted from the comparison. For France, Germany and Great Britain the following industries are used: Production and preliminary processing of metals; extraction of minerals other than metalliferous and energy-producing extraction; manufacture of non-metallic products; chemical industry; man-made fibre industry; manufacture of metal articles; electrical engineering; manufacture of motor vehicles and of motor vehicle parts and accessories; manufacture of other means of transport; food, drink and tobacco industry; textile industry; manufacture of paper and paper products, printing and publishing. The time period covered is 1979 to 1990.
The dependent variable is the difference between the logarithmic values of employment (EMP) in the particular industry. Explanatory variables are logarithmic values of the production level (PROD) and the real wages (WAGES). The error correction model measures the impact of the explanatory variables in the short and in the long run. Based on the structure of the ECM and the variables used, the following model is to be estimated:

\[ \Delta EMP_t = \beta_0 + \beta_1 \Delta WAGES_t + \beta_2 \Delta PROD_t \\
+ \lambda \left( \theta_1 WAGES_{t-1} + \theta_2 PROD_{t-1} - EMP_{t-1} \right) + u_t \]

The term in parentheses gives the long run effect of production and real wages on employment. As all variables are in logarithmic values, the coefficients \( \theta_1 \) and \( \theta_2 \) are long-run elasticities. The coefficients of the differenced variables \( \beta \) are estimates of the short-run responses. The term \( u \) stands for the residuals. Given the use of yearly data, the term "short-run" is defined as the reaction within one year. In order to compare the adjustment speed, the short-run coefficients are divided through the long-run responses. This figure expresses which ratio of the total employment adjustment is realised within the current year.

It is obvious that this equation is non-linear and it has therefore been estimated by Non-linear Least Squares. The standard errors are calculated by use of White's (1980, 1982) method to avoid a possible bias from heteroscedastic errors.

4. Results

The results of the estimation by use of the OECD data are displayed in Table 1. The use of the Eurostat sample led to very similar results as those reported in Table 3b and are omitted here in order to save space. Overall the equations seem to work well in explaining the change in employment.
The lag-coefficient is generally rather small, but this is not uncommon if the variables are also included in differenced form. The long-run responses of employment to the level of production and real wages seem to be within a sensible range. The production-employment elasticity is in two cases smaller than one, but the coefficients are not very far from unity. The wage-employment elasticities is rather large but not of uncommon magnitude. The wage elasticities are not very different between the considered countries and vary between values of -.78 for Germany and -1.08 in the case of France.

Table 1: Results of the Error-Correction Model

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
<th>Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_0$</td>
<td>-.06</td>
<td>.004</td>
<td>-.03</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>(-.59)</td>
<td>(.05)</td>
<td>(-.21)</td>
<td>(.09)</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>.41</td>
<td>.21</td>
<td>.24</td>
<td>.38</td>
</tr>
<tr>
<td></td>
<td>(9.05)</td>
<td>(5.34)</td>
<td>(7.11)</td>
<td>(8.34)</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>-.28</td>
<td>-.11</td>
<td>-.20</td>
<td>-.29</td>
</tr>
<tr>
<td></td>
<td>(-4.49)</td>
<td>(-2.88)</td>
<td>(-5.22)</td>
<td>(-5.70)</td>
</tr>
<tr>
<td>$\lambda$</td>
<td>.03</td>
<td>.06</td>
<td>.01</td>
<td>.03</td>
</tr>
<tr>
<td></td>
<td>(3.38)</td>
<td>(7.05)</td>
<td>(1.23)</td>
<td>(2.64)</td>
</tr>
<tr>
<td>$\theta_1$</td>
<td>-.78</td>
<td>-1.08</td>
<td>-.98</td>
<td>-1.00</td>
</tr>
<tr>
<td>$\theta_2$</td>
<td>.96</td>
<td>1.01</td>
<td>1.02</td>
<td>.93</td>
</tr>
<tr>
<td>log likelihood</td>
<td>515.11</td>
<td>558.92</td>
<td>505.94</td>
<td>417.08</td>
</tr>
</tbody>
</table>

Notes: t-values in brackets, n=234 (Great Britain n=216)

The coefficients of the differenced variables are usually significant and are of reasonable magnitudes. As discussed above, these coefficients are divided by the coefficients of the variables in levels in order to estimate which part of the long-run adjustment is carried out during one year. This ratio is taken as an indicator of the adjustment speed or perhaps sluggishness.
In the first place the adjustment to changes in production is considered. The different ratios are displayed in the first row of Table 2. The figures express how much of overall employment adjustment to changes in output and/or wages is accomplished during one year. Surprisingly Germany shows the largest percentage of adjustment within one year of 42.49%. Second is Great Britain with a value of 41.07%. In the Italian manufacturing industry 23.37% of the employment adjustment takes place in the current year. The slowest adjustment is estimated for France with 20.63%.

Secondly the response of employment to wage increases is analysed. Table 2 shows the results of this procedure in the second row. Again Germany displays the fastest among the four countries with an employment adjustment within the current year of 35.73%. Great Britain is second with a figure of 29.27%. Italy and France have much smaller values of 20.69 respectively 9.80%.

The differences in adjustment pattern to changes in production and wages require an explanation. In all cases employment reacts faster to changes in the production level than to wage increases. On the other hand the long run responses to wage increases are quite intense and comparable to output adjustment (perhaps with the exception of Germany), although there is no reason that the two elasticities have to be similar. One explanation might be the low substitutability between labour and capital in the short run. It is well known that a change in the factor price relation has very limited effects in the short run if the firm still works at full capacity. In the medium and long term, however, capital is substituted for labour. By contrast if a company faces a reduction in demand, employment will be lowered rather quickly, if it is expected that the slump will continue for a significant time.

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
<th>Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROD</td>
<td>.4249</td>
<td>.2063</td>
<td>.2337</td>
<td>.4107</td>
</tr>
<tr>
<td>WAGES</td>
<td>.3573</td>
<td>.0980</td>
<td>.2069</td>
<td>.2927</td>
</tr>
</tbody>
</table>
In addition, perhaps legal or collective bargaining restrictions are responsible for this observed difference. A labour court is likely to accept an employment adjustment to a change in production more readily than a reduction in employment in response to wage increases. The reaction to changes in remuneration will take place more smoothly by use of voluntary turnover and more capital-intensive production. If in addition to technological considerations, legal constraints are responsible for the difference, the legislation in France is expected to be particularly restrictive concerning wage induced employment changes.

In a second step whether the speed of adjustment to the long-run equilibrium values has undergone changes during the time period examined is investigated. This is done by dividing the lag parameter lambda into a constant (called $\lambda_c$) and a variable part. The variable part is a trend variable (TREND) multiplied by a coefficient $\lambda_v$. This coefficient measures whether a change in adjustment has taken place. If this coefficient would be positive, adjustment would be faster while a negative estimate would point to a reduction in adjustment speed. The specification is in this case:

$$\Delta EMP_t = \beta_0 + \beta_1 \Delta WAGES_t + \beta_2 \Delta PROD_t + (\lambda_c + \lambda_v \text{TREND})$$

\[ -(\theta_1 WAGES_{t-1} + \theta_2 PROD_{t-1} - EMP_{t-1}) + u \]  

The results are presented in Table 3 a and b. In addition to the OECD data the Eurostat sample is used for France, Germany and Great Britain. Unfortunately too few industries are given for Italy in the EC data to include this country into the comparison. Furthermore, since the Eurostat data contains little information on wages, only output elasticities are calculated.
### Table 3a: Results of the Error-Correction Model with Variable lags (OECD Sample)

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>France</th>
<th>Italy</th>
<th>Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_0$</td>
<td>-.01</td>
<td>-.04</td>
<td>-.23</td>
<td>-.04</td>
</tr>
<tr>
<td></td>
<td>(-1.92)</td>
<td>(-1.98)</td>
<td>(-1.63)</td>
<td>(-1.88)</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>.40</td>
<td>.16</td>
<td>.24</td>
<td>.42</td>
</tr>
<tr>
<td></td>
<td>(8.97)</td>
<td>(4.31)</td>
<td>(9.17)</td>
<td>(9.39)</td>
</tr>
<tr>
<td>$\beta_2$</td>
<td>-.19</td>
<td>-.14</td>
<td>-.21</td>
<td>-.32</td>
</tr>
<tr>
<td></td>
<td>(-2.88)</td>
<td>(-3.94)</td>
<td>(-6.18)</td>
<td>(-6.26)</td>
</tr>
<tr>
<td>$\lambda_c$</td>
<td>.03</td>
<td>.06</td>
<td>.04</td>
<td>.06</td>
</tr>
<tr>
<td></td>
<td>(1.99)</td>
<td>(3.15)</td>
<td>(3.41)</td>
<td>(2.61)</td>
</tr>
<tr>
<td>$\lambda_v$</td>
<td>-.003</td>
<td>-.003</td>
<td>-.004</td>
<td>-.003</td>
</tr>
<tr>
<td></td>
<td>(-1.71)</td>
<td>(-1.61)</td>
<td>(-1.99)</td>
<td>(-1.24)</td>
</tr>
<tr>
<td>$\theta_1$</td>
<td>-.94</td>
<td>-.94</td>
<td>-.69</td>
<td>-.80</td>
</tr>
<tr>
<td>$\theta_2$</td>
<td>.94</td>
<td>1.00</td>
<td>1.02</td>
<td>.93</td>
</tr>
<tr>
<td>log likelihood</td>
<td>514.76</td>
<td>579.56</td>
<td>509.23</td>
<td>421.84</td>
</tr>
</tbody>
</table>

Notes: t-values in brackets, n=234 (Great Britain n=216)

### Table 3b: Results of the Error-Correction model with Variable Lags (Eurostat Sample)

<table>
<thead>
<tr>
<th></th>
<th>Germany</th>
<th>France</th>
<th>Great Britain</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_0$</td>
<td>.03</td>
<td>-.04</td>
<td>-.01</td>
</tr>
<tr>
<td></td>
<td>(1.26)</td>
<td>(-1.69)</td>
<td>(-.29)</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>.35</td>
<td>.23</td>
<td>.19</td>
</tr>
<tr>
<td></td>
<td>(8.65)</td>
<td>(4.29)</td>
<td>(3.91)</td>
</tr>
<tr>
<td>$\lambda_c$</td>
<td>.09</td>
<td>.07</td>
<td>.05</td>
</tr>
<tr>
<td></td>
<td>(2.42)</td>
<td>(2.32)</td>
<td>(1.03)</td>
</tr>
<tr>
<td>$\lambda_v$</td>
<td>.01</td>
<td>-.003</td>
<td>.005</td>
</tr>
<tr>
<td></td>
<td>(3.17)</td>
<td>(-.88)</td>
<td>(.73)</td>
</tr>
<tr>
<td>$\theta_2$</td>
<td>.96</td>
<td>1.05</td>
<td>.94</td>
</tr>
<tr>
<td>log likelihood</td>
<td>369.30</td>
<td>326.74</td>
<td>262.42</td>
</tr>
</tbody>
</table>

Notes: t-values in brackets, n=144
The estimate of the short to long run adjustment with respect to output variation is very close for both data sources. Germany shows the most flexible adjustment followed by Great Britain, Italy and France. The variable lag parameter is usually insignificant. Exceptions are the positive coefficient estimated for Germany by use of the Eurostat data and the negative one found for Italy applying the OECD sample. Hence the Eurostat sample points to a more flexible adjustment in Germany. This difference might be due to the time period included as the OECD data runs from 1971 to 1988 while the Eurostat data covers 1979 to 1990. Thus the results from the latter sample might reflect the more recent development on the labour market. Nevertheless no evidence at all is found in favour of the supposed "sclerosis" of the German labour market. To the contrary adjustment speed is among the highest in Europe and if there is a change at all, than it is increasing rather than decreasing over time. These results coincide with Maurau and Oudinet (1988), who find the German labour market to be more flexible than the one of France, Great Britain and Italy. The evidence is also in accord with the results of Leonard and Schettkat (1991), who compare job stability in the US and Germany. Leonard and Schettkat (1991, 153) conclude "in contrast to the common view of a Eurosclerotic Germany that does not create jobs, this paper reviews evidence of substantial rates of job creation and destruction in Germany."

Admittedly it has to be questioned whether adjustment during one year can be regarded as being "short-run". Unfortunately the OECD data contains only annual data and although the Eurostat data collects in principle quarterly data, this information is very incomplete for France, Great Britain and Italy. Hence an estimation based on quarterly data is possible only for Germany. Given the unexpectedly high adjustment flexibility in Germany, it is of particular interest how much of this adjustment is reached within the first quarter.

The results based on this sample are displayed in Table 4. It turns out that about 9.5% of the total adjustment to changes in production is accomplished during the current quarter. Given that adjustment during one year is 36% (Eurostat data), this result shows that the adjustment during the first quarter is no more intensive than during the following three quarters. Hence
adjustment seems to be spread equally over the year and not disproportionately accomplished within the first three months.

Table 4: A Quarterly Model of Employment Adjustment in Germany

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\beta_0$</td>
<td>-.003</td>
<td>(-3.24)</td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>.09</td>
<td>(10.74)</td>
</tr>
<tr>
<td>$\lambda_c$</td>
<td>-.006</td>
<td>(-.82)</td>
</tr>
<tr>
<td>$\lambda_v$</td>
<td>.001</td>
<td>(4.25)</td>
</tr>
<tr>
<td>$\theta_2$</td>
<td>1.01</td>
<td></td>
</tr>
</tbody>
</table>

Log likelihood: 3010.28

Notes: t-values in brackets, n=576

The results on the change in adjustment speed for France show no evidence that obstacles to employment adjustment have become greater. By contrast Italy shows a tendency toward slower adjustment over time. This is consistent with recent change in legislation in Italy. Finally, in case of Great Britain adjustment speed is apparently unchanged over the time period examined.

The results are certainly surprising. According to this study Germany has a quite flexible labour market - at least if the period observed is a year - despite its numerous regulations and comes close to Great Britain. Given that the expression "Eurosclerosis" has been coined by a German economist, this result is unexpected. However, the presented results point to a "sclerosis" problem in France. With this results in mind, one can understand the recent deregulation movements in France. Perhaps the relation of Great Britain to Italy is more in line with expectations. The British
industry shows more flexibility than the Italian, at least with regard to employment adjustment.

5. Conclusion

The purpose of this study is to compare adjustment patterns in four major European economies; France, Germany, Great Britain and Italy. This analysis is based on data collected by the OECD on 13 and by Eurostat on 12 industries within the manufacturing sector.

In contrast to what appears to be public wisdom, Germany shows a rather quick adjustment to changes in the production level. This adjustment is estimated to be of equal intensity during the first and the following three quarters. More in accord with expectations are the results concerning France, Great Britain and Italy. Focusing on the adjustment to output changes Great Britain shows the strongest response ahead of Italy and France.

An analysis of changes in the adjustment speed over time shows - with the exception of Italy - no evidence that employment has become less flexible during the last years. In particular the sceptical views on the supposed sclerotic German labour market finds little support. This does however not imply that the German economy does not have its differences between groups of workers. There might well exist an insider-outsider distinction where insiders are defined as skilled German workers whose employment is safe and adjustment takes place at the expense of outsiders who get only temporary employment. In order to investigate this question data disaggregated by skill is needed, which is not collected by the OECD or Eurostat the industry level.

A number of issues remain to be investigated: the approach implies symmetric adjustment costs in case of an upswing and a recession. This is however questionable if employers discount future dismissal costs heavily, among other things because it might be rather unclear whether dismissals are necessary at all. However, the consideration of asymmetric adjustment
costs would render the approach used very complex and hardly manageable.

Another weakness is the application (with the exception of Germany) of annual data. This means that the term short-run adjustment is defined as flexibility observed during one year. Clearly quarterly data should be used in addition to investigate differences between adjustment pattern in the short-, medium- and long run. Finally this study continues the unfortunate tradition of neglecting the influence of working time. Most likely the adjustment of working time per head is an alternative to changes in employment. Despite this obvious connection empirical studies hardly consider the effects of working time. Probably this is not caused by ignorance of the researchers but problems of data availability. For example, the OECD sample contains no data on working time and the Eurostat not enough information on hours disaggregated on the industry level, causing the regrettable omission of working time in this study.
Footnotes

1) Cf. e.g. Banerjee, Dolado, Galbraith and Hendry (1993).

2) Clearly, output and real wages might well be endogenously determined. This is not a problem if the long-run coefficients are estimated and the variables are co-integrated (Engle and Granger 1987). However the estimation in first differences might be affected. An instrumental variable model is very difficult to implement since appropriate instruments are hardly available. The use of lagged values of (the first differences of) output and wages leads to smaller coefficients, which is not surprising and can be explained by the smaller impact of lagged variables on the current value of the dependent variable, in addition to a possible simultaneous equation bias. The ranking of the countries according to their adjustment speed reported below remains unchanged if lagged variables are used.
References


BÜCHER
DES FORSCHUNGSSCHWERPUNKTS
ARBEITSMARKT UND BESCHÄFTIGUNG
(nur im Buchhandel erhältlich)

Eileen Appelbaum / Ronald Schettkat (Eds.)
Labor Market Adjustments of Structural Change and Technological Progress
1990, Praeger, 247 Seiten

Bettina Bangel
Geographie der Altersgrenzen.
Frühverrentung im regionalen Strukturwandel
1993, edition sigma, 251 Seiten

Christoph Büchtemann / Helmut Neumann (Hrsg.)
Mehr Arbeit durch weniger Recht? Chancen und Risiken der Arbeitsmarktflexibilisierung
1990, edition sigma, 303 Seiten

Adrian Campbell / Arndt Sorge / Malcolm Warner
Microelectronic Product Applications. Strategy, Competence and Training
1989, Gower, 200 Seiten

Wendy Carlin / David Soskice
Macroeconomics and the Wage Bargain. A Modern Approach to Employment, Inflation and the Exchange Rate
1990, Oxford University Press, 482 Seiten.

Michael Funke (Ed.)
Factors in Business Investment
1989, Springer Verlag, 263 Seiten

Michael Funke
Tobin's Q und die Investitionsentwicklung in den Wirtschaftsbranchen des Unternehmenssektors in der BRD
1991, Duncker & Humblot, 193 Seiten

Gernot Grabher (Ed.)
The Embedded Firm
On the Socioeconomics of Industrial Networks
1993, Routledge, 306 Seiten

Gernot Grabher
Lob der Verschwendung
1994, edition sigma, 144 Seiten

Hubert Heinelt / Gerhard Bosch / Bernd Reissert (Hrsg.)
Arbeitsmarktpolitik nach der Vereinigung
1994, edition sigma, 249 Seiten

Hitchens, D.M.W.N. / Wagner, K. / Birnie, J.E.
East German Productivity and the Transition to the Market Economy
1993, Avebury, 126 Seiten

Hansjörg Herr / Heinz-Peter Spahn
Staatsverschuldung, Zahlungsbilanz und Wechselkurs. Studien zur monetären Ökonomie, Band 5
1988, transfer verlag, 180 Seiten

Hansjörg Herr / Andreas Westphal (Hrsg.)
Transformation in Mittel- und Osteuropa. Makroökonomische Konzepte und Fallstudien
1993, Campus, 370 Seiten

Jan Kregel / Egon Matzner / Gernot Grabher (Eds.)
(edited for the AGENDA-Group)
The Market Shock
1992, University of Michigan Press, Ann Arbor, 132 Seiten

Margarete Landenberger
Die Beschäftigungsverantwortung der Rentenversicherung
1991, edition sigma, 254 Seiten

Egon Matzner / Michael Wagner (Eds.)
The Employment Impact of New Technology - The Case of West-Germany
1990, Avebury, 307 Seiten

Egon Matzner / Wolfgang Streeck (Eds.)
Beyond Keynesianism. The Socio-Economics of Production and Full Employment
1991, Edward Elgar, 263 Seiten

Egon Matzner / Jan Kregel / Gernot Grabher (Hrsg.)
(herausgegeben für die AGENDA-Gruppe)
Der Markt-Schock
1992, edition sigma, 104 Seiten
Sigrid Quack
Dynamik der Teilzeitarbeit. Implikationen für die soziale Sicherung von Frauen
1993, edition sigma, 289 Seiten

Hajo Riese / Heinz-Peter Spahn (Hrsg.)
Geidpolitik und ökonomische Entwicklung. Ein Symposium. Studien zur monetären Ökonomie, Band 4
1990, transfer verlag, 240 Seiten

Hedwig Rudolph / Mirjana Morokvasic (Eds.)
Bridging States and Markets. International Migration in the Early 1990s
1993, edition sigma, 330 Seiten

Ronald Schettkat
innovation und Arbeitsmarktdynamik
1989, Walter de Gruyter, 240 Seiten

Ronald Schettkat / Michael Wagner (Hrsg.)
Technologischer Wandel und Beschäftigung. Fakten, Analysen, Trends
1989, Walter de Gruyter, 416 Seiten

Ronald Schettkat, Michael Wagner (Eds.)
Technological Change and Employment. Innovation in the German Economy
1990, Walter de Gruyter, 384 Seiten

Ronald Schettkat
The Labor Market Dynamics of Economic Restructuring. The United States and Germany in Transition
1992, Praeger, 213 Seiten

Günther Schmid / Bernd Reissert / Gert Bruche
Unemployment Insurance and Active Labor Market Policy. An International Comparison of Financing Systems
1992, Wayne State University Press, 314 Seiten

Georg Vobruba (Hrsg.)
Der wirtschaftliche Wert der Sozialpolitik
1989, Duncker & Humbolt, 239 Seiten

Georg Vobruba
Arbeit und Essen - Politik an den Grenzen des Arbeitsmarkts
1989, Passagen Verlag, 248 Seiten

Georg Vobruba (Hrsg.)
Strukturwandel der Sozialpolitik
1990, edition suhrkamp, 352 Seiten
DISCUSSION PAPERS 1991

FS I 91 - 1
Christoph F. Büchtemann

FS I 91 - 2
Birgit Mahnkopf
A Modernization Approach of German Trade Unions: Further Training through Collective Bargaining

FS I 91 - 3
Lorenz Lassnigg
Evaluation arbeitsmarktpolitischer Programme in Österreich: Vermittlungsförderung für Langzeitarbeitslose

FS I 91 - 4
Peter Auer (Ed.)
Workforce Adjustment Patterns in Four Countries: Experiences in the Steel and Automobile Industry in France, Germany, Sweden and the United Kingdom

FS I 91 - 5
Werner Beuschel
Expertensysteme im Betrieb - Fallstudien in den USA zu Auswirkungen auf Arbeitsorganisation und Qualifikation

FS I 91 - 6
Lennart Delander
Placement, Counselling and Occupational Rehabilitation in Sweden

FS I 91 - 7
Helen Rainbird
British Trade Unions and the Possibility of a Skill-Oriented Modernisation Strategy in a Low Skill Economy

FS I 91 - 8
Günther Schmid
unter Mitarbeit von Detlef Siebert
Flexible Koordination: Instrumentarium erfolgreicher Beschäftigungspolitik aus internationaler Perspektive

FS I 91 - 9
Friederike Maier
The Regulation of Part-Time Work: A Comparative Study of Six EC-Countries

FS I 91 - 10
Christoph Büchtemann, Nigel Meager
Leaving Employment: Patterns in Major EC Countries

FS I 91 - 11
Wolfgang Streeck
Klasse, Beruf, Unternehmen, Distrikt: Organisationsgrundlagen industrieller Beziehungen im europäischen Binnenmarkt

FS I 91 - 12
Günther Schmid
unter Mitarbeit von Christine Ziegler
Die Frauen und der Staat.
Beschäftigungspolitische Gleichstellung im öffentlichen Sektor aus internationaler Perspektive

FS I 91 - 13
Hedwig Rudolph, Friederike Maier
Sabine Hübner, Andrea Fischer
Frauenerwerbstätigkeit im Strukturwandel Mittel- und Osteuropas. Aktueller Stand und Zukunftsaussichten

DISCUSSION PAPERS 1992

FS I 92 - 1
Günther Schmid
Equality and Efficiency in the Labour Market Towards a Socio-Economic Theory of Cooperation in the Context of a Globalizing Economy

FS I 92 - 2
Peter Auer, Heinz Groß, Reiner Kotulla, Gabriele Rachel
Kurzarbeit und Qualifizierung in den neuen Ländern: Von der internen zur externen Anpassung

FS I 92 - 3
Peter Auer
Further Education and Training for the Employed (FETE): European Diversity
A description of country models and an analysis of European Labour Force Survey Data

FS I 92 - 4
Lowell Turner, Peter Auer
The Political Economy of New Work Organization. Different Roads, Different Outcomes
FS I 92 - 5
Hugh Mosley, Günther Schmid
Public Services and Competitiveness

FS I 92 - 6
Lowell Turner
Institutional Resilience in a Changing World Economy: German Unions Between Unification and Europe

FS I 92 - 7
Bettina Bangel, Bernd Reissert, Wolfgang Jaedicke, David Weißert
Koordinierung der Arbeitsmarktpolitik in Hamburg

FS I 92 - 8
Herrad Höcker
Berufliche Weiterbildung für Beschäftigung in Dänemark

FS I 92 - 9
Hugh Mosley, Thomas Kruppe

FS I 92 - 10
Hedwig Rudolph (Ed.)
Dynamics and Rollback of Women's Employment in Non-Traditional Occupations

DISCUSSION PAPERS 1993

Abteilung:
Organisation und Beschäftigung

FS I 93 - 101
Swen Hildebrandt
Berufsbildung und Beschäftigung in französischen Kreditinstituten.
Ein institutionelles Beziehungsgeflecht

FS I 93 - 102
Birgit Mahnkopf
The Impact of Unification on the German System of Industrial Relations

FS I 93 - 103
David Stark
Recombinant Property in East European Capitalism

FS I 93 - 104
Jeffrey Furman
From the Unemployment Line to the Classroom to the Office?
The Education and Training Patterns of Women during the Transformation of the East German Economy

Abteilung:
Arbeitsmarktpolitik und Beschäftigung

FS I 93 - 201
Nigel Meager
Self Employment and Labour Market Policy in the European Community

FS I 93 - 202
Peter Auer, Günther Schmid
Challenges and Possible Responses. Further Education and Training for the Employed in Europe

FS I 93 - 203
Lowell Turner
Beyond National Unionism? Cross-National Labor Collaboration

FS I 93 - 204
Klaus Schömann, Thomas Kruppe
Fixed-Term Employment and Labour Market Flexibility - Theory and Longitudinal Evidence for East and West Germany

FS I 93 - 205
Klaus Schömann, Rolf Becker
Participation in Further Education Over the Life-Course.
A longitudinal study of three birth cohorts in the Federal Republic of Germany

FS I 93 - 206
Lothar Linke
Kurzarbeit im Strukturwandel.
Eine Analyse in der Bundesrepublik während der achtziger Jahre unter Einbeziehung erster Erfahrungen in den neuen Bundesländern

FS I 93 - 207
Birgitta Rabe
Lohnsubventionen in den neuen Bundesländern. Theoretische Grundlagen und Programmierungen

FS I 93 - 208
Günther Schmid
Übergänge in die Vollbeschäftigung. Formen und Finanzierung einer zukunftsgerechten Arbeitsmarktpolitik
Abteilung:
Wirtschaftswandel und Beschäftigung

FS I 93 - 301
Ronald Schettkat
Beschäftigungsstabilität in den Ländern der Europäischen Gemeinschaft

FS I 93 - 302
Sigurt Vitols
Industrial Relations and Restructuring in the German Steel Industry

FS I 93 - 303
Peter Swenson
The End of the Swedish Model in Light of its Beginnings: On the Role of Engineering Employers and their Leaders

FS I 93 - 304
Michael C. Burda
Unemployment, Labor Market Institutions and Structural Change in Eastern Europe

FS I 93 - 305
Susan Christopherson
Market Rules and Territorial Outcomes. The Case of the United States

FS I 93 - 306
Michael Burda
The Determinants of East-West German Migration: Some First Results

FS I 93 - 307
Karin Wagner
Qualifizierungsbedarf in ostdeutschen Betrieben

FS I 93 - 308
Michael Knetter
Exchange Rates and Corporate Pricing Strategies

FS I 93 - 309
Geoff Mason, Bart van Ark, Karin Wagner
Productivity, Product Quality and Workforce Skills: Food Processing in Four European Countries

FS I 93 - 310
DMWN Hitchens, Karin Wagner, JE Birnie
The Comparative Productivity of East German Manufacturing: A Matched Plant Comparison

FS I 93 - 311
Tamara Korioth
Berufliche Erstausbildung und Arbeitsmarkt in Frankreich. Institutionelle Aspekte unorganisierter Einstiegsarbeitsmärkte

FS I 93 - 312
Wolfgang Streeck, Sigurt Vitols
European Works Councils: Between Statutory Enactment and Voluntary Adoption

FS I 93 - 313
Eileen Appelbaum, Ronald Schettkat
Labor Market Developments in Industrialized Economies: Explaining Common and Diverging Trends

DISCUSSION PAPERS 1994

Abteilung:
Organisation und Beschäftigung

FS I 94 - 101
Gerald A. McDermott
Renegotiating the Ties that Bind. The Limits of Privatization in the Czech Republic

Abteilung:
Arbeitsmarktpolitik und Beschäftigung

FS I 94 - 201
Peter Auer
Lean Production: The Micro-Macro Dimension, Employment and the Welfare State

FS I 94 - 202
Herrad Hocker
Reorganisation der Arbeitsmarktpolitik. Weiterbildung für Arbeitslose in Dänemark

FS I 94 - 203
Lothar Linke
Reorganisation der Arbeitsmarktpolitik. Weiterbildung für Arbeitslose in der Bundesrepublik Deutschland
FS I 94 - 204
Dick Moraal
Reorganisation der Arbeitsmarktpolitik. Weiterbildung für Arbeitslose in den Niederlanden

FS I 94 - 205
Hugh Mosley, Christel Degen
Reorganization of Labour Market Policy. Further Training for the Unemployed in the United Kingdom

FS I 94 - 207
Kornelius Kraft
A Comparison of Employment Adjustment Patterns in France, Germany, Great Britain and Italy

Abteilung:
Wirtschaftswandel und Beschäftigung

FS I 94 - 301
Ronald Schettkat
The Macroperformance of the German Labor Market: A Comparison to the US Labor Market

FS I 94 - 302
Wolfgang Franz, David Soskice
The German Apprenticeship System

FS I 94 - 303
Richard E. Deeg
Banking on the East: The Political Economy of Investment Finance in Eastern Germany
Bitte schicken Sie mir aus Ihrer Liste der Instituts-Veröffentlichungen folgende Papiere kostenlos zu.

Please send me free of charge the following papers from your Publication List:

<table>
<thead>
<tr>
<th>Paper No./Nr.</th>
<th>Autor/Author</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>