UNIVERSITY OF WUPPERTAL
BERGISCHE UNIVERSITÄT WUPPERTAL

EUROPÄISCHE WIRTSCHAFT
UND
INTERNATIONALE MAKROÖKONOMIK

John T. Addison
Paulino Teixeira

What Have We Learned About The Employment Effects of Severance Pay? Further Iterations of Lazear et al.

Diskussionsbeitrag 110
Discussion Paper 110

Europäische Wirtschaft und Internationale Wirtschaftsbeziehungen
European Economy and International Economic Relations

John T. Addison
Paulino Teixeira

What Have We Learned About The Employment Effects of Severance Pay? Further Iterations of Lazear et al.

October 2003

Herausgeber/Editor: Prof. Dr. Paul J.J. Welfens, Jean Monnet Chair in European Economic Integration

EUROPÄISCHES INSTITUT FÜR INTERNATIONALE WIRTSCHAFTSBEZIEHUNGEN (EIIW)/
EUROPEAN INSTITUTE FOR INTERNATIONAL ECONOMIC RELATIONS
Bergische Universität Wuppertal, Gaußstr. 20, D-42119 Wuppertal, Germany
Tel.: (0)202 – 439 31 71
Fax: (0)202 – 439 31 77
E-mail: welfens@uni-wuppertal.de
www.euroeiiw.de

JEL classification: J32, J51, J65
Key words: labor market institutions, unemployment, severance pay, collective bargaining, employment protection, OECD-countries

Abstract: In this study we examine the contribution of severance pay to employment and unemployment development using data on industrialized OECD countries. Our starting point is Lazear's (1990) *dictum* that severance payment requirements adversely impact the labor market. We extend his sample period and add to his parsimonious specification a variety of fixed and time-varying labor market institutions. While the positive effect of severance pay on unemployment garners some support, there is no real indication of adverse effects for (the three) other employment outcomes identified here. Moreover, with the possible exception of collective bargaining coordination, the role of institutions is also more muted than suggested in the literature.

Zusammenfassung: In dieser Studie untersuchen wir anhand von Daten über industrialisierte OECD-Länder die Auswirkungen von Abfindungszahlungen auf die Entwicklung der Erwerbstätigkeit und die Arbeitslosigkeit. Den Ausgangspunkt unserer Analyse bildet Lazears (1990) *Diktum*, dass gesetzliche Vorschriften zu Abfindungszahlungen einen negativen Effekt auf den Arbeitsmarkt haben. Wir erweitern den Untersuchungszeitraum und fügen zu seiner sparsamen Modellspezifikation eine Vielzahl von fixen und zeitabhängigen Variablen mit Bezug auf Arbeitsmarktinstitutionen hinzu. Während der positive Effekt von Abfindungszahlungen auf die Arbeitslosigkeit bestätigt wird, findet sich kein Anhaltspunkt für negative Auswirkungen auf die drei anderen in dieser Studie untersuchten Beschäftigungskonstellationen. Abgesehen von der möglichen Ausnahme bei der Koordinierung von kollektiven Tarifverhandlungen ist die Rolle der Institutionen weniger stark als in der Literatur beschrieben.

John T. Addison, Ph.D, Hugh C. Lane Professor of Economic Theory, Department of Economics, Moore School of Business, University of South Carolina (U.S.A.), and IZA Bonn (Germany)
Paulino Teixeira, Ph.D, Professor Associado, Faculdade de Economia, Universidade de Coimbra, and GEMF (Portugal)

EIIW Paper No. 110

October 2003

What Have We Learned About The Employment Effects of Severance Pay? Further Iterations of Lazear et al.

Contents

Paper to be presented at the International Workshop on *Severance Pay Reform*: *Toward Unemployment Savings and Retirement Accounts*, Laxenberg/Vienna, November 7-8, 2003

List of Tables

1. Introduction

Refocused by the work of Lazear (1990), analysis of the impact of job security provisions on labor market outcomes was among the most studied topics in labor economics during the decade of the 1990s[1] and, now extending beyond proximate causation, shows every sign of continuing to be a key research theme in the first decade of the new millennium (see, in particular, Botero *et al*., 2003). Interest in employment protection remains keen because of continuing high unemployment and sluggish growth in much of Europe. But the economics profession has failed to provide consistent results on the consequences of employment protection, as is evidenced by the very pessimistic conclusions of, say, Heckman and Pagés (2000) on the one hand and the guarded optimism of the OECD (1999) on the other.

Although theory can provide the basis for different expectations regarding the effects of employment protection on labor market outcomes, data limitations would seem in this case to have played a more important role than usual in accounting for diversity of finding (on which, see Addison and Teixeira, 2003). The data problems are reflected in models that are parsimonious in both the range of explanatory variables deployed and in the time frame examined. To be sure, in the years following Lazear's pioneering analysis the data situation has improved in terms of refinements to the key independent variable and with the availability of information on new regressors. But data constraints have continued to cast a long shadow over the economic analysis of employment protection. In particular, the needs of wider country coverage and an extended time series have consequences for the number of explanatory variables than can be included in the empirical model. The tradeoffs that have to be made might be expected to encourage more humility on the part of investigators than is apparent in the literature.

The purpose of the present paper is twofold. First, we seek to document the problems arising from the prototypical parsimonious model, using Lazear's famous paper as an organizing device. In updating Addison, Teixeira, and Grosso (2000), we will further discuss the robustness of Lazear's major predictions as to the role of his preferred measure of job security (viz. the no-fault severance pay granted to a blue-collar worker with 10 years service, or *SEV*) on various employment indicators. Our sample covers an (extended) interval of more than four decades, namely, from 1956 to 1999. In a new departure, we will also address the course of long-term unemployment – and drop the average hours worked measure used by Lazear – albeit for a much shorter period (1979-1999).

Our second goal is to discuss the sensitivity of the basic employment protection result to a different and more comprehensive measure of job protection (e.g. the OECD composite index of the severity or coerciveness of employment laws) and other labor market institutions. Replacement of the partial indicator *SEV* by some composite index capturing other seemingly important aspects of the job regulatory framework – such as a measure of procedural delays in dismissals and the permissibility of fixed-term contracts – is expected to improve the explanatory power of the model, although this advantage might be compromised or undercut by a shortened time series. For its part, the failure to include variables such as the degree of collective bargaining coverage or the degree of employee and employer coordination in wage

[1] For the flavor of the earlier literature, see Buechtemann (1993).

bargaining might be a more serious source of bias in the estimated parameters than the use of such a partial indicator of employment protection.

As a practical matter, most measures of 'labor market institutions' are seldom available in a continuous form. Rather, they are one-off purpose-built constructs or at best only observed at a few points in time.[2] This reality leaves the researcher with two options: either assume these variables are roughly constant over time and run the model on fixed institutions (in which case the analysis can be extended to cover almost half a century), or instead assume time-varying institutions and trade a presumably more informative set of institutions off against a substantially smaller number of observations (via the reduction in the respective time series). To conduct our 'robustness test' of the parsimonious specification used by Lazear, therefore, we shall follow two routes. First, we use annual data in conjunction with fixed institutions throughout (i.e. from 1956 up to 1999). Second, and this is our preferred route, we average our annual data on (four) labor market performance indicators over 5-year periods and use time-varying institutions for which we have observations at different moments in time (at least three). The sample period in this case is necessarily shorter and covers the period 1970-99 (1979-99 in the case of the long-term unemployment equation).

Assuming fixed labor market institutions over a period of almost half a century –the first route – seems at first glance rather heroic,[3] but the pooling of cross-section and time-series data offers an indication of the effect of time-varying severance pay over an extended period that is embedded within in a richer institutional context. The second route, by dropping the assumption of fixed institutions, reduces both the sample period and the number of institutions, but eliminates the need for interpolation in order to obtain (artificial) annual time-varying data. This approach, which also allows the researcher to focus on the long-term impact of policy intervention in labor markets, has found some favor in the literature (see Nickell, 1997; Blanchard and Wolfers, 2000; and Bertola, Blau, and Kahn, 2001). Note that our set of time-varying labor institutions and range of labor market performance indicators is wider than has been used in this literature.

2. Modeling and Data

Specification

The sample panel structure of our database allows for a wide range of sensitivity tests. In the most favorable case, we will be able to work with data on 21 OECD countries over 44 consecutive years.

[2] This raises the specter of research Darwinism, alluded to by Blanchard and Wolfers (2000, p. C22).

[3] Assuming fixed labor market institutions over a period of almost half a century seems rather heroic, but with the exceptions of Portugal (in 1974) and Spain and Greece (1975 and 1973, respectively), it might be argued that none of the balance of our sample – apart from 1979-1990 Britain under Mrs. Thatcher – has experienced dramatic political changes.

We will begin with the standard Lazear specification containing country specific effects, which can be written:

$$y_{it} = c_i + \sum_j X_{ijt} b_j + e_{it}, \tag{1}$$

where y denotes the labor market outcome, X is the set of explanatory and control variables, and c captures the country specific effect. In the original model, the vector X included severance pay, the proportion of the population that is aged between 25 and 65, and the growth in GDP per capita. Lazear also adds a quadratic time trend. At this stage, the model assumes away any reverse causation or endogeneity of the explanatory variables – although Lazear (pp. 722-23) subsequently addresses the causality issue by, inter al., regressing changes in severance pay between t and $t+1$ on levels at time t of three of the four dependent variables. In our fitted regressions we will only address directly the problems arising from autocorrelation, where our first-pass solution will be to assume a (common) first-order serially correlated error term. Specifically, this approach will be applied in generating Tables 2 through 4 which cover the sample period 1956-1999.[4]

Extending the vector X of explanatory variables in equation (1) to include measures of labor market institutions requires a slight change to the model specification and estimation procedures. In particular, since the inclusion of the additional regressors reduces substantially the length of the panel – especially if the model includes time-varying variables – GLS random effects estimates will be used rather than the standard fixed effects model. Within this framework we will also introduce time dummies to proxy unobserved cross-country (common) shocks. This approach is followed in Tables 5 through 7, and the general formulation can be described as follows:

$$y_{it} = c_i + d_t + \sum_j X_{ijt} b_j + e_{it}, \tag{2}$$

where t denotes the 5-year periods, d_t is the time effect for period t, and X now contains the institutional variables.

Our final model extension includes the interaction of labor market institutions and time (i.e. unobserved shocks). The interaction terms are intended to capture the 'product' of shocks and institutions, the presumption being that a particularly unfavourable labor market regulation will impact labor market performance more severely in bad times. In this case, we use a nonlinear specification of the following type:

$$y_{it} = c_i + d_t (1 + \sum_j X_{ijt} b_j) + e_{it}. \tag{3}$$

Our findings using this specification are contained in Table 8, with all variables being expressed in terms of deviations from the sample mean.[5]

---

[4] Addison, Teixeira, and Grosso (2000) discuss the problems arising from a panel specification such as equation (1).

[5] In this case, the difference between the coefficient estimate for the first time dummy and the last time dummy gives the change in y_{it} due to exogenous shocks (if $X_{it} = \bar{X}$, then $\hat{y}_{it} = \hat{c}_i + \hat{d}_t$). We do not discuss the case of observable shocks.

Data

Our database contains observations on a maximum of 21 OECD countries: Austria, Australia, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, the United States, Greece, and Israel. Information on the country sample, labor market outcomes, and explanatory variables for the period 1956-84 is provided in Addison, Teixeira, and Grosso (2000). For present purposes, we limit our comments to how we updated this information between 1985 and 1999.

The employment population ratio (*EMPPOP*), the unemployment rate (*UNRATE*), and the labor force participation rate (*LFPR*) were updated using the OECD publication Labor Market Statistics. The same source was used to compute the right hand side variable capturing the share of the population aged 25 to 65 years (*WRKAGE*) and the long-term unemployment rate (*LTUNRATE*) (in this case from 1979 to 1999). The growth in GDP per capita (*GROWTH*) was calculated from the International Financial Statistics Yearbook (2002).

We also updated the severance payment variable (i.e. the statutory entitlement in months of pay due to a blue-collar worker with 10 years of service at termination, separated for reasons unconnected with his/her behaviour), using the detailed information on dismissals procedures for 1992-99 contained in Bertola, Boeri, and Cazes (2000). This material covers only 11 OECD countries – Australia, Austria, Denmark, France, Germany, Ireland, Italy, New Zealand, Spain, the United Kingdom, and the United States. We therefore supplemented it with data for other countries from the OECD Employment Outlook (1999, Table 2.2) which documents the changes in severance pay for no-fault individual dismissals in the 1990s. Using this procedure, it was possible to code the severance payment variable after 1992 for all countries other than Greece and Israel.

Table 1: Severance Pay and Job Security Rankings by Selected OECD Countries (in inverse order of stringency)

Countries	(1) Severance pay	(2) Mercer Consulting	(3) Heckman and Pagés	(4) Nickell	(5) OECD	(6) OECD	(7) World Competitive Report	(8) Botero et al.	(9) Botero et al.	(10) Botero et al.
	1984	2003	Late 1990s	1985-94	1989	Late 1990s	1984-90	1997	1997	1997
Belgium	6	5.5	9	16	14.5	9.5	10	17	9.5	3
Denmark	6	5.5		4	6	7	2	4	9.5	20
France	12.5	11.5	6	13	12	16	9	14	18	15
Germany	6	5.5	5	14	18	14	11	13	15	5
Greece	12.5	5.5	11	17	16	19	19	18	11	14
Ireland	14	5.5		11	5	3.5	7	6	8	8
Italy	19	15		20	20	18	16	12	16	12.5
Netherlands	6	5.5		8	9	9.5	8	15	12	1
Portugal	20	13	13	18	19	20	18	20	20	9.5
Spain	18	16	12	19	17	17	20	19	17	16
United Kingdom	15	11.5	8	6	4	2	4	5	1	6.5
Austria	16	14	10	15	11	11.5	12	1	6	6.5
Finland	6	5.5		9	14.5	8	6	16	7	17
Norway	6		4	10	13	15	14	10	19	18
Sweden	6	5.5		12	10	11.5	15	7	13	19
Switzerland	6		7	5	3	5.5	3	9	5	12.5
United States	6	5.5	1	1	1	1	1	2.5	2	2
Japan	6	5.5		7	8	13	5	11	14	4
Australia	6		3	3	7	3.5	17	2.5	4	11
New Zealand	17		2	2	2	5.5	13	8	3	9.5
Spearman rank correlation coefficients:[a]										
	----	0.812***	0.573**	0.501**	0.288	0.366	0.481**	0.194	0.167	0.038
	0.366	0.467*	0.674**	0.821***	0.862***	----	0.665***	0.697***	0.876***	0.286

[a] *, **, and *** denote statistical significance at the 0.1, 0.05, and 0.01 levels, respectively.

Sources: Entries in column (1) are taken from the present study. The remaining columns were derived from Mercer Human Resource Consulting (2003), Chart 4; Heckman and Pagés (2000), Table 1; Nickell (1997), Table 4; OECD (1994), Table 6.7, column (2); OECD (1999), Table 2.5, column (7); Di Tella and MacCulloch (1999), Table A, column (1); and Botero et al. (2003), Tables II and III (columns (8), (9), and (10) provide rankings of the stringency of employment, industrial relations, and social security laws).

To set our severance pay measure in wider relief, we also obtained data on the severance pay due to a 40 year-old white-collar employee made redundant after 10 years of service. These two indicators were then converted into rankings (in ascending order of stringency) and are reported in columns (1) and (2) of Table 1. Column (3) of this table also gives the country ranking order derived from Heckman and Pagé's (2000) cardinal measure of firing costs (which controls for the entire tenure-severance pay profile), while in columns (4) through (8) we introduce some other widely used indices of stringency of employment protection laws, including the employment protection index used by Nickell (1977). Finally, columns (9) and (10) of the table present the corresponding country rankings of more narrowly defined indices of industrial relations and social security laws, respectively.

As shown by the Spearman ranking correlation at the foot of Table 1, the three measures of severance pay in columns (1) to (3) are, as expected, highly correlated but the correlation of severance pay with the broad employment protection indicators in columns (4) through (8) offers a less consistent pattern. And the correlations between severance pay and the indicators of industrial relations and social security are extremely low. For their part, the broader indicators of the stringency of employment protection laws are strongly correlated: the correlation coefficients between the column (5) measure – OECD, late 1990s – and columns (4), (6), (7), and (8) are all statistically significant at the .01 level. There is, however, no correlation between the OECD measure and the index of social security reported by Botero et al. in column (10).

Finally, six labor market institutions are identified in the present treatment. These are the unemployment insurance replacement rate (*UIRR*); the maximum duration of unemployment benefits (*MDUB*); expenditure on active labor market policies (*AMLP*); union density (*UDEN*); collective bargaining coverage (*UCOV*); overall employee and employer coordination in wage bargaining (*TCOOR*); and the tax wedge (*TXWEDGE*). As mentioned above, since none of these series is available on a yearly basis, we constructed 5-year averages (1970-99) using the interpolations described in Appendix Table 1. Data sources and variable definitions are also included in this table, as well as Nickell's (1997) time-invariant employment protection index.

3. Findings

As noted earlier, Lazear's pioneering study acted as the catalyst for more intensive and systematic study of the effects of job security provisions on labor market performance. After more than a decade since its publication, the Lazear argument that severance pay reduces employment and elevates joblessness (in imperfectly competitive markets) not only remains a mainstay of orthodoxy but also continues to attract broad empirical support (see the survey by Addison and Teixeira, 2003). In what follows while we do not claim to detect any evidence suggesting pro-employment effects of stringent labor regulation**,** we will nonetheless contend that the more flamboyant empirical findings in the spirit of Lazear need to be interpreted with caution.

To begin with, we take Lazear's parsimonious model and re-estimate it using an additional 15 years of data. Next, in recognition that much data on labor market institutions has only become available in recent years, we test the robustness of the original model to the inclusion of an extended set of such explanatory variables, and in the process address some more contemporary issues. To repeat, in this stage of our empirical analysis we shall look at the effects of severance pay on unemployment and employment for a longer sample period than does Lazear (as previously noted, the exception is the long-term unemployment outcome measure that we substitute for Lazear's working time indicator and for which we have a shorter run of data), and in a framework that accommodates time-varying labor market institutions.

Table 2: Pooled Estimations - No Country Dummies (1956-99)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
Intercept	-0.1305 (0.0393)	0.1129 (0.0276)	-0.1372 (0.3414)	-0.1080 (0.0349)
SEV	-0.0064 (0.0007)	0.0032 (0.0005)	0.0243 (0.0045)	-0.0055 (0.0007)
GROWTH	-0.1200 (0.0718)	-0.0024 (0.0504)	1.5883 (0.4882)	-0.1320 (0.0638)
GROWTH.SEV	0.0097 (0.0180)	-0.0005 (0.0126)	0.0445 (0.1471)	0.0118 (0.0160)
WRKAGE	0.8703 (0.0614)	-0.1582 (0.0431)	-1.2188 (0.3117)	0.8438 (0.0546)
N	833	832	348	833
F(k, N-(k+1))	72.5	83.9	23.7	108.1
R^2	0.35	0.38	0.29	0.44

Note: The regression includes *YEAR* and $YEAR^2$ terms. The *LTUNRATE* series only begins in 1979. N denotes the number of countries multiplied by the number of observations per country.

Standard errors are given in parentheses.

Table 2 shows the results of applying the most restrictive version of the Lazear model, namely, estimation of the effects of severance pay (inter al.) on labor market outcomes using pooled cross-section time-series data with no country dummies. As in Addison, Teixeira, and Grosso (2000, Table 2), the results of this specification are broadly supportive of Lazear's empirical proposition that job protection, proxied by the *SEV* variable, adversely impacts employment, labor force participation, and overall unemployment. (Also consistent with Lazear is the statistical insignificance of the *GROWTH.SEV* interaction and the well-determined effects of the population control *WRKAGE*.) Using a shorter time-series, it also appears that the association between SEV and long-term unemployment, *LTUNRATE*, is negative and well determined (column 3).

Table 3: Fixed Effects Regressions (1956-99)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
SEV	0.0005 (0.0005)	0.0017 (0.0005)	0.0084 (0.0071)	0.0011 (0.0005)
GROWTH	0.0089 (0.0368)	-0.0668 (0.0360)	1.5776 (0.2114)	-0.0237 (0.0327)
GROWTH.SEV	-0.0008 (0.0088)	0.0064 (0.0086)	0.0444 (0.0630)	0.0033 (0.0078)
WRKAGE	0.5724 (0.0422)	0.0875 (0.0412)	-0.2573 (0.2180)	0.6356 (0.0374)
N	833	832	348	833
F(k, N-(k+1))	67.3	121.1	44.0	199.9
R^2	0.83	0.65	0.23	0.83

Note: The regression includes a constant plus *YEAR* and *YEAR*^{2} terms. The *LTUNRATE* series only begins in 1979. The null hypothesis that the country fixed effects are jointly equal to zero is rejected in all cases.

Standard errors are given in parentheses.

Since there no obvious reason to neglect national idiosyncracies, Table 3 shows the effect of introducing country fixed effects. Robustness is clearly an issue. The introduction of country dummies renders the coefficient estimates of *SEV* statistically insignificant in both the *EMPPOP* and *LTUNRATE* regressions. The association between *SEV* and *UNRATE* remains positive and well determined while there is a sign reversal in the case of LFPR. The absence of country fixed effects is statistically rejected in all regressions at the .01 level.

Table 4: Fixed Effects Regressions with Correction for Autocorrelation (1956-99)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
SEV	-0.00052	0.00085	0.0043	-0.00022
	(0.00046)	(0.00054)	(0.0073)	(0.00040)
GROWTH	-0.00039	-0.02576	0.9240	-0.01235
	(0.01220)	(0.01461)	(0.1391)	(0.01064)
GROWTH.SEV	0.00318	0.00295	0.1003	0.00498
	(0.00268)	(0.00320)	(0.0432)	(0.00233)
WRKAGE	0.25701	0.03743	-0.0018	0.30429
	(0.05260)	(0.06009)	(0.2720)	(0.04604)
N	812	811	329	812
F(k, N-(k+1))	10.7	10.1	13.4	20.5

Notes: The regression includes a constant plus *YEAR* and *YEAR*^{2} terms. The *LTUNRATE* series only begins in 1979. The null hypothesis that the country fixed effects are jointly equal to zero is rejected in all cases. The null hypothesis that the error term is not first-order autoregressive is also rejected.

Standard errors are given in parentheses.

We also tested for the presence of autocorrelation. Table 4 gives the results of fitting the fixed effects model assuming a first-order autocorrelation term. It can be seen that the null of no serial (first-order) correlation is clearly rejected. As it is apparent, the re-estimation takes no prisoners: none of the coefficient estimates for *SEV* is any longer statistically significant at conventional levels.

At this point we are of course reminded of the parsimonious nature of the Lazear model. This is next issue to be tackled. But thus far at least we would conclude that the Lazear model has failed to pass muster. This conclusion is also reached by Addison, Teixeira, and Grosso (2000). The difference here is that we are updating the database with information for more recent years that, with the uptick of unemployment, might perhaps have been expected to offer a more promising milieu for the model.

The parsimony of Lazear's specification has been addressed in various ways in the subsequent literature. But one amendment has proved increasingly popular, namely, the class of models whose general specification is described in equation (2) above. Their distinctive feature is the introduction of time-varying measures of labor market institutions, on the one hand, and time dummies as proxies of unobservable shocks, on the other. One of the first authors to apply this specification was Nickell (1997) who combined two-time periods – 6-year averages of data for 1983-88 and 1989-94 – with a wide set of explanatory variables.

Table 5: Random Effects (GLS) Regressions with Eight Labor Market Institutions and Two Data Points (6-year averages, 1983-88 and 1989-94)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
Employment protection (1-19)	-0.0055 (0.0025)	0.0015 (0.0020)	0.0216 (0.0063)	-0.0055 (0.0019)
Replacement rate (%)	0.0008 (0.0005)	-0.0002 (0.0004)	-0.0010 (0.0014)	0.0005 (0.0004)
Benefit duration (years)	-0.0070 (0.0059)	0.0051 (0.0054)	0.0264 (0.0176)	-0.0063 (0.0045)
ALMP (%)	-0.0003 (0.0002)	0.00004 (0.0002)	-0.0004 (0.0007)	-0.0002 (0.0002)
Union density (%)	0.0003 (0.0007)	-0.0001 (0.0005)	0.0008 (0.0017)	0.0003 (0.0005)
Union coverage (1-3)	-0.0144 (0.0204)	0.0287 (0.0194)	0.0549 (0.0580)	-0.0041 (0.0158)
Union and employer coordination (2-6)	0.0134 (0.0093)	-0.0153 (0.0081)	-0.0510 (0.0287)	0.0129 (0.0071)
Tax wedge (%)	-0.0001 (0.0012)	0.0004 (0.0009)	-0.0018 (0.0028)	-0.0002 (0.0009)
R^2	0.68	0.55	0.75	0.74
Wald χ^2	25.1	16.1	40.6	36.47
N	38	38	34	38

Notes: The model includes a constant term and a time dummy representing the 1989-94 period. All explanatory variables are taken from Nickell (1997) while the dependent variables are from our own dataset. The results are virtually unchanged when the dependent variables are expressed in logs.

Standard errors are given in parentheses.

We begin with a quasi-replication of Nickell's (1997) approach in Table 5. In this exercise the left hand side variables are again extracted from our own database, whereas the right hand side variables are taken from Nickell. The surprising result is the statistical insignificance of most of the parameter estimates. But there is some support for Lazear's findings: the higher the *EPL* ranking (i.e. the more generous employment protection), the lower the employment population ratio and labor force participation. Moreover, the long-term unemployment rate – but not overall unemployment – is also impacted unfavourably by employment protection legislation. Appendix Table 2 reports a somewhat different exercise in which both the right-hand side and left-hand side variables are taken from our own database, with the exception of *ALMP* and *benefit duration*. There is obvious corroboration of the findings in Table 5. Taken together, these results suggest that *quasi*-cross-section data (two data points spanning two decades) if they do not make a strong case for labor market institutions do offer a measure of support for Lazear.

Tables 6 and 7 show the more interesting case in which the number of data points has been enlarged. But this extension is not achieved without cost. Thus, in Table 6, we have a maximum of nine periods covering the entire sample period 1956-99 and seven *fixed* labor market institutional variables (the *replacement rate*, *benefit duration*, *ALMP*, *union density*, *union coverage*, *union and employer coordination*, and the *tax wedge*) plus the severance pay variable. In Table 7 the sample period is 1970-99, but we have a smaller number of labor market institutions which are now *time varying*. The Nickell study considered eight institutional variables of which one is time-invariant (*EPL*).

Table 6: Random Effects (GLS) Regressions with Eight Labor Market Institutions and Nine Data Points (5-year averages, 1956-99)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
SEV (months)	0.0004 (0.0013)	0.0017 (0.0010)	0.0046 (0.0110)	0.0010 (0.0012)
Replacement rate (%)	-0.0002 (0.0006)	0.0007 (0.0003)	0.0017 (0.0023)	0.00002 (0.00059)
Benefit duration (years)	0.0008 (0.0078)	-0.0019 (0.0040)	-0.0164 (0.0289)	0.0003 (0.0072)
ALMP (%)	-0.0012 (0.0011)	0.0008 (0.0006)	0.0031 (0.0038)	-0.0008 (0.0010)
Union density (%)	0.0002 (0.0007)	0.0004 (0.0004)	0.00002 (0.00243)	0.0004 (0.0007)
Union coverage (1-3)	-0.0557 (0.0220)	0.0264 (0.0114)	0.2543 (0.0842)	-0.0481 (0.0203)
Union and employer coordination (2-6)	-0.0301 (0.0120)	0.0246 (0.0061)	0.1017 (0.0420)	-0.0218 (0.0111)
Tax wedge (%)	-0.0016 (0.0011)	0.0013 (0.0005)	0.0033 (0.0037)	-0.0010 (0.0010)
R^2	0.55	0.68	0.68	0.56
Wald χ^2	54.3	267.2	176.2	155.3
N (countries, years)	162	162	71	162

Notes: The model includes a constant term and year dummies. ALMP and Union and employer coordination are set to negative. All right hand side variables are taken from Blanchard and Wolfers (2002) with the exception of the SEV variable. (See description in the Appendix Table 1.)

Standard errors are given in parentheses.

Table 7: Random Effects (GLS) Regressions with Six *Time-Varying* Labor Market Institutions and Six Data Points (5-year averages, 1970-99). (No interaction between institutions and unobservable shocks.)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
SEV	-0.0019 (0.0018)	0.0031 (0.0014)	0.0202 (0.0118)	-0.0007 (0.0014)
Replacement rate (%)	0.0003 (0.0004)	0.0003 (0.0003)	0.0007 (0.0021)	0.0005 (0.0003)
Union density (%)	0.0002 (0.0003)	-0.0004 (0.0002)	-0.0006 (0.0013)	-0.0001 (0.0003)
Union coverage (1-3)	-0.2430 (0.0132)	0.0157 (0.0085)	0.0675 (0.0493)	-0.0170 (0.0114)
Union and employer coordination (1-3)	-0.0171 (0.0124)	0.0137 (0.0079)	0.0090 (0.0424)	-0.0098 (0.0107)
Tax wedge (%)	-0.0004 (0.0007)	0.00006 (0.0005)	0.0011 (0.0028)	-0.0004 (0.0007)
R^2	0.31	0.55	0.50	0.19
Wald χ^2	22.7	88.0	119.9	92.6
N	92	92	62	92

Notes: The model includes a constant term and year dummies. Union and employer coordination are set to negative. All right hand side variables were extracted from our own database. (See description in Appendix Table 1.)

Standard errors are given in parentheses.

Clearly, these innovations produce an improvement in the precision of the institutional variables in the case of *UNRATE* (in both tables). For the other regressions (*EMPPOP*, *LTUNRATE*, and *LFPR*), the coefficient estimates are statistically significant in just 6 out of 24 cases in Table 6 and in only 3 out 18 cases in Table 7. But the *SEV* coefficient is now well determined only in 3 out of 8 regressions (taking Tables 6 and 7 together), while in Table 5 and the Appendix Table 2 it was well determined in 6 out of 8 cases.

We should also report the results from a different exercise using annual data (1956-99) in which we added seven fixed institutional variables (including the tax wedge) to the full set of original Lazear regressors.[6] In this procedure 14 out of 32 (i.e. 8 x 4) coefficients

[6] This exercise was carried out using the GLS random effects model to allow the presence of time-invariant regressors.

estimates were found to be statistically significant, which is a slight improvement over Table 6, for example, where 11 such estimates were well determined. In particular, the *SEV* variable was positively signed and statistically significant in the *UNRATE* and *LTUNRATE* equations (albeit only at the .10 level in the latter). Bearing in mind the results from Table 4 above, it can be seen that the *SEV* coefficient estimate does show some sensitivity to the inclusion of labor market institutions. Based on the same type of augmented-Lazear specification we then made an attempt to determine the degree of sensitivity of the severance pay coefficient in Table 4 to the introduction of all possible combinations of institutional variables (viz. the seven fixed measures mentioned above). From this exercise it emerged that the *SEV* coefficient estimate was never statistically significant in the *EMPPOP* regression, but was always positive and well determined in the in the *UNRATE* regression. The 'addition' of the institutional covariates to the *LTUNRATE* regression yielded a marginally statistically significant coefficient estimate for *SEV* in roughly 50 percent of the cases, while in the *LFPR* equation the estimate was statistically significant (although on this occasion at both the 0.05 and 0.10 levels) in approximately two-thirds of all cases. In sum, while the sensitivity of the *SEV* coefficient in the *EMPPOP* equation seems to be low, in the other three cases – *UNRATE*, *LFPR* and *LTUNRATE* – sensitivity to model specification cannot be ignored. Nonetheless, the consequences for standard Lazear equations of ignoring labor market institutions are arguably less severe than might be expected, although a more definite conclusion necessarily awaits the provision of better (i.e. annual) data on institutions.

We should also note that we experimented with alternative measures of employment protection legislation in substitution for *SEV* and Nickell's (1997) *EPL* index. But the broad picture is unchanged: the role of institutions is less 'active' than one might expect. Our finding that institutions seem to be of greater importance in explaining overall unemployment than the other indicators is also worthy of note. To some degree, it parts company with the notion that the impact of labor regulations on unemployment is more ambiguous than its effects on employment.

These remarks bring us finally to model (3). In this model, it is hypothesized that labor institutions only reveal their true 'color' in conjunction with adverse economic conditions (e.g. negative shocks). Accordingly, if a given country is 'endowed' with a non-employment friendly set of labor laws, the unfavourable impact of the latter may not surface if that nation fails to experience hard times. The non-linear specification of equation (3) is particularly suited to address the interaction between (observed or unobserved) shocks and institutions.

In fitting this model to the data we again consider the sample period 1970-99 and the same 5-year averages as before. The set of time-varying institutions is also the same; in particular, we retain *SEV* variable as our indicator of employment protection. In other words, we are implementing here the 'work-in-progress' part of Blanchard and Wolfers' (2002, p. C23) analysis, that is to say, a model in which all institutional regressors are allowed to vary over time. We note that Blanchard and Wolfers attempted to run the model with time-varying institutions, but only in a limited way, using just the employment protection and unemployment insurance covariates. Blanchard and Wolfers also focus exclusively on the course of unemployment, and so do not consider the *LTUNRATE*, *LFPR*, and *EMPPOP* outcome indicators considered here. (Bertola, Blau, and Kahn, 2001, likewise concentrate on unemployment developments.) Finally, observe that although data on observable shocks is available we restrict our attention to the case of unobservable shocks which we proxy with time dummies.

Table 8: Nonlinear Least Squares Regressions with Six Time-Varying Labor Market Institutions and Six Data Points, with Interaction between Institutions and Unobservable Shocks (5-year averages, 1970-99)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
SEV (months)	-0.00005 (0.0003)	0.1755 (0.0843)	0.0739 (0.1042)	0.00007 (0.0002)
Replacement rate (%)	0.00008 (0.00006)	0.0358 (0.0132)	-0.0313 (0.0195)	0.0009 (0.0004)
Union density (%)	-0.0002 (0.00006)	-0.0052 (0.0076)	-0.0211 (0.0134)	-0.0002 (0.00004)
Union coverage (1-3)	0.0003 (0.0026)	0.1651 (0.2372)	0.4720 (0.3995)	0.00007 (0.0019)
Union and employer coordination (1-3)	0.000004 (0.002)	0.0067 (0.2284)	-0.5170 (0.4062)	0.00037 (0.0017)
Tax wedge (%)	-0.0004 (0.0002)	-0.0052 (0.0138)	0.0283 (0.0252)	-0.0003 (0.0001)
R^2	0.90	0.83	0.94	0.93
F	22.3	11.0	21.9	32
N	92	92	62	92

Notes: The model specification is given in equation (3). All right hand side variables were extracted from our database. (See Appendix Table 1.)

Standard errors are given in parentheses.

The results of this analysis are presented in Table 8. In only 7 out of 24 cases are the labor market institutional parameters estimated with precision. The *SEV* variable is statistically significant in just the *UNRATE* equation, while *UCOV* and *TCOOR* are never statistically significant. Most surprisingly, developments in long-term unemployment are almost solely explained by country and time effects, with no role reserved for labor market institutions. We note parenthetically that the *restricted* version of model (3) – that is, the model in which X_{ij} is time invariant – fully replicates Blanchard and Wolfers findings for unemployment (e.g. their Table 1), with all variables being identically signed and statistically significant (the active labor market policy and union density covariates are not statistically significant). Applying the same model to the *EMPPOP*, *LFPR*, and *LTUNRATE* outcomes revealed approximately the same pattern as described in Table 8. In the case of the long-term unemployment regression, none of the coefficient estimates is statistically significant. What these results show is the seemingly inability of labor market institutions as a whole to materially impact labor market outcomes under the more realistic scenario of time-varying indicators. The *SEV* variable, with the exception of the unemployment case, does not seem to play any particularly prominent role either. The attenuated role of collective bargaining coordination is further weakened.

4. Conclusions

The effects of job security provisions on job turnover (i.e. job creation and job destruction) and on unemployment flows are fairly well established. Net effects are less firmly established, despite widespread acceptance of the view that stronger employment protection will entail lower employment and higher unemployment. In the present treatment we have offered a wide-ranging combination of empirical strategies in which the effects of institutions on labor market aggregates are analyzed across a variety of sample periods, explanatory variables, and estimation techniques.

Our starting point was the influential Lazear study of the role of severance pay in influencing employment and joblessness. By adding more regressors – specifically, labor market institutions – to the original Lazear model, we found little slippage of the unemployment result. Much weaker was the evidence linking severance pay to the rate of long-term unemployment and to the employment population ratio and the labor force participation rate. Surprisingly, in virtually all model specifications, and irrespective of the empirical strategy used, we found low statistical significance of the other institutional variables. Even the performance of the union and employer coordination variables, often viewed as favorable to labor market development, was not impressive overall.

We cannot of course conclude from the foregoing exercise that labor market institutions – and job protection in particular – do not matter. Rather, our findings indicate that we simply do not yet know enough about the role of such institutions, or, expressed differently, that the extent of their adverse impact on the labor market is not easily gauged. For instance, we cannot exclude the possibility that different combinations of labor institutions and regulations may produce quite similar outcomes. It may even be the case that the quest for improved labor market performance is better directed elsewhere, although we would resist this interpretation, arguing that lingering uncertainty as to the impact of the institutions identified here is an inescapable consequence of the vintage of research in this area.

References

ADDISON, JOHN T. AND PAULINO TEIXEIRA. “The Economics of Employment Protection.” *Journal of Labor Research* 25 (Winter 2003): 85-129.

ADDISON, JOHN T., PAULINO TEIXEIRA, AND JEAN-LUC GROSSO. “The Effect of Dismissals Protection on Employment: More on a Vexed Theme.” *Southern Economic Journal* 67 (July 2000): 105-122.

BERTOLA, GIUSEPPE, TITO BOERI, AND SANDRINE CAZES. “Employment Protection and Labour Market Adjustment in some OECD Countries: Evolving Institutions and Variable Enforcement.” Employment and Training Papers 48, ILO, 1999.

BERTOLA, GIUSEPPE, FRANCINE BLAU, AND LAWRENCE M. KAHN. “Comparative Analysis of Labor Market Outcomes: Lessons from International Long-Run Evidence.” In A. Krieger and R. Solow, eds., *Sustainable Employment*. New York: Century and Russell Sage Foundations, 2001.

BLANCHARD, OLIVIER AND JUSTIN WOLFERS. “The Role of Shocks and Institutions in the Rise of European Unemployment: The Aggregate Evidence.” *Economic Journal* 110 (March 2000): C1-C33.

BOTERO, JUAN, SOMEON DJANKOV, RAFAEL LA PORTA, FLORENCIO LOPEZ-DE-SILANES, AND ANDREI SCHLIEFER. “The Regulation of Labor.” NBER Working Paper 9756. Cambridge, MA: National Bureau of Economic Research, June 2003.

BUECHTEMANN, CHRISTOPH F. “Introduction: Employment Security and Labor Markets.” In Christoph F. Buechtemann, ed., *Employment Security and Labor Market Behavior – Interdiscliplinary Approaches and International Evidence*. Ithaca, NY: ILR Press, pp.3-66, 1993.

DI TELLA, RAFAEL AND ROBERT MACCULLOCH. “The Consequences of Labor Market Flexibility: Panel Evidence Based on Survey Data.” Unpublished paper. Harvard Business School, April 1999.

HECKMAN, JAMES J. AND CARMEN PAGÉS. “The Cost of Job Security Regulation: Evidence from Latin American Countries.” NBER Working Paper 7773. Cambridge, MA: National Buereau of economic Research, 2000.

IMF. *International Financial Statistics Yearbook*. Washington: International Monetary Fund, 2002.

LAZEAR, EDWARD P. “Job Security Provisions and Employment.” *Quarterly Journal of Economics* 105 (August 1990): 699-726.

MERCER HUMAN RESOURCE CONSULTING. *European Employment Conditions*. Mimeo. London, 2003.

NICKELL, STEPHEN. “Unemployment and Labor Market Rigidities: Europe versus North America.” *Journal of Economic Perspectives* 11 (Summer 1997): 55-74.

OECD. “Employment Protection and Labor Market Performance.” *Employment Outlook* (June 1999): 49-132.

OECD. The OECD Jobs Strategy, Making Work Pay: Taxation, Benefits, Employment and Unemployment. Paris: OECD, 1997.

OECD. “Economic Performance and the Structure of Collective Bargaining.” *Employment Outlook* (July 1997): 63-92.

OECD. The OECD Jobs Study, Evidence and Explanations, Part II: The Adjustment Potential of the Labor Market. Paris: OECD, 1994.

OECD. The OECD Labor Market Statistics. Paris: OECD.

Appendix Table 1: Variable Description and SourcesVariable

Variable/source		Definition/range	Raw year/ period	Interpolated periods
Employment protection *(EPL)*	Fixed measure (OECD, 1994, Table 6.7).	Ranking of employment protection legislation by "strictness". It is an average ranking based on four different indicators. 1 denotes the lowest rigidity.	1985-93	1970-99, five- year periods.
Replacement rate (unemployment insurance replacement rate) (*UIRR*).	Time-varying (OECD, 1994, Table 8.B.1).	Summary measure of benefit entitlements on a gross basis.	1971	1970-74; 1975-79
			1981	1980-84; 1985-89
			1991	1990-94; 1995-99
	Fixed measure (*) (Blanchard and Wolfers, 2000).	Share of past earnings replaced by unemployment benefits.	1983-88 and 1989-94	1970-99, five- year periods.
Benefit duration (maximum duration of unemployment benefits) (*MDUB*).	Fixed measure (*) (Blanchard and Wolfers, 2000).	Duration of unemployment benefits (in years; 4 years denotes indefinite duration).	1983-88 and 1989-94	1970-99, five- year periods.
Active labor market policies (*ALMP*)	Fixed measure (*) (Blanchard and Wolfers, 2000).	Active labor market spending per unemployed individual as a percentage of GDP per member of the labor force.	1983-88 and 1989-94	1970-99, five- year periods.
Union density (*UDEN*)	Time varying measure (OECD, 1997, Table 3.3).	Trade union density.	1970	1970-74; 1975-79
			1980	1980-84; 1985-89
			1990	1990-94
			1994	1995-99
	Fixed measure (*) (Blanchard and Wolfers, 2000.	Trade union density.	1983-88 and 1989-94	1970-99, five- year periods.
Union coverage (*UCOV*)	Time varying measure (OECD, 1997, Table 3.3).	Share of workers actually covered by union bargaining: 1 denotes less than 25 percent; 2 means from 25 to 75 percent; and 3 means over 70 percent.	1980	1970-74; 1975-79; 1980-84; 1985-89
			1990	1990-94
	Fixed measure (*) (Blanchard and Wolfers, 2000.		1994	1995-99
			1983-88 and 1989-94	1970-99, five- year periods.
Union and employer coordination (*TCOOR*)	Time varying measure (OECD, 1997, Table 3.3).	Employer and union coordination in bargaining. It is assigned a value of 1 if there is no economy-wide coordination/centralization and 3 if the degree of coordination/centralization is very high.	1980	1970-74; 1975-79; 1980-84; 1985-89
			1990	1990-94
			1994	1995-99
	Fixed measure (*) (Blanchard and Wolfers, 2000.	Employer and employee coordination in bargaining. It is coded as between 1 and 6 (the sum of employer and employee coordination).	1983-88 and 1989-94	1970-99, five- year periods.
Tax wedge (*TXWEDGE*)	Time-varying measure (OECD, 1997, Table 25).	Overall tax wedge (in percentage of average production worker earnings).	1978	1970-74; 1975-79
			1985	1980-84; 1985-89
			1994	1990-94; 1995-99
	Fixed measure (*) (Blanchard and Wolfers, 2000.	Tax burden. It is measured as the sum of the average payroll, income and consumption tax rates.	1983-88 and 1989-94	1970-99, five- year periods.

Notes: (*) The data on the fixed measures was generously made available by Prof. Olivier Blanchard at http:/www.mit.edu/blanchar/www.articles.html). Blanchard and Wolfers (2000) took a simple average of Nickell's (1997) original data over two periods, 1983-88 and 1989-94.

Appendix Table 2: Random Effects (GLS) Regressions with Eight Labor Market Institutions and Two Data Points (6-year averages, 1983-88 and 1989-94)

Independent variable	Dependent variable			
	EMPPOP	*UNRATE*	*LTUNRATE*	*LFPR*
Severance pay (months)	-0.0077 (0.0037)	0.0044 (0.0031)	0.0442 (0.0140)	-0.0076 (0.0033)
Replacement rate (%)	-0.0010 (0.0010)	0.0009 (0.0008)	0.0050 (0.0037)	-0.0008 (0.0009)
Benefit duration (years)	-0.0008 (0.0075)	0.0022 (0.0067)	0.0323 (0.0200)	-0.0020 (0.0060)
ALMP (%)	-0.0004 (0.0003)	0.0001 (0.0003)	0.0004 (0.0007)	-0.0004 (0.0002)
Union density (%)	0.0015 (0.0005)	-0.0007 (0.0004)	0.0001 (0.0017)	0.0011 (0.0004)
Union coverage (1-3)	-0.0008 (0.0007)	0.0006 (0.0006)	-0.0002 (0.0020)	-0.0004 (0.0006)
Union and employer coordination (2-6)	0.0150 (0.0181)	-0.0200 (0.0156)	0.0683 (0.0630)	0.0017 (0.0156)
Tax wedge (%)	0.0000 (0.0011)	-0.0001 (0.0009)	-0.0022 (0.0035)	-0.0001 (0.0009)
R^2	0.69	0.53	0.42	0.63
Wald χ^2	22.8	12.9	15.8	18.8
N	32	32	32	32

Notes: The model includes a constant term and a time dummy representing the 1989-94 period. All right hand side variables except ALMP and benefit duration are extracted from our database. (See Appendix Table 1.)

Standard errors are given in parentheses.

EIIW Discussion Papers

ISSN 1430-5445:
Standing orders (usually 13 issues or more p.a.): academic rate 95 Euro p.a.; normal rate 250 Euro p.a.
Single orders: academic rate10 Euro per copy; normal rate 20 Euro per copy.

Die Zusammenfassungen der Beiträge finden Sie im Internet unter:
The abstracts of the publications can be found in the internet under:

http://www.euroeiiw.de

No. 1 **Welfens, P.J.J.:** Telecommunications in Systemic Transformation, January 1995.

No. 2 **Welfens, P.J.J.; Graack, C.:** Telecommunications in Western Europe: Liberalization, Technological Dynamics and Regulatory Developments, January 1995.

No. 3 **Welfens, P.J.J.:** Achieving Competition in Europe's Telecommunications Sector, February 1995.

No. 4 **Addison, J.T.:** The Dunlop Report: European Links and Other Odd Connections, May 1995.

No. 5 **Addison, J.T.; Blackburn, McKinley L.:** A Puzzling Aspect of the Effect of Advance Notice on Unemployment, May 1995.

No. 6 **Welfens, P.J.J.; Graack, C.:** Deregulierungspolitik und Wettbewerb in Netzindustrien: Bedeutung und Optionen für osteuropäische Transformationsländer, May 1995.

No. 7 **Addison, J.T. Chilton, J.B.:** Models of Union Behavior, June 1995.

No. 8 **Graack, C.:** EU-Telecom Markets and International Network Alliances: Developments, Strategies and Policy Implications, August 1995.

No. 9 **Welfens, P.J.J.:** Koordinationserfordernisse der EU-Infrastrukturpolitik, November 1995.

No. 10 **Hillebrand, R.:** Umweltpolitik in föderalen Systemen - eine kritische Analyse der EU-Umweltpolitik, December 1995.

No. 11 **Addison, J.T.; Schnabel, C.; Wagner J.:** On the Determinants of "Mandatory" Works Councils in Germany, December 1995.

No. 12 **Welfens, P.J.J.:** Towards Full Employment and Growth in the European Union, December 1995.

No. 13 **Welfens, P.J.J.:** Wirtschaftspolitische Kompetenzverteilung in der Europäischen Union, December 1995.

No. 14 **Welfens, P.J.J.:** Privatization, Efficiency and Equity, January 1996.

No. 15 **Hartwig, K.-H.; Welfens P.J.J.:** EU and Eastern Europe: Western European Integration and Eastern European Transformation, May 1996.

No. 16 **Welfens, P.J.J.:** Konsequenzen einer Osterweiterung für die EU und deren Reformbedarf, May 1996.

No. 17 **Graack, C.:** Structure of the Telecoms Sector and Degree of Internationalization in Europe and Russia, July 1996.

No. 18 **Bogai, D.:** Werkstatt der Deutschen Einheit? Wirtschaft und Arbeitsmarkt in der Region Berlin-Brandenburg, October 1996.

No. 19 **Graack, C.:** Internationale Aspekte der Telekommunikationswirtschaft: Liberalisierung, internationale Tarifmechanismen und Wohlfahrtseffekte, October 1996.

No. 20 **Jungmittag, A.; Welfens P.J.J.:** Telekommunikation, Innovation und die langfristige Produktionsfunktion: Theoretische Aspekte und eine Kointegrationsanalyse für die Bundesrepublik Deutschland, October 1996.

No. 21 **Welfens, P.J.J.; Guth M.:** EU-Strukturpolitik in Deutschland: Entwicklung, Effizienzüberlegungen und Reformoptionen, October 1996.

No. 22 **Welfens, P.J.J.; Graack C.:** Telekommunikationsmärkte in Europa: Marktzutrittshemmnisse und Privatisierungsprobleme aus Sicht der Neuen Politischen Ökonomie, October 1996.

No. 23 **Welfens, P.J.J.:** Die Position Deutschlands im veränderten Europa: Wirtschaftliche und reformpolitische Perspektiven, November 1996.

No. 24 **Hartmann, P.:** Foreign Exchange Vehicles Before and After EMU: From Dollar/Mark to Dollar/Euro?, November 1996.

No. 25 **Jungmittag, A.; Welfens P.J.J.:** The Political Economy of EMU and Stabilization Policy, May 1997.

No. 26 **Hölzler, H.:** Privatisierung und Einführung von Wettbewerb in Rußland, January 1996.

No. 27 **Welfens, P.J.J.:** Small and Medium-sized Companies in Economic Growth: Theory and Policy Implications in Germany, May 1997.

No. 28 **Bogai, D.:** Europäische Arbeitsmarktpolitik und nationale beschäftigungspolitische Initiativen, May 1997.

No. 29 **Welfens, P.J.J.:** Research & Development Policy and Employment, June 1997.

No. 30 **Sinclair, A.:** Liberalising the Electricity Supply Industry in Western and Eastern Europe: Lessons for Russia, July 1997.

No. 31 **Graack, C.:** Infrastructure Investments and Regulation in Telecommunications, July 1997.

No. 32 **Welfens, P.J.J.; Schwarz A.:** Die Rolle des Staates in der Sozialen Marktwirtschaft bei Globalisierung der Wirtschaftsbeziehungen, August 1997.

No. 33 **Welfens, P.J.J.; Wiegert R.:** Transformation Policies, Regulation of Telecommunications and Foreign Direct Investment in Transforming Economies, July 1997.

No. 34 **Welfens, P.J.J.:** Internationalization of Telecoms, Deregulation, Foreign Investment and Pricing: Analysis and Conclusions for Transforming Economies, July 1997.

No. 35 **Schwarz, A.:** Subventionspolitik in den mittel- und osteuropäischen Transformationsländern: Gegenwärtige Strukturen, Probleme und Transparenzdefizite, September 1997.

No. 36 **Welfens, P.J.J.; Hillebrand R.:** Globalisierung der Wirtschaft: Wirtschaftspolitische Konsequenzen des internationalen Standortwettbewerbs, September 1997.

No. 37 **Stiller, H.:** Material Intensity of Transportation and Implications for Sustainable Mobility in Europe, September 1997.

No. 38 **Gerstberger, T.; Graack C.:** Competition and Deregulation in the Japanese Telecommunications Network Industry, September 1997.

No. 39 **Welfens, P.J.J.:** Wirtschaftspolitische Flankierungserfordernisse des Euro-Starts, November 1997.

No. 40 **Aslund, A.:** The Political Economy of Systemic Transformation and Institution-Bulding, November 1997.

No. 41 **Guth, M.:** Regionale Beschäftigungspakte im Rahmen der EU-STrukturpolitik: Hintergrund und Einordnung, November 1997.

No. 42 **Jungmittag, A.; Welfens P.J.J.:** Politische Ökonomie der Europäischen Währungsunion und Stabilitätspolitik, January 1998.

No. 43 **Welfens, P.J.J.:** Labor Costs, Unemployment and Innovation, February 1998.

No. 44 **Addison, J.T.; Audretsch, D.B.; Gries, T.; Grupp H.; Welfens, P.J.J.:** Economic Globalization, Innovation and Growth, April 1998.

No. 45 **Welfens, P.J.J.:** Euro, Währungsunion und EU-Binnenmarkt, April 1998.

No. 46 **Addison, J.T., Schnabel, C.; Wagner J.:** Works Councils in Germany: Their Effects on Firm Performance, March 1998.

No. 47 **Addison, J.T.; Portugal, P.:** Short- and Long-Term Unemployment, March 1998.

No. 48 **Welfens, P.J.J.:** Trade and Optimum Import Tariffs: A Note in the Context of Foreign Direct Investment, June 1998.

No. 49 **Bohn, F.:** Monetary Union and the Interest-Exchange Trade-off, July 1998.

No. 50 **Welfens, P.J.J.:** Exchange Rate Policy for the Euro: Theory, Strategic Issues and Policy Options, July 1998.

No. 51 **Addison, J.T.; Portugal P.:** Job Search Methods and Outcomes, July 1998.

No. 52 **Jungmittag, A.; Welfens P.J.J.:** Telecommunication, Innovation and the Long-Term Production Function: Theoretical Analysis and a Cointegration Analysis for West Germany 1960-1990, August 1998.

No. 53 **Welfens, P.J.J.:** Eastern EU Enlargement: Problems, Conflicts and Policy Options, September 1998.

No. 54 **Welfens, P.J.J.:** Die russische Transformationskrise: Monetäre und reale Aspekte sowie Politikoptionen, November 1998.

No. 55 **Graack, C.; Welfens, P.J.J.:** Internationaler Technologiewettlauf, Arbeitsmarktdynamik und Unternehmensgründungsdynamik bei Standortkonkurrenz, September 1998.

No. 56 **Welfens, P.J.J.:** Liberalisierung der Energiewirtschaft in Deutschland und EU-Partnerländern, Januar 1999

No. 57 **Welfens, P.J.J.:** The RussianTransformation Crisis: Origins, Analysis and NewPolicy Requirements, January 1999

No. 58 **Komulainen , Tuomas:** Currency Crisis Theories – Some Explanations for the Russian Case, May 1999

No. 59 **Welfens, P.J.J.:** Internet Market Dynamics in Germany: From a small Market towards a Strategic Sector of the Economy, May 1999

No. 60 **Wiegert, R.:** Der russische Bankensektor im Prozeß der Systemtransformation, Juni 1999

No. 61 **Vogelsang, M.:** How to rescue Japan: Proposal of a staggered VAT reform. Draft, May 1999

No. 62 **Welfens, P.J.J.:** The Start of the Euro, International Relations and Inflation, April 1999

No. 63 **Sutela, P.:** Overcoming the Russian Transformation Crisis: Selected Issues and Policy Options, June 1999

No. 64 **Bohn, F.:** The Italian Case: A Parable for the Eastern Enlargement of the EMU, July 1999

No. 65 **Meyer, B.; Welfens, P.J.J.:** Innovation – Augmented Ecological Tax Reform: Theory, Model Simulation and New Policy Implications, September 1999

No. 66 **Gavrilenkov, E.:** Crisis in Russia: Selected Problems of the Macroeconomic Performance, September 1999

No. 67 **Steinsdorff, S. v.:** Wie demokratisch ist Rußland? Dezember 1999

No. 68 **Pelzel, R.:** Internationalisierung der Telekommunikation, eine Vergleichsanalyse für USA, Großbritannien und Deutschland, Dezember 1999

No. 69 **Serebryakov, G.:** Structural Change and Econometric Prospective, January 2000

No. 70 **Bohn, F.:** Political Instability, Inflation, and International Loans, February 2000

No. 71 **Welfens, P.J.J.:** The EU and Russia: Strategic Aspects of Transformation and Integration, April 2000

No. 72 **Jungmittag, A.:** Techno-Globalismus: Mythos oder Realität?, Juli 2000

No. 73 **von Westernhagen, N.:** The Role of FDI in the Transition Process of Selected CIS and Eastern European Countries, September 2000

No. 74 **Welfens, P.J.J.; Hollants, J.; Kauffmann, A.:** Mittelständische Unternehmen und das Internet: Perspektiven in Deutschland, Oktober 2000

No. 75 **Jungmittag, A.; Welfens, P.J.J.:** Auswirkungen einer Internet Flatrate auf Wachstum und Beschäftigung in Deutschland, März 2000

No. 76 **Addison, J.T.:** Is Community Social Policy Beneficial, Irrelevant, or Harmful to the Labor Market Performance of the European Union?, September 2000

No. 77 **Welfens, P.J.J.:** Modern Exchange Rate Theory and Schumpetrian Economic Analysis: New Approach and Application to the Euro, June 2000

No. 78 **Guth, M.:** From technology policy for regions to regional technology policy towards a new policy strategy in the EU, December 2000

No. 79 **Welfens, P.J.J.; Kauffmann, A.; Vogelsang, M.:** Evaluationsbericht: Das Internet strategisch richtig nutzen, Februar 2001

No. 80 **Welfens, P.J.J.:** Transatlantische Wachstumsunterschiede, Euro-Schwäche und Finanzpolitik, Mai 2001

No. 81 **Jungmittag, A.; Welfens,P.J.J.:** Effects of an Internet Flat Rate on Growth and Employment in Germany, February 2001

No. 82 **Welfens, P.J.J.:** Transatlantic Growth Differentials, ICT Dynamics, Fiscal Policy and the Fall of the Euro, July 2001

No. 83 **Wiegert, R.:** Financial Sector and Human Capital in a Long-Term Growth Perspective: The Case of Russia, July 2001

No. 84 **Addison J.T.:** Principles of Market-Oriented Labor Market Policies; July 2001

No. 85 **Jungmittag, A.; Welfens, P.J.J.:** Europäische Telekomliberalisierung und Außenhandel: Theorie, Gravitationsansatz und Implikationen, Juni 2001

No. 86 **Ponder, J.K.:** Telekommunikationssektor in Polen: Entwicklungen, Investitionsperspektiven und Regulierung, Oktober 2001

No. 87 **Jungmittag, A.; Welfens P.J.J.:** Liberalization of EU Telecommunications and Trade: Theory, Gravity Equation Analysis and Policy Implications, October 2001

No. 88 **Bohn, F.:** Powerful Groups and Corruption, December 2000

No. 89 **Welfens, P.J.J.:** Aggregation in a Two-Sector Growth Model: A Modified Solow Approach with Cobb-Douglas Production Functions, September 2001

No. 90 **Welfens, P.J.J.:** Stabilization and Growth: A New Model, October 2001

No. 91 **Addison, J.T.:** Principles of Market-Oriented Labor Market Policies, March 2002

No. 92 **Jungmittag, A.:** Innovationsdynamik in der EU: Konvergenz oder Divergenz?, Eine Zeitreihen-Querschnittsanalyse, Februar 2002

No. 93 **Welfens, P.J.J.; Wiegert, R.:** Reform des Bankensektors und Stabilität in Rußland, November 2001

No. 94 **Welfens, P.J.J.:** Mittelfristige Herausforderungen für Euroland: Stabilität, EU-Osterweiterung, Wachstum; November 2001

No. 95 **Welfens, P.J.J.:** Constitutional Issues and the Quality of Political Competition: Analysis and Implications for a Future EU Constitution, April 2002

No. 96 **Jungmittag, A:** Innovation Dynamics in the EU: Convergence or Divergence?, A Cross-Country Panel Data Analysis, June 2002

No. 97 **Welfens, P.J.J.:** I&K-Technologie, Produktivität und Wachstum: Transatlantische Ananlyseperspektiven und wirtschaftspolitische Optionen, Juli 2002

No. 98 **Jungmittag, A.; Welfens, P.J.J.:** Telecommunication, Internet, Innovation and Growth in Europe and the US, August 2002

No. 99 **Welfens, P.J.J.:** Finanzpolitik zwischen Wachstumsschwäche und Maastrichter Vertrag / Stabilitätspakt: Ausgabenschwerpunkte neu setzen und kluge Steuerreform, September 2002

No. 100 **Gavrilenkov, E**: Macroeconomic Situation in Russia - Growth, Investment and Capital Flows, October 2002

No. 101 **Agata, K.**: Internet, Economic Growth and Globalization, November 2002

No. 102 **Blind, K.; Jungmittag, A.**: Ausländische Direktinvestitionen, Importe und Innovationen im Dienstleistungsgewerbe, February 2003

No. 103 **Welfens, P.J.J.; Kirn, T.:** Mittelstandsentwicklung, BASEL-II-Kreditmarktprobleme und Kapitalmarktperspektiven, Juli 2003

No. 104 **Standke, K.-H.**: The Impact of International Organisations on National Science and Technology Policy and on Good Governance, March 2003

No. 105 **Welfens, P.J.J.:** Exchange Rate Dynamics and Structural Adjustment in Europe, May 2003

No. 106 **Welfens, P.J.J.; Jungmittag, A.; Kauffmann, A.; Schumann, Ch.:** EU Eastern Enlargement and Structural Change: Specialization Patterns in Accession Countries and Economic Dynamics in the Single Market, May 2003

No. 107 **Welfens, P.J.J.:** Überwindung der Wirtschaftskrise in der Eurozone: Stabilitäts-, Wachstums- und Strukturpolitik, September 2003

No. 108 **Welfens, P.J.J.:** Risk Pricing, Investment and Prudential Supervision: A Critical Evaluation of Basel II Rules, September 2003

No. 109 **Welfens, P.J.J.; Ponder, J.K.:** Digital EU Eastern Enlargement, October 2003

No. 110 **Addison, J.T.; Teixeira, P.:** What Have We Learned About The Employment Effects of Severance Pay? Further Iterations of Lazear et al., October 2003

EIIW Economic Policy Analysis

No. 1 **Welfens, P.J.J.:** Globalisierung der Wirtschaft und Krise des Sozialstaats: Ist die Wirtschaftswissenschaft am Ende?, April 1997

No. 2 **Welfens, P.J.J.:** Nach der D-Mark kommt die E-Mark: Auf dem Weg zur EU-Währungsunion, Juli 1997

No. 3 **Welfens, P.J.J.:** Beschäftigungsförderliche Steuerreform in Deutschland zum Euro-Start: Für eine wachstumsorientierte Doppelsteuerreform, Oktober 1998

Fordern Sie den EIIW Newsletter an: www.euroeiiw.de

Please subscribe to EIIW Newsletter: www.euroeiiw.de

Weitere Beiträge von Interesse:
Titels of related interest:

MC MORROW, K.; RÖGER, W. (2003), The Economic and Financial Market Consequences of Global Aging, Heidelberg and New York: Springer.

WIEGERT, R. (2003), Transformation, Wachstum und Wettbewerb in Rußland, Heidelberg und New York: Springer.

PETZOLD, L. (2003), Infrastrukturreform in Transformationsländern, Lohmar: EUL-Verlag.

LANE, T., ODING, N., WELFENS, P.J.J. (2003), Real and Financial Economic Dynamics in Russia and Eastern Europe, Heidelberg and New York: Springer.

BARFIELD, C.E., HEIDUK, G., WELFENS, P.J.J. (2003), Internet, Economic Growth and Globalization, Perspectives on the New Economy in Europe, Japan and the USA, Heidelberg and New York: Springer.

GRIES, T., JUNGMITTAG, A., WELFENS, P.J.J. (2003), Neue Wachstums- und Innovationspolitik in Deutschland und Europa, Heidelberg und New York: Springer.

ADDISON, J.T., WELFENS, P.J.J. (2003), Labor Markets and Social Security, Heidelberg and New York: Springer.

WELFENS, P.J.J., WIEGERT, R. (2002), Transformationskrise und neue Wirtschaftsreformen in Russland, Heidelberg und New York: Springer.

WESTERNHAGEN, N. VON (2002), Systemic Transformation, Trade and Economic Growth, Heidelberg and New York: Springer.

AUDRETSCH, D.B., WELFENS, P.J.J. (2002), The New Economy and Economic Growth in Europe and the US, Heidelberg and New York: Springer.

WELFENS, P.J.J. (2002), Interneteconomics.net, Heidelberg and New York: Springer.

BUNTE, H.-J., WELFENS, P.J.J. (2002), Wettbewerbsdynamik und Marktabgrenzungen auf Telekommunikationsmärkten, Heidelberg und New York: Springer.

JUNGMITTAG, A., WELFENS, P.J.J. (2002) Internet, Telekomliberalisierung und Wirtschaftswachstum, Heidelberg und New York: Springer.

SCHWARZ, A. (2001), Subventionen in Mittel- und Osteuropa, Lohmar: EUL-Verlag.

PELZEL, R.F. (2001), Deregulierte Telekommunikationsmärkte, Heidelberg und New York: Springer.

WELFENS, P.J.J. (2001), Stabilizing and Integrating the Balkans, Heidelberg and New York: Springer.

WELFENS, P.J.J. (2001), Internationalization of the Economy and Environmental Policy Options, Heidelberg and New York: Springer.

WELFENS, P.J.J. (2001), European Monetary Union and Exchange Rate Dynamics, Heidelberg and New York: Springer.

GAVRILENKOV, E., WELFENS, P.J.J. (2000), Restructuring , Stabilizing and Modernizing the New Russia, Heidelberg and New York: Springer.

TILLY, R., WELFENS, P.J.J. (2000), Economic Globalization, International Organizations and Crisis Management, Heidelberg and New York: Springer.

JUNGMITTAG, A., REGER, G., REISS, T. (Eds., 2000), Changing Innovation in the Pharmaceutical Industry. Globalization and New Ways of Drug Development, Heidelberg and New York: Springer.

GRAACK, C., WELFENS, P.J.J. (1999), Technologieorientierte Unternehmensgründungen und Mittelstandspolitik in Europa, Heidelberg und New York: Springer.

GRAACK, C., GRINBERG, R., WELFENS, P.J.J., YARROW, G. (Eds., 1999), Towards Competition in Network Industries – Telecommunications, Energy and Transportation in Europe and Russia, Heidelberg and New York: Springer.

ADDISON, J.T., AUDRETSCH, D.B., GRIES, T., GRUPP, H., WELFENS, P.J.J. (1999), Globalization, Economic Growth and Innovation Dynamics, Heidelberg and New York: Springer.

WELFENS, P.J.J. (1999), EU Eastern Enlargement and the Russian Transformation Crisis, Heidelberg and New York: Springer.

WELFENS, P.J.J. (1999), Globalization of the Economy, Unemployment and Innovation, Heidelberg and New York: Springer.

TILLY, R., WELFENS, P.J.J. (1999), Economic Globalization, International Organizations and Crisis Management, Heidelberg and New York: Springer.

WELFENS, P.J.J. et al. (eds., 1998), Competition in Network Industries: Telecommunications, Energy and Transportation in Europe and Russia, Heidelberg and New York: Springer.

PALKINAS, P.; EICHHORN, B., WELFENS, P.J.J. (eds., 1998), Europäische Währungsunion: Argumente und Fakten zur Euro-Debatte, Frankfurt/Main.

GLOEDE, K., STROHE, H.B. WAGNER, D., WELFENS, P.J.J. (eds., 1998), Systemtransformation in Deutschland und Rußland: Erfahrungen, ökonomische Perspektiven und politische Optionen, Heidelberg und New York: Springer.

AUDETSCH, D.B., ADDISON, J.T. GRUPP, H., WELFENS, P.J.J. (1998), Technological Competition, Employment and Innovation Policy in OECD Countries, Heidelberg and New York: Springer.

ADDISON, J.T., WELFENS, P.J.J. (eds., 1998), European Labor Markets and Social Security, Heidelberg and New York: Springer.

GRAACK, C. (1997), Telekommunikationswirtschaft in der Europäischen Union: Innovationsdynamik, Regulierungspolitik und Internationalisierungsprozesse, Heidelberg: Physica (award-winning book).

WELFENS, P.J.J., WOLF, H. (ed., 1997), Banking, International Capital Flows and Growth in Europe, Heidelberg and New York: Springer.

BÖRSCH-SUPAN, A., VON HAGEN, J., WELFENS, P.J.J. (eds., 1996,1997), Springers Handbuch der Volkswirtschaftslehre, Band 1 und 2, Heidelberg und New York: Springer.

WELFENS, P.J.J., YARROW, G. (eds., 1996), Telecommunications and Energy in Systemic Transformation, Heidelberg and New York: Springer.

GRAACK, C., WELFENS, P.J.J. (1996), Telekommunikationswirtschaft: Deregulierung, Privatisierung und Internationalisierung, Heidelberg und New York: Springer: (award-winning book).

WELFENS, P.J.J. (ed., 1996), European Monetary Integration, 3rd edition, Heidelberg and New York: Springer.

WELFENS, P.J.J. (ed., 1996), Economic Aspects of German Unification, 2. rev. and enlarged edition, Heidelberg and New York: Springer.

TILLY, R., WELFENS, P.J.J. (eds., 1995), European Economic Integration as a Challenge to Industry and Government, Heidelberg and New York: Springer.

WELFENS, P.J.J. (1995), Grundlagen der Wirtschaftspolitik, Heidelberg und New York: Springer.

JASINSKI, P., WELFENS, P.J.J. (1994), Privatization and Foreign Direct Investment in Transforming Economies, Aldershot: Dartmouth/Gower.

WELFENS, P.J.J. (1992), Market-oriented Systemic Transformation in Eastern Europe. Problems, Theoretical Issues and Policy Options, Heidelberg and New York: Springer.

KLEIN, M., WELFENS, P.J.J. (eds., 1992), Multinationals in the New Europe and Global Trade, Heidelberg and New York: Springer.

WELFENS, P.J.J. (1990), Internationalisierung von Wirtschaft und Wirtschafspolitik, Heidelberg und New York: Springer.

BALCEROWICZ, L., WELFENS, P.J.J. (1988), Innovationsdynamik im Systemvergleich. Theorie und Praxis unternehmerischer, gesamtwirtschaftlicher und politischer Neuerung, Heidelberg: Physica.