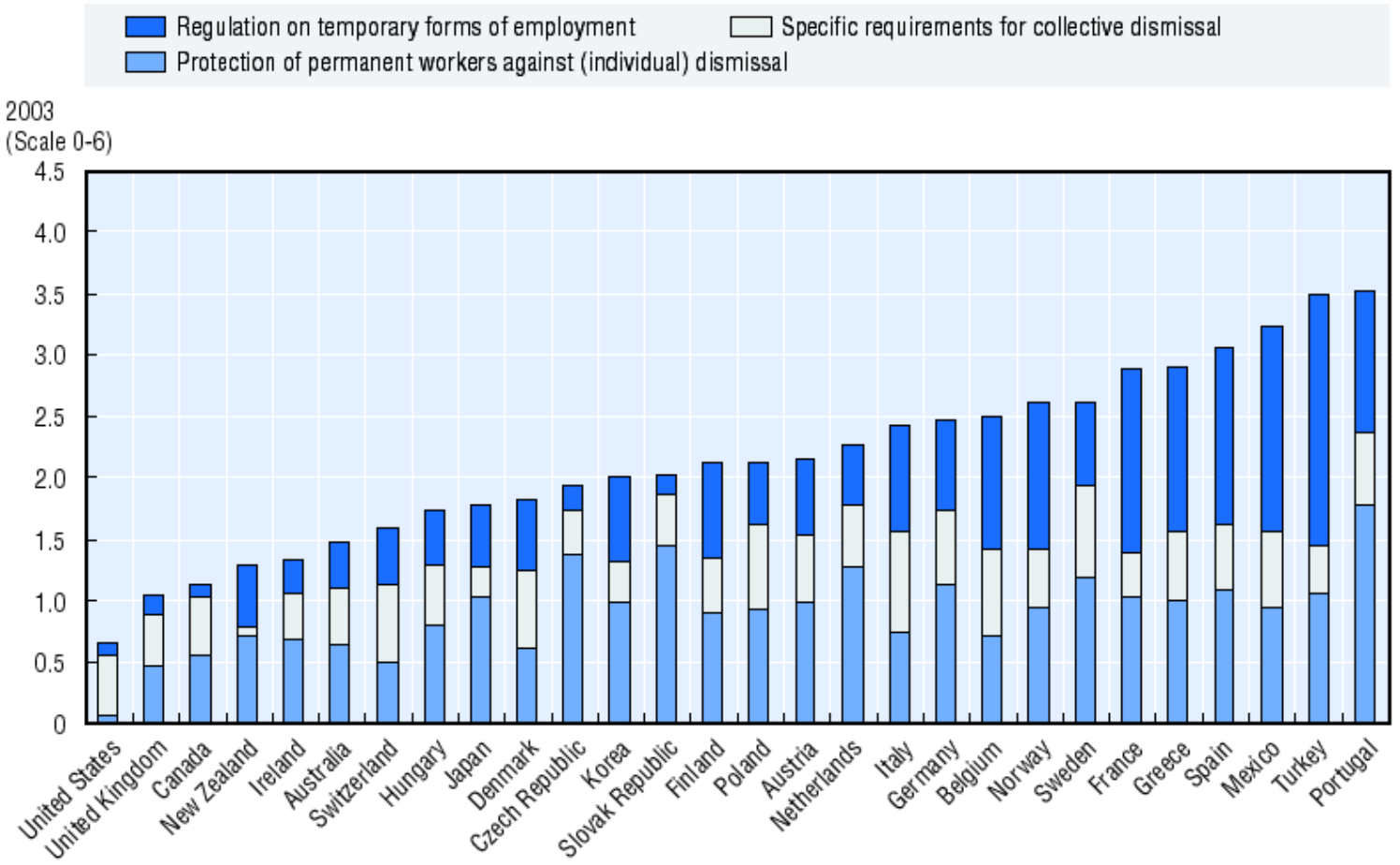
OECD (2004). Employment Outlook. Paris (Chpt.2 Employment protection regulation and labour market performance)

Chart 2.1. **The overall summary index and its three main components**

Panel A. Overall strictness of EPL in 2003 (version 2)[a]



How to compute an index of institutional variation ?
① Collect detailed information about procedures
② Grade them according to procedural complications
③ Average across aspects

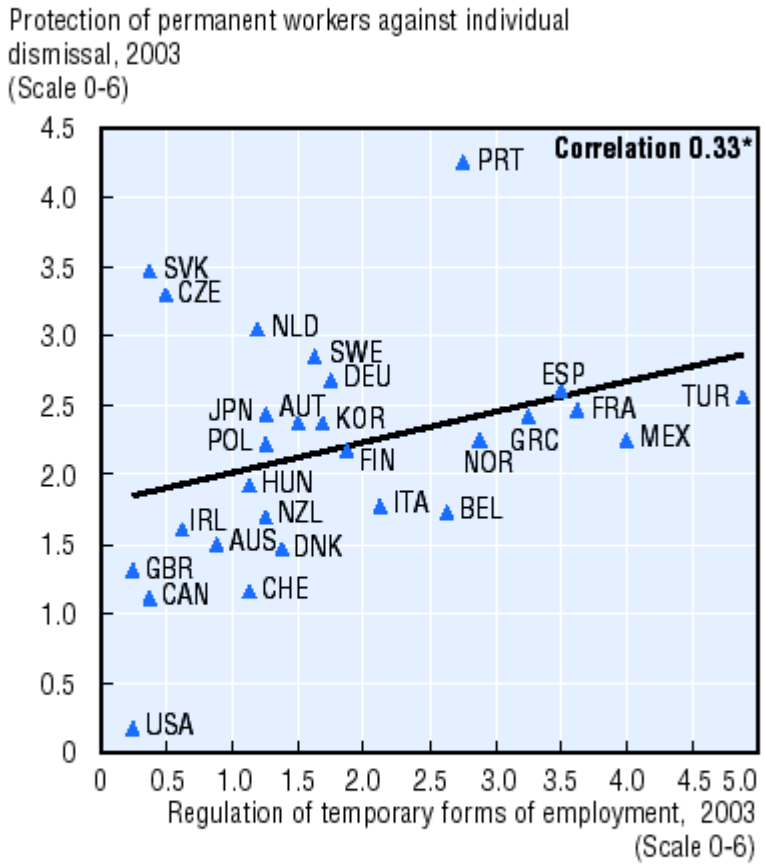
Improvements with respect to previous (ordinal) versions ?
⇨ cardinality (country differences are meaningful)
⇨ possibility of cahnges over time

Critiques:
⇨ law in books is different from law in practice
⇨ collective bargaining may improve labour standards

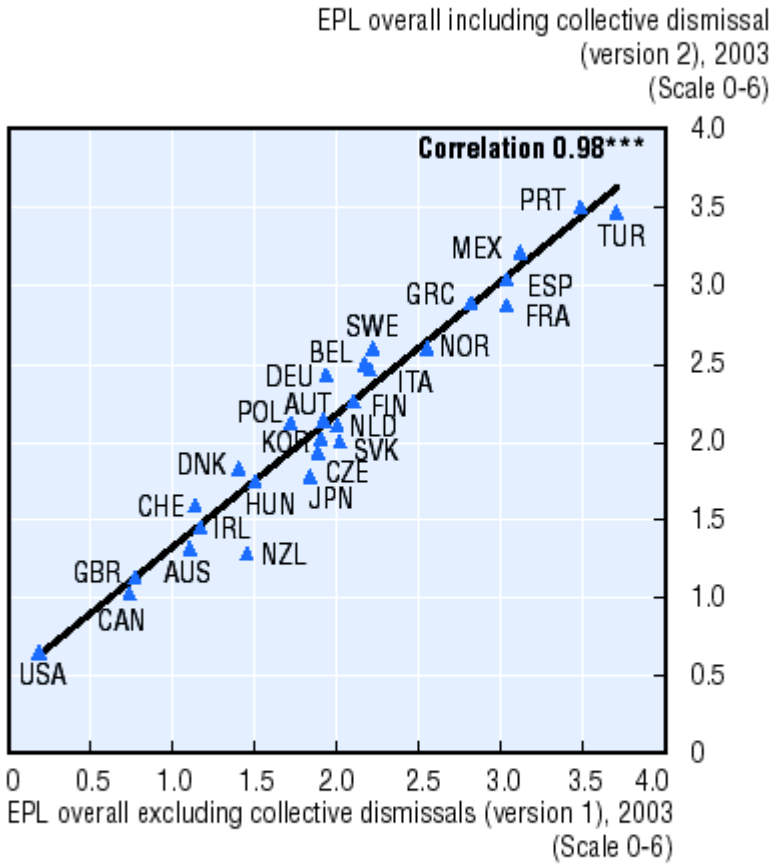
Different dimensions of worker protection:
- ✓ permanent workers
- ✓ temporary workers
- ✓ collective dismissals

Most countries prefer to protect permanent workers than temporary ones (median voter ?)

Panel B. Protection of permanent workers against individual dismissal and regulation on temporary forms of employment



Panel C. Overall EPL strictness: version 1 versus version 2

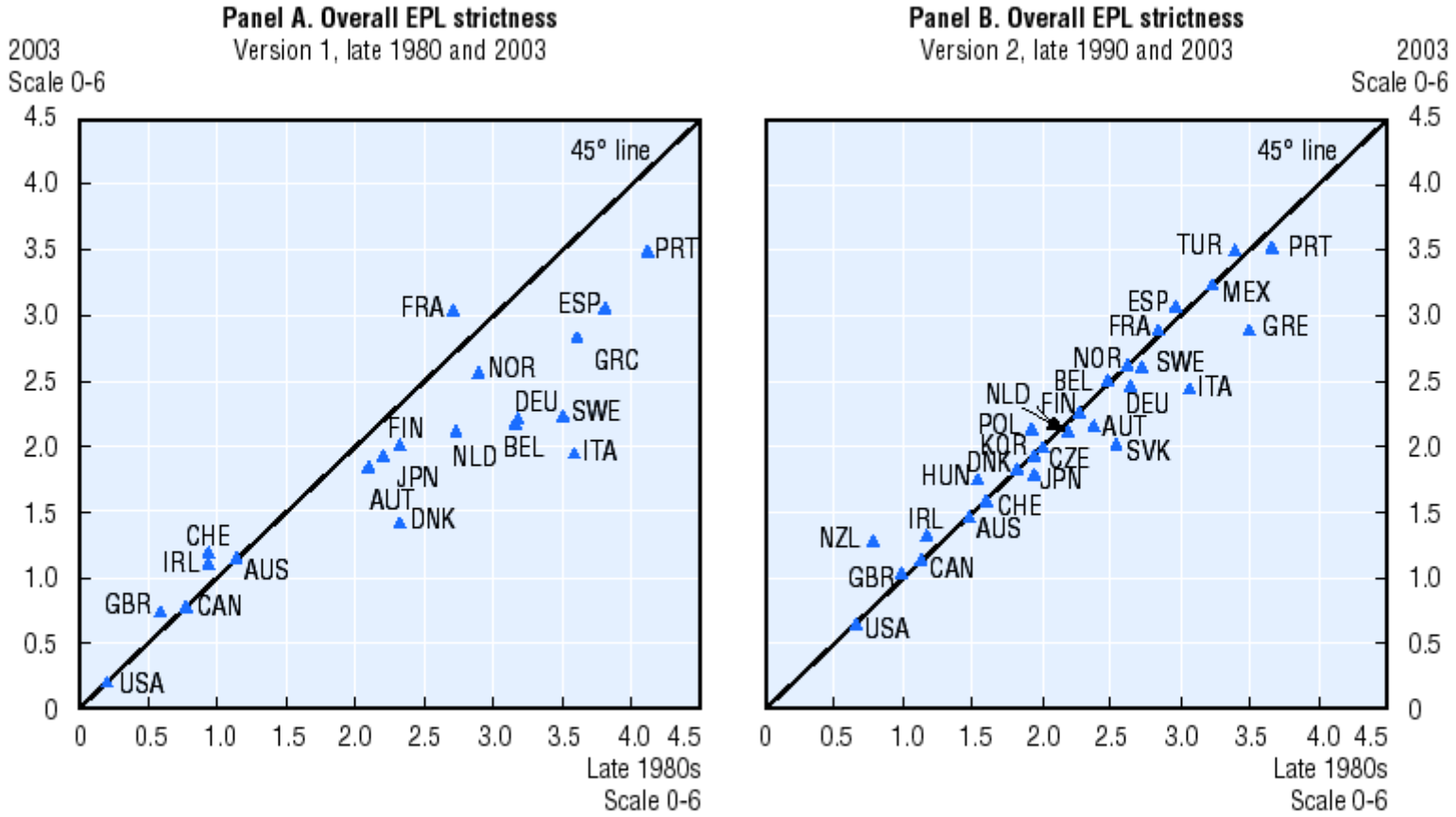


, **, * means statistically significant at 1%, 5% and 10% levels, respectively. Panel B: without Czech Republic, Portugal, Slovak Republic, Pearson correlation coefficient = 0.568.

a) Countries are ranked from left to right in ascending order of the overall summary index.

Source: See Annex Table 2.A2.4.

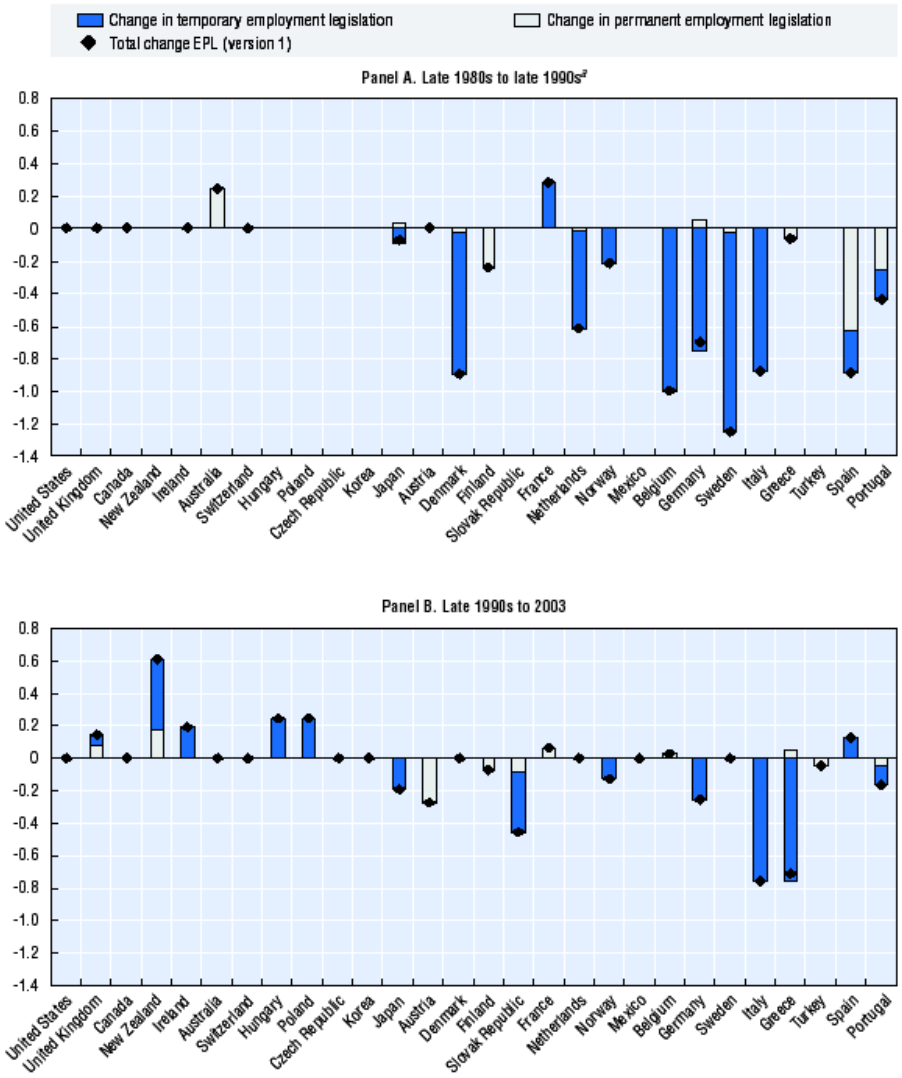
Chart 2.2. **Changes over time: some convergence but relative inertia in country rankings**



Note: Countries below the 45° line are those where EPL has been eased. Countries above the 45° line have made EPL more stringent.

Source: See Annex Table 2.A2.4.

Chart 2.3. **Deregulation of temporary work as the most prevalent path of EPL reforms**



Note: Countries are ranked from left to right in ascending order of the overall EPL in the late 1980s (late 1990s when 1980s data are not available).

a) Data for the late 1980s are not available for the Czech Republic, Hungary, Korea, Mexico, New Zealand, Poland, the Slovak Republic and Turkey.

Source: See Annex Table 2.A2.4.

Most countries have followed the lead of OECD advocating increasing flexibilisation in the 90s, while now most of them are reverting their line of conduct.

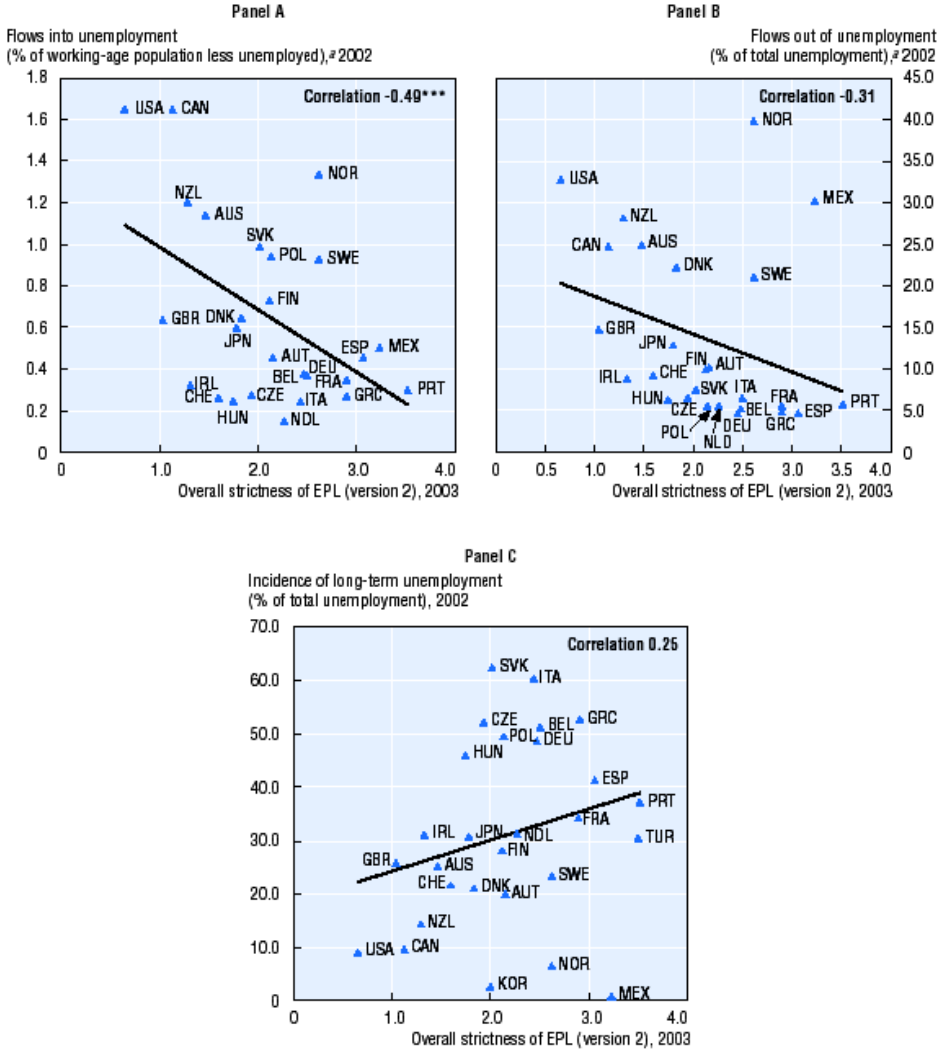
The flexibilisation at the margin (i.e. easier conditions for hiring/firing women and young people) creates the risk of a two-tier labour market.

* * *

Does EPL affect stocks (how many people are unemployed at a given point of time) or flows (people moving in/out of unemployment over a given interval of time) ?

Old view: EPL increases stok of unemployed
New view: EPL reduces flows in/out of unemployment

Chart 2.4. **Simple correlations between EPL, labour market dynamics, and the incidence of long term unemployment**



***, **, * means statistically significant at 1%, 5% and 10% levels, respectively.

a) The unemployment inflow rate is defined as persons unemployed for less than one month as a percentage of the source population (the working age population less the unemployed) and the outflow rate as the percentage of the unemployed moving to employment or out of the labour force in an average month.

Source and definition: See Annex Tables 2.A2.4 and 2.A3.1.

How to study the relationship between two variables (for example $y =$unemployment and $x =$EPL) ?

Simplest analysis: correlation.
No indication about direction of causality.
Possibility of spurious correlation

Linear regression: $y = \alpha + \beta x + \varepsilon$ where ε is a white noise
Type of samples: cross-country – time series – panel data

Panel models exploit temporal and geographical variation

$$y_{it} = \alpha + \beta x_{it} + \varepsilon_{it}$$

where i is the country and t is the year.

However the relationship could be affected by external country features which are irrelevant with respect to the unemployment (religion, ethnical conflict, etc)

For this reason the relationship is allowed to have different intercepts but the same slope

$$y_{it} = \alpha_i + \beta x_{it} + \varepsilon_{it}$$

where α_i is a country fixed effect.

Table 2.2. **EPL reduces labour market dynamics**[a]

Random effects, GLS

	Flows into unemployment[b]		Flows out of unemployment[b]		Incidence of long-term unemployment	
EPL	–0.165***	*(0.05)*	–5.030***	*(1.07)*	3.271***	*(1.26)*
Centralisation/co-ordination index	–0.015	*(0.04)*	0.003	*(0.94)*	–0.904	*(1.10)*
Bargaining coverage	0.001	*(0.00)*	–0.053	*(0.06)*	0.105	*(0.08)*
ALMP[c]			0.761**	*(0.31)*	–1.327***	*(0.43)*
Tax wedge	0.002	*(0.01)*	–0.143	*(0.14)*	0.980***	*(0.15)*
Unemployment benefits					0.187**	*(0.09)*
Output gap	–0.037***	*(0.01)*	1.064***	*(0.14)*	–0.574***	*(0.16)*
F-test[d]	36.4***		41.8***		59.8***	
B-P LM test[d]	892.3***		838.8***		1 117.0***	
Hausman test[d]	10.6*		5.6		0.9	
Coefficients on EPL estimated using other methods						
Fixed effects	–0.092*	*(0.05)*	–3.106**	*(1.27)*	1.763	*(1.53)*
Pooled OLS	–0.390***	*(0.03)*	–6.558***	*(0.76)*	5.992***	*(1.04)*
No. of observations	295		276		270	
No. of countries[e]	19		19		19	

***, **, * means statistically significant at 1%, 5% and 10% levels, respectively. All regressions include a constant term; standard errors in italics.

a) As the explanatory variables are not able to fully account for the rapid increase in Finnish and Swedish unemployment rates in the early 1990s (13 and 7.4 percentage points between 1990 and 1993 for Finland and Sweden respectively), data for Finland and Sweden in 1991 and 1992 are not included in the regression. Germany is only included for the post-unification period (1991 onwards). The sign and significance of the coefficients do not change when the output gap is replaced wih time dummies, in the RE specification.

b) The unemployment inflow variable is defined as persons unemployed for less than one month as a percentage of the source population (the working-age population less the unemployed) and the unemployment outflow variable as the percentage of the unemployed moving to employment or out of the labour force in an average month.

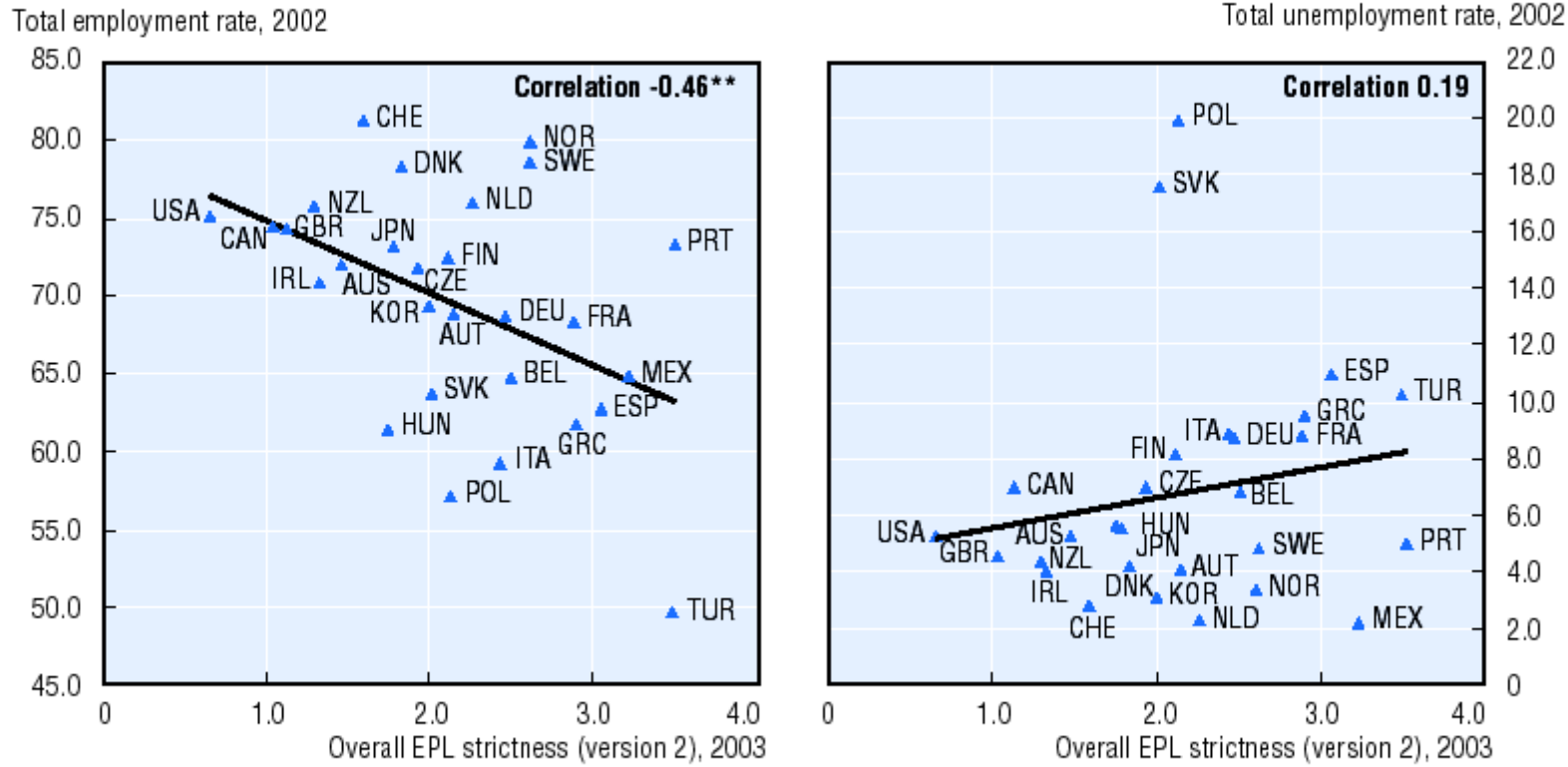
c) ALMP is instrumented on its average over the entire estimation period in the RE specification.

d) F-test of the hypothesis of absence of country-specific effects. Breush and Pagan LM test for random effects, distributed as a $\chi^2_{(1)}$. Hausman (1978) specification test, distributed as a χ^2.

e) Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States.

Source and definition: See Annex Table 2.A3.1.

Chart 2.5. **EPL and labour market performance: simple cross-country correlations**



***, **, * means statistically significant at 1%, 5% and 10% levels, respectively.

Source and definition: See Annex Tables 2.A2.4 and 2.A3.1.

Table 2.4. **The employment effects of EPL vary across population groups**[a]

Coefficient on EPL

	Dependent variable: employment rate									
	Prime-age men		Prime-age women		Youth		Older		Low skilled	
Random effects[b]	0.107	*(0.29)*	−1.381**	*(0.60)*	−2.062***	*(0.68)*	−0.296	*(0.54)*	−0.051	*(0.58)*
Fixed effects	0.543	*(0.36)*	−1.498**	*(0.65)*	−0.339	*(0.81)*	−0.066	*(0.54)*	1.183*	*(0.64)*
Pooled OLS	0.662***	*(0.20)*	−3.039***	*(1.11)*	−3.769***	*(0.45)*	4.119***	*(0.63)*	1.955***	*(0.57)*
F-test[c]	45.6***		233.5***		57.3***		208.4***		72.4***	
B-P LM test[c]	838.8***		113.5***		518.4***		308.4***		623.7***	
Hausman test[c]	8.4		0.1		57.0***		52.0***		23.7***	
No. of observations	286		142		278		193		224	
No. of countries[d]	19		16		19		18		19	

***, **, * means statistically significant at 1%, 5% and 10% levels, respectively. Three sets of estimations are shown, corresponding to three different methodologies, namely random effects, fixed effects and pooled OLS (see Box 2.3 for the explanation of these methodologies). All regressions include: output gap, tax wedge, high coordination dummy, low-coordination dummy, expenditure on ALMP per unemployed, unemployment benefits replacement rates. Prime-age women regressions include, in addition: relative tax rate of the second earner, child benefits, public spending on child care and days of paid leave. Youth and Low skilled regressions include, in addition: minimum wages as per cent of average wages. Older workers regressions include, in addition: average retirement age, implicit tax rate on continued work. Detailed results are available on request. Standard errors in italics.

a) As the explanatory variables are not able to fully account for the rapid increase in Finnish and Swedish employment rates in the early 1990s (13 and 10 percentage points between 1990 and 1993 for Finland and Sweden respectively), data for Finland and Sweden in 1991 and 1992 are not included in the regression. Germany is only included for the post-unification period (1991 onwards). Employment regressions for women and youth include a trend to account for the strong rise in female participation and the tendency of youth to stay longer in school and delay entry to the labour market.

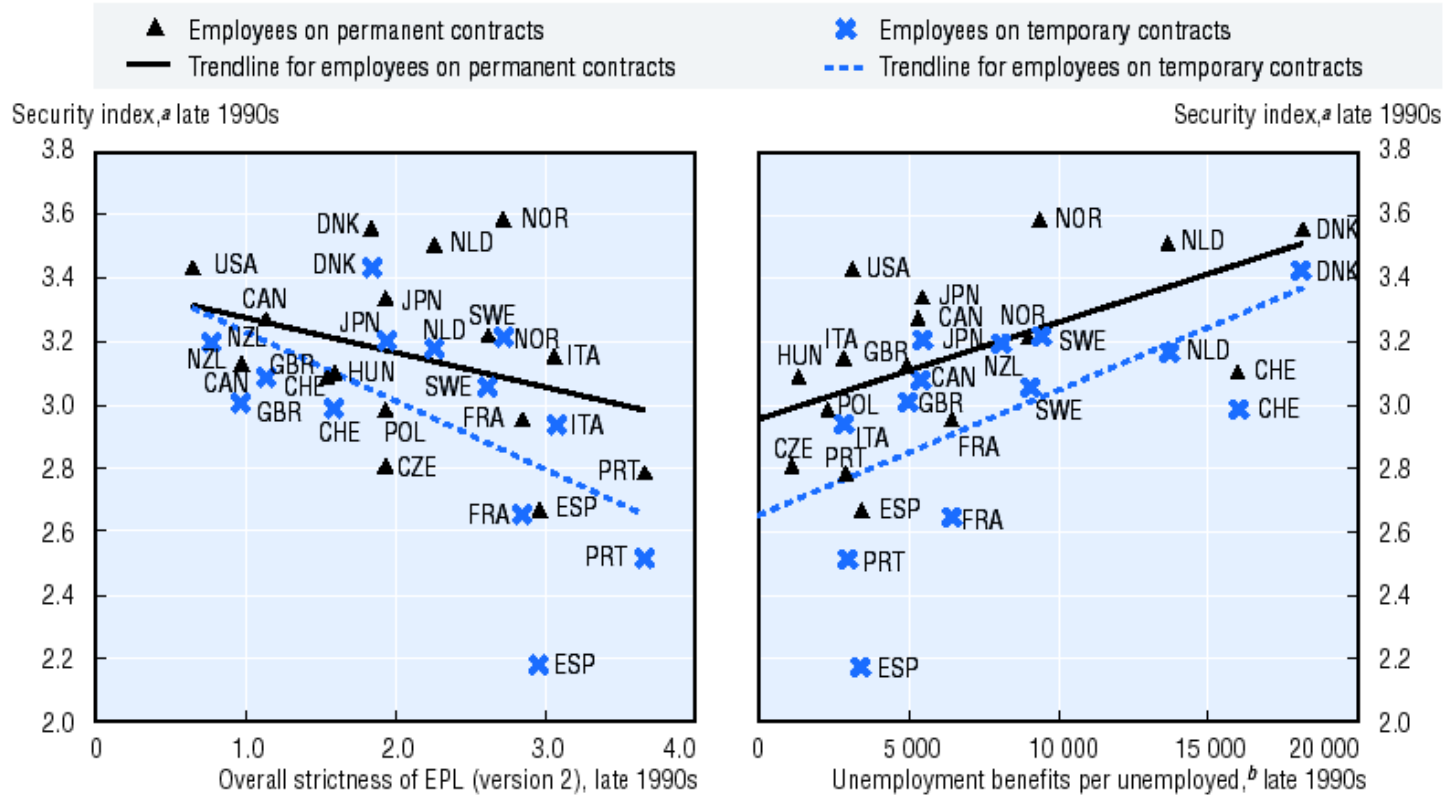
b) ALMP is instrumented on its average over the entire estimation period. The sign and significance of the coefficient on EPL for women and youth do not change when the output gap is replaced wih time dummies. The effect of EPL on employment rates of older workers and the low skilled becomes positive and significant when the output gap is replace with time dummies.

c) F-test of the hypothesis of absence of country-specific effects. Breush and Pagan LM test for random effects, distributed as a $\chi^2_{(1)}$. Hausman (1978) specification test, distributed as a χ^2.

d) Australia, Austria, Belgium, Canada, Denmark (not for older), Finland, France, Germany, Italy (not for women), Japan (not for women), Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland (not for women), United Kingdom and United States.

Source: See Annex Table 2.A3.1.

Chart 2.8. **Unemployment benefits re-assure workers while EPL makes them worry**



***, **, * means statistically significant at 1%, 5% and 10% levels, respectively.

Note: Pearson correlation coefficient for the EPL is –0.35 for permanent contracts, –0.57** for temporary contracts. For the unemployment benefits per unemployed, it is 0.58** for permanent contracts and 0.59** for temporary contrats.

a) Average answer, by country, to the following question from ISSP "Do you worry about the possibilities of losing your job?" – Scale from 1 (I worry a great deal) to 4 (I don't worry at all).

b) Expenditure on unemployment compensation divided by LFS unemployment .

Source: Data on security index taken from the International Social Survey Programme 1997 (ISSP); OECD database on Labour Market Programmes; OECD database on Labour Force Statistics.

Table 2.3. **A summary of empirical findings**

	Dependent variable	Data frequency	Variation in institutional variables	Cyclical controls shock variables, and institutional controls	Results	Remarks	Estimation methodology
Baker *et al.* (2004)	Unemployment.	Five-year averages.	Time varying institutions.	Change in inflation. EPL, UB replacement rates, UB duration index, union density, union coverage, coordination index, tax wedges.	EPL is found to have no effect on unemployment rates, except for the sub-period 1980-99 when EPL is found to reduce unemployment.	The authors use several different specifications to illustrate the lack of robustness of panel data estimates found in the literature. Some specifications include interactions between UB duration and replacement rates, union density and wage bargaining coordination, tax wedge and coordination.	Random effects and fixed effects.
Belot and van Ours (2000)	Structural unemployment.	Annual.	Time-varying institutions.	Change in inflation. EPL, UB replacement rates, union density, union coverage, coordination index, tax rates.	EPL is found to have no effect on structural unemployment at mean value of union density and coverage, and bargaining coordination. EPL raises structural unemployment when union coverage is higher than average.	The paper includes interactions between institutions. This has a sound theoretical foundation as policy complementarities are likely to play an important role in shaping labour market performance. A drawback of the model is that it is static so that the within-country persistence of unemployment is excluded.	Fixed effects.
Bertola *et al.* (2002)	Unemployment.	Five-year averages.	Constant and time-varying institutions.	TFP growth; labour demand shocks; real interest rate. Plus: share of youth (15-24) in the population. EPL, ALMP, UB replacement rates, UB duration index, union density, union coverage, coordination index, tax wedge.	Constant EPL is found to significantly increase the effect of shocks on unemployment. This is no longer the case when EPL is allowed to change over time.	The authors find that institutional changes raise unemployment slightly more than shocks and demographics do. The interaction between institutions (time-varying or constant) and shocks remains important in explaining the divergence in unemployment rates across countries.	Fixed effects.
Blanchard and Wolfers (2000)	Unemployment.	Five-year averages.	Constant institutions.	TFP growth; labour demand shocks; real interest rate shocks. EPL, ALMP, UB replacement rates, UB duration index, union density, union coverage, coordination index, tax rates.	EPL reinforces the negative effect of shocks on unemployment in the long run.	The paper focuses on explaining long-run shifts in unemployment with the interaction between constant institutional variables and long-run changes in the level of TFP growth, labour demand and the real interest rate.	Fixed effects.
Elmeskov *et al.* (1998)	Structural unemployment.	Annual.	Time-varying institutions.	Output gap. EPL, ALMP, UB replacement rate, union density, coordination index, corporatism index, tax wedge, minimum wages.	EPL is found to increase structural unemployment, with its effect reinforced at intermediate levels of wage bargaining coordination.	The result on EPL is consistent with the idea that when insiders have strong bargaining power, they may more easily resist attempts by employers to lower wages as a result of higher dismissal costs, even if this works to the detriment of outsiders.	Random effects.

Table 2.3. **A summary of empirical findings** *(cont.)*

	Dependent variable	Data frequency	Variation in Institutional variables	Cyclical controls shock variables, and institutional controls	Results	Remarks	Estimation methodology
Heckman and Pagès (2000)	Employment and unemployment (by gender and age) and incidence of long-term unemployment.	Annual.	Time-varying institutions (two periods only).	GDP level, GDP growth. Plus: female participation rates and proportion of the population aged 15-24. Job security index (based on notice periods and severance pay), minimum wages, union centralisation.	EPL is found to have a negative and significant effect on overall employment rates. The effect of EPL on prime-age men employment is smaller than the overall effect, while the effect on youth employment is larger than the overall effect. The effect of EPL on unemployment is not significant in most specifications. No effect is found on long-term unemployment.	The authors use a sample of OECD and Latin American countries and their own measure of EPL. They use RE, FE and OLS and only employment results for men and youth are found robust across methods. The effect of EPL on prime-age women employment vary widely across estimation procedures. Effects on unemployment are nearly always positive and stronger for OECD countries.	Random effects, fixed effects, pooled OLS.
Nickell (1997)	Unemployment, long-term unemployment, employment to population ratio (overall and for prime-age men).	Five-year averages.	Some time-varying institutions (constant EPL).	Change in inflation; dummy for second period. EPL, ALMP, UB replacement rates, UB duration index, union density, union coverage, coordination index, tax wedge.	EPL is found to have no significant effect on total unemployment but it is shown to significantly increase long-term unemployment; EPL is also found to reduce employment to population ratios and participation rates. No effect is found on employment rates of men aged 25 to 54.	The paper uses five-year averages of the data, including averages of some time-varying institutions, in order to smooth out cyclical factors. The result on employment rates is driven by the effect of EPL on the labour market position of under-represented groups.	Random effects.
Nickell *et al.* (2001, 2003)	Structural unemployment and the employment rate (in another paper).	Annual.	Time-varying institutions.	Time dummies, money supply shock, change in TFP growth, labour demand shock, real import price shocks, real interest rates. EPL, UB replacement rates, UB duration index, union density, coordination index, tax wedge, owner occupation rate.	EPL is found to have an impact on structural unemployment, mainly operating via its impact on raising unemployment persistence (captured by the interaction of the EPL variable with lagged unemployment). A twin working paper applies the same structure to the employment rate and finds a non-significant effect of EPL.	The paper estimates a dynamic model with actual unemployment explained by institutional factors that impact on equilibrium unemployment and shocks that cause unemployment to deviate temporarily from equilibrium unemployment. Shifts in labour market institutions are found to explain about 55% of the change in unemployment, while interactions between constant institutions and shocks appear to make no significant additional contribution.	Fixed effects + lagged dependent variable.

Table 2.3. **A summary of empirical findings** *(cont.)*

	Dependent variable	Data frequency	Variation in Institutional variables	Cyclical controls shock variables, and institutional controls	Results	Remarks	Estimation methodology
OECD (1999, Chapter 2)	Unemployment and employment rates (in log and by gender, age and skill).	Six-year averages.	Time-varying institutions.	Output gap. EPL, ALMP, UB replacement rates, UB duration index, union density, union coverage, coordination index, centralisation index, tax wedge.	In most cases, the impact of EPL on both unemployment and employment rates is found to be negative but not statistically significant. Negative and statistically significant effect are found on prime-age men unemployment only. Positive but not statistically significant effect are found on prime prime-age men employment and youth unemployment.	The chapter uses two-period (1985-90 and 1992-97) panel regressions to estimate the effect of EPL on various labour market outcomes. EPL is found to decrease unemployment inflow and outflow rates and to raise mean employment duration. EPL is also found to increase the share of self-employment. All of these effects are statistically significant.	Random effects.
OECD (2002a, Chapter 5)	Employment rate.	Annual.	Time-varying institutions.	Output gap. EPL, UB replacement rates, union density, product market regulation index.	EPL is found to decrease overall employment rates.	The negative and statistically significant effect of EPL is mostly found in countries with intermediary levels of bargaining corporatism.	Fixed effects.
Scarpetta (1996)	Structural unemployment.	Annual.	Time-varying institutions.	Output gap. EPL, ALMP, UB replacement rates, union density, coordination index, corporatism index, tax wedge.	EPL is found to raise structural unemployment and non-employment, with stronger effects for youth and long-term unemployment.	The paper estimates a dynamic model – as well as a static one – and shows that EPL reduces the adjustment speed of unemployment presumably by raising real wage rigidity.	Random effects + lagged dependent variable.

ALMP: active labour market policies; EPL: employment protection legislation; FE: fixed effects; OLS: ordinary least squares; RE: random effects; TFP: Total productivity factor; UB: Unemployment benefit.