

The Organisation of Work and Systems of Labour Market Regulation and Social Protection: A Comparison of the EU-15

Paper prepared for the CAS workshop on
“Innovation in firms”, Oslo, 30 Oct. - 1 Nov. 2007

Edward Lorenz (UNSA-CNRS)
Bengt-Aake Lundvall (University of Aalborg)

Basic message

- The paper develops a set of EU-wide aggregate measures that are used to explore at the national level the relation between the organisation of work and systems of labour market regulation and social protection
 - Although our data can only show correlations rather than causality and are aggregated at the national level, they support the view that the way work is organised is highly nation-specific and that it varies in a systematic way with the institutions regulating employment and unemployment security and processes of labour market adjustment.
-

The broader research programme

- A major concern of Lorenz and Lundvall (2006) is to build on established work in the NSI tradition to develop a broader and more integrated understanding of national systems of competence building.
 - The wider perspective seeks to give due attention to the broader set of institutions shaping competence building in the economy such as labour markets, the education and training system, and systems of social protection, as well as to show how this institutional context impacts on informal experienced-based learning in determining the pace and 'style' of innovation.
-

Need for better indicators

- We argue that relevant indicators for innovation policy need to do more than capture material inputs such as R&D expenditures and human capital inputs such as the quality of the available pool of skills based on the number of years of education. Indicators also need to capture how these material and human resources are used and whether or not the work environment promotes the further development of the knowledge and skills of employees.
-

Work organisation and innovative mode

- In Arundel et al. (2007) we showed that in nations where work is organised to support high levels of discretion in solving complex problems firms tend to be more active in terms of innovations developed through their own in-house creative efforts.
 - In countries where learning and problem-solving on the job are constrained, and little discretion is left to the employee, firms tend to engage in a supplier-dominated innovation strategy. Their technological renewal depends more on the absorption of innovations developed elsewhere.
-

Sequel to Arundel et al. (2007)

- We concluded in Arundel et al. 2007 by observing, “there are fundamental differences by country both in how work is organised and in how firms innovate. These differences remain after controlling for differences in industrial structure. It is a major challenge for future research to understand the underlying ‘unexplained’ national factors that influence firms’ organisational choices as well as their innovation performance.”
 - Preliminary analysis suggests that some specific variables reflecting institutional differences among the countries are quite strongly correlated with the prevalence of discretionary learning (labour market and welfare state characteristics as well as the strength of vocational training).
-

Mapping forms of work organisation for the EU-15

- In order to map the forms of work organisation adopted by firms across the European Union we draw on the results of the third European Survey of Working Conditions undertaken by the European Foundation for the Improvement of Living and Working Conditions. The total survey population is 21703 persons, of which 17910 are salaried employees.
 - The analysis is based on the responses of 8081 salaried employees working in industry or service sector firms with at least 10 employees. This excludes employees in agriculture and fishing, public administration and social security, education, health and social work, and private domestic employees.
-

Work organisation variables

- The choice of organisational variables is based on a reading of two complementary literatures addressing the relation between the organisation of work and innovation.
 - The 'high performance work system' literature dealing with the diffusion of Japanese-style organisational practices in the US and Europe (Dertouzos, et. al. 1989; Gittleman et al. 1998; Osterman, 1994 and 2000; Ramsay et al., 2000; Truss, 2000; and Wood, 1999)
 - The literature dealing with the relation between organisational design and innovation (Lam, 2005; Lam and Lundvall, 2006; Mintzberg, 1979, 1983)
-

Work Organisation Variables

	Percent of employees
Team work	64.2
Job rotation	48.9
Responsibility for quality control	72.6
Quality norms	74.4
Problem solving activities	79.3
Learning new things in work	71.4
Complexity of tasks	56.7
Discretion in fixing work methods	61.7
Discretion in setting work pace	63.6
Horizontal constraints on work pace	53.1
Hierarchical constraints on work pace	38.9
Norm-based constraints on work pace	38.7
Automatic constraints on work pace	26.7
Monotony of tasks	42.4
Repetitiveness of tasks	24.9
<i>n</i>	8081

Source: Third Working Conditions survey, European Foundation for the Improvement of Living and Working Conditions

Work organisation clusters

- **Discretionary learning (39 % of employees):**
 - ❑ autonomy in work
 - ❑ learning dynamics (learning new things, problem solving)
 - ❑ complexity of tasks
 - ❑ low work rate constraints, repetitiveness and monotony
 - **Lean organisation (28 % of employees):**
 - ❑ team working
 - ❑ job rotation
 - ❑ quality management (quality norms and quality control)
 - ❑ learning dynamics
 - ❑ work rate constraints, repetitiveness and monotony
 - ❑ relatively low autonomy in work
-

Work organisation clusters

- **Taylorist organisation (14 % of employees):**
 - work rate constraints, repetitiveness and monotony
 - low autonomy, learning dynamics, complexity, responsibility in quality control
 - team working and job rotation slightly over-represented
 - **Traditional organisation (19 % of employees):**
 - low learning and problem-solving
 - low work rate constraints
 - monotony
-

Summary of results for the 4-cluster solution

(percent of employees in each cluster)

	Discretionary learning	Lean organisation	Taylorist organisation	Traditional organisation	All
Autonomy fixing work methods	89,1	51,8	17,7	46,5	61,7
Autonomy setting work rate	87,5	52,2	27,3	52,7	63,6
Learning new things in work	93,9	81,7	42,0	29,7	71,4
Problem solving activities	95,4	98,0	5,7	68,7	79,3
Complexity of tasks	79,8	64,7	23,8	19,2	56,7
Responsibility for quality control	86,4	88,7	46,7	38,9	72,6
Quality norms	78,1	94,0	81,1	36,1	74,4
Team work	64,3	84,2	70,1	33,4	64,2
Job rotation	44,0	70,5	53,2	27,5	48,9
Monotony of tasks	19,5	65,8	65,6	43,9	42,4
Repetitiveness of tasks	12,8	41,9	37,1	19,2	24,9
Horizontal constraints on work rate	43,6	80,3	66,1	27,8	53,1
Hierarchical constraints on work rate	19,6	64,4	66,5	26,7	38,9
Norm-based constraints on work rate	21,2	75,5	56,3	14,7	38,7
Automatic constraints on work rate	5,4	59,8	56,9	7,2	26,7

Source : Third Working Condition survey. European Foundation for the Improvement of Living and Working Conditions

National Differences in Forms of Work Organisation

	Percent of employees by country in each organisational cluster				
	Discretionary learning	Lean forms	Taylorist forms	Traditional forms	Total
Denmark	<u>60.0</u>	21.9	6.8	11.3	100.0
Netherlands	<u>64.0</u>	17.2	5.3	13.5	100.0
Sweden	<u>52.6</u>	18.5	7.2	21.7	100.0
Finland	<u>47.8</u>	27.6	12.5	12.1	100.0
Germany	44.3	19.6	14.2	21.9	100.0
Austria	47.5	21.5	13.1	18.1	100.0
Belgium	38.9	25.1	13.9	22.1	100.0
France	38.0	33.3	11.1	17.6	100.0
Luxembourg	42.7	25.4	11.9	20.0	100.0
UK	34.8	<u>40.6</u>	10.9	13.7	100.0
Ireland	24.0	<u>37.8</u>	20.7	17.5	100.0
Spain	20.2	38.8	<u>18.5</u>	22.5	100.0
Portugal	26.1	28.1	<u>23.0</u>	22.8	100.0
Italy	30.1	23.6	<u>20.9</u>	25.4	100.0
Greece	18.7	25.6	<u>28.0</u>	27.7	100.0
EU-15	39.1	28.2	13.6	19.1	100.0

Forms of work organisation across European nations

- **‘Learning’ forms of work organisation:**
 - + : Netherlands, Denmark and Sweden
 - - : Southern countries and Ireland
 - **‘Lean’ forms of work organisation:**
 - + : UK, Ireland, Spain and France
 - - : Netherlands, Denmark, Sweden, Germany and Austria
 - **‘Taylorist’ forms of work organisation:**
 - + : Southern countries and Ireland
 - - : Netherlands, Denmark and Sweden
 - **‘Traditional’ forms of work organisation:**
 - + : Southern countries
 - - : Netherlands, Denmark, Finland and UK
-

Odds Ratio Estimates of National Effects on the Use of Work Organisation Forms

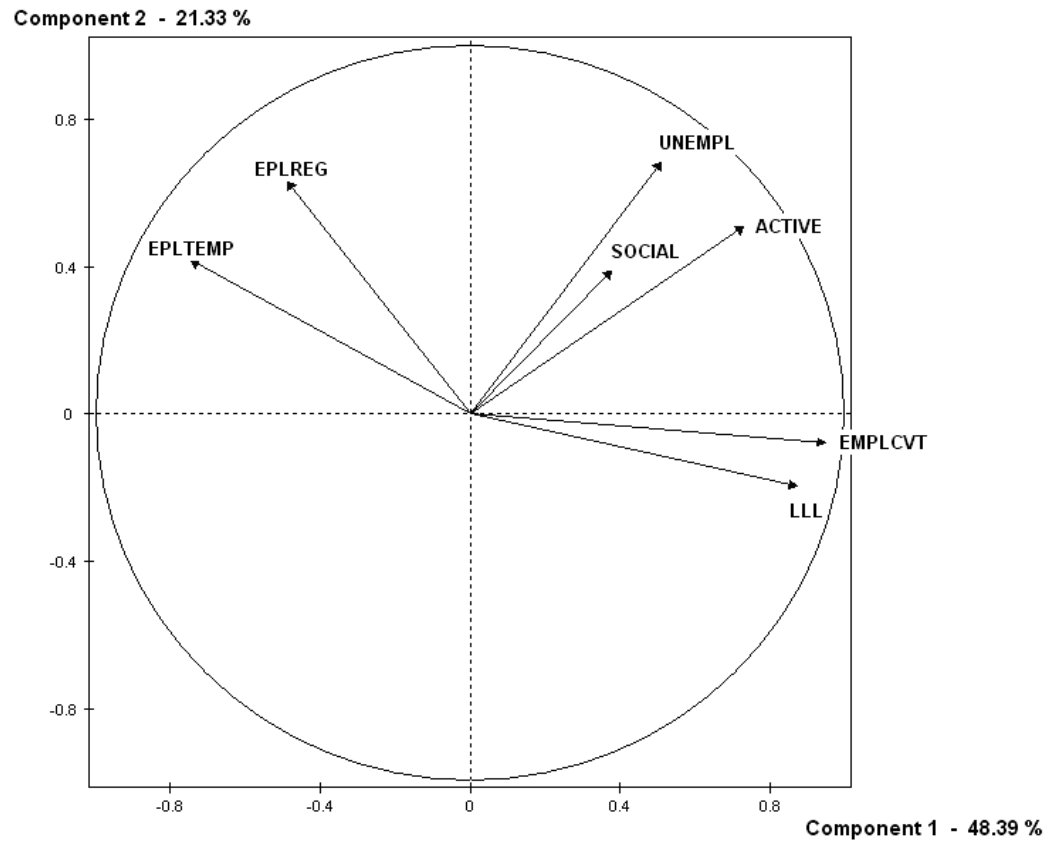
	Odds ratio estimates with structural controls			
	Discretionary Learning	Lean organisation	Taylorist organisation	Traditional organisation
Belgium	.79	1.53**	.90	.91
Denmark	2.16**	1.34	.43**	.35**
Germany				
Greece	.27**	1.53	2.31**	1.13
Italy	.60**	1.22	1.40	1.17
Spain	.32**	2.95**	1.06	.85
France	.73**	2.31**	.72	.69*
Ireland	.33**	3.12**	1.59**	.61**
Luxembourg	.83	1.53	1.01	.82
Netherlands	2.17**	1.03	.40**	.48**
Portugal	.45**	1.68**	1.58*	.99
UK	.49**	3.78**	.80	.49**
Finland	.98	1.88**	.93	.46**
Sweden	1.24	1.06	.51**	1.00
Austria	1.39**	1.15	.77	.65**

Developing measures of systems of labour market regulation and social protection

■ Aggregate indicators (Eurostat and OECD)

- **(LLL)** percentage of persons aged 24-64 participating in education and training in the 4 weeks prior to the 2000 survey
 - **(EMPCVT)** percentage of persons in all enterprises participating in continuous vocational education in 1999.
 - **(ACTIVE)** expenditures, other than training, on active labour market policies as a percentage of GDP in 2000
 - **(UNEMP)** expenditures on unemployment and income maintenance as a percentage of GDP in 2000
 - **(SOCIAL)** expenditures on social protection other than unemployment as a percentage of GDP in 2000.
 - **(EPLREG)** OECD's measures of the strictness for employment protection legislation for regular employment
 - **(EPLTEMP)** OECD's measures of the strictness for employment protection legislation temporary employment
-

First two components of PCA



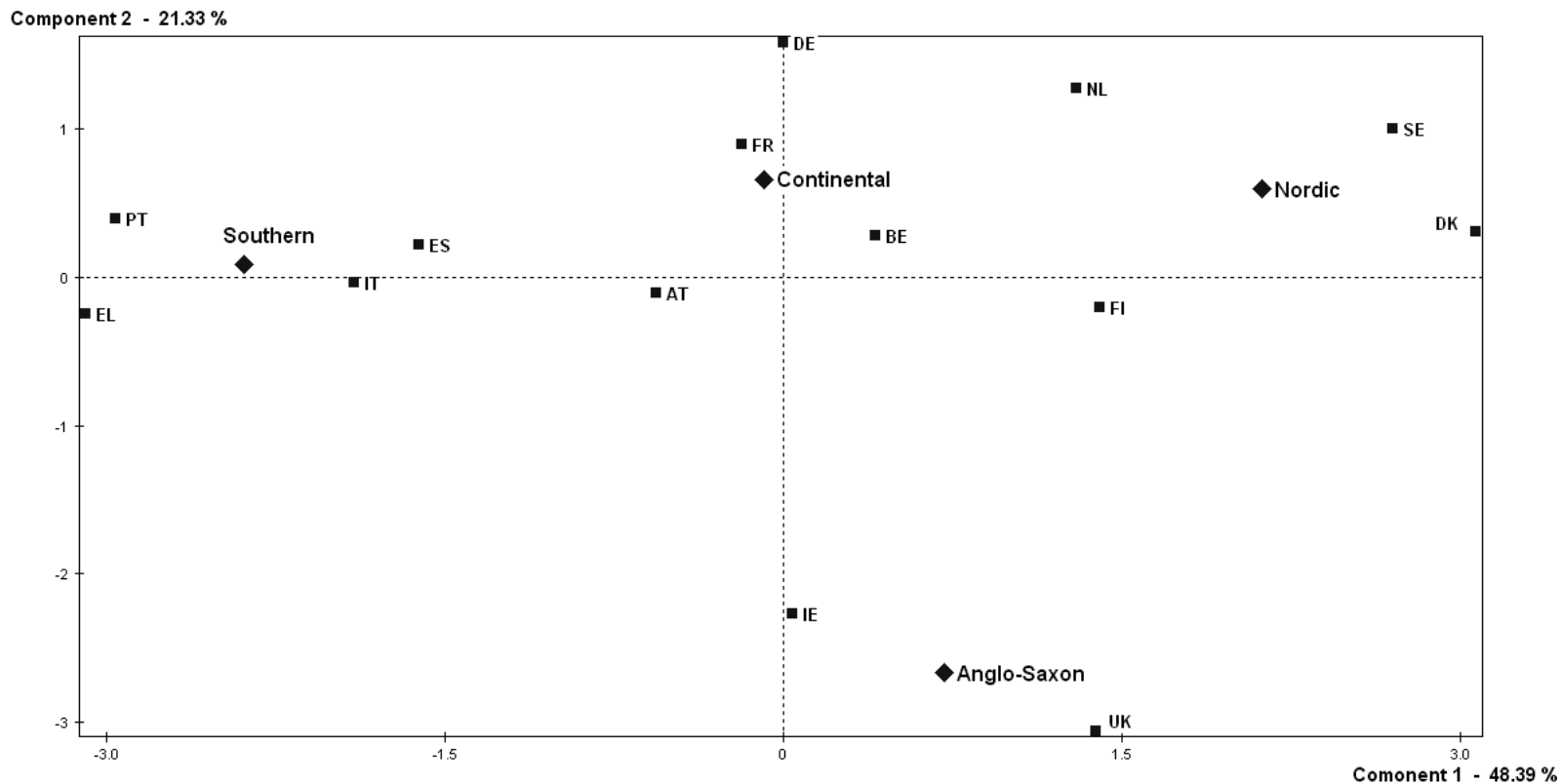
A measure of 'active flexibility'

- The first component, which accounts for about 48 percent of the total variance, is positively correlated with the two measures of life-long-learning and with the measure of active labour market policies, while it is negatively correlated with the strictness of employment protection regulation for temporary employees.
 - This component can be interpreted as providing an indicator of what we refer to as 'active flexibility'. Alternatively, by reversing the scale it can be thought of as providing a measure of 'precarious rigidity'.
-

A measure of ‘precarious flexibility’

- The second component, which accounts for about 21 percent of the variance, is positively correlated with the measures of expenditures on unemployment and income maintenance and with the measure of the strictness of employment protection legislation for regular employees.
 - This component can be interpreted as providing a measure of what we have referred to elsewhere as ‘rigid security’. Alternatively, by reversing the scale, it can be thought of providing a measure of ‘precarious flexibility’.
-

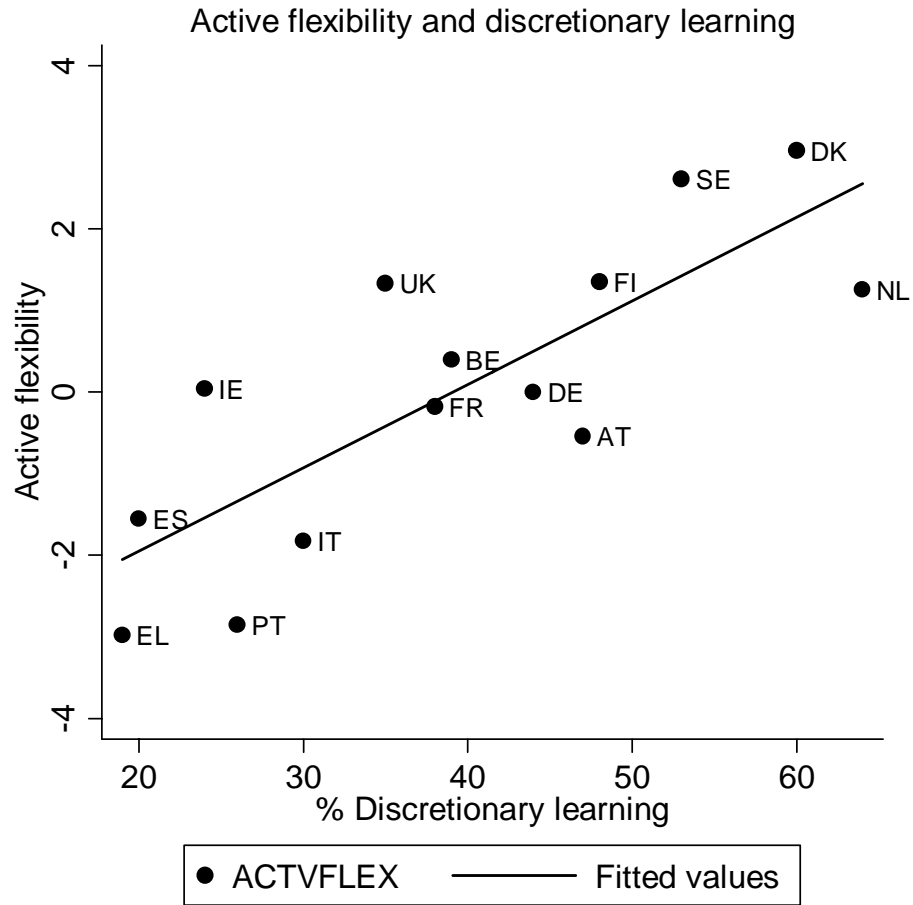
Cluster analysis based on first two components of the PCA analysis: 4 cluster solution



Cluster analysis of systems of labour market regulation and social protection

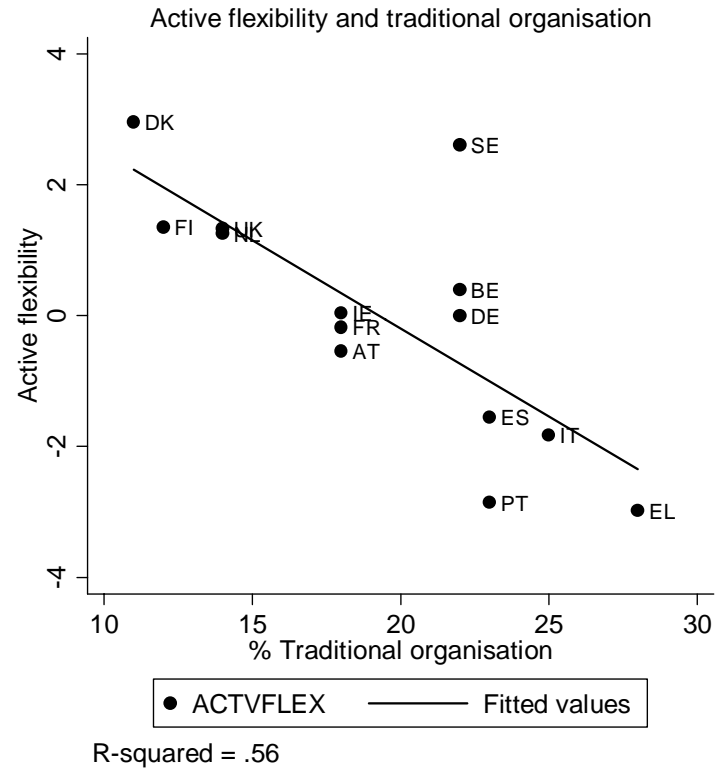
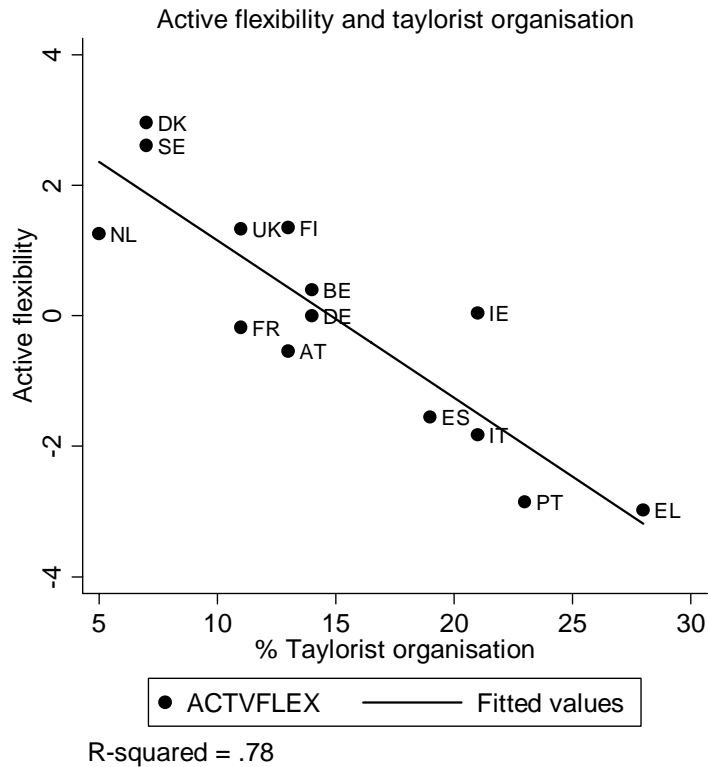
Countries in cluster	Nordic SE, DK, FI, NE	Continental DE, FR, BE, AT	Southern PT, IT, ES, IT	Anglo- Saxon UK, IE	EU-14
% Population 24-65 yrs. life-long learning	19.4	5.8	3.8	14.4	10.3
% Employees receiving CVT (all enterprises)	51.3	37.5	20.8	45.0	37.7
Expenditure on Active LMP as a % of GDP	1.3	0.8	0.5	0.4	0.8
Expenditure on unemployment and income maintenance as a % of GDP	1.6	1.5	0.7	0.5	1.2
Expenditure on Social Benefits as a % of GDP	24.6	24.9	20.6	18.7	22.7
EPL strictness for regular employment	2.4	2.3	3.0	1.2	2.4
EPL strictness for temporary employment	1.4	2.6	3.8	0.3	2.3

The relation between work organisation and active flexibility



R-squared = .64

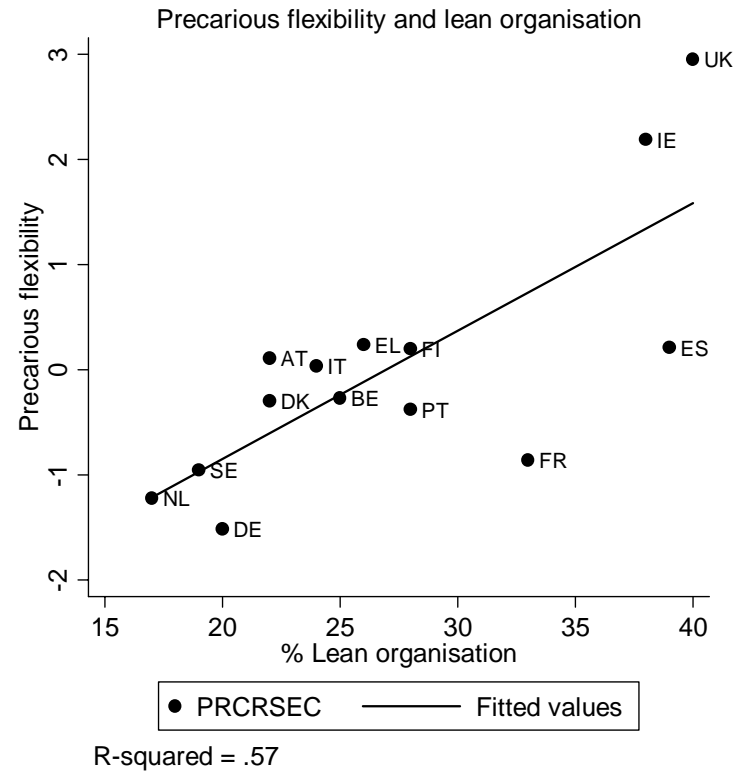
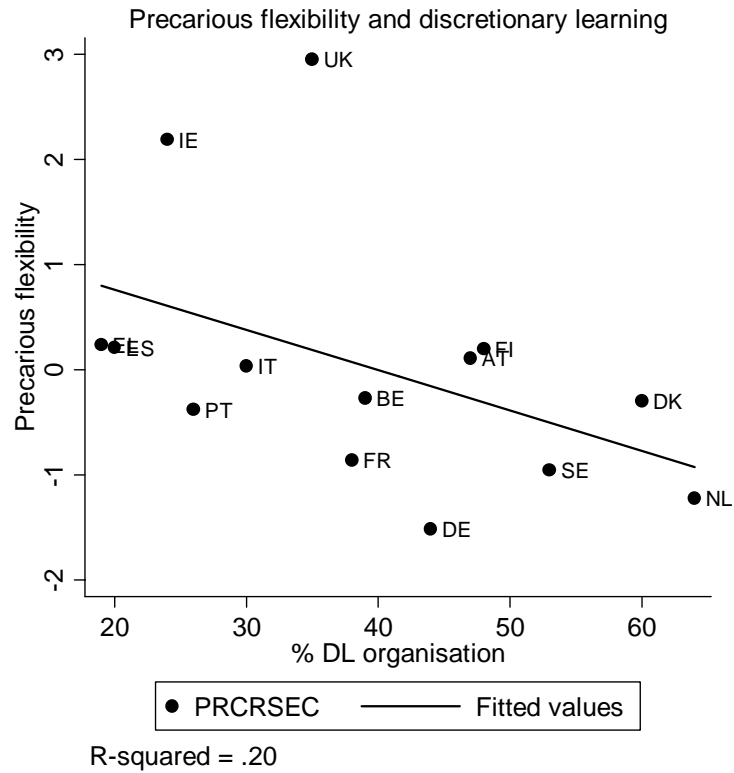
The relation between work organisation and active flexibility



Conclusions

- Systems combining low levels of employment protection with relatively high levels of expenditure on 'active' labour market policies including life-long-learning appear to have an advantage in terms of the adoption of the forms of work organisation and knowledge exploration at the firm level that can lead to 'new to the market' and possibly radical innovation.
 - This may be related to the fact that organisations which compete on the basis of strategies of continuous knowledge exploration tend to have relatively porous organisational boundaries so as to permit the insertion of new knowledge and ideas from the outside. Job tenures tend to be short and active labour market policies can contribute to this flexibility in the labour market by supporting a continuous reconfiguration the workforce's skills and competences.
-

The relation between work organisation and precarious flexibility



Conclusions

- Nations with relatively unregulated labour markets (notably the UK and Ireland) tend to show a preference for relatively bureaucratic forms of work organisation that limit employee discretion in process of learning and problem-solving.
 - A possible explanation for this is that forms of work organisation depending on high levels of employee discretion also depend on high levels of trust. Such trust may prove difficult to develop or sustain in institutional setting characterised by both low levels of unemployment protection and few constraints on employers' ability to lay-off. For example, employees may be motivated to adopt defensive strategies based on knowledge hoarding in an effort to protect their status and existing shares of enterprise quasi-rents.
-

Implications

- The implications of these results are that the institutional set-up determining the dynamic performance of national systems is much broader than normally assumed when applying the innovation system concept. The redistribution policies and institutions are of fundamental importance for how firms learn and innovate. This is especially true for social protection and labour market institutions. There are alternative ways to build 'high performance innovation systems' and different innovation systems tend to organize work and distribute welfare differently among citizens.
 - This perspective has important implications for the European policy and in particular for the current process of revitalizing the Lisbon agenda. Agreement on the nebulous concept 'structural reform' has substituted for an open debate on the strength and weaknesses of different types of national welfare systems in Europe. Our research on national systems of competence-building implies that this view is mistaken since national systems of social protection are structurally interrelated to modes of learning and innovation.
-