5TH ECB/CEPR Labour Market Workshop
"Recent Trends in European Employment"
Frankfurt 11-12 December 2008

Employment Outcomes and the Interaction between Product and Labour Market Regulation: Are they substitutes or complements?

By

G. Fiori (Boston College), G. Nicoletti (OECD), S. Scarpetta (OECD and IZA), F. Schiantarelli (Boston College and IZA)

Main issues

- **Many countries have introduced liberalization and privatization measures in product markets over the past two decades to promote competition and improve productivity and growth**

  Question 1: What are the effects of product market regulation on employment?

- **PM deregulation occurred in different labour market settings**

  Question 2: Does the employment impact of liberalization depend on LM settings that shape the bargaining power of workers and, if so, how?

- **PM deregulation has often been matched by changes in LM settings**

  Question 3: Is stronger product market competition conducive to changes in labour market policies and institutions?

Outline

- The paper addresses these questions by:
  1. Presenting a simple model with product-labour market interactions
  2. Considering political economy links between product and labour market policies
  3. Testing effect of interactions on employment, accounting for political economy links
  4. Concluding on whether policies in labour and product markets are complements or substitutes

Previous literature

- Some consensus that more PM competition tends to increase aggregate employment by reducing rents, expanding activity and tightening LM: Blanchard-Giavazzi (2003); Spector (2002); Pissarides (2001); Messina (2003); as well as several reduced-form empirical estimates

- But relatively little theory and evidence on effects of PM policies in different LM settings: exceptions are Haefke and Ebell (2003), Amable and Gatti (2001), Koeniger and Prat (2006)

- And even less theory and evidence on the political economy of linkages between the two: Saint-Paul (1996), Blanchard and Giavazzi (2003), Koeniger and Vindigni (2004),

- Moreover, empirical evidence provides conflicting results:
  - Nicoletti and Scarpetta (2005), Griffith et al. (2007), and Amable et al. (2007) find that **product market deregulation is more effective at the margin in highly regulated/high union density-coverage labour markets**
  - Berger and Danniger (2006) and Bassanini and Duval (2006) find the opposite: **product market deregulation is more effective when labour market policies are less restrictive**

- Common characteristics of previous empirical literature:
  - **A number of contributions lack theoretical foundations in fully-specified bargaining model**
  - **Econometric work based mostly on static specifications**, yet there is persistence and cointegration is untested

This paper: theory

- We extend the model of bargaining and monopolistic competition by Blanchard and Giavazzi (2003):
  - **Fuller specification of fall back position of the union**
  - **Taxation**

- **Implications:** Employment gains from product market deregulation are larger when labour market settings provide strong bargaining power to workers

- **Basic Intuition:** With low unions' bargaining power, real wages will be close to market clearing level and employment close to its full employment level. Then, liberalization measures that lead to a decrease in the mark-up can only generate small changes in employment

This paper: Econometrics

- **Data**:
  - Estimation based on harmonized aggregate annual panel data for 20 OECD countries over 1980-2002.
  - PM and LM policies proxied by OECD indicators
- **Model specification** :
  - Dynamic → lagged dep. variable and country specific serial corr.
  - Control for unobservables → country-specific constants and trends, year effects.
- **Estimation Method**:
  - Feasible GLS with country specific variance.
  - Discussion of possible endogeneity of policies and institutions.
- **Results**:
  - Employment gains have been larger when labour market policies were tight → Product and labour market deregulation tend to be "**substitutes**".
  - However, over time product market deregulation lead to a decline in workers' bargaining power → Allowing for the endogenous LM response, product and labour market policy are "**complements**".

➢ Answer to question in the title: **Both!!** (but in a different sense)

Model assumptions (Blanchard-Giavazzi)

- Linear technology, monopolistic competition:

  Mark-up over marginal costs, μ, equals $\frac{1}{1+\sigma}$ with elasticity $\sigma = \bar{\sigma} g(m), \text{with } g' > 0$

  where m is the number of firms

- Generalized Nash maximand: $\beta \ln\left(V_i - \overline{V_i}\right) + (1-\beta)\ln \Pi_i$

  where β is union bargaining power

- Efficient Contract or Right to Manage

- Entry
  - Distinguish short from long run
  - In LR # of firms and μ are endogenous (cost of entry=PV of profits)

Extension (1):

- Richer fall back position (in B-G depends on U only):

$\overline{V_i} = \frac{W_i^A}{P} N_i$, where Ni is union membership;

the alternative wage: $\frac{W_i^A}{P} = \frac{N - L - L^g}{N} \frac{B}{P\left(1 - \tau^L\right)} + \frac{L^g}{N} \frac{W^g}{P} + \frac{L}{N} \frac{W_i^0}{P}$

With L^g given;

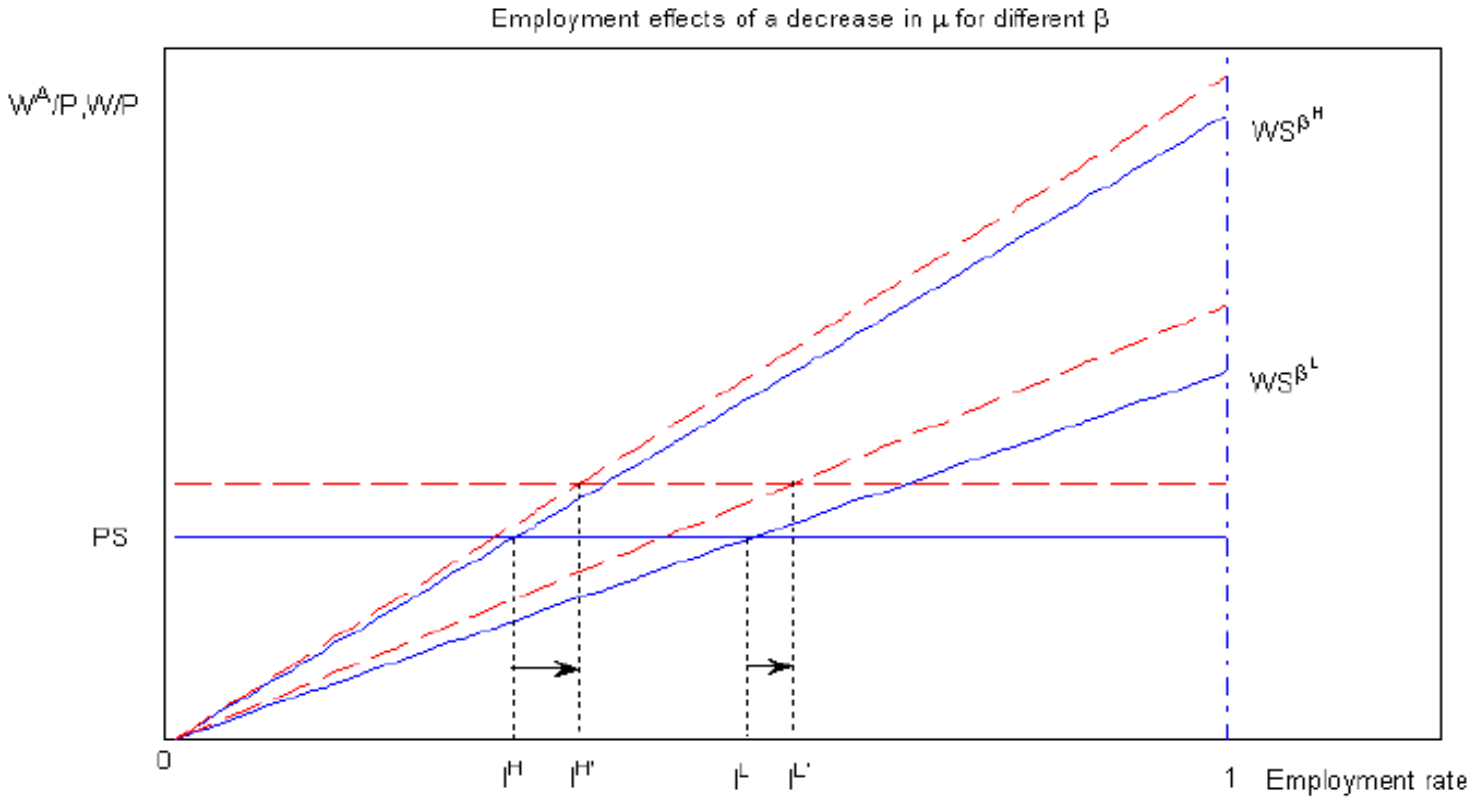
In symmetric equilibrium: $W_i^o = W_i = W = W^g$

- Taxation:
  - labour income tax τ^L and payroll taxes τ^P
  - U benefits not taxed
  - balanced budget assumption

Model implications (1)

- Lower μ and increase employment (as in B-G)
- But effect of lower μ greater when β is high (holds in short and long run, with EB and RTM bargaining models)
- P setting curve: $$\frac{W^A}{P} = \frac{1}{(1+\mu)(1+\tau^p)}$$
- W setting curve: $$\frac{W^A}{P} = \frac{(1+\mu\beta)}{(1+\mu)(1-\tau^l)} l$$
- Employment: $$l = \frac{1}{(1+\mu\beta)\frac{(1+\tau^p)}{(1-\tau^L)}}$$

Employment effects of deregulation in different LM settings



Deregulation (μ ↓): (a) PS ↑, WS ↑ (less)
(b) $WS^{\beta H}$ ↑ less than $WS^{\beta L}$
(c) l ↑ more when β high (no such effect in B-G)

Intuition: when β high not as much room for wage increases to (partially) offset employment effects of deregulation

Extension (2):

- Endogenous bargaining power:
  - union maximises its utility in excess of fall back position (income share in B-G) net of lobbying costs

$$\underset{\beta}{Max}\left[(1-\tau^{L})\left(\frac{W_i}{P}-\frac{W_i^{A}}{P}\right)L_i-\frac{\alpha}{2}\beta^{2}\right]$$

$\frac{\alpha}{2}\beta^{2}$ are lobbying costs; $V_i-\overline{V}_i$ is increasing in both β and μ

- Model Implications (2):
  - With union maximising utility in excess of fall back position net of lobbying costs, a decrease in μ generates a decrease in β
  - Losses from a decrease in bargaining power are smaller when rents to be shared are smaller, reducing incentives to lobby for increasing bargaining power
  - Result holds under efficient bargaining and right to manage (under plausible conditions)

Data (1)

- Harmonized panel data for OECD countries, 1980-2002
- **Dependent Variable:**
  - Non-agricultural business employment rate (ERB)
- **Product market regulations and border barriers:**
  - Domestic regulations creating barriers to entry (REG) and public ownership (REGpo)
    - Time varying indicators for 7 non-manufacturing industries (energy, transport and communications,) [*Conway and Nicoletti (2006)]*
  - Principal component of REG and FDI restrictions (REGfdi)
    - Time-varying indicator for foreign ownership restrictions, restrictive screening and notification procedures, operational restrictions for foreign affiliates in manufacturing and 8 other industries [*Golub (2003) and Golub and Koyama (2006)*]

Data (2)

- **Labour market policies and institutions**:
  - Various definitions of the tax wedge on labour income (WEDGE)
  - Principal component of EPL and unemployment benefits (LMRP)
  - Principal component of union density and union coverage (UDCO)
  - Index of bargaining centralisation/coordination (HGCORP, LLCORP)

→ **Note that all PM and LM indicators are increasing in restrictiveness**

- **Evolution of policies and institutions**:
  - Different average level of PMR across countries and widespread trend towards deregulation with different timing and intensity
  - Wider differences in levels of LMR but much less action over time
  - Also wide differences in UDCO, with trend towards less unionization

Empirical approach

- **Regression model:**

$$ERB_{i,t} = \alpha ERB_{i,t-1} + \beta PMR_{i,t} + \gamma LMR_{i,t} + \delta PMR_{i,t}LMR_{i,t} + \theta ERB_{i,t-1}LMR_{i,t} + \sum_{k=1}^{K} \phi_k Z_{k,i,t} + DC_i + DT_t + \psi_i Trend_{i,t} + \epsilon_{i,t}$$

$$\epsilon_{i,t} = \rho_i \epsilon_{i,t-1} + \xi_{i,t}$$

- **Estimation strategy**:
  - Feasible GLS with country-specific AR(1) structure of errors, account for a number of unobservable effects
  - Political economy determinants of policies
  - Correction for endogeneity

Main empirical results (1)

- Confirmation of previous results that **restrictive product and labour market policies and institutions are bad for employment**
  - Effects of LMR and UDCO are negative and significant
  - Effects of REG and REGfdi are negative and significant
  - It is barriers to entry and FDI that matter, not public ownership

- Confirmation of model's predictions that **effects of deregulation on employment are stronger in restrictive LM policy environments**
  - The interaction between PMR and LMR is negative (the higher LMR, the stronger the effect of a change in PMR on employment) and significant in all specifications
  - Omitting dynamics and country-specific trends might have mistakenly led previous studies to conclude the opposite

→ **so PMR and LMR policies are substitutable in this narrow sense**

Main empirical results (2)

- Some confirmation of model's predictions that **deregulation may cause easing of labour market policies**
  - REG Granger-causes LMR but not the reverse (controlling for other pol. eco. vars)
  - But results for REG, REGfdi and UDCO less clear: bidirectional causality cannot be excluded

→ **so PM and LM policies are complementary in a political economy sense**

- Hence, the total effect of deregulation on employment should take into account the **indirect effect through the induced change in LMR**

- The following policy experiments can give an idea:
  - A one standard deviation decrease in REG generates (ceteris paribus) a long run gain in the employment rate of 1.20 percentage points in France (a high LMR country) and of only .22 percentage points in Ireland (a low LMR country).
  - Allowing for the effect of product market deregulation on labour market policies, a one standard deviation decrease in REG generates a total long run gain in the employment rate of 2.26 percentage points in France and of .90 percentage points in Ireland

Main empirical results (3)

- Results are robust to **accounting for possible endogeneity** of REG, LMR, REGfdi, UDCO (and GAP)
  - Control function approach used: insert residuals of 1st stage (political economy regressions) into 2nd stage (+ interactions) and check significance
  - Evidence of endogeneity of policies in employment equations
- Correcting for endogeneity leaves negative and significant interaction of LMR with both REG and REGfdi , confirming previous conclusions

Conclusions

- Initial question:
  - Are product and labour market deregulation substitutes or complements?
- Answer:
  - ***Both***, but in a different sense:
  - ➢ Product market deregulation more effective when LMR rigid
  - ➢ Product market deregulation leads to lower LMR (or UDCO)

- Important policy implications:
  - In high LMR countries easing PMR can yield strong employment benefits
  - In high LMR countries easing PMR is priority (especially if political economy of LM reform difficult)
  - Total long-run employment effect of deregulation may have been underestimated so far

Appendix

PM and LM variables
Other results

- LMR, UDCO: negative and sign. Effect on *I*; LMR increases persistence;
- WEDGE mixed evidence (WEDGE1 sign., WEDGE2 not sign.)
- Degree of corporatism not sign. REGpo positive, but not significant (barrier to entry effect and overmanning act in different directions).
- When EPL and BEN entered separately:
- EPL: negative and sign.; BEN: negative, but not sign.
- EPL increases persistence.
- Only interaction of REG with BEN negative and sign.

Political economy
Other Results

- No evidence that REGfdi Granger-causes LMR, but REGfdi Granger causes UDCO. Some evidence that also REG G.C. UDCO (at 10% level)
- UDCO Granger causes REGfdi, but with a negative sign: higher levels of UDCO lead to lower level of product market regulation (?).
- UDCO leads to lower LMR (?)

Political economy
Other results

- **Severe downturns** lead to tightening of labour regulation, while product markets tend to be liberalized.
- **Political economy variables** help explain both product and labour market regulation.
- Left-of-center governments are more willing to tighten regulations in both labour and product markets.
- Mature governments are more likely to implement product market reforms.

Political economy
Other results

- When LMRP broken down into EPL and BEN components:
- Some evidence that REG leads to lower EPL and BEN, but weaker (for EPL, only in eq. with homoskedasticity; for BEN only sum significant at 5%)
- Evidence is stronger that BEN and EPL Granger cause REG (sum >0 for EPL, 0 for BEN)
- Strong evidence that REGfdi leads to lower UDCO.

Basic regressions: selected results

	(1)	(2)
ERB(-1)	0.648***	0.631***
	(32.79)	(32.82)
*ERB(-1)*LMRP*	0.0631***	0.0725***
	(4.69)	(5.53)
LMRP	-2.687***	-3.054***
	(-4.11)	(-4.83)
REG	-0.228***	
	(-2.68)	
*REG*LMRP*	-0.159**	
	(-2.23)	
REGfdi		-0.442***
		(-3.94)
*REGfdi*LMRP*		-0.236***
		(-2.75)
REGpo	0.155*	0.237***
	(1.78)	(2.62)
UDCO	-1.607***	-1.579***
	(-4.96)	(-5.18)
WEDGE1(-1)	-0.0525***	-0.0620***
	(-2.70)	(-3.16)
GAP	0.306***	0.312***
	(21.64)	(22.63)
EGRM	-0.00925	-0.0533
	(-0.11)	(-0.67)
HGCORP	-0.192	-0.140
	(-0.53)	(-0.49)
LLCORP	0.431	0.478
	(1.16)	(1.64)
No. obs.	460	440

Political economy regressions: selected results

	(1)	(2)
dep. var.	*LMRP*	*REG*
LMRP(-1)	0.910***	-0.0359
	(19.05)	(-0.41)
LMRP(-2)	-0.208***	0.0436
	(-4.60)	(0.53)
REG(-1)	0.00652	0.977***
	(0.40)	(21.06)
REG(-2)	0.0270	-0.206***
	(1.63)	(-4.27)
BIGCRISIS	0.0173*	-0.000806
	(1.68)	(-0.03)
BIGCRISIS(-1)	0.00147	-0.0776***
	(0.14)	(-3.02)
LEFT(-1)	0.0117*	0.0193
	(1.71)	(1.13)
OGOV	0.00539	-0.0358**
	(0.90)	(-2.35)
No. obs.	420	440
joint sign. *REG*	0.00811	
sign. sum *REG*	0.00229	
joint sign. *LMRP*		0.868
sign. sum *LMRP*		0.895

Table 4: Testing and correcting for endogeneity in the employment rate equation

	(1)	(2)	(3)	(4)
ERB(-1)	0.608***	0.585***	0.621***	0.594***
	(29.55)	(28.21)	(30.22)	(28.68)
*ERB(-1)*LMRP*	0.0598***	0.0439***	0.0506***	0.0357**
	(3.83)	(2.73)	(3.22)	(2.22)
LMRP	-2.954***	-2.003**	-2.527***	-1.625**
	(-3.94)	(-2.55)	(-3.34)	(-2.08)
REG	-0.118		-0.106	
	(-1.16)		(-1.04)	
*REG*LMRP*	-0.165**		-0.200**	
	(-2.06)		(-2.51)	
REGfdi		-0.312**		-0.248*
		(-2.33)		(-1.88)
*REGfdi*LMRP*		-0.312***		-0.330***
		(-2.88)		(-3.07)
REGpo	0.0976	0.118	0.101	0.120
	(1.27)	(1.54)	(1.33)	(1.56)
UDCO	-1.087***	-1.460***	-1.301***	-1.630***
	(-3.39)	(-4.04)	(-4.19)	(-4.61)
WEDGE1(-1)	-0.0445**	-0.0336		
	(-2.28)	(-1.64)		
WEDGE2			0.00858	0.00649
			(0.51)	(0.38)
GAP	0.363***	0.351***	0.363***	0.350***
	(21.89)	(19.61)	(22.07)	(19.75)
EGRM	-0.0922	-0.0656	-0.0774	-0.0541
	(-1.11)	(-0.76)	(-0.95)	(-0.63)
LLCORP	0.417*	0.481*	0.253	0.379*
	(1.66)	(1.94)	(1.08)	(1.67)
HGCORP	-0.272	-0.189	-0.394*	-0.307
	(-1.12)	(-0.78)	(-1.68)	(-1.35)
No. obs.	400	380	400	380
Endogeneity test	0.000855	0.0269	0.00292	0.0412