

WELFARE, WEALTH AND WORK – A NEW GROWTH PATH FOR EUROPE

A European research consortium is working on empirical foundations for a new socio-ecological growth model



National Labour Market Institutions and Regional Unemployment Disparities

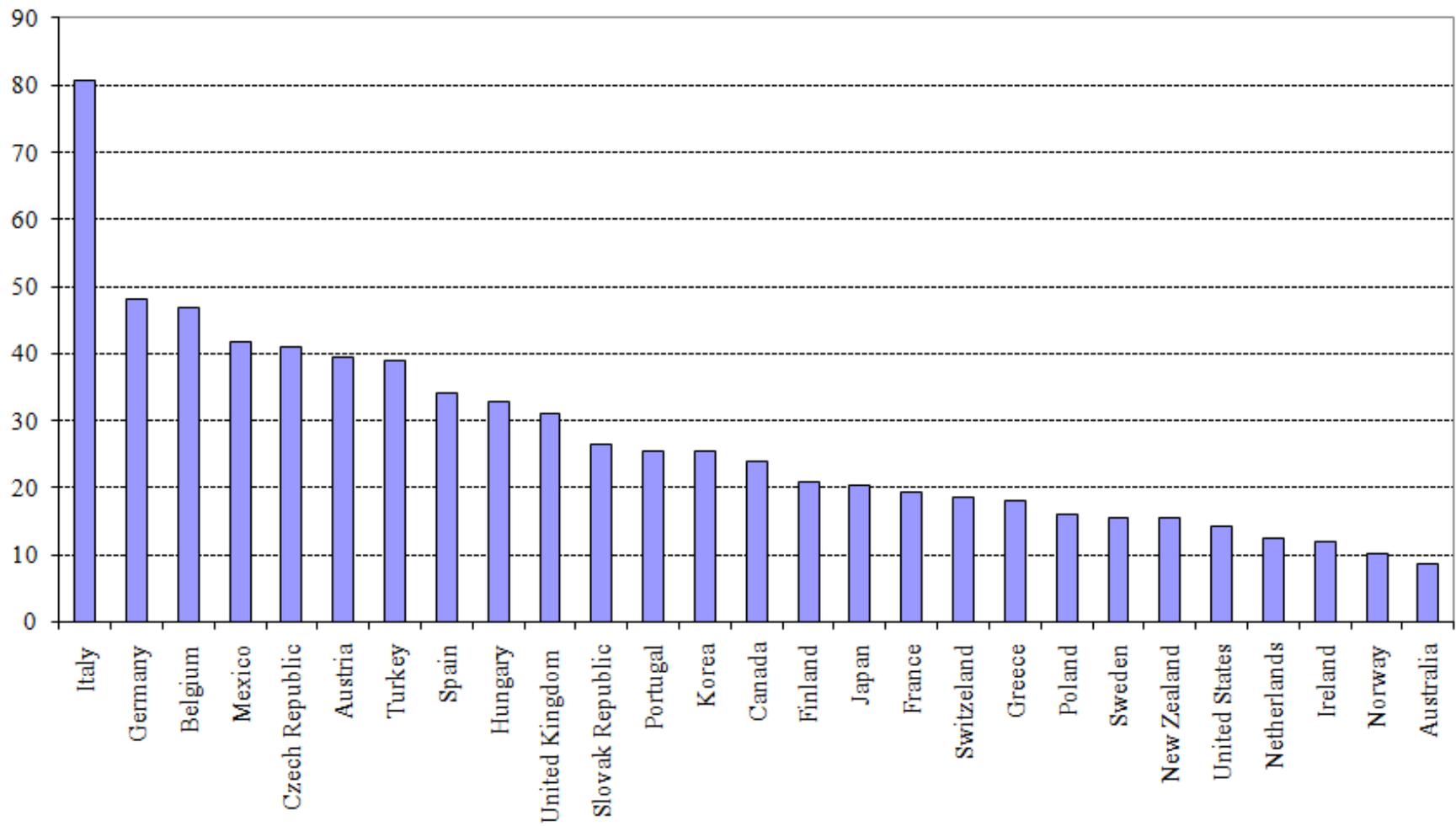
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Regional Unemployment Rate (Coeff of Variation . Soource OECD, 2008)



Motivation and content

Motivation

- Regional unemployment rate disparities are large in the EU
- The literature often states that this has to do with institutions in Europe, which impinge on mobility and wage flexibility and also often argues that this threatens objective of regional cohesion and may go as far as threatening monetary union
- If this is true question arises: Which institutions are culprits? How should they be reformed

This paper

- Presents a direct test of potential institutional impact on regional unemployment rate disparities. :
- In particular we ask is there robust evidence of impact of certain institutions on regional disparities?

- Large literature focuses on institutions and national unemployment rates (Baccaro and Rei 2007, Nickel et al, 2005).
Problems: Few observations, high multicollinearity, high model uncertainty, bad measures
=> Recently some authors have used methods to tackle model uncertainty (Sachs, 2012)
- Another large literature measuring wage flexibility, migration and adjustment speed at regional level (Decresin and Fatas, 1995, Baddeley et al. 2000 Janiak and Wasmer, 2008).
=> This literature rarely makes a more than rhetoric link to institutions.
- Slightly smaller literature on institutions and regional unemployment rate levels (Caroleo and Copola 2006, Zeilstra and Elhorst 2006)
This literature assumes symmetric impact of institutions on all regions
=> By definition no possibility to contribute to explaining regional disparities

Literature: Exceptions

- There is little literature directly linking institutions to regional disparities
- Herwatz and Niebuhr (2011) on labour demand => regulations affecting wages explain a large part of regional labour market disparities in the EU.
- Che and Spilimbergo (2012) on income disparities => regional convergence in GDP in a country is facilitated by domestic financial development, trade and current account openness, better institutional infrastructure and labour market reforms.
- Longhi et al (2005) on the impact of wage bargaining institutions on regional unemployment rate disparities
 - regional unemployment rate disparities are lowest in countries where wage bargaining is either very highly or very lowly centralized,
 - decrease with collective bargaining coverage (least in countries with strongly decentralised and highly centralised collective bargaining)
 - regional unemployment rates increase with specialisation in countries with intermediate level of bargaining coordination, decrease with specialisation in countries with either low or high levels of bargaining co-ordination.

This presentation

Addition to knowledge

- Provide theoretically based empirical analysis of labour market institutions on regional unemployment rate disparities.
- Focus on robust correlates using 2 different testable predictions
- More institutions than just wage bargaining

Structure

- Theory
- Methods
- Data
- Results

Model II

- S regions (high unemployment – low unemployment)
- Individuals derive utility from income and amenities and (a) dislike mobility (s)

- Housing Market:

$$H_c = k_a + k_b r_c, \quad n_c = k_a + k_b r_c \quad \kappa(n_1 - n_2) = r_1 - r_2$$

- Labour Demand:

$$\tau(x_c - w_c) = n_c(1 - u_c) \quad \tau(x_1 - x_2 - w_1 + w_2) = n_1(1 - u_1) - n_2(1 - u_2)$$

- Wage formation

$$w_c = \phi_0 - \phi_a u_c - \phi_b u_{-c} \quad w_1 - w_2 = (\phi_b - \phi_a)(u_1 - u_2)$$

- Inserting in LS-LD and solving for unemployment differences

$$u_1 - u_2 = \frac{(a_1 - a_2) - \tau(s + \alpha\kappa)(x_1 - x_2)}{(s + \alpha\kappa)[1 + \tau(\phi_a - \phi_b)] + \alpha(1 + \phi_a - \phi_b)}$$

Wage Bargaining

Housing market flex, Mobility

- Solving for unemployment levels (letting region 1 be high unemployment rate region)

$$u_1 = \frac{1 - 2\tau(x_1 - \phi_0)}{2[1 + \tau\phi_a + \tau\phi_b]} + \frac{(a_1 - a_2)}{2\{(s + \alpha\kappa)[1 + \tau(\phi_a - \phi_b)] + \alpha(1 + \phi_a - \phi_b)\}} + \frac{\tau\alpha(x_1 - x_2)}{2\{(s + \alpha\kappa)[1 + \tau(\phi_a - \phi_b)] + \alpha(1 + \phi_a - \phi_b)\}[1 + \tau\phi_a - \tau\phi_b]}$$

$$u_2 = \frac{1 - 2\tau(x_1 - \phi_0)}{2[1 + \tau\phi_a + \tau\phi_b]} - \frac{(a_1 - a_2)}{2\{(s + \alpha\kappa)[1 + \tau(\phi_a - \phi_b)] + \alpha(1 + \phi_a - \phi_b)\}} + \frac{\tau\alpha(x_1 - x_2)}{2\{(s + \alpha\kappa)[1 + \tau(\phi_a - \phi_b)] + \alpha(1 + \phi_a - \phi_b)\}[1 + \tau\phi_a - \tau\phi_b]}$$

Institutions (Some variables mentioned in the literature)

- Wage Flexibility
 - Union Density, Coverage, Concentration, Coordination
 - **Literature:** Blanchard Giavazzi, 2003, Freeman 1983, Calmfors Driffill 1988
 - Minimum Wages
 - **Literature:** Stigler 1946, Manning 1995, Belot van Ours, 2004
 - Mobility (search incentives)
 - Replacement ratio's, EPL, Marginal Effective, Tax Rates
 - **Literature:** Holmlund 1998, Lundqvist (2002)
 - Housing Market flexibility
 - Protection of tenants (formality index)
 - **Literature:** Oswald 1998, Wasmer 2008
 - Other indicators
 - Product Market regulation
 - **Literature:** Scarpetta 1996,
- => For each of these institutions theoretical arguments for increasing and reducing unemployment rates exist

- Regional unemployment rate disparities in a country are linked to institutions
 - **Problems:**
needs country level data of many countries => You will see we do not have such data
unclear what other factors (aside amenities and productivity necessary for controll => we will use number of regions below
 - **Approach Bayesian Averaging**

Estimate all 2^k versions of a model like

$$\Delta \ln(u_{it}) = \alpha + \beta X_{it} + \varepsilon_{it}$$

with X a vector of national institutions and u a measure of the dispersion of unemployment and find mean coefficient

$$E(\alpha|y) = \sum_{j=1}^{2^k} P(M_j|y) \hat{\alpha}_j$$

Where $P(M_j|y)$ is the posterior inclusion probability:

$$P(M_j|y) = T^{-n_j/2} SSE^{-T/2} / \sum_{i=1}^{2^k} T^{-n_i/2} SSE^{-T/2}$$

Second testable Prediction

- Institutions should have a different impact on unemployment rates in different parts of the unemployment rate distribution. In particular
 - If an institution increases regional disparities it has to increase (reduce) unemployment in a high unemployment rate region by more (less) than in low unemployment rate regions
 - If an institution reduces regional disparities it has to increase (reduce) unemployment in a high unemployment rate region by less (more) than in low unemployment rate regions
- Estimation can be done by quantile regression
 - In detail here we estimate the equation

$$\ln(u_{rt}) = \beta^q X_{rt} + \gamma^q Z_{rt} + \varepsilon_{rt}$$

with X... regional indicators
 Z...institutional indicators at national level
 q...parameters at 1st 2nd and 3rd quartile

=> Hypothesis is that the coefficients beta and gamma differ in different parts of the distribution

Regional Data

Variable	Description	Sources
Dependent variables		
ln_UN_RATE	Log unemployment rate	OECD, EUROSTAT, CE
Independent variables		
STRUCTURE		
Lnindsh	Log industrial employment share	OECD, EUROSTAT, CE
Lnhighedsh	Log of share of high educated workforce (ISCED 5 or higher)	OECD, EUROSTAT, CE
Lnpopden	Log population density	OECD, EUROSTAT, CE
ECONOMIC VARIABLES		
LnPA_RATE	Log of participation rate	
Lncompens	Log compensation per employee	OECD, EUROSTAT, CE
Lnprod	Log Labor Productivity	OECD, EUROSTAT, CE
DEMOGRAPHY		
Lnoldsh	Log share of old population (over 64)	OECD, EUROSTAT, CE
HOUSING MARKET		
Ln houscost	Log average housing costs in region	EU-SILC
lnownocrate	Log share owner occupied housing	EU-SILC
Amenities		
Lnheat_day	Log number of actual heating degree days	EUROSTAT
lnWildProd	Log index of variety in fauna and flora	Kienast (2009)
lnTransp	Log index of capacity of landscape to supply transportation and housing	Kienast (2009)
lnClimate	Log index of ecosystems ability to influence environmental quality	Kienast (2009)
lnHabitat	Log index of provision of suitable living space for flora and fauna	Kienast (2009)
lnReerTour	Log index of landscape services from landscapes with touristic or recreational value	Kienast (2009)
lnCultArt	Log index of Cultural and Artistic landscape values	Kienast (2009)
Others		
ln_m_no_regs	Number of regions	OECD, EUROSTAT, CE

- labour market regulation –minimum wages in % of the median wage, the strictness of employment protection legislation, replacement rates, replacement rates including social and housing markets, effective marginal tax rate moving from unemployment to employment share of GDP spent for active labour market policies provided by **OECD**.
- Data on wage bargaining and trade union organisation – **Visser (2011)**: trade union density, adjusted trade union coverage and centralisation and co-ordination
- Housing market indicators –formalism index developed on the basis of the **LexMundi Project by Djankov et al (2003)**.
- Product market regulation (**OECD**)
- Data with some indicators taken from **Botero et al (2003)** measuring the ease and costs of alternatives to the standard employment contracts, the costs of increasing working hours, the level of old age and social security benefits and of the generosity of sickness and health benefits
- Data on regional autonomy from Hooghe et al (2010)

Data Sets

- For data available only for one period assumption of constancy over time is made!
- All data collapsed to 3 more year periods (1998 to 2001, 2002 to 2005 and 2006 to 2009)
- 2 data sets constructed
 - One collecting a total of 14 EU countries on the country level and
 - another one collecting the same countries but containing indicators on regional level (of 150 regions)

Dependent variables

- **Country level Bayesian regressions:**
 - Log of average absolute deviation from the mean of unemployment rates,
 - Log of Standard deviation of unemployment rates,
- **Regional Quantile Regressions**
 - Log of regional unemployment rates,

Experiment 1: National Data (unemployment rate)

Dependent Variable: Average deviation from the mean of unemployment rates				Dependent Variable: Standard deviation of unemployment rates			
	Coef.	Std.Err.	pip	Variable	Coef.	Std.Err.	pip
→ ln(regional autonomy index)	0.77	0.34	0.92	ln(regional autonomy index)	0.87	0.32	0.96
→ ln(centralisation)	-1.49	0.80	0.89	ln(centralisation)	-1.63	0.78	0.90
→ ln(climate)	3.80	2.32	0.87	ln(marg. tax rate moving to employment)	-2.44	1.12	0.88
→ ln(marg. tax rate moving to employment)	-2.23	1.08	0.87	ln(climate)	4.05	2.15	0.87
→ ln(aesthetics)	6.48	4.52	0.80	ln(culture and art)	49.44	27.30	0.85
→ ln(net repl. rate incl. soc. & hous. ben)	3.61	2.46	0.78	ln(habitat)	-67.15	40.19	0.82
→ ln(minimum wage)	-0.13	0.10	0.77	ln(productivity)	-0.34	0.21	0.79
→ ln(productivity)	-0.21	0.15	0.76	ln(net repl. rate incl. soc. & hous. ben.)	3.22	2.02	0.79
→ ln(index old age benefits)	-2.47	1.90	0.74	ln(index sick benefits)	2.29	1.52	0.77 ←
→ ln(habitat)	-27.07	25.99	0.71	ln(recreation and tourism)	13.31	13.32	0.76
→ ln(culture and art)	21.37	22.12	0.66	ln(index old age benefits)	-1.91	1.29	0.75
→ ln(index housing market eviction)	-1.36	1.36	0.63	ln(minimum wage)	-0.09	0.07	0.72
→ ln(net replacement rate)	-0.79	0.92	0.57	ln(aesthetics)	2.80	2.51	0.67
ln(adjusted coverage)	-0.38	0.55	0.42	ln(adjusted coverage)	-0.45	0.54	0.49
ln(union density)	0.23	0.38	0.36	ln(transport and housing)	0.39	1.06	0.39
ln(number of regions)	-0.05	0.35	0.35	ln(number of regions)	0.02	0.33	0.29
ln(cost of overtime employment)	0.32	0.80	0.35	ln(cost of overtime employment)	0.10	0.43	0.28
ln(recreation and tourism)	-2.26	7.27	0.33	ln(union density)	0.10	0.26	0.20
ln(transport and housing)	0.16	1.44	0.24	ln(wage co-ordination)	0.19	0.46	0.20
ln(wage co-ordination)	0.18	0.51	0.22	ln(product market regulation)	0.08	0.20	0.20
ln(heating days)	-0.09	0.26	0.21	ln(index housing market eviction)	-0.23	0.75	0.19
ln(active labour market policy)	0.05	0.12	0.19	ln(heating days)	-0.05	0.15	0.16
ln(bargaining concentration)	0.00	0.24	0.18	ln(bargaining concentration)	0.06	0.26	0.14
ln(product market regulation)	0.07	0.19	0.18	ln(net replacement rate)	0.01	0.33	0.13
ln(index sick benefits)	0.10	0.54	0.17	ln(active labour market policy)	-0.01	0.07	0.09
ln(employment protection)	-0.02	0.22	0.11	ln(employment protection)	-0.02	0.16	0.09
_cons	-6.42	8.31	1.00	_cons	-6.55	7.55	1.00

Experiment 2: Regional Data (unemployment rate – regional variables)

	25th percentile		75th percentile		Difference 25th - 75th percentile	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
ln(productivity)	-0.01	0.02	-0.01	0.02	0.01	0.02
ln(industry share)	-0.33 ***	0.08	-0.32 ***	0.07	0.01	0.09
ln(compensation)	0.16 ***	0.04	0.17 ***	0.03	0.01	0.04
ln(participation rate)	-1.07 ***	0.31	-0.29	0.27	0.79	0.36
ln(transport and housing)	1.69 ***	0.42	2.00 ***	0.35	0.31	0.49
ln(aesthetics)	-0.40	0.65	-1.69	0.55	-1.30 *	0.77
migration rate	-0.31 ***	0.05	-0.31 ***	0.04	0.00	0.06
ln(climate)	1.27 ***	0.48	1.56 ***	0.41	0.28	0.56
ln(share old)	-0.33 *	0.17	-0.09	0.15	0.23	0.22
ln(culture and art)	-5.13	3.43	-5.82 **	2.91	-0.70	4.42
ln(high education share)	0.05	0.10	0.00	0.08	-0.05	0.14
ln(habitat)	1.79	3.48	0.63	2.95	-1.16	4.80
ln(housing costs)	0.03	0.16	-0.25 *	0.14	-0.29	0.20
ln(owner occupation rate)	0.11	0.32	-0.56 *	0.27	-0.67	0.44
ln(heating days)	0.14	0.15	0.08	0.13	-0.07	0.22
ln(recreation and tourism)	1.99	1.86	4.82 ***	1.57	2.83	2.25
ln(population density)	-0.12 ***	0.03	-0.01	0.03	0.11 **	0.05

Experiment 2: Regional Data (unemployment rate – instit. variables)

	25th percentile		75th percentile		Difference 25th - 75th percentile	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
ln(union density)	0.33 **	0.15	0.58 ***	0.13	0.25	0.19
ln(adjusted coverage)	0.31	0.34	0.68 **	0.29	0.37	0.53
ln(bargaining concentration)	-0.18	0.28	0.22	0.23	0.40	0.32
ln(wage co-ordination)	-0.09	0.28	0.22	0.23	0.31	0.39
ln(centralisation)	-0.97 *	0.50	-2.24 ***	0.42	-1.27 **	0.61
ln(product market regulation)	-0.47 ***	0.14	-0.38 ***	0.12	0.10	0.17
ln(net replacement rate)	0.71 **	0.37	0.16	0.31	-0.54	0.48
ln(net replacement rate incl soc. & hous. ben.)	0.40	0.43	1.60 ***	0.36	1.21 **	0.55
ln(active labour market policy)	-0.41 ***	0.12	-0.18 *	0.10	0.23	0.15
ln(employment protection)	-0.08	0.35	0.89 ***	0.29	0.97 **	0.45
ln(minimum wage)	-0.01	0.02	-0.05 ***	0.02	-0.04	0.03
ln(marginal tax rate moving to employment)	-1.26 ***	0.31	-1.43 ***	0.26	-0.17	0.41
ln(cost of overtime employment)	0.03	0.19	-0.56 ***	0.16	-0.59 **	0.28
ln(index old age benefits)	0.31	0.49	-0.60	0.41	-0.92	0.72
ln(index sick benefits)	-0.82	0.60	0.22	0.51	1.04	0.71
ln(index housing market eviction)	2.44 ***	0.39	1.80 ***	0.33	-0.64	0.54
ln(regional autonomy index)	-0.04	0.17	0.46	0.14	0.49 **	0.21
_cons	-3.91 ***	4.09	-13.28 ***	3.47	-9.37 *	5.55
Pseudo R2	0.4789		0.4958			
Number of Observations	540		540		540	

■ Interactions

- Currently some tests indicating that EPL becomes important when interacted with wage bargaining institutions
- But methodological problem: How to include interactions, => currently main effects have a prior inclusion probability of 1

■ Subaggregates

- Male, female unemployment rate youth unemployment rate, long term unemployment rate
- Currently only very preliminary results indicating less robustness

Conclusions

- There seems to be a robust correlation between centralisation of wage bargaining , net replacement rates and regional autonomy with the size of regional unemployment rate
- In addition these results also indicate a further potential role for minimum wages, generosity of old age and sickness benefits, marginal tax rates, housing market flexibility, employment protection and the costs of overtime contracts in some regressions.
- Somewhat in contrast to popular believe theoretical considerations, however, among the highly robust variables only the regional autonomy index, and net replacment rates seem to be positively correlated with regional unemployment rate disparities,
- For less robust variables this applies to sickness benefits
- All other candidate the other robust variables seem to be negatively correlated with regional unemployment rate disparities

Conclusions II

- However, some signs of productivity having a significant effect and even more clearly amenities

=> Potential for place based policies focusing on productivity?