

Unemployment, Inequality, and Institutions, Revisited

Robert Duval-Hernández¹

Open University of Cyprus
Economics Research Centre, University of Cyprus
CIDE, IZA

March 7th 2019

¹Generous support from the European Research Council, Advanced Grant #323940 administered by the University of Cyprus is acknowledged. All opinions are my own.

Introduction

- ▶ Do labor market institutions create a trade-off between inequality and unemployment?

E.g. High unemployment/Low Inequality in Europe vs Low-Unemployment/High-Inequality U.S.

- ▶ How do labor policies and regulations shape labor market outcomes (employment and wages) for different groups of the population?

Literature

- ▶ Cross-Country Literature, e.g.
 - ▶ OECD JOBS Study (1994), Nickell (1997)
 - ▶ Blanchard and Wolfers (2000)
 - ▶ Salverda & Checchi (2015)
- ▶ Case Studies with Micro-Level Data
 - ▶ Randomized Trials and Natural Experiments on Min Wages, ALMP, UI, etc.
 - ▶ See Cahuc, Boeri, Zylberberg (2015) for recent survey
- ▶ Direct Tests of Unemployment-Inequality trade-off
 - ▶ Card, Kramarz, Lemieux (1999), Bičáková (2014)
 - ▶ Puhani (2008)
 - ▶ Mortensen Pissarides (1999)

Contribution

- ▶ Re-analyze impact of labor institutions on unemployment and inequality using
 - ▶ Micro-level data (Household Surveys)
 - ▶ Across countries/years
- ▶ Explore impact of policies and regulations on employment and wages of different groups of the population
- ▶ Explore interactions between institutions, and between institutions and aggregate “shocks”

Methodology

Unemployment

Unemployment Rates for Population Group g in geographical unit c in period t

$$\ln u_{ct}^g = Z_{ct}^g \beta_g + D_{ct} \gamma_g + W_{ct}^g \kappa_g + \theta_c^g + \tau_t^g + e_{ct}^g \quad (1)$$

Z - institutional variables

D - aggregate controls

W - other group-specific controls

Methodology

Inequality

Recentered Influence Function for individual i in country c in period t

$$RIF_{ict} = I_{ct} + IF_{ict}$$

(see Hampel 1968, Firpo, Fortin, Lemieux 2009)

$$RIF_{ict} = X_{ict}\alpha + Z_{ict}\beta + D_{ict}\gamma + X_{ict}(Z_{ict}\delta + D_{ict}\pi) + W_{ict}\kappa + \theta_c + \tau_t + e_{ict}$$

X - pop. group dummies

Z - institutional variables

D - aggregate controls

W - other group-specific controls

▶ **Institutional Variables**

- ▶ **Employment Protection:** Dismissals, Temporary Contracts, Part Time, Work Time
- ▶ **Minimum Wages**
- ▶ **Unemployment Insurance:** Reciprocity-Adjusted Replacement Rate, Duration
- ▶ **Union Presence:** Coverage, Density, and Bargaining Centralization
- ▶ **Labor Taxes:** Tax Wedge, Progressivity
- ▶ **Active Labor Market Policies Expenditure**
- ▶ **Product Market Regulation**

▶ **Aggregate Variables**

- ▶ **Technology Proxies:** R&D Expenditures
- ▶ **Trade:** Import Penetration from Low & Middle Income Countries (LMIC), Openness
- ▶ **Output Gap**

Data

Countries: EU-15 (less LUX), Norway, US.

Household Surveys:

Unemployment: Labor Force Surveys in Europe, SOEP (Germany pre-2002), Monthly CPS (US)

Data for US, UK, France, and Germany starts in early-mid 1980s.
Rest of Europe data starts in early 90's.

Inequality: National Labor Force Surveys (France,UK), March CPS (US), SOEP(Germany), ECHP & EU-SILC (Other European Countries)

Data for US, France, Germany starts in early 1980s. Most of Europe data starts in mid 90's, save for Norway and Sweden (data for mid 2000's onward only).

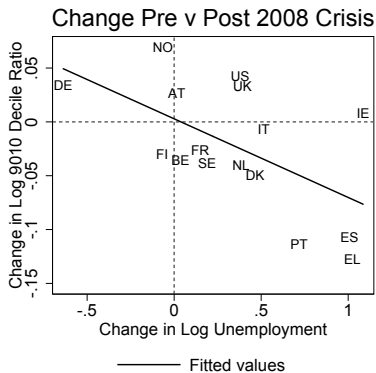
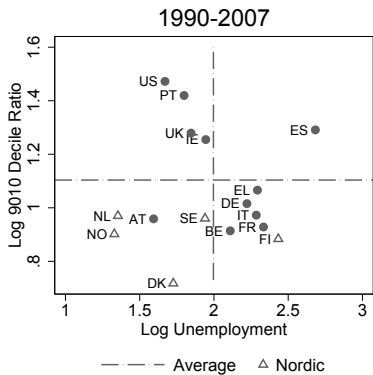


Figure 1: Inequality-Unemployment Trade-off

Table 1: Dep. Var.: Log Unemployment Rate. OLS Regressions

	Age It 25	Less than College		College +	
		Age 25-44	Age 45+	Age 25-44	Age 45+
Females					
Firing Restrictions	-22.9** (9.22)	-26.1*** (7.52)	-37.5*** (6.57)	-40.7*** (8.16)	-35.9*** (9.90)
Temp. Emp. Restrictions	4.10 (5.09)	3.02 (4.24)	6.82 (5.65)	11.6** (5.15)	3.45 (7.09)
Restrictions Part-Time Work	-6.68 (5.29)	-2.46 (4.54)	-5.04 (4.46)	-6.99 (4.81)	4.44 (4.48)
Work Time Restrictions	18.2* (9.05)	1.06 (9.70)	-0.39 (9.76)	-16.1*** (4.91)	-9.25 (11.95)
log(Min Wage + 0.1)	-32.4 (45.37)	-27.6 (42.38)	-6.54 (47.25)	0.26 (48.64)	-86.7 (52.29)
Males					
Firing Restrictions	-21.6** (9.17)	-21.7** (8.41)	-22.9*** (7.84)	-35.9*** (8.87)	-30.1*** (10.33)
Temp. Emp. Restrictions	0.89 (4.85)	2.48 (5.61)	10.9** (4.80)	8.31 (5.92)	1.68 (7.90)
Restrictions Part-Time Work	-1.83 (4.98)	0.16 (4.95)	-3.56 (5.32)	-0.36 (5.69)	0.99 (5.18)
Work Time Restrictions	27.1*** (6.96)	4.67 (9.21)	-9.45 (16.50)	-2.74 (12.25)	-12.8 (12.89)
log(Min Wage + 0.1)	-3.14 (39.44)	28.8 (35.46)	-11.8 (53.26)	61.2 (46.71)	-45.4 (63.07)

Table 2: Dep. Var.: Log Unemployment Rate. OLS Regressions, cont.

	Age lt 25	Less than College Age 25-44	College Age 45+	College + Age 25-44	College + Age 45+
Females					
UI Replacement Rate	0.51 (0.38)	0.68** (0.28)	0.52 (0.52)	0.10 (0.43)	0.75 (0.51)
UI Duration	0.081 (0.11)	-0.12 (0.14)	-0.066 (0.18)	0.028 (0.16)	0.33 (0.23)
Union Coverage	-0.046 (0.30)	0.43 (0.37)	0.033 (0.40)	1.13** (0.55)	1.85*** (0.50)
Union Density	-0.14 (0.88)	-0.77 (0.68)	1.28 (0.77)	-0.47 (0.82)	2.16*** (0.66)
Bargaining Centralization	-4.86 (5.93)	-8.92* (4.44)	-12.0** (4.96)	-13.9*** (4.61)	-16.4*** (5.09)
Labor Tax Wedge	1.10 (0.94)	2.89** (1.15)	1.84* (0.93)	0.57 (1.00)	-1.34 (1.24)
Tax Progressivity	162.0 (102.55)	213.8*** (65.24)	244.1*** (79.07)	196.0* (115.77)	236.0** (92.59)
Males					
UI Replacement Rate	0.52 (0.33)	1.41*** (0.36)	0.80 (0.62)	1.00** (0.47)	-0.050 (0.72)
UI Duration	-0.059 (0.14)	-0.26 (0.20)	-0.22 (0.23)	0.21 (0.14)	0.30 (0.20)
Union Coverage	-0.45 (0.37)	-0.065 (0.44)	-0.10 (0.42)	0.42 (0.54)	1.47** (0.70)
Union Density	0.78 (0.82)	0.78 (0.87)	2.21** (0.82)	0.31 (0.74)	2.06** (0.78)
Bargaining Centralization	-4.96 (4.71)	-8.38* (4.52)	-12.4** (5.49)	-10.9** (4.07)	-16.9*** (5.86)
Labor Tax Wedge	1.25 (1.18)	1.74 (1.15)	0.70 (1.34)	0.053 (0.91)	-1.48 (1.19)
Tax Progressivity	178.4* (93.30)	262.2*** (91.92)	304.7** (128.84)	57.9 (68.11)	296.1*** (107.51)

Table 3: Dep. Var.: Log Unemployment Rate. OLS Regressions cont.

	Age It 25	Less than College Age 25-44	College Age 45+	College + Age 25-44	College + Age 45+
Females					
Active Labor Mkt Expnd	-1.08* (0.61)	-0.79* (0.45)	-1.19** (0.51)	-0.46 (0.54)	-1.91*** (0.57)
Product Mkt Regulations	-3.84 (11.72)	17.3 (10.41)	16.4** (7.76)	21.0* (12.04)	-7.27 (11.88)
R&D Expenditure	16.5* (9.69)	0.73 (10.93)	0.74 (9.11)	27.1* (15.53)	11.8 (14.41)
Import Penetration LMIC	-2.07 (3.12)	-2.22 (1.89)	-0.67 (2.33)	-2.08 (2.55)	-2.76 (2.26)
Output Gap	-3.69*** (0.66)	-3.79*** (0.65)	-4.26*** (0.71)	-4.37*** (0.96)	-4.47*** (1.01)
Males					
Active Labor Mkt Expnd	-0.73 (0.58)	-0.20 (0.58)	-0.27 (0.50)	-0.0061 (0.60)	-0.22 (0.60)
Product Mkt Regulations	-7.73 (12.34)	10.5 (11.42)	6.47 (8.69)	15.4 (9.90)	-24.2* (12.65)
R&D Expenditure	27.1** (11.28)	4.71 (14.15)	5.40 (12.77)	11.5 (13.90)	9.49 (15.82)
Import Penetration LMIC	-3.30 (2.74)	-0.33 (2.96)	0.25 (3.45)	0.53 (2.47)	-2.33 (2.63)
Output Gap	-4.71*** (0.86)	-6.25*** (1.06)	-6.22*** (1.17)	-5.28*** (0.92)	-5.73*** (1.17)

Table 4: RIF Regression (log) 90-10 Ratio of Wages. Average Marginal Effects

	Age lt 25	Less than College Age 25-44	College Age 45+	College + Age 25-44	College + Age 45+
Females					
Firing Restrictions	-7.39 (6.48)	-8.26*** (3.01)	-3.34 (3.77)	15.57 (9.68)	19.75 (17.99)
Temp. Emp. Restrictions	-6.74 (7.74)	-0.45 (2.57)	-3.25 (2.44)	3.37 (2.87)	21.00*** (6.92)
Restrictions Part-Time Work	9.66 (9.58)	1.70 (3.72)	-0.27 (3.82)	-5.34* (3.12)	-26.45* (14.57)
Work Time Restrictions	-10.83** (5.13)	-0.67 (3.49)	1.36 (2.75)	11.34*** (3.26)	46.64*** (16.75)
Min to Median Wage	-0.35 (0.79)	-0.65* (0.38)	-0.43 (0.37)	-0.59 (0.58)	-0.16 (1.26)
Males					
Firing Restrictions	0.88 (6.02)	-5.68** (2.28)	-6.58** (2.94)	6.01 (7.69)	7.63 (7.75)
Temp. Emp. Restrictions	-9.28 (6.39)	-0.01 (2.43)	-1.02 (2.03)	5.47*** (2.04)	6.37*** (2.43)
Restrictions Part-Time Work	6.30 (10.53)	2.79 (3.49)	4.82** (2.44)	-2.35 (2.83)	-3.08 (6.17)
Work Time Restrictions	-16.30** (6.51)	0.95 (2.56)	5.23** (2.64)	3.88 (4.45)	15.56* (9.27)
Min to Median Wage	0.37 (0.47)	-0.29** (0.14)	-0.03 (0.25)	-1.36** (0.62)	-1.42 (0.89)

Table 5: RIF Regression (log) 90-10 Ratio of Wages. Av. Marg. Eff. cont

	Age lt 25	Less than College Age 25-44	College Age 45+	College + Age 25-44	Age 45+
Females					
UI Replacement Rate	0.71 (0.64)	-0.18 (0.13)	-0.17 (0.17)	0.51 (0.36)	1.18 (1.09)
UI Duration	-0.38** (0.19)	-0.25** (0.10)	-0.13* (0.07)	-0.23*** (0.09)	0.01 (0.12)
Union Coverage	0.08 (0.14)	-0.05 (0.08)	-0.21* (0.12)	-0.40* (0.23)	-0.77 (0.53)
Union Density	-0.78 (0.60)	-0.70* (0.36)	-0.74** (0.37)	0.37 (0.58)	0.20 (1.02)
Bargaining Centralization	11.89** (5.82)	1.25 (1.64)	1.90 (1.81)	-6.41* (3.39)	-13.35 (11.15)
Labor Tax Wedge	0.35 (0.70)	0.56 (0.56)	0.22 (0.56)	-1.74*** (0.58)	-6.93*** (2.67)
Tax Progressivity	172.99 (150.43)	0.20 (58.99)	8.07 (45.45)	-180.77 (113.83)	-364.18 (307.16)
Males					
UI Replacement Rate	0.45 (0.53)	-0.21 (0.14)	-0.23 (0.17)	0.34 (0.51)	0.43 (0.96)
UI Duration	-0.66*** (0.17)	-0.25*** (0.08)	-0.22*** (0.07)	0.04 (0.08)	0.004 (0.10)
Union Coverage	-0.16 (0.27)	-0.10 (0.11)	-0.04 (0.13)	-0.48 (0.30)	-0.45 (0.39)
Union Density	-0.59 (0.54)	-0.59* (0.34)	-0.55* (0.34)	-0.11 (0.46)	-0.92* (0.53)
Bargaining Centralization	10.09** (4.91)	1.12 (1.29)	-0.07 (1.38)	-6.69** (3.37)	-3.90 (6.92)
Labor Tax Wedge	0.96 (0.79)	0.32 (0.47)	0.01 (0.41)	-1.18** (0.48)	-2.48** (1.01)
Tax Progressivity	94.85 (109.35)	51.82 (52.97)	-15.97 (37.60)	-115.92 (104.38)	-61.88 (176.31)

Table 6: RIF Regression (log) 90-10 Ratio of Wages. Average Marginal Effects cont.

	Age lt 25	Less than Age 25-44	College Age 45+	College + Age 25-44	Age 45+
Females					
Active Labor Mkt Expnd	1.00 (0.62)	0.20 (0.29)	-0.03 (0.32)	-0.93** (0.40)	-2.79*** (1.03)
Product Mkt Regulations	-13.87* (7.10)	-2.79 (3.70)	0.21 (3.32)	-8.90** (4.33)	-7.51 (6.43)
R&D Expenditure	8.85 (7.99)	8.22 (5.06)	10.04** (3.96)	1.31 (4.96)	1.33 (15.56)
Import Penetration LMIC	0.28 (2.09)	-0.60 (1.16)	0.31 (1.03)	-0.23 (0.94)	8.17* (4.55)
Output Gap	-1.50** (0.62)	-0.61** (0.28)	-0.48** (0.23)	0.49 (0.45)	0.94 (1.00)
Males					
Active Labor Mkt Expnd	1.69*** (0.60)	-0.03 (0.19)	-0.30 (0.21)	-0.08 (0.29)	-1.27*** (0.47)
Product Mkt Regulations	-14.58** (6.03)	-2.70 (3.36)	-2.28 (2.74)	3.51 (4.09)	6.65 (6.10)
R&D Expenditure	10.75 (8.79)	8.73** (4.03)	3.01 (3.43)	5.86 (5.77)	2.38 (10.93)
Import Penetration LMIC	-1.32 (1.63)	-0.24 (0.84)	-0.46 (0.60)	0.82 (0.76)	3.96 (3.08)
Output Gap	-1.85*** (0.71)	-0.51** (0.23)	-0.03 (0.16)	0.73** (0.37)	0.97 (0.75)

Interactions between Institutions

▶ Unemployment

- ▶ Tax Wedge X Union Density: Impacts on unskilled found when Density is High
- ▶ Tax Wedge X "Safety Net": SN moderates impacts of Taxes
- ▶ UI RR X ALMP: ALMP moderates impact of UI generosity

▶ Inequality

- ▶ Firing Restrictions X Union Density: Inequality enhancing effects through wages of old and skilled when unions are weak.
- ▶ Tax Wedge X "Safety Net": Similar inequality-reducing effects under both high and low SNs.
- ▶ Prod. Mkt. Regulation X Union Coverage: Under a weak union coverage, greater competition raises inequality at the bottom of distribution

Shocks and Institutions Interacted

Table 7: Average Marginal Effects of Negative Output Gap on (Log) Unemployment Under Different Institutional Settings.

	Age lt 25	Less than Age 25-44	College Age 45+	College + Age 25-44	Age 45+
	Females				
U.S.	4.13*** (0.65)	4.83*** (0.89)	5.65*** (0.99)	4.57*** (0.86)	4.81*** (1.24)
Continental Europe	6.18*** (1.49)	3.63* (2.11)	2.78 (2.14)	5.06** (2.15)	1.57 (3.33)
Nordic	5.51*** (1.57)	6.04*** (1.63)	5.92*** (1.69)	6.01*** (1.76)	7.58*** (2.78)
Southern Europe	6.12*** (1.29)	5.20*** (1.18)	6.19*** (1.60)	5.76*** (1.09)	7.61*** (1.68)
	Males				
U.S.	3.83*** (0.72)	4.96*** (0.92)	6.24*** (1.18)	4.44*** (1.13)	3.98*** (1.23)
Continental Europe	8.05*** (1.64)	7.27*** (2.32)	6.55** (3.04)	8.58*** (2.39)	4.89 (3.03)
Nordic	6.58*** (1.56)	10.9*** (1.82)	8.98*** (2.02)	9.25*** (1.97)	8.06*** (3.04)
Southern Europe	8.84*** (0.97)	11.0*** (1.09)	12.4*** (1.57)	8.54*** (0.91)	12.3*** (1.78)

Conclusions

- ▶ Taxes, UI generosity, strength of unions, and Product Mkt Regulations contribute to unemployment-inequality trade off
- ▶ Trade-off is not an unavoidable equilibrium. Policy combinations such as redistribution via taxation with a strong safety net in the form of generous UI benefits and vigorous active labor policies can be used to combat both high unemployment and inequality.
- ▶ Substantial heterogeneity in impacts of institutions and “shocks”. (Probably reason why earlier macro literature struggled to find robust results.)
- ▶ Some institutional regimes are more likely to maximize the negative impact of an output downturn on employment, e.g. Southern-European regulations.

Additional Material

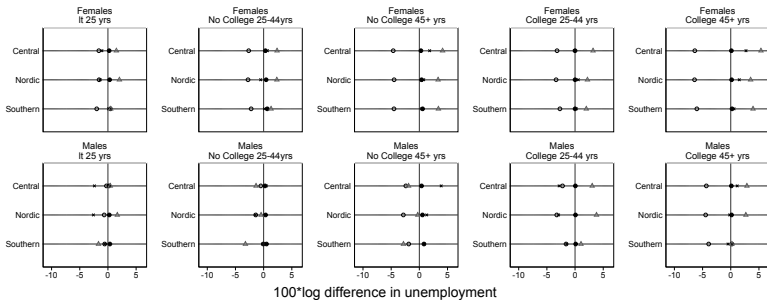
Robustness Checks and Extensions

- ▶ Other Inequality Measures (e.g. Decile Ratios)
- ▶ Employment Rates

Table 8: Sample Periods

		Unemployment	Inequality
Austria	AT	1995-2014	1995-2001, 2004-13
Belgium	BE	1992-2014	1994-98, 2001, 2003-12
Denmark	DK	1992-2014	1994-96, 1998, 2001, 2003-12
Finland	FI	1995-2014	1996-98, 2003-12
France	FR	1982-2014	1982-2014
Germany	DE	1984-89 1995-2014	1984-89 1995-2013
Greece	EL	1992-2014	1994-2001, 2004-13
Ireland	IE	1992-97, 1999-2014	1994-99, 2004-13
Italy	IT	1992-2014	2004-13
Netherlands	NL	1996-2014	1994-2000, 2004-12
Norway	NO	1996-2014	2003, 2006-07, 2009-12
Portugal	PT	1992-2014	1994-01, 2004-13
Spain	ES	1992-2014	1994-2001, 2004-12
Sweden	SE	1995-2014	2003-06 2011-12
United Kingdom	UK	1981, 1983-2014	1993-14
United States	US	1980-2014	1982-2014

Figure 2: Difference in Marginal Effects of Negative Output Shock Under U.S. Institutions vs Local



U.S. Institutions Adopted:

- △ Wage Floor & Unions
- Employment Regulations
- × Safety Net & Taxes
- Prod. Market Reg.