

Unemployment, Inequality, and Institutions, Revisited

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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

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

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, Bargaining Centralization
- ▶ **Labor Taxes:** Tax Wedge, Progressivity
- ▶ **Active Labor Market Policies Expenditure**
- ▶ **Product Market Regulation**

▶ **Aggregate Variables**

- ▶ **Technology Proxies:** R&D Expenditures, ICT Compensation
- ▶ **Trade:** Openness, Outsourcing at Industry level
- ▶ **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 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).

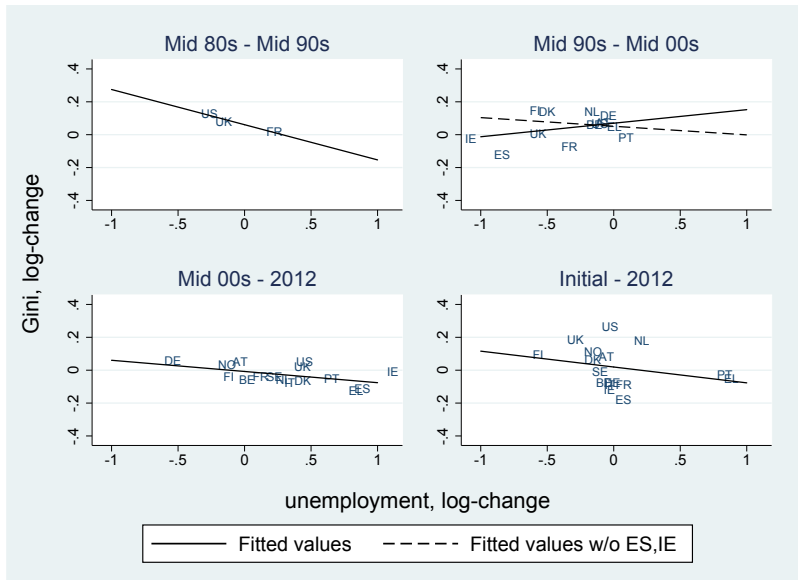


Figure 1: Inequality-Unemployment Trade-off

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

	Age It 25	Less than Age 25-44	College Age 45+	College + Age 25-44	College + Age 45+
Females					
EP on Dismissals	-4.34*** (1.44)	-2.15*** (0.66)	-2.99*** (0.59)	-1.56*** (0.46)	-0.94*** (0.33)
EP on Temporary Contracts	1.92** (0.92)	1.13** (0.45)	0.88* (0.50)	1.47*** (0.53)	0.26* (0.15)
EP on Part Time	-0.94 (0.94)	-0.31 (0.53)	-0.24 (0.29)	-0.31 (0.36)	0.18* (0.10)
EP on Work Time	1.15 (0.88)	0.28 (1.24)	-1.13 (1.10)	-0.24 (0.55)	-1.09** (0.53)
log(Min Wage + 0.1)	-0.68 (5.95)	0.49 (2.59)	-2.26 (2.71)	2.50 (1.95)	-0.19 (1.18)
Males					
EP on Dismissals	-3.16** (1.45)	-0.38 (0.91)	-1.51** (0.73)	-0.89** (0.36)	-0.80** (0.37)
EP on Temporary Contracts	0.94 (0.85)	0.64 (0.51)	0.87** (0.41)	0.86** (0.38)	0.28 (0.23)
EP on Part Time	-0.072 (1.05)	0.28 (0.52)	-0.12 (0.41)	0.067 (0.30)	0.0038 (0.12)
EP on Work Time	2.40* (1.34)	-0.49 (1.06)	-1.95 (1.83)	0.39 (0.70)	-1.58 (0.97)
log(Min Wage + 0.1)	9.66 (6.38)	5.69* (3.25)	0.34 (3.27)	3.25* (1.83)	1.24 (1.73)

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

	Age lt 25	Less than College Age 25-44	College Age 45+	College + Age 25-44	Age 45+
Females					
UI Replacement Rate	-0.022 (0.06)	0.071** (0.03)	0.042 (0.03)	0.015 (0.02)	0.0097 (0.01)
UI Duration	0.028 (0.02)	-0.0025 (0.01)	0.012 (0.01)	0.0063 (0.01)	0.016** (0.01)
Union Coverage	-0.11 (0.09)	0.011 (0.08)	-0.016 (0.06)	0.028 (0.08)	0.037 (0.02)
Bargaining Centralization	-1.55* (0.85)	-1.36** (0.56)	-0.60** (0.28)	-1.26** (0.54)	-0.34** (0.15)
Tax Wedge	0.34*** (0.11)	0.31*** (0.12)	0.27*** (0.07)	0.070 (0.11)	0.055 (0.04)
Tax Progressivity	5.93 (3.91)	3.58 (2.73)	4.42** (1.88)	-1.83 (1.64)	1.81** (0.79)
Males					
UI Replacement Rate	0.025 (0.09)	0.16*** (0.06)	0.086 (0.05)	0.065*** (0.02)	-0.0071 (0.02)
UI Duration	0.043 (0.03)	0.019 (0.01)	0.019 (0.02)	0.020** (0.01)	0.014* (0.01)
Union Coverage	-0.13 (0.08)	-0.037 (0.05)	-0.029 (0.04)	-0.028 (0.04)	0.026 (0.02)
Bargaining Centralization	-1.70** (0.73)	-1.38*** (0.42)	-0.90*** (0.30)	-0.78*** (0.25)	-0.51*** (0.17)
Tax Wedge	0.41*** (0.13)	0.29*** (0.08)	0.23** (0.09)	0.073 (0.05)	0.014 (0.04)
Tax Progressivity	4.48 (5.76)	3.12 (3.23)	4.11 (2.72)	-1.31 (1.44)	1.04 (1.06)

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

	Age It 25	Less than College		College +	
		Age 25-44	Age 45+	Age 25-44	Age 45+
Females					
Active Labor Mkt Exp	-0.058 (0.09)	-0.040 (0.04)	-0.028 (0.02)	-0.012 (0.04)	-0.031* (0.02)
Product Mkt Regulation	1.02 (1.85)	2.80*** (0.99)	1.31*** (0.51)	1.89*** (0.58)	-0.083 (0.29)
log R&D Expenditure	4.61** (1.84)	0.96 (1.04)	0.33 (0.86)	2.60*** (0.75)	0.078 (0.25)
log Outsourcing	-4.26 (3.51)	-2.50 (2.22)	-2.14 (1.52)	-0.018 (1.56)	-1.11* (0.59)
Output Gap	-0.70*** (0.23)	-0.49*** (0.14)	-0.38*** (0.11)	-0.29*** (0.09)	-0.17*** (0.05)
Males					
Active Labor Mkt Exp	0.021 (0.09)	0.039 (0.05)	0.036 (0.03)	0.023 (0.03)	0.014 (0.02)
Product Mkt Regulation	0.91 (2.16)	0.21 (0.92)	0.25 (0.66)	0.62 (0.41)	-0.18 (0.31)
log R&D Expenditure	3.53** (1.67)	0.69 (1.10)	0.64 (0.93)	1.47** (0.64)	0.54 (0.40)
log Outsourcing	-3.55 (3.65)	-3.17 (1.99)	-2.09 (1.52)	-0.11 (1.41)	-1.23** (0.62)
Output Gap	-0.82*** (0.28)	-0.48*** (0.15)	-0.40*** (0.13)	-0.26*** (0.08)	-0.16*** (0.05)

Table 4: RIF Regression. Gini of Wages. Average Marginal Effects

	Less than College			College +		
	Age It 25	Age 25-44	Age 45+	Age It 25	Age 25-44	Age 45+
Females						
EP on Dismissals	-0.88 (0.68)	-0.65 (0.51)	-0.40 (0.56)	0.54 (0.96)	2.60** (1.09)	4.87 (3.32)
EP on Temporary Contracts	-0.81 (1.35)	0.43 (0.45)	-0.02 (0.41)	-0.78 (1.74)	1.02** (0.52)	3.13* (1.67)
EP on Part Time	0.47 (1.38)	-0.01 (0.71)	0.16 (0.63)	-1.21 (1.70)	-1.67*** (0.48)	-4.05 (2.56)
EP on Work Time	-2.69*** (0.92)	-0.71 (0.69)	-0.46 (0.50)	1.02 (1.17)	2.04*** (0.65)	9.76** (4.50)
Min to Median Wage	-0.10 (0.12)	-0.03 (0.07)	0.004 (0.07)	0.09 (0.12)	-0.09 (0.07)	0.04 (0.25)
Males						
EP on Dismissals	0.04 (0.53)	-0.28 (0.45)	-0.58 (0.48)	1.71 (1.27)	1.66 (1.18)	2.29 (1.80)
EP on Temporary Contracts	-1.15 (1.37)	0.44 (0.51)	0.52 (0.42)	-0.67 (1.35)	0.89* (0.54)	2.33*** (0.72)
EP on Part Time	0.11 (1.49)	-0.03 (0.76)	0.35 (0.49)	-1.49 (1.56)	-0.75 (0.71)	0.10 (1.77)
EP on Work Time	-2.46*** (0.91)	0.04 (0.61)	0.92** (0.44)	0.12 (0.78)	2.10*** (0.69)	3.99 (2.87)
Min to Median Wage	-0.01 (0.07)	-0.01 (0.05)	0.05 (0.07)	0.14 (0.11)	-0.31*** (0.12)	-0.45** (0.22)

Table 5: RIF Regression. Gini of Wages. Average Marginal Effects cont

	Less than College			College +		
	Age lt 25	Age 25-44	Age 45+	Age lt 25	Age 25-44	Age 45+
Females						
UI Replacement Rate	-0.13* (0.07)	-0.09*** (0.03)	-0.08** (0.03)	0.02 (0.15)	-0.06** (0.03)	0.09 (0.16)
UI Duration	-0.07** (0.03)	-0.03 (0.02)	-0.01 (0.02)	-0.05 (0.04)	-0.02 (0.02)	-0.06** (0.03)
Union Coverage	-0.03 (0.03)	-0.03 (0.03)	-0.05** (0.02)	-0.03 (0.03)	-0.09** (0.04)	-0.21* (0.11)
Bargaining Centralization	1.21** (0.57)	0.62* (0.34)	0.36 (0.26)	1.17 (0.99)	-0.01 (0.28)	-1.64 (1.74)
Tax Wedge	0.14 (0.11)	0.07 (0.08)	0.07 (0.08)	-0.14 (0.13)	-0.23*** (0.08)	-1.06** (0.46)
Tax Progressivity	11.54* (6.62)	2.12 (3.74)	-1.28 (2.63)	-1.70 (8.84)	-0.80 (4.14)	25.28* (14.26)
Males						
UI Replacement Rate	-0.10 (0.08)	-0.07*** (0.02)	-0.09*** (0.03)	0.31 (0.28)	0.03 (0.09)	-0.02 (0.17)
UI Duration	-0.11*** (0.03)	-0.04* (0.02)	-0.03 (0.02)	-0.03 (0.03)	-0.01 (0.02)	-0.11*** (0.03)
Union Coverage	-0.08* (0.05)	-0.04 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.13** (0.06)	-0.16* (0.09)
Bargaining Centralization	1.06 (0.65)	0.26 (0.22)	-0.05 (0.36)	2.26* (1.23)	-1.12** (0.46)	-1.88 (1.78)
Tax Wedge	0.15 (0.10)	0.05 (0.06)	-0.05 (0.06)	-0.32*** (0.09)	-0.21* (0.12)	-0.31 (0.23)
Tax Progressivity	10.38* (6.07)	0.36 (3.22)	-1.50 (2.46)	-2.83 (9.67)	-2.47 (3.82)	13.13 (16.49)

Table 6: RIF Regression. Gini of Wages. Average Marginal Effects cont.

	Less than College			College +		
	Age It 25	Age 25-44	Age 45+	Age It 25	Age 25-44	Age 45+
Females						
Active Labor Mkt Exp	0.30*** (0.10)	0.06 (0.06)	-0.001 (0.05)	-0.16 (0.13)	-0.14** (0.07)	-0.62** (0.25)
Product Mkt Regulation	1.27 (1.03)	1.18** (0.59)	1.43** (0.60)	-0.58 (0.82)	0.89 (0.83)	-3.89 (2.44)
log R&D Expenditure	1.03** (0.40)	1.61*** (0.22)	1.20*** (0.24)	0.06 (0.61)	1.19*** (0.34)	0.43 (0.80)
log Outsourcing	-0.55*** (0.17)	-0.50** (0.20)	-0.37*** (0.12)	-0.24 (0.28)	-0.53* (0.29)	-0.25 (0.60)
Output Gap	-0.25*** (0.10)	-0.07 (0.05)	-0.05 (0.04)	-0.42*** (0.09)	-0.001 (0.06)	0.22* (0.13)
Males						
Active Labor Mkt Exp	0.36*** (0.10)	0.02 (0.05)	-0.04 (0.04)	-0.06 (0.15)	-0.03 (0.05)	-0.16 (0.12)
Product Mkt Regulation	1.53 (1.06)	1.03* (0.57)	1.22** (0.55)	-1.48 (2.12)	2.05*** (0.76)	3.66 (3.36)
log R&D Expenditure	0.70** (0.34)	0.51* (0.31)	-0.12 (0.38)	0.33 (0.65)	-0.39 (0.59)	-1.18* (0.68)
log Outsourcing	-0.69*** (0.15)	-0.32*** (0.12)	0.04 (0.15)	-0.51*** (0.19)	0.35 (0.22)	1.28*** (0.36)
Output Gap	-0.38*** (0.11)	-0.07 (0.05)	-0.03 (0.03)	-0.36*** (0.13)	0.23*** (0.07)	0.45*** (0.13)

Interactions between Institutions

▶ Unemployment

- ▶ Tax Wedge X Union Coverage: Impacts found when Coverage is High
- ▶ Tax Wedge X ALMP: ALMP moderates negative impacts of Taxes
- ▶ Prod. Mkt. Regulation X Union Coverage: PMR raises unemployment when Coverage is High

▶ Inequality

- ▶ EP Temporary Contracts X EP Dismissals: Impact of Temp. Contract restrictions apply under strict dismissals regulations
- ▶ Union Coverage X Bargaining Centralization: These institutions operate as substitutes.
- ▶ Prod. Mkt. Regulation X Union Coverage: PMR raises inequality when Coverage is High

Shocks and Institutions Interacted

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

	Age lt 25	Less than Age 25-44	College Age 45+	College + Age 25-44	Age 45+
Females					
Saxon	0.44*** (0.15)	0.28*** (0.10)	0.22*** (0.07)	0.092* (0.05)	0.11*** (0.03)
Central European	1.42*** (0.17)	0.74*** (0.10)	0.61*** (0.12)	0.30*** (0.04)	0.21*** (0.07)
Nordic	1.09*** (0.11)	0.59*** (0.10)	0.53*** (0.11)	0.21*** (0.06)	0.23*** (0.08)
Southern European	2.02*** (0.18)	1.25*** (0.16)	0.80*** (0.09)	0.92*** (0.11)	0.29*** (0.05)
Males					
Saxon	0.66*** (0.15)	0.38*** (0.09)	0.29*** (0.08)	0.086** (0.04)	0.13*** (0.03)
Central European	1.62*** (0.16)	0.89*** (0.13)	0.68*** (0.15)	0.37*** (0.04)	0.24*** (0.07)
Nordic	1.42*** (0.15)	0.76*** (0.12)	0.65*** (0.14)	0.35*** (0.03)	0.28*** (0.07)
Southern European	2.25*** (0.19)	1.15*** (0.10)	0.88*** (0.09)	0.75*** (0.06)	0.30*** (0.04)

Table 8: Average Marginal Effects of (log) R&D Expenditure on Gini of Wages Under Different Institutional Settings.

	Less than College			College +		
	Age It 25	Age 25-44	Age 45+	Age It 25	Age 25-44	Age 45+
Females						
Saxon	0.58 (0.56)	1.38*** (0.48)	0.82* (0.45)	1.87*** (0.69)	0.81 (0.64)	-0.11 (2.12)
Central European	0.44 (0.70)	1.84*** (0.43)	1.56*** (0.46)	3.95*** (0.96)	1.31** (0.62)	-0.094 (1.45)
Nordic	1.40 (1.10)	2.13*** (0.62)	1.75** (0.69)	8.95*** (1.79)	2.16** (0.87)	-0.28 (1.61)
Southern European	1.00 (0.67)	2.37*** (0.55)	1.81*** (0.58)	0.51 (1.09)	0.20 (0.65)	-3.87** (1.68)
Males						
Saxon	0.33 (0.49)	0.012 (0.53)	-0.90* (0.47)	-0.50 (1.11)	-1.45** (0.70)	-1.88 (1.39)
Central European	0.14 (0.46)	0.63 (0.50)	-0.079 (0.49)	1.06 (0.98)	0.11 (0.60)	-1.29* (0.78)
Nordic	0.70 (0.62)	1.04 (0.74)	-0.31 (0.71)	2.31 (1.41)	0.27 (0.79)	-3.23*** (1.20)
Southern European	1.00 (0.79)	0.77 (0.68)	-0.024 (0.58)	-0.011 (1.49)	-0.71 (0.98)	-1.35 (1.30)

Conclusions

- ▶ UI generosity and Taxes contribute to unemployment-inequality trade off
- ▶ However, other institutions like temporary contract restrictions and product market regulations move unemployment and inequality in the same direction. Scope for reform.
- ▶ Substantial heterogeneity in impacts of institutions and “shocks”. Probably reason why earlier literature struggled
- ▶ Institutions do not operate in isolation, rather they often reinforce one another
- ▶ Some institutional regimes are more likely to maximize the negative impact of an output downturn on employment

Additional Material

Robustness Checks and Extensions

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

Table 9: 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	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: Unemployment Rate

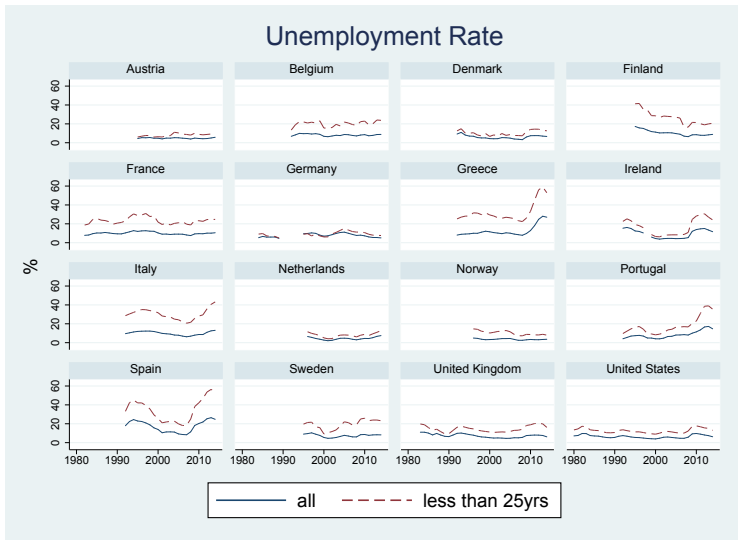


Figure 3: Gini Index

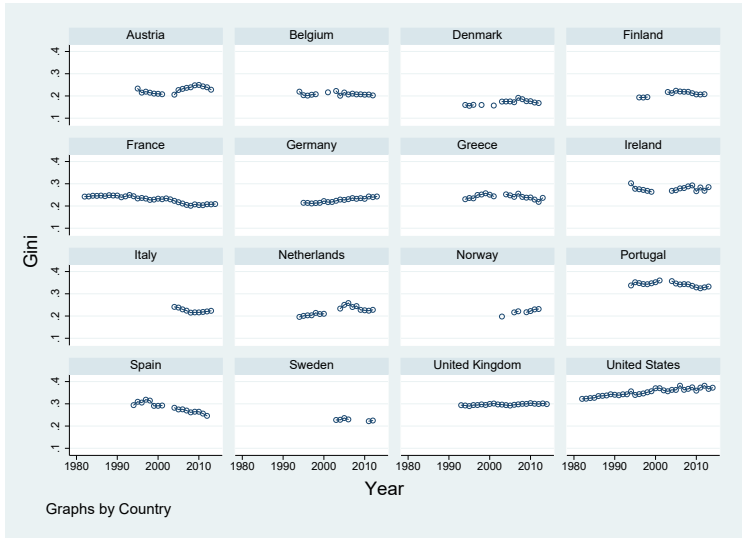


Table 10: Recentered Influence Function Regression for Gini of Wages. Average Marginal Effects by Occupation. ICT as Technology Proxy.

	Manager	Professional	Technician	Clerical	ServSales	Craft	Operators	Elementary
log ICT	3.24*** (0.54)	1.57* (0.84)	1.08*** (0.34)	-1.18** (0.57)	-0.68 (0.64)	-0.27 (0.33)	0.35 (0.42)	-0.70* (0.42)