Do Unemployment Benefits Promote or Hinder Structural Change?

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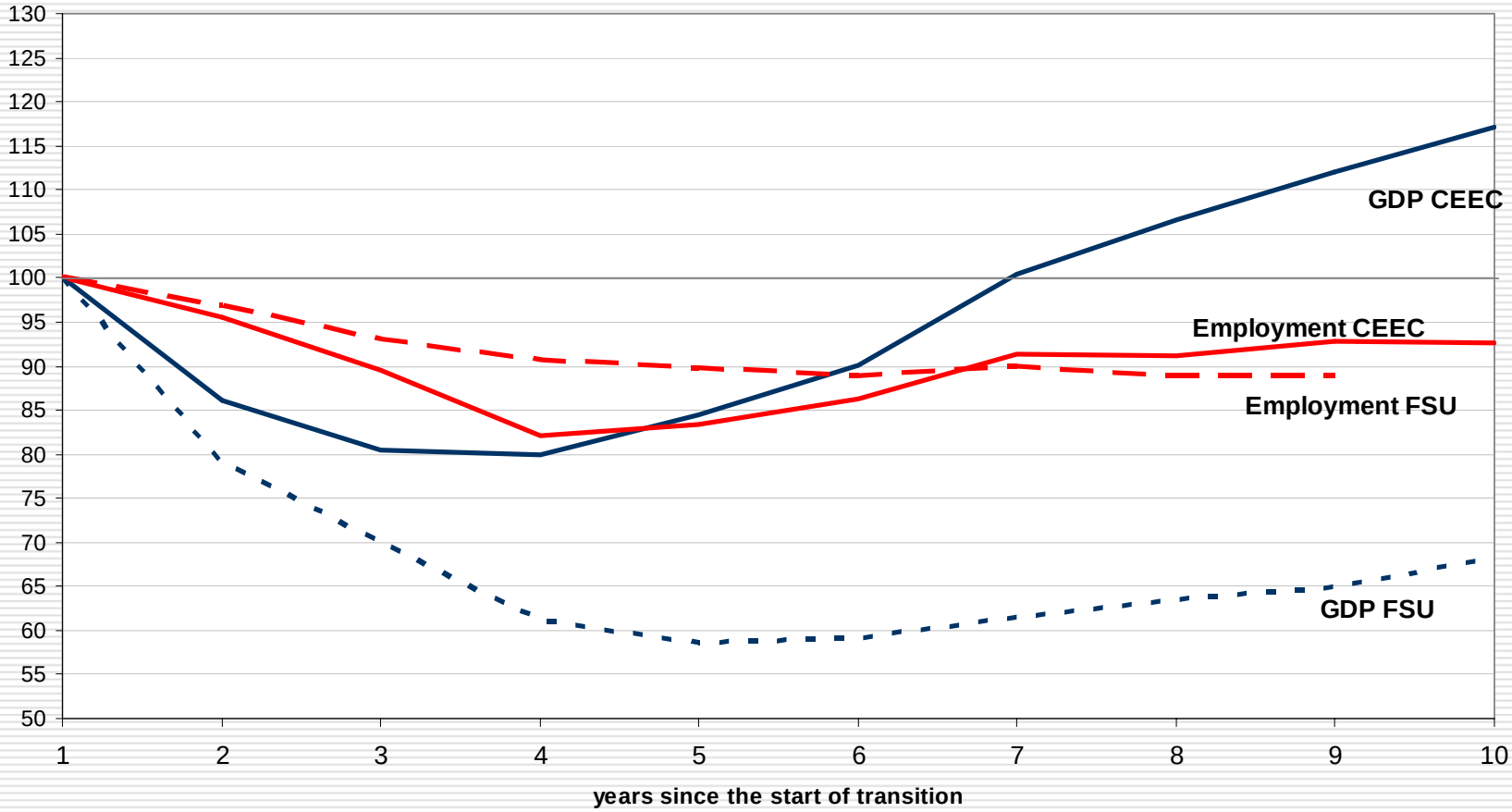
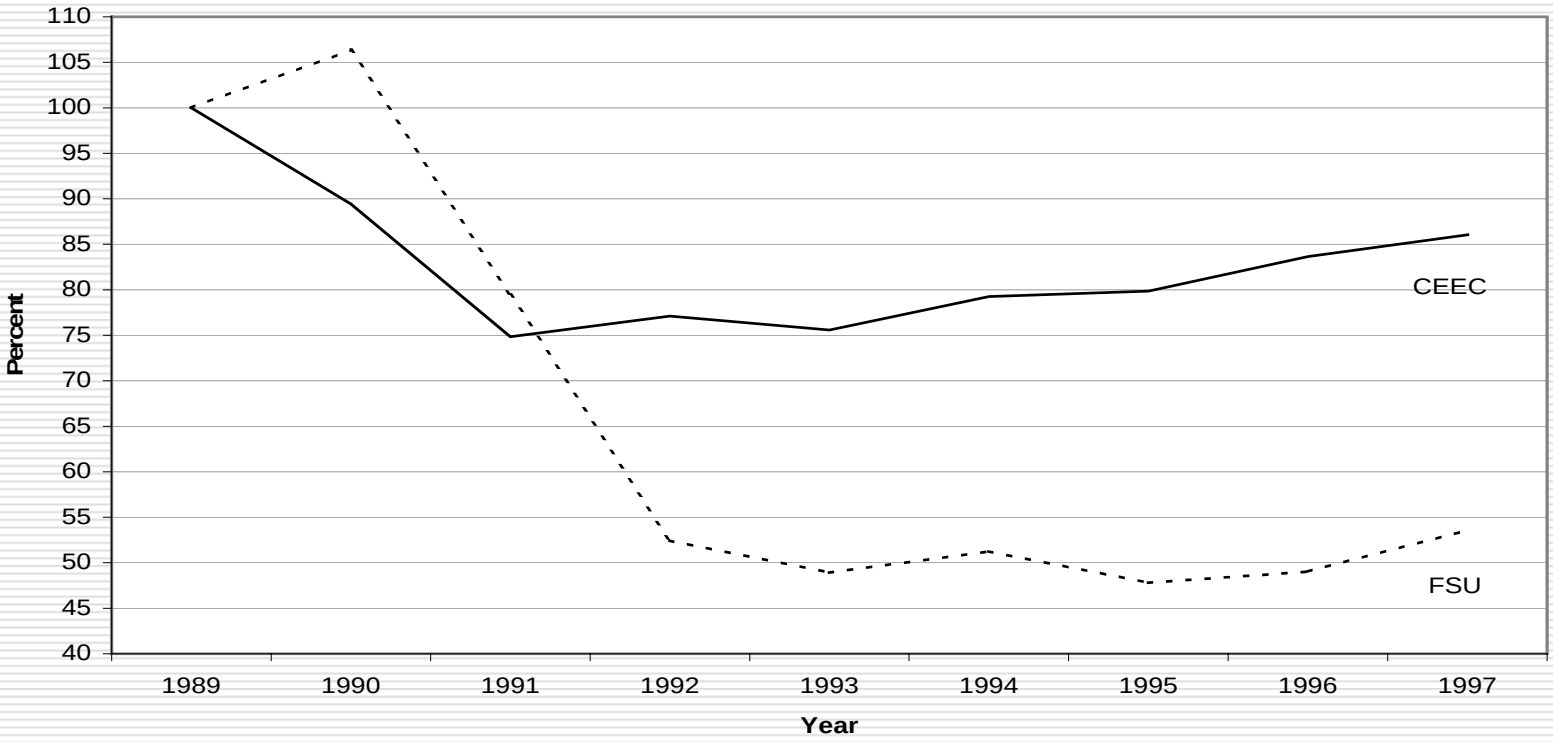
Lessons from the Transition



Employment and Output
Adjustment in CEECs and FSUs.
Source: EBRD, OECD.

Figure 2: Real Wages (1989=100, adjusted by the CPI)



Structural Change and Unemployment Benefits

	Sectoral reallocation (1998-98 sum of changes in sectoral employment shares)	Private sector development Change in the private sector employment share (1991-97)	SMEs development 1989-94 change in employment share of firms with less than 200 employees	Unemployment benefits	
				Expenditure as %GDP	% of total social expenditure
CEECs	26	61.1	26.3	2.9	28.3
FSU	19	24.0	4.0	0.5	7.1

Outline

- Recent theories on the “efficient” face of UBs
- Some neglected issues in the macro empirical literature on the effects of UBs
- Data and Empirical Strategy
- Main findings
- Robustness checks
- Directions for further research

Key Results

- Some evidence that UBs increase job reallocation and structural change, mainly by acting on job destruction margins
- This result survives to several robustness checks. Stronger for transitional economies
- Coupled with standard findings on the efficiency/insurance tradeoff, points to another relevant (under globalisation and faster structural change) efficient face of Ubs

Literature on the "efficient face" of UBs

- Stochastic job matching (Acemoglu-Shimer, 1999 and 2000; Marimon-Zilibotti): under specificity, UBs increase the "quality" of job matches. *Effects mainly on the job creation margin.*
- Privatisation methods (Aghion-Blanchard, 1996): UBs win the resistance of insiders to restructuring. *Effects mainly on layoffs.*
- General equilibrium models of the LM (Mortensen-Pissarides, 1999): UBs increase turnover via a higher reservation productivity. *Effects on all separations.*

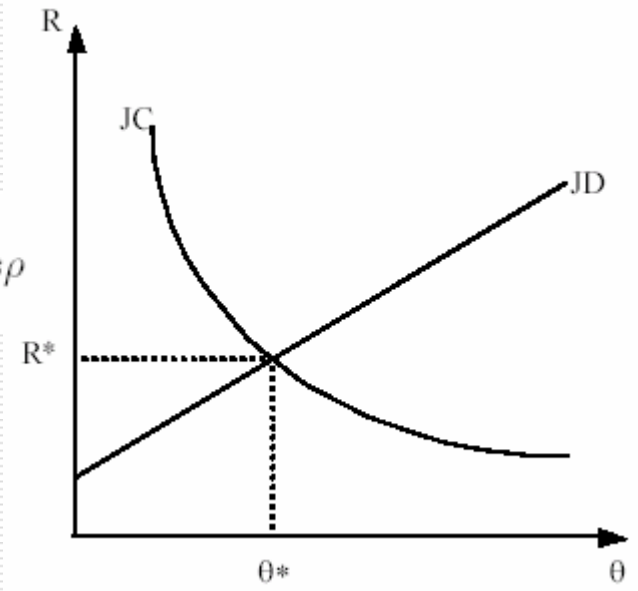
Equilibrium in MP model

$$w(x) = (1-\beta)\left[b + \lambda(1-F(R))\rho\right] + \beta s\left(k\theta + x + \lambda T\right)$$

$$(1-\beta)\left(\frac{1-R}{r+\lambda} - T\right) = \frac{k}{q(\theta)}$$

$$sR + \frac{s\lambda}{r+\lambda}\int_R^1 (z-R)dF(z) + rsT = b + \frac{\beta sk\theta}{1-\beta} + \lambda\left[1-F(R)\right]s\rho$$

$$u^* \equiv u^*(s,\lambda,\rho,b) = \frac{\lambda F(R^*)}{\lambda F(R^*) + \theta^* q(\theta^*)}.$$



Issues in Evaluating the Macro Effects of UBs

- UBs are multi-dimensional institutions
- Having relevant interactions with other institutions (EPL, taxes, wage setting)
- Evidence of policy endogeneity (duration of Ubs affected by duration of unemployment)
- Reforms of UBs involve “grandfathering of entitlements”. Hence, two-tier systems.
- Unexploited “natural experiments”.

Our approach

- Concentrate on radical reforms: startup of a UB system. Dichotomic policy choices.
- Apply diff-in-diff methodology to evaluate the effect of the treatment “introduction of a UB system” on the outcomes “job creation, destruction, and structural change”
- Control for institutional interactions and policy endogeneity

Data

- 135 countries with population of at least 1 million in 2002, surveyed by “Social Security Programs throughout the World” (US DOL and Social Security Admin)
- Data on structural change in employment from ILO - Key Labor Market Indicators data (1980-2002)
  - 2003 CD-Rom edition; data available for about 80 countries, unbalanced panel
- 68 countries never adopted Ubs
- 35 introduced UBs in 1980-2002

Date of First Introduction of UBs

1905-1944	1945-1979	1980-1990	1991-1992	1993-2002
Australia	Austria	Brazil	Argentina	Albania
Belgium	Bangladesh	Bulgaria	Armenia	Algeria
Canada	Croatia	China	Azerbaijan	South Korea
Chile	Ecuador	Colombia	Belarus	Taiwan
Denmark	Egypt	Czech Republic	Estonia	Tunisia
Finland	Greece	Hungary	Georgia	Turkey
France	Hong Kong	Iran	Kazakhstan	
Germany	Iraq	Poland	Kyrgyzstan	
Ireland	Israel	Romania	Latvia	
Italy	Japan	Slovak Republic	Lithuania	
New Zealand	Netherlands	Sri Lanka	Moldova	
Norway	Nigeria	Uruguay	Russia	
Spain	Portugal		Turkmenistan	
Sweden	Serbia		Ukraine	
United Kingdom	Slovenia		Uzbekistan	
USA	South Africa		Venezuela	

Source: Social Security Programs Throughout the World and our own research based on administrative sources.

Outcome variables

Job Creation: $POS_{it} = \sum_{j \in E_i^+}^{n} \left(\frac{e_{ijt}}{E_{it}} \right) g_{ijt}$

Job Destruction: $NEG_{it} = \sum_{j \in E_i^-}^{n} \left(\frac{e_{ijt}}{E_{it}} \right) |g_{ijt}|$

Job Turnover: $JT_{it} = POS_{it} + NEG_{it}$

Job Reallocation: $JR_{it} = \left[\sum_{j=1}^{n} \frac{e_{ijt}}{E_{it}} (g_{ijt} - g_{it})^2 \right]^{\frac{1}{2}}$

- j = sector (agriculture, industry and services)
- e_{ijt} = employment in sector j at date t, E_{it} = aggregate employment
- g_{ijt} = growth rate of employment in sector j between times t and t-1
- E^+ denotes expanding sectors, E^- shrinking sectors

Descriptive Evidence

(percentage rates, averages before/after introduction of UBs)

	Region	Year Introd.	N.Obs.		Job Creation		Job Destruction		Job Turnover		Job Reallocation	
Country			*before*	*after*	*before*	*after*	*before*	*after*	*before*	*after*	*before*	*after*
Albania	cee	1993										
Algeria	africa	1994										
Argentina	cla	1991		7		2.1		2.1		4.2		3.4
Armenia	fsu	1992	1	9	7.1	2.0	3.2	3.7	10.4	5.6	14.6	6.4
Azerbaijan	fsu	1992	8	8	5.9	2.4	1.1	1.7	7.0	4.1	8.2	4.6
Belarus	fsu	1991	3	4	0.9	0.9	0.8	3.1	1.8	4.0	2.1	4.5
Brazil	cla	1990	8	6	4.6	1.9	0.9	0.7	5.5	2.6	4.4	2.3
Bulgaria	cee	1990	9	10	0.8	0.8	0.8	4.3	1.6	5.1	1.7	3.6
Chile	cla	1981		16		2.7		0.6		3.3		3.2
China	asia	1986		12		3.4		0.7		4.0		6.2
Colombia	cla	1990	4	11	4.2	5.2	0.0	0.7	4.3	5.9	1.5	5.0
Czech Republic	cee	1990	9	10	0.4	0.6	0.1	2.0	0.5	2.5	0.5	3.1
Ecuador	cla	1988		9		4.4		0.7		5.0		3.4
Estonia	fsu	1991	1	9	0.0	0.6	1.5	4.0	1.5	4.6	0.6	5.5
Georgia	fsu	1992		3		4.0		1.2		5.3		4.7
Hungary	cee	1986		4		0.9		0.6		1.5		1.7
Iran	mideast	1987		2		3.8		0.0		3.8		2.2
Korea	asia	1995	9	7	3.5	2.5	1.2	1.4	4.6	3.9	4.2	3.7
Kazakhstan	fsu	1992	1	7	6.1	2.5	0.3	5.3	6.4	7.8	4.8	8.5
Kyrgyzstan	fsu	1992	5	8	3.1	3.5	0.6	3.2	3.6	6.6	4.0	6.0
Latvia	fsu	1992	1	7	1.0	1.1	1.8	5.2	2.8	6.3	3.2	6.6
Lithuania	fsu	1992		2		1.9		1.0		2.8		2.6
Moldova	fsu	1992		2		1.6		1.4		2.9		2.5
Poland	cee	1989	7	8	0.7	1.1	0.7	2.9	1.4	4.1	2.5	5.4
Romania	cee	1990	9	4	0.7	0.8	0.1	1.6	0.8	2.4	0.7	2.8
Russia	fsu	1992	1	5	0.1	1.2	2.0	2.4	2.1	3.6	1.1	3.1
Slovak Republic	cee	1990		7		1.4		1.3		2.7		2.9
Sri Lanka	asia	1990		6		7.6		2.7		10.3		13.2
Taiwan	asia	1999	17						4.9		4.5	
Tunisia	africa	1997			3.6		1.4					
Turkey	oecd	2000	14		3.8		1.2		5.0		3.2	
Turkmenistan	fsu	1992	1	7	1.5	1.8	0.0	0.0	1.5	1.8	0.7	1.4
Ukraine	fsu	1992	4	8	0.2	0.6	1.1	2.1	1.2	2.7	1.9	3.3
Uruguay	cla	1981		10		2.0		0.9		2.9		3.0
Uzbekistan	fsu	1992	1	6	4.6	1.8	0.7	0.9	5.2	2.7	5.4	4.0
Venezuela	cla	1991	10	9	4.7	5.0	0.5	0.6	5.2	5.6	3.1	5.9

Difference-in-Differences Estimates

COUNTRIES WITH EVER OR NEVER UBs AS THE COMPARISON GROUP

$$y = \alpha + \beta D2 + \gamma DB + \theta(D2 * DB) + X\delta + u \qquad (1)$$

	POS		NEG		JT		LIL	
D2	-0.001	0.002	-0.003	-0.003	-0.005	-0.002	-0.008	-0.003
	(0.001)	(0.003)	(0.001)**	(0.002)*	(0.001)***	(0.004)	(0.002)***	(0.004)
DB	-0.005	-0.002	0.000	-0.008	-0.005	-0.010	-0.005	-0.018
	(0.009)	(0.005)	(0.002)	(0.004)**	(0.010)	(0.007)	(0.010)	(0.009)**
D2DB	**-0.006**	**0.000**	**0.018**	**0.016**	**0.012**	**0.015**	**0.019**	**0.023**
	(0.003)	**(0.005)**	**(0.003)*** **	**(0.004)*** **	**(0.004)** **	**(0.007)** **	**(0.004)*** **	**(0.007)*** **
Region Dummies	no	yes	no	yes	no	yes	no	yes
Controls	no	yes	no	yes	no	yes	no	yes
Observations	126	112	126	112	126	112	126	112
R2	0.05	0.61	0.31	0.49	0.02	0.49	0.04	0.34

Notes: The dependent variable is average yearly POS, NEG, JT or LIL "before" and "after". For countries that introduced UBs between 1980 and 2002 the before and after are defined by the year of introduction of UB. For the other countries, "before" means before 1992. We chose 1992 because it is the modal year of introduction of unemployment benefits among countries which introduced UBs between 1980 and 2002. The variable D2 is a period dummy (equal to 0 "before" and to 1 "after"), The variable DB is equal to zero for the "control" countries and equal to unity for the "treatment" group (countries which introduced UBs between 1980 and 2002). The coefficient on the interaction D2*DB is therefore the diff-in-diff estimator, equal to unity for the countries in the treatment group in the "after" period. Robust standard errors are reported in parenthesis. In the regressions where regional dummies are not included, the standard errors are corrected for the potential clustering at the regional level. Controls include GDP Per Capita, GDP growth and Openness to Trade. Asterisks are used to indicate levels of statistical significance: * significant at 10%;

Difference-in-Differences Estimates

COUNTRIES WITH NEVER UBs AS THE COMPARISON GROUP

	POS		NEG		JT		LIL	
D2	-0.003	-0.002	-0.003	-0.005	-0.007	-0.006	-0.009	-0.008
	(0.001)*	(0.006)	(0.003)	(0.003)*	(0.002)**	(0.006)	(0.004)*	(0.008)
DB	-0.018	-0.009	-0.001	-0.012	-0.019	-0.021	-0.016	-0.033
	(0.006)**	(0.007)	(0.004)	(0.004)***	(0.009)	(0.009)**	(0.009)	(0.011)***
D2DB	**-0.004**	**0.003**	**0.018**	**0.017**	**0.014**	**0.020**	**0.019**	**0.028**
	(0.003)	**(0.007)**	**(0.003)*****	**(0.005)*****	**(0.004)****	**(0.009)****	**(0.006)****	**(0.010)*****
Region Dummies	no	yes	no	yes	no	yes	no	yes
Controls	no	yes	no	yes	no	yes	no	yes
Observations	76	62	76	62	76	62	76	62
R2	0.24	0.58	0.31	0.53	0.11	0.35	0.05	0.24

See Notes to Table IV-A. The only difference with respect to the results displayed in Table IV-A is that here the control group consists of countries with never an UB scheme in place, whereas in Table IV-A the control group includes both countries with no UBs in place and countries with UBs in place throughout the entire sampling period.

Panel Data Estimates

- Main Specification:

$$y_{it} = \alpha + \theta UB_{it} + \mathbf{X}_{it}\beta + \mu_t + \gamma_i + u_{it} \quad (2)$$

$$y_{it} = \alpha + \theta UB_{it} + \mathbf{X}_{it}\beta + \delta_{jt}(REGj_i * \mu_t) + \gamma_i + u_{it} \quad (3)$$

- γ_i = country fixed effects, to address unobserved heterogeneity, possibly correlated with UB_{it} (1 if UB present, 0 otherwise)
- μ_t = time effect, modelled as linear time trend
- Region-specific time trends in specification (3)
- Controls include: population, GDP, GDP growth, trade openness

Baseline Panel Data Results

COUNTRIES WITH EVER OR NEVER UBs AS THE COMPARISON GROUP

	POS		NEG		JT		LIL	
UB	-0.004	0.008	0.017	0.010	0.013	0.018	0.019	0.027
	(0.004)	(0.006)	(0.002)***	(0.004)***	(0.004)***	(0.006)***	(0.005)***	(0.008)***
region effects	no	yes	no	yes	no	yes	no	yes
time trend	yes		yes		yes		yes	
region-specific time trend	no	yes	no	yes	no	yes	no	yes
controls	no	yes	no	yes	no	yes	no	yes
Observations	1025	889	1025	889	1025	889	1025	889
Countries	84	81	84	81	84	81	84	81
R2	0.02	0.05	0.06	0.08	0.02	0.05	0.02	0.05

Notes: Fixed Effects regressions, estimated using yearly observations covering the period 1980-2002. Standard Errors are reported in parenthesis. Levels of statistical significance are indicated by asterisks: * significant at 10%; ** significant at 5%; *** significant at 1%. POS, NEG, JT and LIL are calculated as explained in the text.

Panel Data Results

COUNTRIES WITH NEVER UBs AS THE COMPARISON GROUP

	POS		NEG		JT		LIL	
UB	-0.006	0.006	0.021	0.012	0.015	0.019	0.020	0.029
	(0.006)	(0.007)	(0.003)***	(0.004)***	(0.006)**	(0.007)**	(0.007)***	(0.009)***
region effects	no	yes	no	yes	no	yes	no	yes
time trend	yes		yes		yes		yes	
region-specific time trend	no	yes	no	yes	no	yes	no	yes
controls	no	yes	no	yes	no	yes	no	yes
Observations	577	468	577	468	577	468	577	468
Countries	55	52	55	52	55	52	55	52
R2	0.02	0.06	0.09	0.08	0.04	0.08	0.03	0.08

Notes: Fixed Effects regressions. See Notes to Table V-A. The only difference with respect to the results displayed in Table V-A is that here the control group consists of countries with never an UB scheme in place, whereas in Table IV-A the control group includes both countries with no UBs in place and countries with UBs in place throughout the entire sampling period

Excluding Countries Coming from Central Planning

	POS	NEG	JT	LIL
UB	0.010	0.000	0.010	0.019
	(0.007)	(0.004)	(0.007)	(0.010)**
region effects	yes	yes	yes	yes
region-specific time trend	yes	yes	yes	yes
controls	yes	yes	yes	yes
Observations	771	771	771	771
Countries	61	61	61	61
R2	0.08	0.09	0.06	0.06

Notes: Fixed Effects regressions. See Notes to Table V-A. The only difference with respect to the results displayed in Table V-A is that here we exclude the countries from Central and Eastern Europe (CEE) and the former Soviet Union (FSU) from the sample.

Excluding *either* CEE or FSU

	POS		NEG		JT		LIL	
	excl. CEE	excl FSU	excl. CEE	excl FSU	excl. CEE	excl FSU	excl. CEE	excl FSU
UB	0.008	0.008	0.007	0.007	0.014	0.016	0.023	0.026
	(0.006)	(0.006)	(0.004)*	(0.004)*	(0.007)**	(0.007)**	(0.009)***	(0.009)***
region effects	yes	yes	yes	yes	yes	yes	yes	yes
region-specific time trend	yes	yes	yes	yes	yes	yes	yes	yes
controls	yes	yes	yes	yes	yes	yes	yes	yes
Observations	828	832	828	832	828	832	828	832
Countries	73	69	73	69	73	69	73	69
R2	0.05	0.05	0.06	0.06	0.05	0.05	0.05	0.05

Notes: Fixed Effects regressions. See Notes to Table V-A. The only difference with respect to the results displayed in Table V-A is that here we exclude the countries from Central and Eastern Europe (CEE) **OR** the former Soviet Union (FSU) from the sample.

Allowing for Institutional Interactions: Controlling for EPL (time-series)

	POS	NEG	JT	LIL
UB	0.003	0.016	0.019	0.028
	(0.010)	(0.005)***	(0.010)*	(0.010)***
region effects	yes	yes	yes	yes
region-specific time trend	yes	yes	yes	yes
controls	yes	yes	yes	yes
Observations	299	299	299	299
Countries	28	28	28	28

Notes: Random Effects regressions, estimated using yearly observations covering 1980-2002. Levels of statistical significance are indicated by asterisks: * significant at 10%; ** significant at 5%; *** significant at 1%.

Allowing for Institutional Interactions: Controlling for EPL (Botero et al.)

	POS	NEG	JT	LIL
UB	0.014 (0.006)**	0.004 (0.004)	0.018 (0.006)***	0.025 (0.009)***
EPLxYearEffect	yes	yes	yes	yes
region effects	yes	yes	yes	yes
region-specific time trend	yes	yes	yes	yes
controls	yes	yes	yes	yes
Observations	783	783	783	783
Countries	66	66	66	66
R2	0.13	0.18	0.11	0.11

Notes: Fixed Effects regressions, estimated using yearly observations covering 1980-2002. Levels of statistical significance are indicated by asterisks: * significant at 10%; ** significant at 5%; *** significant at 1%. The measure of EPL used here is taken from Botero et al. (2004).

Reverse Causality?

- Consistency of FE estimates relies on assumption of strict exogeneity of UB
- However, reverse causality is a serious concern
- In fact, y_{is} could influence UB_{it} for $s<t$, even after controlling for unobserved factors
  - E.g. countries experiencing high job turnover at time s might decide to introduce unemployment benefits, as a response, in period t
- Fishing for instruments for UBs

Instruments for UB Schemes

	Definition	Range	Notes
BUR	quality of bureaucracy indicator	0-4	
DEM	index of democratic accountability	0-6	
CORR	degree of corruption in public offices	0-6	high values indicate low degree of corruption
GSTAB	indicator of government stability	1-12	
CONF	degree of internal conflict	0-12	high values indicate low conflict
ETHN	ethnic tensions indicator	0-6	high values indicate low tension
REL	religion in politics indicator	0-6	high values indicate little involvement
MIL	military in politics indicator	0-6	high values indicate little involvement
EUCAND	candidate to join the European Union	0-1	0-1 dummy variable

Sources: Indicators of institutional quality are from ICRG. As for EUCAND, the accession process started in 1998 for Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia (which joined the European Union in 2004), Bulgaria and Romania (which are expected to join the EU in 2007). Croatia and Turkey started the process in 2004. The variable EUCAND is set equal to 1 starting 3 years before the year of the official start of accession process (changing the lag to 2, 1 or 0 years does not affect the regression results).

Predicting the Presence of UB Schemes

	Random Effects Probit	Fixed Effects Model
	Coeff (se)	Coeff (se)
BUR	0.648	0.007
	(0.194)***	(0.010)
DEM	0.343	0.025
	(0.127)***	(0.006)***
CORR	0.079	-0.005
	(0.169)	(0.007)
GSTAB	0.192	0.005
	(0.059)***	(0.002)**
CONF	0.006	-0.006
	(0.059)	(0.003)
ETHN	0.151	0.006
	(0.122)	(0.007)
REL	0.087	0.026
	(0.185)	(0.008)***
MIL	-0.321	-0.011
	(0.131)**	(0.006)*
EUCAND	2.877	0.402
	(0.649)***	(0.106)***
Observations	1678	1678.000
Countries	117	117.000
Years	1980-2002	1980-2002

- Partial R2 0.11. F-test overid 8.29 (Pr 0.00)

Instrumental Variables Estimates

	POS	NEG	JT	LIL
Unemployment Benefits	0.020 (0.021)	0.026 (0.011)**	0.046 (0.023)**	0.059 (0.027)**
Year*Region Dummies	yes	yes	yes	yes
Observations	731	731	731	731
Number of Countries	77	77	77	77
Number of Regions	7	7	7	7

Notes: Fixed Effects, Instrumental Variables regressions. The instruments for UB are listed and described in Table VIII. All regression include, among the controls, the log of per capita GDP, GDP growth, and the degree of openness to trade. Standard Errors are reported in parenthesis. Levels of statistical significance are indicated by asterisks: * significant at 10%; ** significant at 5%; *** significant at 1%. POS, NEG, JT and LIL are defined as explained in the text.

Conclusions and Directions for Further Research

- Effects mainly on the JD margin. IV: almost 3 points higher
- Further work
  - Improving outcome variables (better JT statistics)
  - More outcome variables (quality of structural change, e.g., share of the private sector)
  - Other instruments?
  - Other (beyond the startup) radical reforms of Ubs? We need an inventory!