

LICOS Centre for Institutional Change & Economic Performance

K.U.Leuven - Centre of Excellence

The Political Economy of the Bio-based Economy: Institutions, Rules and Policies for Good Governance

Johan Swinnen

University of Leuven Centre for European Policy Studies (CEPS) Stanford University

AIEAA Conference, Trento, June 2012

Seven Stories *

on how institutions, rules and policies affect governance of the bio-based economy (and vice versa)

* Based on new research

Outline

- 1. Political reforms
- 2. Mass media
- 3. International agreements
- 4. EU policies & Member state regulations
- 5. EU decision-making rules
- 6. Policies & innovation
- 7. How policies create institutions

Political Institutions/Reforms

Major changes in agric policies

NRA in rich and poor countries



Question

- In some countries major changes in agric policies coincided with major political reforms
 - Eg Eastern Europe
- In some not
 Eg China



=> Do political reforms matter or not ?

Agricultural protection and political regimes

	Full sample		Auto	cracy	Democracy		
	NRA	RRA	NRA	RRA	NRA	RRA	
1956-1959	0.41	0.18	-0.13	-0.29	0.66	0.41	
1960-1964	0.28	0.08	-0.16	-0.30	0.54	0.30	
1965-1969	0.27	0.07	-0.13	-0.27	0.51	0.27	
1970-1974	0.10	-0.01	-0.24	-0.33	0.46	0.26	
1975-1979	0.10	0.02	-0.23	-0.31	0.44	0.31	
1980-1984	0.09	0.03	-0.22	-0.29	0.38	0.28	
1985-1989	0.29	0.20	-0.06	-0.22	0.59	0.47	
1990-1994	0.23	0.18	-0.14	-0.23	0.41	0.37	
1995-1999	0.19	0.15	-0.13	-0.19	0.28	0.23	
2000-2005	0.20	0.16	-0.08	-0.20	0.26	0.21	
All years	0.21	0.11	-0.15	-0.26	0.45	0.31	
Nr. Countries	74	69	38	34	67	64	

Theory

- Since votes are more equally distributed than income, the median voter model predicts that there will be redistribution from the rich to the poor in democracies
- Democratic reforms induce a shift in policies towards the majority
 - (assuming random distribution of autocratic preferences)

Theory

- This implies a conditional effect:
 - In poor countries farmers are the majority would benefit from democratic reforms
 - In rich countries farmers are the minority would lose from democratic reforms

Empirics

 Existing studies: mostly cross-country & mixed effects

- Exception: Swinnen et al (2001)

- Ours: panel data, focus on within country variations
 - Virtually all democratic transitions are in poor countries => theory predicts average increase in protection

NRA and political reforms



Alessandro ran a 1000 tests and robustness checks ...

Estimation	Difference in Difference Regressions							
Regression	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	NRA	NRA	NRA	NRA	RRA	RRA	RRA	RRA
Democratic reform	18.560	16.272	13.997	13.274	13.183	11.206	9.506	10.378
	(0.001)	(0.001)	(0.003)	(0.005)	(0.006)	(0.016)	(0.036)	(0.016)
Log GDP per capita	32.919	48.717	42.461	45.935	34.518	39.014	35.076	41.540
	(0.011)	(0.000)	(0.002)	(0.001)	(0.004)	(0.008)	(0.005)	(0.000)
Employment share			-88.857	-94.180			-61.086	-65.281
			(0.107)	(0.082)			(0.324)	(0.276)
Land per-capita			-2.392	-2.484			-1.180	-1.292
			(0.097)	(0.125)			(0.371)	(0.348)
Log population			-28.825	-32.349			-3.249	-16.952
			(0.410)	(0.340)			(0.931)	(0.622)
Trade policy reform (Sachs-Warner)				16.298				21.117
				(0.002)				(0.000)
Trade openness				-0.065				-0.053
				(0.278)				(0.390)
Government consumption				-0.213				0.616
				(0.583)				(0.176)
Treatment	All	All	All	All	All	All	All	All
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Continental trends	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Countries	74	74	74	72	69	69	69	67
Observations	2664	2664	2565	2502	2394	2394	2314	2253
R square (within)	0.184	0.323	0.338	0.359	0.230	0.339	0.351	0.387

Conclusion

 Democratic reforms have increased agricultural protection (reduced agricultural taxation)

NRA increased on average by 10-15 % points

Mass Media

Question

- Mass media is main source of information for most of the population
- Major impact on public perceptions on issues like food safety, and indirectly (through public pressures) on policies related to food safety, GMOs, etc.

=> What about agricultural protection ?

Agricultural policies & mass media

NRA

TVs per 100 people





Theory

Strömberg' (2004) :

- Politicians target their policies towards better informed voters because they will respond stronger in terms of political support
- If so, then mass-media will affect public policy
 - Increasing-return to scale in news production induces a media bias favoring large groups
 - This media bias translates into a policy bias as politicians redistribute towards large groups

Theory

- This implies a conditional effect (again) :
 - In poor countries farmers are a large group would benefit from mass media effect
 => increase in NRA
 - In rich countries farmers are a small group would lose from mass media effect
 - => decrease in NRA

Correlation between media variables and RRA

Percentiles of	Media vs. RRA					
gdppc	TV	Radio	Tvps			
< 5%	0.228	0.0664	0.248			
< 10%	0.292	0.1197	0.263			
< 25%	0.290	0.1666	0.378			
< 50%	0.406	0.3224	0.419			
> 50%	0.102	0.2482	-0.389			
>75%	-0.352	-0.2461	-0.367			
> 90%	-0.624	-0.5477	-0.514			
>95%	-0.656	-0.6175	-0.597			

Alessandro ran a 1000 tests and robustness checks ...

Dependent variable	RRA	RRA	RRA	RRA	RRA	RRA	NRA	NRA
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log TV	4.802	2.973	8.839	6.912	8.358	8.131	9.433	8.025
	(0.023)	(0.191)	(0.005)	(0.012)	(0.003)	(0.004)	(0.004)	(0.014)
Log TV * GDP per capita	-0.002	-0.003	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001
	(0.000)	(0.001)	(0.006)	(0.006)	(0.004)	(0.003)	(0.001)	(0.001)
GDP per capita	0.013	0.017	0.007	0.006	0.008	0.008	0.010	0.009
	(0.000)	(0.000)	(0.018)	(0.024)	(0.008)	(0.010)	(0.009)	(0.013)
Employment share				-1.200	-1.054	-0.909	-1.426	-1.247
				(0.050)	(0.081)	(0.163)	(0.015)	(0.037)
Land per capita				-1.622	-2.033	-1.712	-3.076	-2.905
				(0.137)	(0.069)	(0.223)	(0.047)	(0.085)
Export share				-10.885	-9.133	-8.974	-15.993	-12.964
				(0.264)	(0.354)	(0.476)	(0.134)	(0.335)
Log population				-0.071	-0.132	0.159	-0.096	-0.059
				(0.765)	(0.574)	(0.629)	(0.733)	(0.848)
Polity2 (democracy index)				0.951	0.926	0.831	1.314	1.224
				(0.002)	(0.001)	(0.004)	(0.001)	(0.001)
Government consumption					0.537	0.630	0.176	0.320
					(0.217)	(0.137)	(0.726)	(0.544)
Trade to GDP					0.014	-0.038	-0.007	-0.029
					(0.772)	(0.510)	(0.884)	(0.607)
Sachs-Warner trade policy index					20.975	17.553	18.127	16.444
					(0.000)	(0.001)	(0.000)	(0.001)
Lagged_1 crisis					-0.090	0.847	0.382	1.185
					(0.956)	(0.601)	(0.815)	(0.463)
Lagged_2 crisis					1.007	2.072	0.780	1.871
					(0.427)	(0.121)	(0.536)	(0.166)
Time fixed effects	No	Yes						
Country fixed effects	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Continental-years interaction effects	No	No	No	No	No	Yes	No	Yes
Observations	2025	2025	2025	1996	1935	1935	2001	2001
Countries	69	69	69	69	67	67	69	69
Adj R square	0.503	0.519	0.857	0.865	0.871	0.880	0.858	0.866
Critical GDP per capita	2125	941	6013	5666	6057	6504	5330	5422

Conclusion

- Mass media reduce agricultural protection in rich countries
- Mass media reduce agricultural taxation in poor countries

International Agreements

Question

Does the WTO matter ?

Over past 25 years in OECD countries :

- No change in total support
- Gradual shift from coupled to decoupled support

(All studies are Ex Ante !)



Figure 1. Evolution of total PSE and its coupled (*mpsh*) and decoupled (*dpsh*) components in the OECDs.

Theory – Instrument choice

- WTO (URAA in mid 1990s)
- Quality of institutions (development): capacity to implement decoupled payments
- Trade status :
 - Deadweight costs of market support increases with net exports
 - Budget expenditures increase with net exports

Decoupled Support and Income (relative level & share PSE)



Market support & net exports (relative level & share PSE)



Figure 4. Relation between the share of market price support in total support (*mpsh*) and the net export share (*exsh*), average values 1986-2009. See text.



Figure 5. Relation between the level of market price support (*mps/q*) and the net export share (*exsh*), average values 1986-2009.

Source: own computation based on OECD PSE/CSE database (2010)

WTO ? Increase of decoupled payments since 1990s



Alessandro ran a 1000 tests and robustness checks ...

Dependent variable		mpsh		dpsh			
OLS regressions	(1)	(2)	(3)	(4)	(5)	(6)	
adam a	0.0010	0.0019	0.009.4	0.0015	0.0019	0.0017	
gappc	-0.0018	-0.0018 2 00***	-0.0024 2 24***	0.0010 <i>1 1/</i> ***	0.0013	0.0017 2 <i>71</i> ***	
	2.30	2.99	0.04	4.14	0.40	0.71	
exsh	-0.0650	-0.0469	-0.0641	0.0132	0.0116	0.0185	
	5.51***	4.31***	8.58***	1.45	1.64	2.29**	
	0.0511	0.0480	0.0448	0.0107	0.0159	0 0200	
u_OATT	-0.0311	-0.0409 1 97***	-0.0440 2 91***	0.0197	2.05***	0.0299	
	4.03	4.27	5.21	5.10	5.05	2.04	
Lagged_mpsh (dpsh)	0.6608	0.7698	0.7214	0.8038	0.8606	0.8102	
	13.99***	16.95***	13.56***	19.01***	24.65***	20.77***	
Dataset	All	NoNegVal	OECD	All	NoNegVal	OECD	
Fixed effects	NO	NO	NO	NO	NO	NO	
Obs.	517	448	326	517	480	326	
Countries	28	28	16	28	28	16	
F-Statistic	82.4	143.3	106.8	152.6	334.6	360.2	
Adjusted R ²	0.58	0.74	0.75	0.75	0.82	0.80	

Conclusion

- Export share and income affect choice for (de)coupled support
- WTO had no impact on total support but induced shift towards decoupled support
- And more so for new members than for old

IV

Interaction of EU Policies & MS Regulations

CAP Payments & Land Rents



Land Values in the EU



Land Regulations in EU MS



- Measures to protect the small owner-cultivator
 Measures to protect the non-farm land owner
- Measures to prevent fragmentation

Conclusion *

 Efficiency and rent distributional effects of CAP are (strongly ?) affected by national land regulations

* (preliminary since we are still running 1000 robustness tests...)

IV

EU decision-making rules

EU Policies & Decision-Making Rules

- Fischler CAP Reform ? YES – (from Unanimity to QMV)
- Current CAP Reform ? (Co-decision)
 - Theory : YES
 - Empirics : ?
- GMO authorization ? YES

A Historical Perspective on Regulatory Policies

"From the 1960s through the mid 1980s American regulatory standards tended to be more stringent than in the EU. ...

no country ... so fully adopted the essence of the precautionary principle as the US. ...

However, since around 1990 the obverse has been true; many EU ... regulations are now more precautionary than [in the US ...

David Vogel, 2003 "The Hare and the Tortoise Revisited"

A Historical Perspective ...

American regulatory policies in the 1970s and 1980s and European policies since the mid 1980s have been similarly criticized for being too risk averse and rooted more in public fears than scientific evidence...."

A Historical Perspective ...

"this policy dynamic can persist for an extended period of time. ... It, however, does not last indefinitely....

The result is not so much a rolling back of existing regulations, but rather policy gridlock.

This took place in the US after 1990 and will at some point occur in Europe"

David Vogel, 2003 "The Hare and the Tortoise Revisited"

Policy Gridlock in the EU?

The EU authorization process for GM products

- 1. The European Food Safety Authority (EFSA) evaluates GMO applications and prepares a report for the European Commission.
- 2. The EU Commission submits a recommendation to the **Standing Committee on the Food Chain & Animal Health (SCoFCAH)**.

3. The SCoFCAH is composed of Member States representatives and accepts / rejects the proposal by a qualified majority.*

If no qualified majority, the recommendation passes to the **Council of Ministers for Agriculture** for a decision.

* requires the majority of countries, voting weights (74%), and population (62%).

4. The Council of Ministers **approves** / **rejects the proposal by a qualified majority.**

If the Council cannot find a solution, the proposal goes back to **the EU Commission which adopts its recommendation** prepared for SCoFCAH.

Reality : Policy Gridlock !

- In the last decade:
 - the Committee (SCoFCAH) has **NEVER** been able to make a decision on GM issues
 - the Council of Ministers has **NEVER** been able to make a decision on GM issues

Standing Committee on the Food Chain & Animal Health (SCoFCAH): Votes on 19 April 2010

	For	Against	Abstain	<u>Result:</u>
LL Rice 601	Bul, Cz, Dk, D, Est, Ire, Gre, Esp, Fr, Cyp, Lat,	/	Bel, Lux, Hun,	In favor
	Lith, NL, SIn, Pol, Rom, Fin, Swe & UK		Aus & Mal	
Bt11xGA21	Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe & UK	Gre, Cyp, Lat, Lith, Lux, Hun, Mal, Aus, Sln & Pol	Bul, Ire & Fr	No opinion
MON89034 X NK603	Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe	Gre, Cyp, Lat, Lith, Lux, Hun,	Bul & Ire	
	& UK	Mal, Aus, SIn, Pol & Fr		No opinion
Bt11 for renewal	Bel, Cz, Dk, D, Est, Esp, NL, Rom, Fin, Swe, UK & Mal	Gre, Cyp, Lat, Lith, Lux, Hun, Aus, SIn, & Pol	Bul, Ire & Fr	No opinion

Reality : Policy Gridlock (it gets worse)

- Whenever a positive decision is made on GMOs at EU level: Member states invoke safeguard clauses to ban the product in their country
 - The Commission follows the rules and asks for repeal
 - The Council of Ministers refuses to follow the Commission proposal – thereby violating EU legislation itself ...



VI

Institutions and Gridlock on Innovations

How long can it last ?

Regulation and Innovation Hops in the Middle Ages

- Use of hops :
 - Enhanced preservation
 - Bitter taste balanced sweetnes of barley malt
- Most important innovation in 1000s of years
 Transformed the entire global beer economy
- It took **500 years** to be allowed in some countries (incl England & Low Countries)

The Political Economy of Hops

- Hops undermined the tax base of the local rulers
 - "Grutrecht" : tax on essential ingredient, fully controlled by local rulers
- Ultimately hops contributed to the decline of monasteries as brewing centers and the growth of commercial brewers
 - rulers wanted to shift taxation from inputs (grutrecht) to output (beer)
 - Monasteries (linked to local parishes) were exempt from taxes

Conclusion

 Institutional gridlock on innovations can last a long time.

- And small initial differences in preferences can be reinforced by institutional structures, leading to increasing policy divergence
 - (eg EU vs US GMO divergence)

VII

Policies and Institutions (the other way)

Why should we care about beer policies ?



A History of the Border

- The present-day border between Belgium and the Netherlands goes back to the 1648 Treaty of Münster, ending the Dutch Revolt against the Spanish Empire
- The border established by the Treaty was determined by military outcome
 - Did not coincide with geographical, cultural or political border
 - Cut right through pre-existing institutional divisions
- Over time, the border created differences between the regions
 - North: a "Golden Age" in economics, culture and politics
 - South: decline
 - Migration of protestants, entrepreneurs and artists from South to North (brain drain)

The Unlikely Success of the Dutch Revolt

- A handful of towns against the mightiest empire on earth
- Technological and strategic innovations made war more expensive
- The revolt lasted 80 years
- In the end, financial strength determined the outcome of the war
 - 50% of the Spanish budget went to the army in the Low Countries
 - While the Dutch were initially outmanned and outspent, they caught on – and put together an innovative and highly effective public finance system for the war, based on …

Financing the War



The Contribution of Beer to Dutch War Victory

- Whenever more funds were needed, beer taxes were increased
 - 1573: Holland doubles the beer excise
 - 1574: Holland appropriates two-thirds of the beer excises of the towns
 - 1576: further increase
 - 1579: "general beer tax"
 - Tax reforms in 1604-1607, 1622-1627, 1636-1645: higher beer tax
- Tax rate on beer thus increased strongly throughout the Revolt:

	1585	1605	1655
Cheap beer	20%	30%	55%
Mid-price beer	40%	85%	85%
Expensive beer	105%	183%	183%

• ... and this is only the provincial tax rate (towns added excises)

Conclusion

Think twice before you drink Dutch beer !

Drink Belgian Beer !

Papers

- I. Olper, Falkowski and Swinnen, "Political Reforms and Public Policy: Evidence from agricultural and food policies" LICOS working paper
- II. Olper and Swinnen, "Mass Media and Public Policy: Evidence from agricultural and food policies" LICOS working paper
- III. Swinnen, Olper and Vandemoortele, "Impact of the WTO on agricultural and food policies" The World Economy, 2012

Papers

- IV. Vranken, Van Herck & Swinnen, "A Regulatory Index for Land in the EU" LICOS working paper
- V. Swinnen and Vandemoortele, "On Butterflies and Frankenstein: A Dynamic Political Economy Theory of Standards" LICOS working paper
- VI. Swinnen, *The Economics of Beer*, Oxford University Press, 2011
- VII. Deconinck and Swinnen, "War, Taxes and Borders: How Beer Created Belgium" LICOS working paper