

MODELLING ELECTIONS IN POST-COMMUNIST REGIMES: VOTER PERCEPTIONS, POLITICAL LEADERS AND ACTIVISTS

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MOTIVATION

Electoral outcomes depend on

- **policy position** of candidates/parties
- **valence** or **non-policy** evaluation of parties or candidates

Valence:

- voters' **perception** of quality of leaders formed **prior** to election
- **independent** of party positions

Types of valence:

- **exogenous** valence: voters' **aggregate** perception of a leader
- **sociodemographic** valence: **depends** on voters' **individual** characteristics (e.g., income, age, gender, domicile)

OBJECTIVE

Party positions based on **partisan constituencies**

- at **mean of supporters' preferred policies**
- using **information** on supporters' policy positions

⇒ party **responds** to base

Can parties **gain votes** by **moving** from partisan constituency?

- to electoral mean considering **small moves** from position

If **differences** between leaders' valence **sufficiently large**

⇒ parties positions **may not converge** to electoral mean

Use valence models to compute **equilibrium candidate positions**

- determine **response** of parties to **perceived** electoral situation
- **Local Nash Equilibrium** (LNE) to vote maximizing game
- Where is **LNE** position relative to **electoral mean/origin**?

EMPIRICAL RESULTS

Poland: PR

- unstable multi-party system: new parties and some exit
⇒ governing coalitions

Two **anocratic presidential systems**

- presidential party dominates
- other parties participate in election

Georgia

- two dimensional policy space: anti-West and Democracy

Azerbaijan

- one dimensional policy space

General finding: parties locate **away from electoral mean**

- under different political regimes
- if no chance of winning ⇒ incentive to move to core constituency

THE STOCHASTIC ELECTORAL MODEL

Multidimensional finite policy space $X \subseteq \mathbb{R}^w$

Parties:

- Each **agent** j chooses a policy, $z_j \in X$, **prior** to election
- $\mathbf{z} = (z_1, \dots, z_p)$: **vector** of candidate policy positions

Party leaders **maximize** own vote share

- **cannot predict** vote response **precisely**
- **rationally anticipate** electoral outcome of any policy decision on **expected** vote share
- choose positions as **best responses** to other party declarations

PURE SPATIAL MODEL - VOTER BEHAVIOUR

Voter's ideal point $x_i \in X_{i \in N}$

$$\Rightarrow \quad \text{electoral origin} \quad \frac{1}{n} \sum x_i = 0$$

Voter i's utility

$$u_{ij}(x_i, z_j) = \lambda_j - \beta \|x_i - z_j\|^2 + \epsilon_j$$

- λ_j : **exogenous valence** of agent j s.t. $\lambda_p \geq \lambda_{p-1} \geq \dots \geq \lambda_2 \geq \lambda_1$
- β : **weight** given to **distance** from party's ideal
- $\|x_i - z_j\|$: is **distance** between x_i and z_j
- **error** vector $\epsilon = (\epsilon_1, \dots, \epsilon_j, \dots, \epsilon_p)$ type I extreme value distribution

VOTER BEHAVIOUR

Probability voter i chooses agent j at the vector \mathbf{z} is

$$\rho_{ij}(\mathbf{z}) = \Pr[u_{ij}(x_i, z_j) > u_{il}(x_i, z_l), \text{ for all } l \neq j]$$

\Rightarrow Expected vote share of agent j :

$$V_j(\mathbf{z}) = \frac{1}{n} \sum \rho_{ij}(\mathbf{z})$$

Probability voter i chooses j at \mathbf{z} has a multinomial logit specification

$$\rho_{ij}(\mathbf{z}) = \frac{\exp[u_{ij}^*(x_i, z_j)]}{\sum_{k=1}^p \exp u_{ik}^*(x_i, z_k)}$$

Party chooses position to maximize vote share

$$\frac{d\rho_{ij}(\mathbf{z})}{dz_j} = 2\beta(x_i - z_j)\rho_{ij}[1 - \rho_{ij}]$$

CONVERGENCE COEFFICIENT

Probability generic voter votes for **party 1** (**lowest** exogenous valence) when **all agents** locate at the **origin**

$$\rho_1 = \left[1 + \sum_{k=2}^p \exp[\lambda_k - \lambda_1] \right]^{-1}$$

⇒ only valence **differences** matter

Convergence Coefficient:

$$c \equiv c(\lambda, \beta) = 2\beta[1 - 2\rho_1]\sigma^2$$

- **β weight** given to policy differences
- ρ_1 depends on **difference** between exogenous valence of parties
- **σ^2 variance** of voter distribution

Since **c** is **dimensionless** ⇒ compare **different models**

THE VALENCE THEOREM

Schofield (2007)

- 1 A **necessary** condition for electoral mean \mathbf{z}_0 to be a SLNE is that $\mathbf{c}(\lambda, \beta) < \mathbf{w}$
- 2 A **sufficient** condition for convergence to \mathbf{z}_0 in **two** dimensional case is that $\mathbf{c} < \mathbf{1}$

When $\mathbf{c} > \mathbf{w}$, to increase vote share

- **lowest valence** party **incentive to move** from electoral mean
- **other parties** respond by **moving away** from electoral mean

⇒ joint electoral mean **cannot be** an LNE

Incentive for lowest valence party is **greatest**

⇒ use **lowest valence party** to test **convergence property**

ADDING SOCIODEMOGRAPHIC CHARACTERISTICS

Voter i 's utility

$$u_{ij}(x_i, z_j) = \lambda_j + (\theta_j \cdot \eta_i) - \beta \|x_i - z_j\|^2 + \epsilon_j$$

- $(\theta_j \cdot \eta_i)$: **sociodemographic valence** of voter i for party j , independent of j 's position z_j

Party **chooses position** by **maximizing vote share**

$$\frac{d\rho_{ij}(\mathbf{z})}{dz_j} = 2\beta(x_i - z_j)\rho_{ij}(1 - \rho_{ij})$$

POLAND 1997-2005: PR & UNSTABLE PARTIES

Table. Vote shares in Polish Sejm elections

Party	1997	2001	2005
Democratic Left Alliance (SLD)	27.1	41.0*	11.3
Polish People's Party (PSL)	7.3	9.0	7.0
Freedom Union (UW)	13.4	3.1	
Solidarity Election Action (AWS)	33.8	5.6	
Labor Party (UP)	4.7		
Union of Political Realism (UPR)	2.0		
Movement for Reconstruction of Poland (ROP)	5.6		
Self Defense (SO)		10.2	11.4
Law and Justice (PiS)		9.5	27.0
Civic Platform (PO)		12.7	24.1
League of Polish Families (LPR)		7.9	8.0
Democratic Party (DEM)			2.5
Social Democracy of Poland (SDP)			3.9

* Coalition of SLD with UP

POLICY SPACE AND VOTER DISTRIBUTION IN 1997

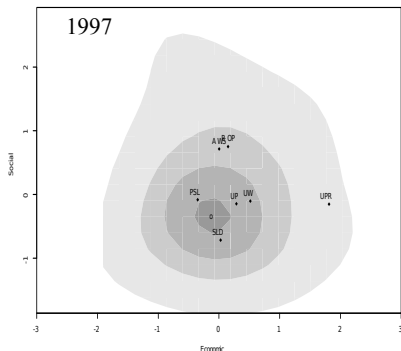


FIGURE 1: Poland 1997

Polish National Election Studies

Literature and Factor analysis

⇒ **two policy dimensions**

- **Economic:**
higher values
 ⇒ **more** market-oriented
- **Social:**
higher values
 ⇒ **more** conservative

VOTER DISTRIBUTION IN POLAND 2001 AND 2005

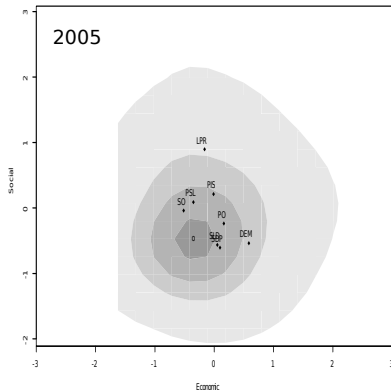
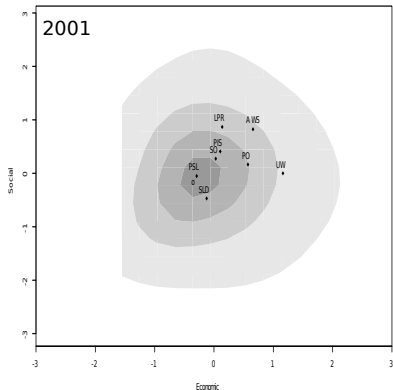


Table. Poland: Pure Spatial Model 1997-2005

variable	1997		2001		2005	
	Party	Coefficient	Party	Coefficient	Party	Coefficient
Spatial β		1.74*		1.48*		1.55*
Valence λ	SLD	1.42*	SLD	1.99*	SLD	0.47*
	PSL	0.07	PSL	0.09	PSL	-0.17
	UW	0.73*	UW	-1.00*		
	AWS	1.92*	AWS	-0.37		
	UP	-0.56				
	UPR	-2.35*				
			SO	0.41*	SO	0.82*
			PIS	0.43*	PIS	1.95*
			PO	0.80*	PO	1.50*
					DEM	-1.04*
					SDP	-0.34
n		660		657		1095
LL		-855		-1004		-1766
Base		ROP		LPR		LPR

$$C_{1997} \approx 6.82$$

$$C_{2001} \approx 5.92$$

$$C_{2005} \approx 6.19$$

CONCLUSIONS FOR POLAND

Parties **scatter away** from origin **in equilibrium**

- **High** valence parties locate **close** to origin (AWS & SLD in 1997)
- Parties are **not at** vote maximizing positions
 ⇒ **small activist groups** effectively decide parties' positions

Complex coalition formation in a **fragmented polity**

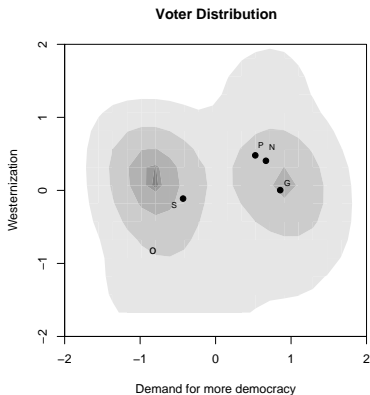
- **Small** parties have **chance to be in government**
- **No incentive** for activist groups to coalesce

PRESIDENTIAL ELECTION IN GEORGIA IN 2008

Table. Georgian Presidential Election 2008

Candidate	Party	vote share
Saakashvili	United National Movement	53.5
Gachechiladze	Opposition coalition	25.7
Patarkatsishvili	Media tycoon	7.1
Natelashvili	Georgian Labour Party	6.5
Gamkrelidze	New Right	4.0
Maisashvili	Party of the Future	0.7
Sarishvili-Chanturia	Hope party	0.2
Repeated ballots		1.7
Invalid ballots		0.6
Total		100.0

POLICY SPACE AND VOTER DISTRIBUTION IN 2008



GORBI-GALLUP
post-election surveys

Factor analysis

⇒ **two policy dimensions**

- **Democracy:**
higher values
⇒ **greater** demand for democracy
- **West:**
higher values
⇒ **more anti-west**

FIGURE 2: Georgia 2008

Table. Georgia Pure Spatial Model (**base=Natelashvili**)

Variable		Coef.
Spatial β		0.78***
Valence λ	Saakashvili	2.48***
	Gachechiladze	1.34***
	Patarkatsishvili	0.51
n		388
Log likelihood		-305.97

*** $prob < 0.001$

Since $\beta = 0.78$, $\rho_N = 0.05$ and $\sigma^2 = 1.70 \Rightarrow \mathbf{c} = \mathbf{2.39}$

Natelashvili

- **lowest** valence
- Hessian (S.O.C.) has **positive** eigenvalues

\Rightarrow Vote share at **minimum** at electoral mean

\Rightarrow **Incentive to move away** from origin

AZERBAIJAN 2010

Table. Azerbaijan 2010 Election Results

Party	Vote share	Seats
Yeni Azerbaijan Party (YAP)	45.8	72
Civic Solidarity Party (VHP)	1.6	3
Motherland Party (AVP)	1.4	2
Equality Party (MP)	1.8	-
Azerbaijani Popular Front Party (AXCP)	1.3	-
Independents	48.2	48
Of which support government		38
Of which support Opposition		10
Total turnout (50.1%)	100.0	125

DATA AND PARTY POSITIONS

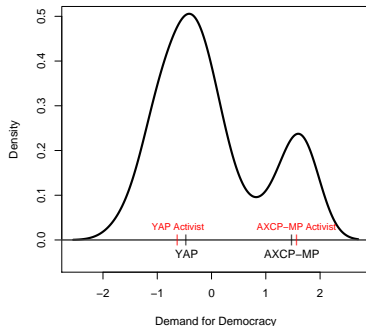


FIGURE 3: Azerbaijan 2010

Pre-election surveys
International Center for Social Research
Baku

Factor analysis

⇒ **one policy dimension**

- **Democracy:**
higher values
⇒ **greater** demand for democracy
- (YAP, AXCP-MP) = (-0.47, 1.48)

Table. Azerbaijan Pure Spatial Model

	Coef.
Spatial β	1.34*
Valence λ_{YAP}	1.30*
n	149
LL	-11.48

*: $p < 0.05$

Base=AXCP-MP

Predicted vote shares of two major parties/coalitions

$$(\rho_{YAP}, \rho_{AXCP-MP}) = (0.79, 0.21) \Rightarrow \mathbf{c} = 1.44$$

AXCP-MP is **minimizing vote share** at electoral origin
 \Rightarrow **incentive to move away** from origin

FRAGMENTATION: POLITICAL SYSTEMS

Table: Convergence coefficients and Fragmentation

Variable	US (2000-08)	Britain (2005-2010)	Canada 2004
Conv. Coef.	[0.40,1.1]	[0.84,0.98]	1.94
Pol. system	Pres. PL.	Parl. PL.	Parl. PL.
<i>env</i>	2.0	3.2 (1997)	4.0 (2004)
<i>env</i>		2.7 (2005)	3.4 (2011)
<i>ens</i>	1.0	2.2 (1997)	3.1 (2004)
<i>ens</i>		2.5 (2005)	2.4 (2011)
	Russia	Georgia	Azerbaijan
Conv. Coef.	1.7 (2007)	2.4 (2008)	2.89 (2010)
Pol. system	Anoc Pres. PL.	Anoc Pres. PL.	Anoc Pres. PL.
<i>env</i>	2.3	2.9 (2008)	2.27
<i>ens</i>	2.0	1.0 (2008)	1.3
	Israel	Turkey	Poland
Conv. Coef.	3.98 (1996)	5.94 (2002)	6.82 (1997)
Pol. system	Frag. PR.	Frag., PR., cut off	Frag. PR.
<i>env</i>	6.5 (1996)	7.7 (1999)	5.5 (1997)
<i>env</i>	10.0 (2009)	4.0 (2007)	7.7 (2005)
<i>ens</i>	6.5 (1996)	5.0 (1999)	3.1 (1997)
<i>ens</i>	10.0 (2009)	2.3 (2007)	5.0 (2005)