Electoral Reform and Disunited Polarization

Evidence from Legislative Roll Calls

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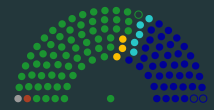
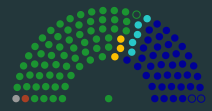
Research Questions



- This article investigates the strategic (inter- and intra-) party positioning in response to an **electoral system transition** from single non-transferable voting (SNTV) to single-member districts (SMDs) by studying the 2008 electoral reform in Taiwan and provides empirical evidence to the following questions.
- Does the switch of electoral system from SNTV to SMDs mitigate political polarization among parties?
- Does it influence the intra-party unitedness (cohesiveness), and thus, change legislators' ideological positioning?

Puzzles

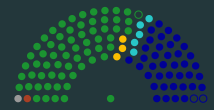


- How electoral rules shape **legislative preference** is key to understand the theoretical development of party politics and party competition in the real world.
- Previous studies have envisioned a number of potential reasons that explain why legislators position themselves differently under **different electoral systems** (e.g. Catalinac 2017) or electoral rules in mixed member electoral systems (e.g. Batto 2012; Jun and Hix 2010; Rich 2014).
- Recent decades saw **reforms of electoral systems** from SNTV to SMDs in East- Asian democracies (i.e. Japan, South Korea and Taiwan).

Puzzles

- For example, Catalinac (2016) finds that Liberal Demo- cratic Party candidates in SMDs **adopted new electoral strategies** by providing programmatic policy benefits such as national security among other candidates affiliated with LDP party, reducing promise of pork barrel goods and intra-party competition.
- This finding is complementary with other research (Catalinac 2017), which estimates the ideological positions via scaling Japanese election manifestos and demonstrated that **candidates under SNTV positioned themselves against their party**.

Hypothesis



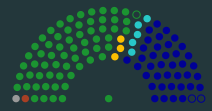
Hypothesis 1:

Switching from SNTV to SMDs mitigated the level of political polarization between parties, particularly between **KMT** (Chinese Nationalist Party) and **DPP** (Democratic Progress Party).

Hypothesis 2:

Switching from **SNTV** to **SMDs** united co-partisan legislators in terms of ideological positions.

Research Design



- First, we estimate individual legislator's ideological positions from sessional roll call votes continuously covering **ex-ante and ex-post periods of the reform**.
- Expectation Maximization (EM) algorithm is applied to a dynamic ideal point model to estimate each legislator's position from 1992 to 2015 at a sessional frequency, where individual recursively updates her **prior of ideal point every session**.
- Then, **inter- and intra-party distance of ideological positions** are constructed from the estimated positions.
- Finally, econometric regressions are introduce to empirically examine the above two hypotheses and find noticeable shifts in ideological positions after the reform.

Taiwan Legislative Roll Calls

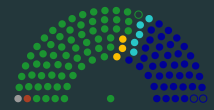


Table 1: **Legislative roll calls of Taiwan Legislative Yuan**

Term	**3rd term**	**4th term**	**5th term**	**6th term**	**7th term**	**8th term**
Year	1996-1999	1999-2002	2002-2005	2005-2008	2008-2012	2012-2016
Session	3-1∼3-6	4-1∼4-6	5-1∼5-6	6-1∼6-6	7-1∼7-8	8-1∼8-8
# sessions	6	6	6	6	8	8
Majority in L.Y.†	KMT	KMT	DPP	DPP	KMT	KMT
Electoral system	SNTV	SNTV	SNTV	SNTV	SMDs	SMDs
# roll call votes	531	323	287	282	1221	644
# legislators	169	203	226	237	128	124
% nay	34.4	21.1	43.3	34.7	32.3	42.9
% yea	37.1	41.2	41.5	42.0	25.6	29.4
% abstention	28.5	37.7	15.5	23.3	42.1	27.7

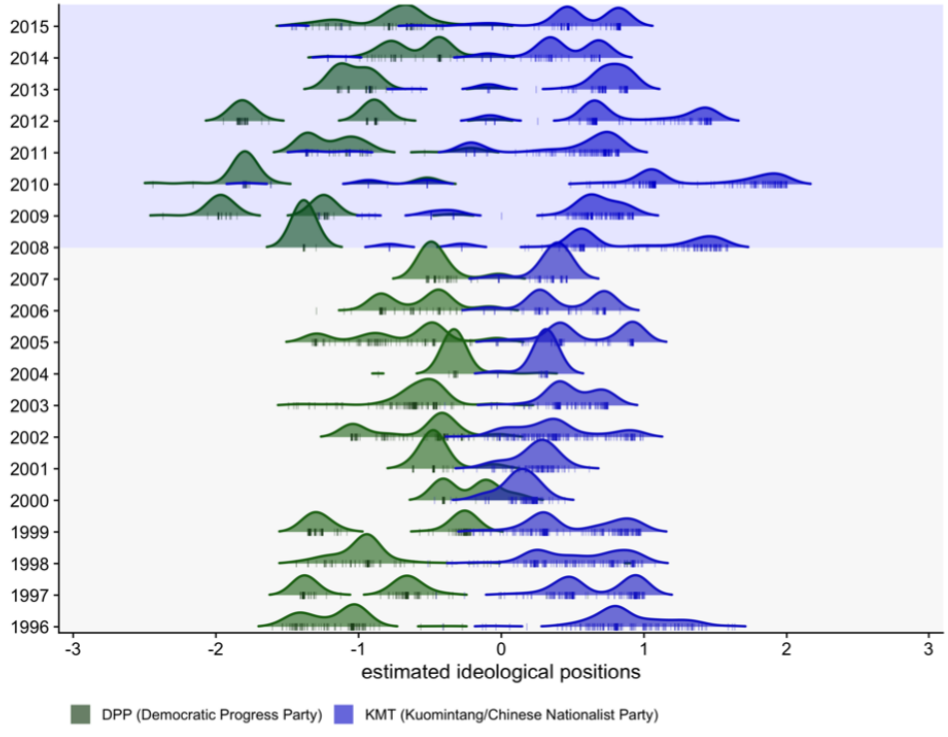
Source: The Center for Legislative Studies, Department of Political Science, The Soochow University

†: L.Y. is the abbreviation for Legislative Yuan

Ideal Point Estimation

Imai, Kosuke, James Lo, and Jonathan Olmsted (2016). "Fast Estimation of Ideal Points with Massive Data". In: American Political Science Review 110.4, pp. 631–656.

Figure 2: **Estimated legislators' ideological positions for two major parties, clustered by party and by year**



Inter-party Polarization

- To evaluate the Hypothesis 1, we calculate **the legislator-level inter-party dispersion** between two major parties, KMT and DPP (between party polarization). It is calculated as:

$$\mathbf{interdistance_{it}} = |\mathbf{position_{it}} - \mathbf{\bar{whip}_{it}}|,$$

- We specify the following regression model, allowing the passage of time (year) to have different marginal effects on inter-party ideological distance, prior to and post the electoral reform.

$$\mathbf{interdistance_{it}} = \alpha_0 + \alpha_1 \mathbf{electoralreform_t} + \alpha_2 \mathbf{year_t} + \alpha_3 (\mathbf{year_t} \times \mathbf{electoralreform_t}) + \mathbf{C_{it}} + \epsilon^1_{\mathbf{it}},$$

Testing Hypothesis 1

Table 4: **Legislator-level inter-party distance (2 major parties, KMT and DPP), 1996-2015 at sessional frequency, is regressed on electoral reform, time and an interaction between electoral reform and time without (column 1) and with controls (column 2)**

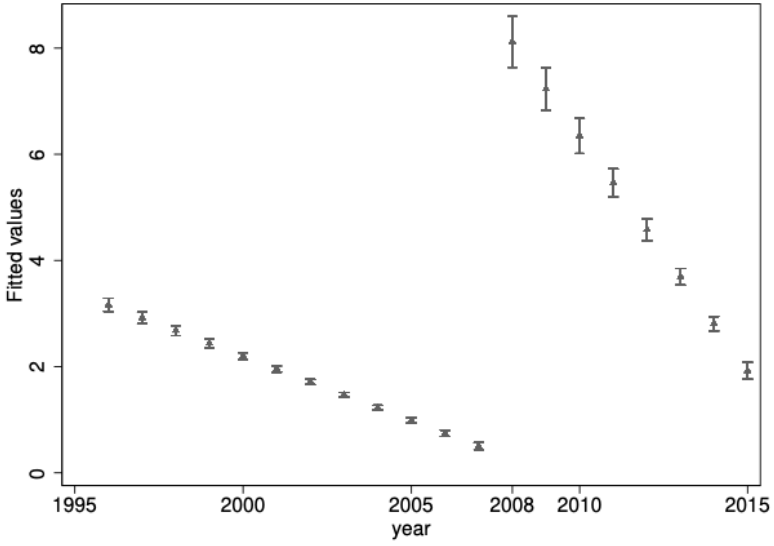
Dependent variable: Inter-party legislator ideological distance (2 major parties)		
	interaction	**(+ controls)**
electoral reform	16.219***	15.291***
	(0.747)	(0.867)
year	-0.242***	-0.238***
	(0.008)	(0.010)
year × electoral reform	-0.643***	-0.599***
	(0.040)	(0.046)
marginal winning shares		0.026
		(0.202)
intercept	3.405***	3.697***
	(0.071)	(0.252)
legislator attributes		✓
party dummies		✓
district fixed effects		✓
No. of observations	5663	4170
Adjusted R^2	0.28	0.27
Prob > F	0.00	0.00

Robust standard errors are reported in parentheses.

Asterisk indicates significant level: *: $p < 0.10$; **: $p < 0.05$; ***:$p < 0.01$.

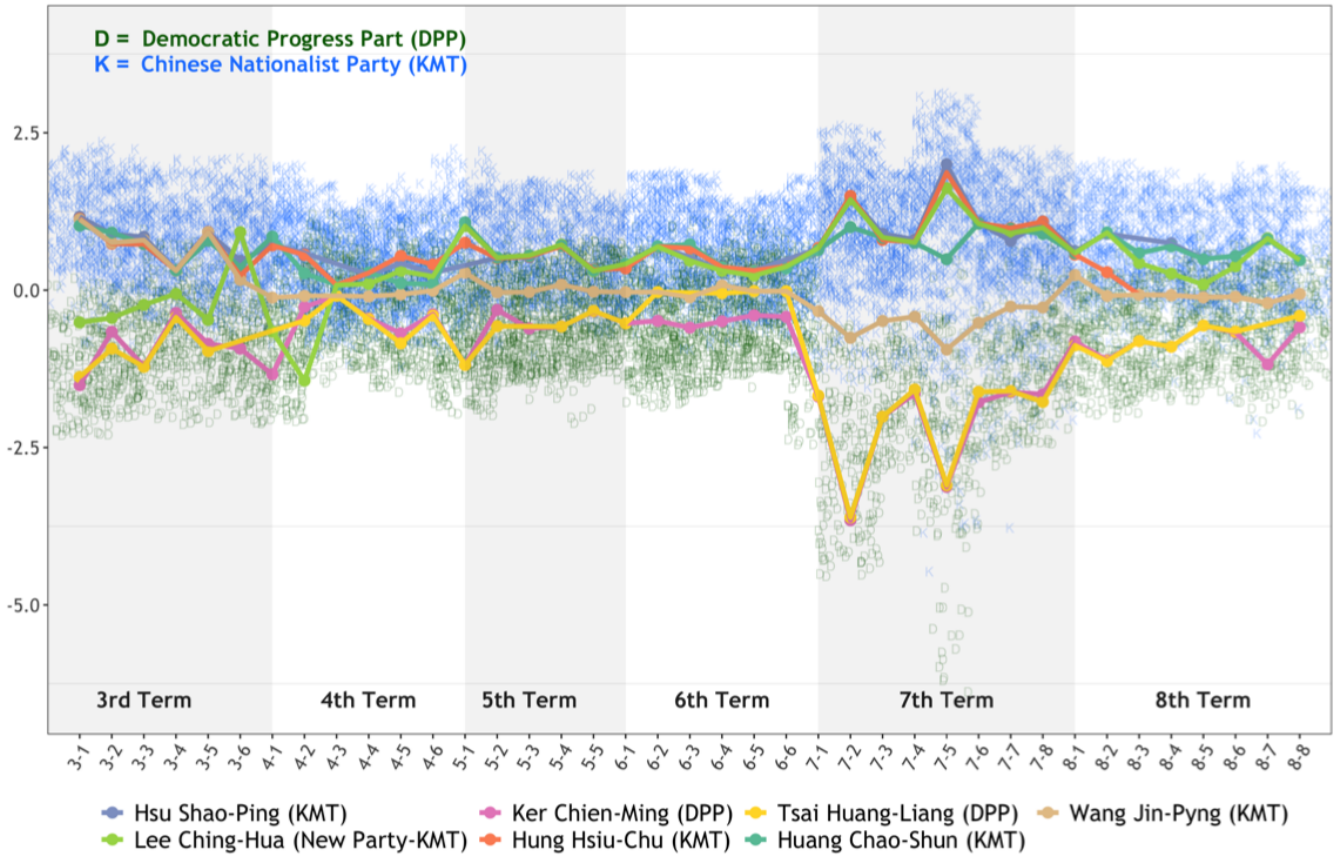
Testing Hypothesis 1

Figure 4: **Fitted values of inter-party ideological distance between KMT and DPP with 95% confidence intervals: Electoral reform is associated with higher distance**



Testing Hypothesis 1

Figure 5: **Individual legislators' ideal points for seven most senior legislators from two major parties**



Testing Hypothesis 1

Table 6: **Legislator-level inter-party distance for DPP (column 1) and KMT (column 2) separately, 1996-2015 at sessional frequency, is regressed on electoral reform, time and an interaction between electoral reform and with controls**

Dependent variable: Inter-party legislator ideological distance		
	DPP	**KMT**
electoral reform	23.000***	13.132***
	(2.916)	(0.859)
year	-0.205***	-0.263***
	(0.015)	(0.012)
year × electoral reform	-1.045***	-0.460***
	(0.153)	(0.047)
marginal winning shares	0.017	0.250
	(0.281)	(0.136)
intercept	3.222***	3.268***
	(0.395)	(0..316)
legislator attributes	✓	✓
district fixed effects	✓	✓
No. of observations	1623	2547
Adjusted R^2	0.28	0.27
Prob > F	0.00	0.00

Robust standard errors are reported in parentheses. Asterisk indicates significant level: *: $p < 0.10$; **: $p < 0.05$; ***: $p < 0.01$.

Testing Hypothesis 1

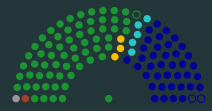
To address the issue of heterogeneity in bills voted across time

Table 8: **Legislator-level inter-party distance is regressed on electoral reform, time and an interaction between electoral reform, controlling for the heterogeneity in bills voted across year**

Dependent variable: Inter-party legislator ideological distance (2 major parties)		
	interaction + years	**(+ controls)**
electoral reform	6.182***	6.401***
	(0.818)	(0.968)
year	-0.361***	-0.355***
	(0.010)	(0.012)
year × electoral reform	-0.147***	-0.158***
	(0.042)	(0.050)
intercept	5.050***	5.598***
	(0.120)	(0.246)
1997	✓	✓
1998	✓	✓
1999	✓	✓
2000	✓	✓
2001	✓	✓
2002	✓	✓
2003	✓	✓
2004	✓	✓
2005	✓	✓
2006	✓	✓
2008	✓	✓
2009	✓	✓
2010	✓	✓
2011	✓	✓
2012	✓	✓
2013	✓	✓
legislator attributes		✓
party dummies		✓
district fixed effects		✓
No. of observations	5663	4170
Adjusted R^2	0.53	0.51
Prob > F	0.00	0.00

Robust standard errors are reported in parentheses.
Asterisk indicates significant level: *: $p < 0.10$; **: $p < 0.05$; ***:$p < 0.01$.

Intra-party Polarization



- To evaluate the Hypothesis 2, we calculate **the dispersion in co-partisan legislator's estimated ideological positions (within-party disunity)**. It is calculated as:

$$\mathbf{intradistance_{it}} = |\mathbf{position_{it}} - \mathbf{whip_{it}}|,.$$

- The regression model is constructed as follow.

$$\mathbf{intradistance_{it}} = \beta_0 + \beta_1 \mathbf{electoralreform_t} + \beta_2 \mathbf{year_t} + \beta_3 (\mathbf{year_t} \times \mathbf{electoralreform_t}) + \tilde{\mathbf{C}}_{\mathbf{it}} + \epsilon^2_{\mathbf{it}},$$

Testing Hypothesis 2

Table 5: **Legislator-level intra-party distance, 1996-2015 at sessional frequency, is regressed on electoral reform, time and an interaction between electoral reform and time without or with control: Electoral reform is associated with higher within-party distance, when legislators from all parties (column 1 and 2) and from two major parties (column 3 and 4) are used**

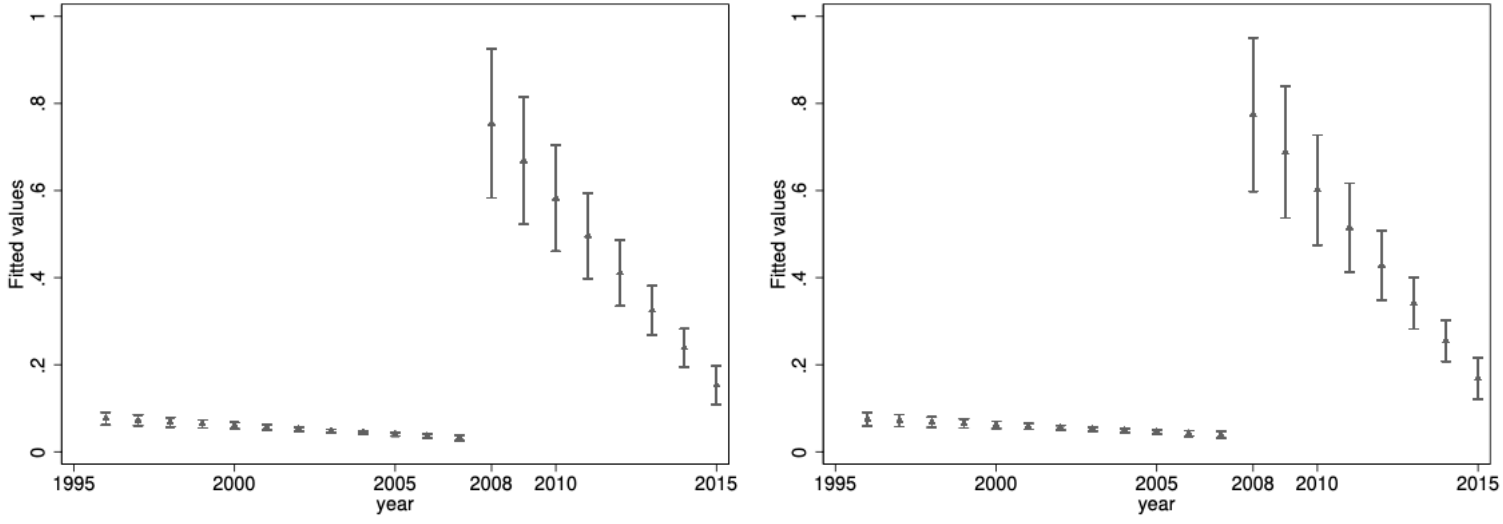
Dependent variable: co-partisan within-party ideological distance				
	All parties		**Major parties**	
	interaction	**(+ controls)**	**interaction**	**(+ controls)**
electoral reform	1.791***	2.375***	1.823***	2.464***
	(0.255)	(0.336)	(0.263)	(0.199)
year	-0.004***	-0.003**	-0.003***	-0.004**
	(0.001)	(0.002)	(0.001)	(0.002)
year× electoral reform	-0.082***	-0.114***	-0.083***	-0.117***
	(0.013)	(0.017)	(0.013)	(0.018)
marginal winning shares		-0.121		0.041
		(0.269)		(0.084)
intercept	0.080***	-0.125*	0.078***	-0.142*
	(0.006)	(0.073)	(0.009)	(0.083)
legislator attributes		✓		✓
party dummies		✓		✓
district fixed effects		✓		✓
No. of observations	6736	4969	5663	4170
Adjusted R^2	0.04	0.05	0.04	0.05
Prob > F	0.00	0.00	0.00	0.00

Robust standard errors are reported in parentheses.

Asterisk indicates significant level: *: $p < 0.10$; **: $p < 0.05$; ***:$p < 0.01$.

Testing Hypothesis 2

Figure 6: **Fitted values of intra-party ideological distance with 95% confidence intervals: Electoral reform is associated with higher distance. Left-hand side plots the results from column 1 and right-hand side plots the results from column 3 of Table 5**



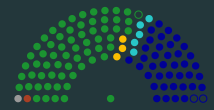
Testing Hypothesis 2

Table 7: **Legislator-level intra-party distance for DPP (column 1) and KMT (column 2) separately, 1996-2015 at sessional frequency, is regressed on electoral reform, time and an interaction between electoral reform and with controls**

Dependent variable: co-partisan within-party ideological distance		
	DPP	**KMT**
electoral reform	0.816**	2.675***
	(0.323)	(0.411)
year	-0.007**	-0.005**
	(0.003)	(0.002)
year × electoral reform	-0.037**	-0.123***
	(0.017)	(0.021)
marginal winning shares	0.046	0.018
	(0.069)	(0.136)
intercept	0.066	-0.081
	(0.070)	(0.124)
legislator attributes	✓	✓
district fixed effects	✓	✓
No. of observations	1623	2547
Adjusted R^2	0.03	0.05
Prob > F	0.01	0.00

Robust standard errors are reported in parentheses. Asterisk indicates significant level: *: $p < 0.10$; **: $p < 0.05$; ***: $p < 0.01$.

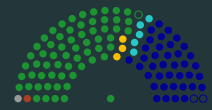
Conclusion



- Our findings suggest a phase of "**disunited polarization**" among **inter-party** and **co-partisan legislators** during the transition.
- Empirical test results show that this switching not only **exacerbated** inter-party ideological polarization by distancing legislators' positions from their opponents, but also **disunited** co-partisan legislators as their positions became more widely distributed along the ideological spectrum.

Conclusion

- Although the first finding is contrary to some **manifesto studies** like Catalinac (2017) that SMDs reduce the inter- and intra-party polarization in countries like Japan, it is generally complementary with the study of Jang and Lin (2019)'s seminar work on Taiwan legislative roll calls over the entire period of the SNTV system.
- Our paper contributes to the large body of literature of electoral reforms by adding some empirical evidence in **Asian democracies** and also it highlights the possibility of the ineffectiveness of using electoral reforms as means of alleviating political chaos.



Thank You