Friends or Frenemies?

Explaining Copartisan Subnational Fiscal Policy Interdependence

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Political Budget Cycles —> examines how partisanship affects subnational fiscal policy

But treats subnational fiscal policy as independent

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Policy Diffusion —> examines how partisanship affects subnational policy diffusion

But doesn't examine partisan-based fiscal policy diffusion

Subnational Fiscal Policy Interdependence

Partisan-Based Fiscal Policy Learning:

Subnational governments "learn" which fiscal policy choices are best for maximizing constituent support from their copartisan peers

- Policy Learning: Grossback et al. 2004; Gilardi 2010

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Partisan-Based Fiscal Policy Competition:

Subnational leaders' efforts to "outcompete" their copartisan peers to appease higher-level party leaders leads to subnational fiscal policy competition

- Policy Yardstick Competition: Schaltegger et al. 2002; Redoano 2007; Allers et al. 2011
- Vertical Partisan Effects: Jones et al. 2000; Rodden et al. 2002; Benton forthcoming

Empirical Strategy

Mexican State Level Fiscal Policy
(Commercial & Development Bank Debt)

Units: 32 States (including Federal District)
Time Period: 2005-2015

DVs:

- Commercial Bank Debt (per capita, sqrt)
- Development Bank Debt (per capita, sqrt)

Controls:

- Economic: Fiscal Imbalance; Fiscal Revs/capita; GDP/capita; Muni Debt/capita;
- Demographic: Human Development; Population
- Political: Partisan Control; Gubernatorial Election

Testable Expectations

Leverage Two Different Debt Instruments to Distinguish Between the Arguments

Table 1: Fiscal Policy Interdependence by Mechanism and Type of Debt

	Fiscal Policy Learning Mechanism	Fiscal Policy Competition Mechanism
Commercial Bank Debt	Yes	Yes
Development Bank Debt	Yes	No

The Method: Spatial Econometrics

Spatio-Temporal Autoregressive Model (STAR)

$$y = \rho Wy + \phi My + X\beta + \epsilon$$

y = dependent variable (*NT x 1* column vector of cross sections stacked by period)

ρWy = spatial weight term (W is an *NT x NT* matrix block diagonal spatial weights matrix; ρ is the estimated spatial parameter)

ϕMy = lagged dependent variable term (M is an *NT x NT* matrix with 1's on the minor diagonal; ϕ is the temporal autoregressive coefficient)

Xβ = covariates (X is an *NT x k* vector of k regressors; β is a *k x 1* column vector of estimated parameters)

ϵ = error (*NT x 1* vector of stochastic components; N ~ (0 , σ ^2)

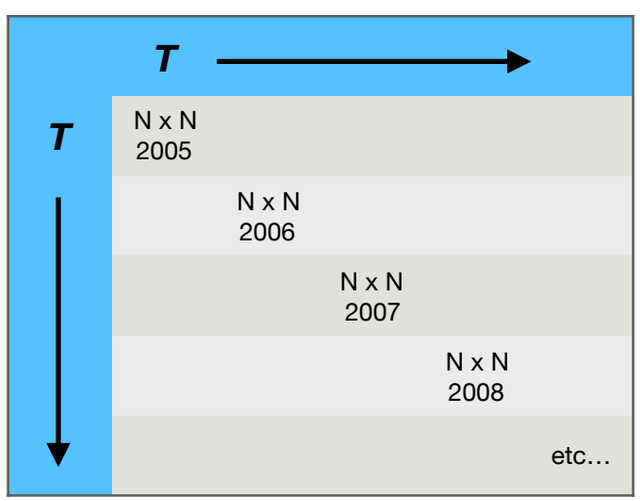
W

Captures partisan peer-group affiliation

- PAN, PRI, PRD, PAN-PRD, independent

One matrix constructed each for year

- Built into *NT x NT* bloc-diagonal matrix



W

Fiscal Policy Learning

Row-Standardized W

Fiscal Policy Competition

Non-Row-Standardized W

Table 2: Spatial Diagnostics Tests

	Row-Standardized Spatial Weights			Non Row-Standardized Spatial Weights		
	Statistic	DF	P-Value	Statistic	DF	P-Value
Commercial Bank Debt						
Spatial error:						
Moran's I	1.271	1	0.204	0.577	1	0.564
Lagrange multiplier	0.726	1	0.394	1.888	1	0.169
Robust Lagrange multiplier	0.727	1	0.394	0.110	1	0.740
Spatial lag:						
Lagrange multiplier	4.789	1	0.029	11.422	1	0.001
Robust Lagrange multiplier	4.790	1	0.029	9.644	1	0.002
Development Bank Debt						
Spatial error:						
Moran's I	-0.099	1	1.079	0.373	1	0.709
Lagrange multiplier	0.268	1	0.605	1.073	1	0.300
Robust Lagrange multiplier	0.030	1	0.863	2.199	1	0.138
Spatial lag:						
Lagrange multiplier	0.682	1	0.409	0.004	1	0.950
Robust Lagrange multiplier	0.444	1	0.505	1.130	1	0.288

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	(0.0288)	(0.0223)	(0.0361)	(0.0274)
Lag Dev Bank Debt (pc, sqrt)	0.151***	0.860***	0.212***	0.661***
	(0.0421)	(0.0323)	(0.0553)	(0.0409)
Lag Bond Debt (pc, sqrt)	0.167***	0.0204	0.303***	-0.0493
	(0.0462)	(0.0351)	(0.0679)	(0.0514)
Lag Trust Debt (pc, sqrt)	0.178***	-0.0186	0.171***	-0.0325
	(0.0601)	(0.0457)	(0.0650)	(0.0485)
PAN Governor	6.093**	-1.254	10.52***	-0.0822
	(2.394)	(2.267)	(2.862)	(2.684)
PRD Governor	3.561*	-0.397	5.935**	1.937
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PAN-PRD Governor	3.849	-2.253	8.077***	-3.902
	(2.467)	(2.006)	(3.027)	(2.441)
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	(7.718)	(6.017)	(7.283)	(5.697)
Vertical Partisan Alignment	-3.734***	0.899	-3.225**	0.506
	(1.404)	(1.419)	(1.296)	(1.384)
Gubernatorial Election Year	2.562**	-0.384	2.749**	-0.309
	(1.198)	(0.911)	(1.124)	(0.849)
Human Development Index	-1.483**	0.367	-5.497	2.778
	(0.595)	(0.454)	(8.153)	(6.175)
Vertical Fiscal Imbalance	12.09***	-3.142	2.951	15.91
	(4.573)	(3.481)	(13.11)	(9.930)
Total Fiscal Revenues (pc, sqrt)	-0.0302***	0.0195**	-0.0759	0.107**
	(0.0115)	(0.00878)	(0.0615)	(0.0471)
GDP per capita	0.00630	-0.00486	0.0158	0.0184
	(0.00440)	(0.00335)	(0.0208)	(0.0158)
Population (sqrt)	-0.00168**	-0.000543	0.00501	0.0104
	(0.000723)	(0.000549)	(0.0148)	(0.0111)
Constant	-10.43**	5.019	-13.53	-37.18**
	(4.500)	(3.511)	(22.58)	(16.98)
rho	0.0113***	-0.00324	0.0162***	0.000430
	(0.00386)	(0.00759)	(0.00505)	(0.00961)
sigma	7.306***	5.565***	6.588***	4.991***
	(0.289)	(0.220)	(0.260)	(0.197)
State Fixed Effects	NO	NO	YES	YES
Observations	320	320	320	320
Wald test of rho=0	8.517***	0.183	10.27***	0.00201
Likelihood ratio test of rho=0	8.405***	0.183	10.11***	0.00201
Lagrange multiplier test of rho=0	10.96***	0.137	11.42***	0.00187
Log Likelihood	-1090.4	-1003.3	-1057.4	-968.5

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Vertical Partisan Alignment	-3.734***	0.899	-3.225**	0.506
	(1.404)	(1.419)	(1.296)	(1.384)
Gubernatorial Election Year	2.562**	-0.384	2.749**	-0.309
	(1.198)	(0.911)	(1.124)	(0.849)
Human Development Index	-1.483**	0.367	-5.497	2.778
	(0.595)	(0.454)	(8.153)	(6.175)
Vertical Fiscal Imbalance	12.09***	-3.142	2.951	15.91
	(4.573)	(3.481)	(13.11)	(9.930)
Total Fiscal Revenues (pc, sqrt)	-0.0302***	0.0195**	-0.0759	0.107**
	(0.0115)	(0.00878)	(0.0615)	(0.0471)
GDP per capita	0.00630	-0.00486	0.0158	0.0184
	(0.00440)	(0.00335)	(0.0208)	(0.0158)
Population (sqrt)	-0.00168**	-0.000543	0.00501	0.0104
	(0.000723)	(0.000549)	(0.0148)	(0.0111)
Constant	-10.43**	5.019	-13.53	-37.18**
	(4.500)	(3.511)	(22.58)	(16.98)
rho	0.0113***	-0.00324	0.0162***	0.000430
	(0.00386)	(0.00759)	(0.00505)	(0.00961)
sigma	7.306***	5.565***	6.588***	4.991***
	(0.289)	(0.220)	(0.260)	(0.197)
State Fixed Effects	NO	NO	YES	YES
Observations	320	320	320	320
Wald test of rho=0	8.517***	0.183	10.27***	0.00201
Likelihood ratio test of rho=0	8.405***	0.183	10.11***	0.00201
Lagrange multiplier test of rho=0	10.96***	0.137	11.42***	0.00187
Log Likelihood	-1090.4	-1003.3	-1057.4	-968.5

Acceptable range for rho: -2.000 < rho < 1.000. Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Marginal Effect of Gubernatorial Elections on Commercial Bank Debt

	PRD State	PRI State	PAN State
Own State	2.752363**	2.76381**	2.75502**
	(1.135237)	(1.13865)	(1.136049)
Peer State	0.0476389**	0.0590866*	0.0502965**
	(0.0231716)	(0.0316022)	(0.0249923)

Note: Marginal effect cells show the short-term effect of the presence of a state gubernatorial race on a state's (column) own commercial bank debt and on other states' (row) levels of commercial bank debt. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Marginal Effect of Vertical Partisan Alignment on Commercial Bank Debt

	PRD State	PRI State	PAN State
Own State	-3.229943***	-3.243377***	-3.233061***
	(1.124936)	(1.131246)	(1.126362)
Peer State	-0.055905*	-0.0693391*	-0.0590238*
	(0.0288788)	(0.0401721)	(0.0313247)

Note: Marginal effect cells show the short-term effect of the presence of a state gubernatorial race on a state's (column) own commercial bank debt and on other states' (row) levels of commercial bank debt. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Testable Expectations

Table 1: Fiscal Policy Interdependence by Mechanism and Type of Debt

	Fiscal Policy Learning Mechanism	Fiscal Policy Competition Mechanism
Commercial Bank Debt	Yes ✓	Yes ✓
Development Bank Debt	Yes ✗	No ✓

Conclusion and Next Steps

Conclusion:

- **Evidence of partisan-based fiscal policy interdependence among Mexican states**
- **Evidence that interdependence occurs as a result of top-down yardstick "competition"**

Next Steps:

- **Replicate the study at the municipal level**

Table 3: Fiscal Policy Learning (STAR Models with Row-Standardized Spatial Weights Matrix)

	(1) Commercial Bank Debt	(2) Development Bank Debt	(3) Commercial Bank Debt	(4) Development Bank Debt
Lag Com Bank Debt (pc, sqrt)	0.893***	0.0542**	0.770***	0.0456*
	(0.0291)	(0.0219)	(0.0363)	(0.0271)
Lag Dev Bank Debt (pc, sqrt)	0.155***	0.857***	0.234***	0.660***
	(0.0422)	(0.0325)	(0.0550)	(0.0407)
Lag Bond Debt (pc, sqrt)	0.172***	0.0203	0.317***	-0.0504
	(0.0463)	(0.0349)	(0.0684)	(0.0513)
Lag Trust Debt (pc, sqrt)	0.187***	-0.0178	0.197***	-0.0313
	(0.0602)	(0.0456)	(0.0647)	(0.0484)
PAN Governor	1.145	-0.840	3.639**	-0.619
	(1.370)	(1.116)	(1.667)	(1.297)
PRD Governor	-0.478	0.544	-0.198	2.487
	(1.449)	(1.216)	(1.986)	(1.599)
PAN-PRD Governor	-0.836	-1.636	1.734	-4.012**
	(1.856)	(1.407)	(2.185)	(1.632)
Independent Governor	-5.782	-1.223	-4.182	-2.840
	(7.710)	(5.888)	(7.325)	(5.529)
Vertical Partisan Alignment	-2.185*	1.001	-1.441	1.074
	(1.198)	(1.075)	(1.171)	(1.014)
Gubernatorial Election Year	2.990**	-0.423	3.286***	-0.292
	(1.190)	(0.901)	(1.117)	(0.838)
Human Development Index	-1.551**	0.405	-7.138	2.107
	(0.602)	(0.456)	(8.187)	(6.172)
Vertical Fiscal Imbalance	12.67***	-3.262	-0.504	16.08
	(4.581)	(3.469)	(13.21)	(9.902)
Total Fiscal Revenues (pc, sqrt)	-0.0310***	0.0193**	-0.101	0.119**
	(0.0116)	(0.00877)	(0.0650)	(0.0478)
GDP per capita	0.00516	-0.00469	0.0136	0.0180
	(0.00442)	(0.00335)	(0.0210)	(0.0158)
Population (sqrt)	-0.00177**	-0.000565	0.0145	0.0142
	(0.000724)	(0.000549)	(0.0148)	(0.0100)
Constant	-8.283*	5.372	-14.85	-41.83**
	(4.368)	(3.383)	(23.83)	(16.82)
rho	0.117**	-0.0767	0.145**	-0.0985
	(0.0517)	(0.0852)	(0.0694)	(0.0958)
sigma	7.335***	5.559***	6.637***	4.981***
	(0.290)	(0.220)	(0.263)	(0.197)
State Fixed Effects	NO	NO	YES	YES
Observations	320	320	320	320
Wald test of rho=0	5.133**	0.809	4.359**	1.056
Likelihood ratio test of rho=0	5.034**	0.816	4.223**	1.070
Lagrange multiplier test of rho=0	5.906**	0.604	4.789**	0.681
Log Likelihood	-1092.1	-1003.0	-1060.3	-968.0

Acceptable range for rho: -2.000 < rho < 1.000. Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$