

Online Appendix to:

Divide to rule: deconcentration and coalition bargaining

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A.1 Formal vignette

A simple vignette helps illustrate my theoretical framework. Consider a bargaining game, extending the Acemoğlu, Egorov, and Sonin (2008) model, in which three *barons* are trying to form a government to administer their collective territory. Each baron wants to rule, granting her control over the distribution of an infinitely divisible resource of fixed size, normalized to one. To achieve such control, she may form a coalition with one or both of the other barons. Assume that forming a successful ruling coalition requires 75% of the total *power* controlled by all barons (e.g., guns or factories), individual endowments which are exogenously-given. Note that these endowments fully encapsulate the barons' identities.

Also assume that bargaining begins with the grand coalition of all barons. In each round, nature chooses an agenda-setter randomly, she proposes a new coalition, and then the other barons vote sequentially on the proposal. No one can be forced to join a coalition, and if no proposed coalition passes after everyone has been the agenda-setter, then bargaining ends with the grand coalition remaining in power. After bargaining ends, each baron in the ruling coalition gets a share of the resource in proportion to her share of their collective power, and each baron outside the ruling coalition gets nothing.

Suppose now that before this coalition bargaining occurs, the barons consider granting a new barony to one of their *captains*, by ceding some of their own territory to him. This stage of *deconcentration bargaining* occurs immediately before coalition bargaining, and with a similar protocol: agenda-setters can force an up-down vote on whether to empower the captain. Unlike coalition bargaining, a simple majority vote is sufficient for such a proposal to pass, in which case the captain joins the coalition bargaining that immediately follows; if no proposal passes, then deconcentration does not occur and the three barons proceed to coalition bargaining. Figure A1 provides a conceptual map of the game.

To see how deconcentration can occur in equilibrium, suppose that the three barons' resources are $\{6, 7, 8\}$ and that the captain's endowment is $\{3\}$. As a result of the 75% supermajority required to govern, no two-player coalition is strong enough to rule, and

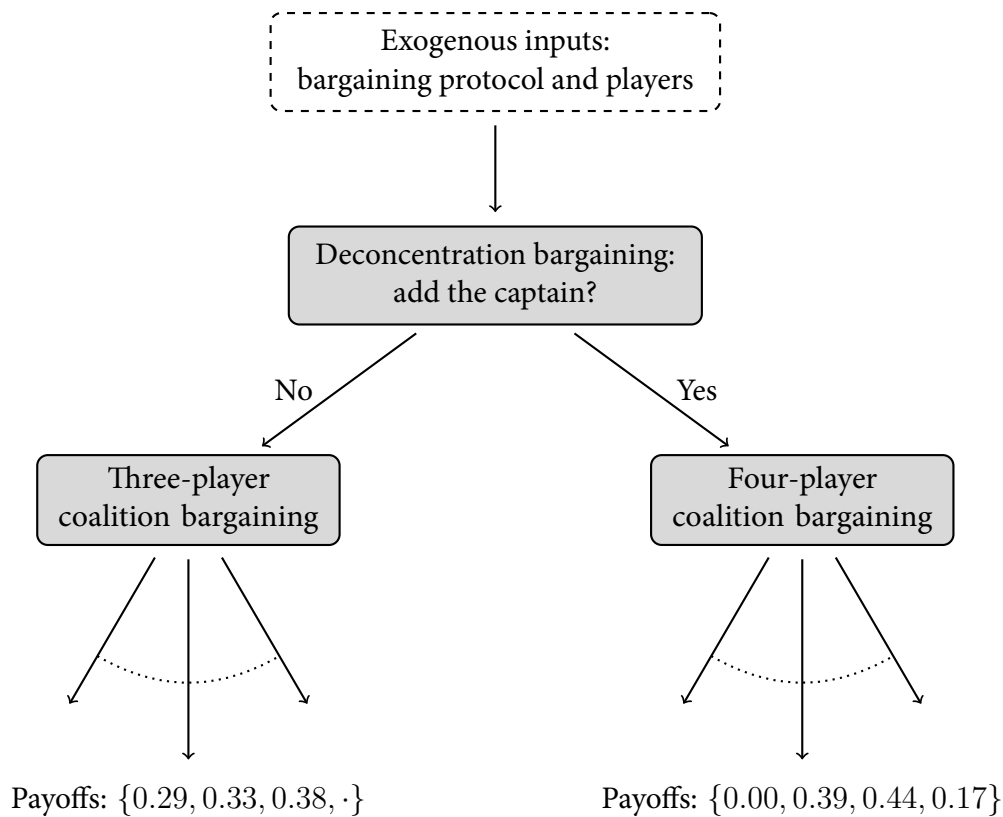


Figure A1: The barons' deconcentration game. Dotted lines indicate the ranges of feasible coalition structures during the coalition bargaining stage. Nash equilibrium payoffs are given for each sub-game, under alternative player sets. In this vignette, deconcentration occurs in equilibrium, so players receive the payoffs from four-player coalition bargaining.

only the grand coalition of all barons can form in three-player bargaining. This outcome yields payoffs of $\{0.29, 0.33, 0.38, \cdot\}$. (If he is not empowered, the captain receives no payoff, zero or otherwise.) However, during the deconcentration bargaining phase, Barons 2 and 3 can “look down to game tree” to see that empowering the captain would lead to a feasible ruling coalition which they both prefer: a three-player coalition with the captain. Since the captain is weaker than Baron 1, the relative power of Barons 2 and 3 within this alternative ruling coalition would increase. Four-player bargaining would therefore yield payoffs $\{0, 0.39, 0.44, 0.17\}$. Since both Barons 2

and 3 prefer this outcome, one of them proposes deconcentration, the vote passes, and eventually this coalition emerges in equilibrium. Note that in this case, Barons 2 and 3 are weaker—they possess a smaller share of the total power in the polity—but prefer deconcentration because it increases their coalitional payoff.

A.2 Example Statoids entry

Change history:

- ~1958: Chilaw district merged with Puttalam district, both in North-Western province; Amparai district split from Batticaloa; Moneragala district split from Badulla; Polonnaruwa district split from Anuradhapura.
- 1974-06-28: Kachchativu island transferred from India to Sri Lanka.
- 1978-08-31: New constitution adopted. Gampaha district split from Colombo. Mullaitivu district formed from parts of Jaffna, Mannar, and Vavuniya.
- 1982: Some governmental functions moved from Colombo to Sri Jayawardenapura (formerly Kotte).
- 1983-10-04: Kilinochchi district split from Jaffna by the seventh amendment to the constitution.
- 1987-11-14: Thirteenth amendment to the constitution passed, authorizing the establishment of provincial councils to govern the nine provinces.

Figure A2: Statoids change history for Sri Lanka. An example change history as provided by Statoids (Law 2016). These change histories and occasional “snapshot tables” provided the source data for identifying cases of deconcentration.

A.3 All leadership deaths coded as apolitical

Table A1: Sudden, apolitical leadership deaths

Country	Year	Name	Category
Albania	1985	Enver Hoxha	Disease
Algeria	1978	Houari Boumédiène	Disease
Angola	1979	Agostinho Neto	Cancer
Argentina	1974	Juan Perón	Disease
Australia	1967	Harold Holt	Accident
Bahrain	1999	Isa bin Salman Al Khalifa	Heart attack
Barbados	1985	Tom Adams	Heart attack
Barbados	1987	Errol Barrow	Sudden illness
Barbados	2010	David Thompson	Cancer
Bhutan	1972	Jigme Dorji Wangchuk	Sudden illness
Bolivia	1969	René Barrientos	Accident
Botswana	1980	Sir Seretse Khama	Cancer
Brazil	1985	Tancredo Neves	Disease
Cambodia	1960	Norodom Suramarit	Sudden illness
Cambodia	1984	Chan Sy	Disease
China	1976	Mao Tse-tung	Disease
China	1997	Deng Xiaoping	Disease
Comoros	1998	Mohamed Taki Abdoukarim	Heart attack
Côte d'Ivoire	1993	Félix Houphouët-Boigny	Cancer
Croatia	1999	Franjo Tuđman	Cancer
Denmark	1960	Hans Christian Hansen	Cancer
Dominica	2000	Rosie Douglas	Heart attack
Dominica	2004	Pierre Charles	Heart attack
Dominican Republic	1982	Antonio Guzmán Fernández	Suicide
Ecuador	1981	Jaime Roldós Aguilera	Accident

Table A1 (continued): Sudden, apolitical leadership deaths

Country	Year	Name	Category
Egypt	1970	Gamal Abdel Nasser	Heart attack
France	1974	Georges Pompidou	Cancer
Gabon	1967	Léon M'ba	Cancer
Gabon	2009	Omar Bongo	Cancer
Greece	1964	Paul	Cancer
Grenada	1989	Herbert Blaize	Cancer
Guinea	1984	Ahmed Sékou Touré	Heart attack
Guinea	2008	Lansana Conté	Sudden illness
Guyana	1985	Forbes Burnham	Surgery
Guyana	1997	Cheddi Jagan	Heart attack
Haiti	1971	François Duvalier	Disease
Hungary	1993	József Antall	Cancer
Iceland	1970	Bjarni Benediktsson	Accident
India	1964	Jawaharlal Nehru	Stroke
India	1966	Lal Bahadur Shastri	Heart attack
Iran	1989	Ruhollah Khomeini	Surgery
Iraq	1966	Abdul Salam Arif	Accident
Israel	1969	Levi Eshkol	Heart attack
Jamaica	1967	Sir Donald Burns Sangster	Stroke
Japan	1980	Masayoshi Ohira	Heart attack
Jordan	1999	Hussein bin Talal	Disease
Kenya	1978	Jomo Kenyatta	Sudden illness
Kuwait	1965	Abdullah Al-Salim As-Sabah	Heart attack
Kuwait	1977	Sabah Al-Salim As-Sabah	Cancer
Kuwait	2006	Jaber Al-Ahmad Al-Sabah	Sudden illness
Kyrgyz Republic	1999	Jumabek Ibraimov	Cancer
Laos	1992	Kaysone Phomvihane	Disease
Liberia	1971	William Tubman	Surgery

Table A1 (continued): Sudden, apolitical leadership deaths

Country	Year	Name	Category
Malaysia	1976	Abdul Razak Hussein	Disease
Malaysia	2001	Salahuddin	Surgery
Mauritania	1979	Ahmed Ould Bouceif	Accident
Morocco	1961	Mohammed V	Surgery
Morocco	1999	Hassan II	Heart attack
Mozambique	1986	Samora Machel	Accident
Myanmar	2007	Soe Win	Disease
Nepal	1972	Mahendra	Heart attack
New Zealand	1974	Norman Eric Kirk	Heart attack
Nicaragua	1966	René Schick	Heart attack
Niger	1987	Seyni Kountché	Cancer
Nigeria	1998	Sani Abacha	Heart attack
Panama	1981	Omar Torrijos	Accident
Poland	2010	Lech Kaczyński	Accident
Romania	1965	Gheorghe Gheorghiu-Dej	Sudden illness
Saudi Arabia	1982	Khalid	Heart attack
Sierra Leone	1964	Sir Milton Margai	Sudden illness
Spain	1975	Francisco Franco	Disease
Swaziland	1982	Sobhuza II	Sudden illness
Syria	2000	Hafez al-Assad	Heart attack
Thailand	1963	Sarit Thanarat	Heart attack
Togo	2005	Gnassingbé Eyadéma	Heart attack
Trinidad and Tobago	1981	Eric Williams	Disease
Turkmenistan	2006	Saparmurat Niyazov	Heart attack
United Arab Emirates	2004	Zayed bin Sultan Al Nahyan	Disease
Uruguay	1965	Luis Giannattasio	Heart attack
Uruguay	1967	Óscar Diego Gestido	Heart attack
Vietnam	1986	Le Duan	Sudden illness

Table A1 (continued): Sudden, apolitical leadership deaths

Country	Year	Name	Category
Vietnam	1988	Pham Hung	Heart attack

A.4 Leadership death and future death

Table A2: The effect of leadership death on future leadership death

	Another death within...				
	1 year	2 years	3 years	4 years	5 years
Death	-1.22 (1.50)	0.89 [†] (0.51)	0.51 (0.51)	0.48 (0.46)	0.27 (0.45)
BIC	933	932	933	933	934

* $p < .05$, [†] $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5 Robustness, Table 1 (in the main text)

A.5.1 Linear probability model

Table A3: The effect of leadership death on deconcentration

	(1)	(2)	(3)	(4)	(5)
Death in last two years	0.03*	0.03*	0.03*	0.03*	0.03*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Development			-0.00		-0.00
			(0.01)		(0.01)
Democracy				-0.00	-0.00
				(0.00)	(0.01)
Country and year FE?	N	Y	Y	Y	Y
BIC	-2,333	-765	-756	-756	-747

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.2 Standard controls, but without fixed effects

Table A4: The effect of leadership death on deconcentration

	(1)	(2)	(3)
Death in last two years	0.53* (0.25)	0.52* (0.25)	0.51* (0.25)
Development	-0.05* (0.01)		-0.05* (0.01)
Democracy		-0.03* (0.01)	-0.01 (0.01)
Region and year FE?	N	N	N
BIC	3,008	3,021	3,014

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.3 Contemporaneous (potentially post-treatment) controls

Table A5: The effect of leadership death on deconcentration

	(1)	(2)	(3)
Death in last two years	0.55* (0.28)	0.55* (0.28)	0.55* (0.28)
Development	-0.00 (0.00)		-0.00 (0.00)
Democracy		0.01 (0.01)	0.01 (0.01)
Country and year FE?	Y	Y	Y
BIC	4,637	4,637	4,646

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.4 Dropping missing controls

Table A6: The effect of leadership death on deconcentration

	(1)	(2)	(3)
Death in last two years	0.59 (0.37)	0.55 [†] (0.29)	0.58 (0.37)
Development	-0.07 [†] (0.04)		-0.07 (0.05)
Democracy		-0.13 (0.09)	-0.01 (0.03)
N	5,011	6,827	4,471
Country and year FE?	Y	Y	Y
BIC	2,907	4,104	2,649
Countries	119	156	102

* $p < .05$, [†] $p < .10$.

A.5.5 Interacting controls with treatment

Table A7: The effect of leadership death on deconcentration

	(1)	(2)	(3)
Death in last two years	0.36 (0.32)	0.68* (0.29)	0.56 (0.35)
Development	-0.06* (0.03)		5.75 (16.54)
Death × development	0.04 (0.04)		0.03 (0.04)
Democracy		-0.39 (0.77)	-0.44 (0.89)
Death × democracy		0.05 (0.04)	0.04 (0.04)
Country and year FE?	Y	Y	Y
BIC	4,687	4,635	4,644

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.6 Clustering standard errors by country

Table A8: The effect of leadership death on deconcentration

	(1)	(2)	(3)	(4)
Death in last two years	0.54* (0.25)	0.53* (0.25)	0.53* (0.25)	0.53* (0.25)
Development		-0.06* (0.01)		-0.03* (0.01)
Democracy			-0.05* (0.01)	-0.04* (0.01)
Country and year FE?	Y	Y	Y	Y
BIC	4,672	4,678	4,676	4,685

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.7 Clustering standard errors by year

Table A9: The effect of leadership death on deconcentration

	(1)	(2)	(3)	(4)
Death in last two years	0.54* (0.23)	0.53* (0.23)	0.55* (0.24)	0.53* (0.23)
Development		-0.06* (0.01)		-0.03* (0.01)
Democracy			-0.39 (0.82)	-0.04* (0.01)
Country and year FE?	Y	Y	Y	Y
BIC	4,672	4,678	4,628	4,685

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.8 Clustering standard errors by country and year

Table A10: The effect of leadership death on deconcentration

	(1)	(2)	(3)	(4)
Death in last two years	0.54* (0.22)	0.53* (0.22)	0.53* (0.22)	0.53* (0.22)
Development		-0.06* (0.01)		-0.03* (0.00)
Democracy			-0.05* (0.01)	-0.04* (0.01)
Country and year FE?	Y	Y	Y	Y
BIC	4,672	4,678	4,676	4,685

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.9 Region fixed effects

Figure 3 in the main text suggests that there may be regional differences in the global prevalence of deconcentration. Although I have attempted to control for cross-sectional heterogeneity using fixed effects, it may be that deconcentration clusters geographically, producing “neighborhood effects” which these fixed effects may not capture. While an ideal estimation strategy would capture this spatial autocorrelation directly, the performance of such models for panel data with a binary dependent variable and a relatively short time series is unclear (Ward and Gleditsch 2008; Lee and Yu 2015). As a rough approximation, I instead estimate the baseline model with region fixed effects. Note that because countries do not change regions, region fixed effects are linear combinations of country fixed effects, so I am forced to drop the latter.

Table A11: The effect of leadership death on deconcentration

	(1)	(2)	(3)	(4)
Death in last two years	0.53*	0.53*	0.51*	0.52*
	(0.25)	(0.25)	(0.25)	(0.25)
Development		-0.05*		-0.04*
		(0.01)		(0.01)
Democracy			-0.02*	-0.01
			(0.01)	(0.01)
Region and year FE?	Y	Y	Y	Y
BIC	3,417	3,410	3,419	3,418

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.5.10 Alternative treatment windows

Note that I do not construct windows shorter than two years, for reasons described in the main text: such narrowness would exaggerate the impact of measurement error, and may induce bias by censoring the period of coalitional bargaining during which deconcentration is expected to occur.

Table A12: The effect of leadership death on deconcentration

Three-year window	0.32 (0.24)		
Four-year window		0.53* (0.20)	
Five-year window			0.46* (0.19)
Country and year FE?	N	N	N
BIC	3,028	3,024	3,025

* $p < .05$, † $p < .10$. Each model includes 8,089 observations across 189 countries.

A.6 Anticipation effects: excluding simultaneous cases

Table A13: The effect of leadership death on deconcentration, excluding simultaneous cases

Death in previous two years	0.54 [†] (0.31)			
Death in previous three years		0.21 (0.29)		
Death in previous four years			0.50* (0.23)	
Death in previous five years				0.42 [†] (0.21)
Country and year FE?	N	N	N	N
BIC	3,027	3,029	3,025	3,026

* $p < .05$, [†] $p < .10$. Each model includes 8,089 observations across 189 countries.

A.7 Placebo tests I: shifting treatment windows

Table A14: Placebo tests for the effect of death on deconcentration

Treatment	$\hat{\beta}$
Five year pre-death window	0.19 (0.23)
Four year pre-death window	0.29 (0.23)
Three year pre-death window	0.30 (0.25)
Two year pre-death window	0.37 (0.27)
Two year window, lagged five years	0.36 (0.29)
Three year window, lagged five years	0.36 (0.26)
Four year window, lagged five years	0.19 (0.25)
Five year window, lagged five years	0.17 (0.23)

* $p < .05$, † $p < .10$. Each model is estimated separately. $N > 7,000$ for each regression.

A.8 Placebo tests II: alternative outcomes

Data on veto players, decentralization, executive term limits, proportional representation, and parliamentarism come from the Database of Political Institutions (Beck et al. 2001). These variables are binary, with a value of 1 indicating a change in any of these institutions, captured by DPI's checks, author, finittrm, pr, and system variables, respectively. Data on constitutions come from the Comparative Constitutions Project (Elkins, Ginsburg, and Melton 2014), with binary indicators for new constitutions, amended constitutions, and suspended constitutions, and an indicator for whether any of these three events occurred. Finally, democratic character refers simply to a binary indicator for whether any shift in revised combined Polity IV scores of greater than three points in absolute magnitude occurred in a country-year (Marshall, Jaggers, and Gurr 2011).

Table A15: Placebo tests for the effect of death on other institutional change

Effect of death on a change in...	$\hat{\beta}$	N
Number of veto players	-0.48 (0.32)	5,202
Decentralization	-0.14 (2.20)	1,853
Executive term limits	0.67 (0.42)	5,245
Proportional representation	-0.84 (1.61)	3,594
Parliamentarism	0.73 (0.51)	5,342
New constitution	0.42 (0.33)	7,098
Constitutional amendment	0.03 (0.17)	7,098
Constitutional suspension	-0.29 (0.87)	7,098
Any constitutional change	0.10 (0.16)	7,098
Democratic character	0.36 (0.34)	6,173

* $p < .05$, † $p < .10$.

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