Appendix

I. Subnational Democracy

As Goertz (2006) notes, the careful specification of a given concept's structure is central to achieving concept—measure consistency, that is, the use of the appropriate mathematical formalization to validly operationalize the concept into a quantitative measure.[1] This section operationalizes and aggregates subnational democracy's dimensions and indicators in a way that maximizes concept–measure consistency.

The definition of democracy adopted in this book utilizes one of the prototypical concept structures, i.e. the "necessary and sufficient condition" structure (Munck and Verkuilen 2002; Goertz 2006; Munck 2009). Accordingly, in order for a subnational political regime to be conceived of as democratic, a number of conditions must be present (i.e. they are necessary), and these conditions, in turn, are jointly sufficient to classify a given polity as democratic. If any of these conditions is absent, the subnational polity cannot be considered democratic.

To translate a necessary and sufficient concept structure into mathematical terms without violating concept–measure consistency, this study follows Goertz's (2006) suggested aggregation procedure of multiplying (rather than adding) individual conditions (or democracy's dimensions). Accordingly, as Figure A1 shows, contestation (for both executive and legislative posts), and clean elections (two of the necessary and sufficient conditions) are "connected" via the logical AND, a first cousin of multiplication (denoted with the * symbol) (for the addition operation regarding the turnover dimension see discussion later in this appendix).

Description and Aggregation of Indicators

As Figure A1 shows, democracy is made up of seven indicators: Head, Party, Effective Number of Parties (ENP), Margin of Victory, Effective Number of Parties in the Legislature (ENPL), Governor's Seats, and Post-Electoral Conflict. At the indicator level, addition (rather than multiplication) is a desirable option because indicators are substitutable. Substitutability is normally associated with the logical OR, which in turn is closely connected with arithmetic addition (Goertz 2006). Since individual indicators that make up each of the secondary levels weigh the same, they are averaged. For example, the dimension Contestation (Executive) is calculated as follows:

[1] For a discussion of the negative consequences that might arise when measurement strategies/techniques do not capture the underlying concept that is sought to be measured, see Adcock and Collier 2001; Lieberman 2002; Goertz 2006; Soifer 2008.
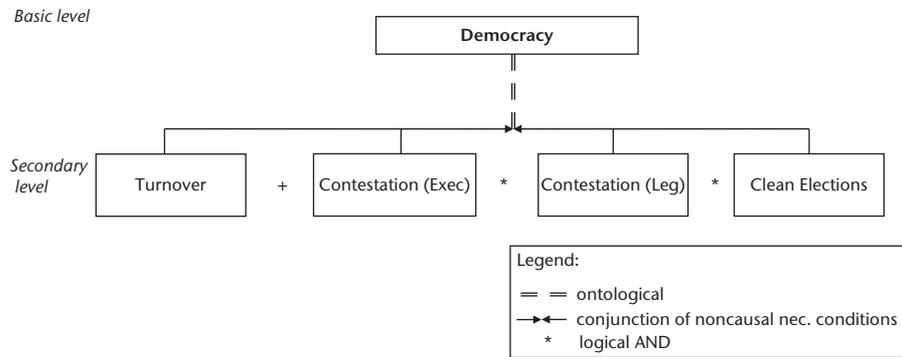
Appendix

Basic level

Figure A1. A necessary and sufficient concept structure of subnational democracy

(ENP + Margin of Victory)/2.[2] Each of these indicators, as well as their sources, is described in detail in Table A1.

Turnover and Clean Elections

As Mainwaring et al. note, considering turnover (or alternation) as one of the constitutive elements of democracy might lead to the misclassification of cases (2007: 130–1). An example of this potential misclassification is the case of countries/provinces where citizens are satisfied with the party and governor who governs, and decide to reelect both. Two major reasons justify the inclusion of turnover as a constitutive dimension of subnational democracy in the study of SURs in Argentina and Mexico. As Calvo and Micozzi (2005) show for the Argentine case, between 1983 and 2003, provincial incumbents implemented 32 constitutional reforms and 34 electoral reforms in order to reshape the subnational electoral map of Argentina. These reforms, as the authors convincingly demonstrate, aimed at both securing control of provincial incumbents over local legislatures, and at entrenching incumbents' position in power. The lack of turnover indicator captures the manipulation of electoral rules that enabled incumbents to make provincial electoral systems less competitive and more hegemonic. As Gibson (2013) notes, this hegemony is one of the defining traits of subnational undemocratic regimes.

For the Mexican case, the inclusion of turnover as one of the constitutive dimensions of subnational democracy is of paramount importance given the country's tradition of partisan hegemony and lack of alternation. In a country where the same party (i.e. the Institutional Revolutionary Party, or PRI) has ruled for over 70 years

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[2] The remainder indicators are calculated as follows: Contestation (Legislature) = (ENPL + Governor's Seats)/2; Turnover (Argentina) = (Governor in office for less than 3 consecutive terms + Party in office for less than 3 consecutive terms)/2; Turnover (Mexico) = (Governor in office for less than 12 consecutive years + Party in office for less than 12 consecutive years)/2.

Table A1. Indicators of subnational democracy

Indicator	Description	Calculation*	Source	
			Argentina	Mexico
HEAD	Measures governor's tenure	Governors who were in office for less than 3 consecutive terms or 12 consecutive years. This rule follows Levitsky and Way (2010) criterion	Author's calculations based on Base de Datos Provinciales del Centro de Investigaciones en Administración Pública (Base CIAP), Facultad de Ciencias Económicas, UBA	Author's calculations based on *Rulers* Database
PARTY	Measures the incumbent party's tenure	Parties that were in office for less than 3 consecutive terms or 12 consecutive years are coded as 1, and 0 if otherwise. The rule of 3 consecutive terms or 12 consecutive years. This rule follows Levitsky and Way (2010) criterion	Author's calculations based on Base de Datos CIAP	Author's calculations based on CIDAC's Electoral Database
ENP	Measures the effective number of parties competing in gubernatorial elections	Following Laakso and Taagepera Index (1979): $1/\sum s_i^2$, with s_i representing the number of votes cast for party i during gubernatorial elections	Calvo and Escolar (2005) and author's calculations based on Andy Tow's Atlas Electoral	Author's calculations based on CIDAC's Electoral Database
Competitiveness	Measures the margin of victory between winner and runner up in gubernatorial elections	Measured as $v_1 – v_2$, where v_1 is the vote share of the winning gubernatorial candidate, and v_2 the vote share of the second-place candidate**[†]	Author's calculations based on Andy Tow's Atlas Electoral	Author's calculations based on CIDAC's Electoral Database
ENPL	Measures the effective number of parties competing in legislative elections	$1/\sum s_i^2$ with s_i representing the number of seats held by party i	Calvo and Escolar (2005) and author's calculations based on Andy Tow's Atlas Electoral w	Author's calculations based on CIDAC's Electoral Database

Table A1. Continued

Indicator	Description	Calculation*	Source	
			Argentina	Mexico
Strength of legislative opposition	Measures the % of legislative seats controlled by the opposition	100 – % of governor's party (or party coalition) legislative seats	Author's calculations based on Giraudy and Lodola (2008) Database; 2007–2009: Andy Tow's Atlas Electoral and DINE, Ministerio del Interior	Lujambio (2000) and CIDAC's Electoral Database
Clean elections	Index that measures the existence, durability, and intensity of post-electoral conflicts	Post-electoral conflict ranges from 0 to 3, where 3 = absence of post-electoral conflict, 2 = post-electoral conflict lasted less than a week (7 days), and there were no dead and/or human/material casualties, 1 = post-electoral conflict lasted more than one week (from 8 to 30 days), and/or people were held in custody, and/or there were human/material casualties, 0 = post-electoral conflict lasted more than one month and/or there were deaths	N/A***	Author's calculation based on a review of major local (state-level) newspapers (1991–2009)

(and in some states, over 80 years), and where the permanence of the same party in power has not been exclusively related to the satisfaction of the electorate with the ruling party's performance (Magaloni 2006), it seems reasonable to take into account the incidence of the lack of turnover in state-level democracy.

These considerations justify the inclusion of turnover as a necessary albeit not sufficient dimension of (subnational) democracy, and give reason for its aggregation through addition (instead of multiplication). Various other empirical tests were run in order to confirm that the inclusion of this dimension did not misclassify cases. When subnational democracy was measured with and without the turnover dimension, the

correlation between the two measures yielded a score of 0.83 in the case of Mexico, and 0.62 in the case of Argentina. The results thus indicate that the measure of subnational democracy employed in this study is not significantly altered when turnover is included.

A final clarification on the "clean elections" measure is in order. The concept of "clean elections" is perhaps one of the most difficult to operationalize and measure at the subnational level, as it demands a retrospective review of every gubernatorial election held in 32 states and 24 provinces over a period of 25 years. This indicator is only measured in Mexico, where electoral fraud has been ubiquitous. In Argentina, in contrast, little fraud or manipulation of the vote-counting processes has occurred since 1983 (Levitsky and Murillo 2005; Gervasoni 2010b, 2011), which is why it was not measured.

A good way to grasp the cleanness of elections is to measure the occurrence *and* intensity of post-electoral conflicts. The presence of post-electoral conflicts and their intensity reflect the extent to which official electoral results fail to correspond to reality as perceived by opposition parties. Following one of the leading works on post-electoral conflicts in Mexico, this study assumes that post-electoral mobilizations were provoked by high perceptions of electoral fraud (Eisenstadt 2004: 135–40). Thus, the *occurrence* of post-electoral conflicts is considered to be a proxy for electoral fraud, while the *intensity* (duration and severity) of post-electoral conflicts is considered a proxy for how "damaging and detrimental" the rigging was for the "defeated" party.

To code the existence and intensity of post-electoral conflicts in gubernatorial races, state-level newspapers were reviewed for a period of four consecutive weeks beginning the day after the election. Post-electoral conflicts are defined as instances of social mobilization following gubernatorial elections in which protestors demand a vote recount. The intensity of post-electoral conflicts was coded as reported in Table A1.[3] A list of the newspapers used to code clean elections is displayed in Table A2.

II. SURs' Patrimonial State Structures

Underlying the definition of a patrimonial state structure is a family resemblance concept structure. Unlike the necessary and sufficient concept structure, the family resemblance structure "is a rule about sufficiency with no necessary condition requirements" (Goertz 2006: 36). Concepts within the family resemblance structure can be assessed by identifying attributes that are present to varying degrees, rather

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[3] It should be noted that many gubernatorial elections in Mexico are held concurrently with legislative and presidential elections. Concurrent elections are difficult to code because it is not always easy to determine whether post-electoral conflicts were driven by fraud in (either or both) state-level and/or national elections. In the cases where concurrent elections were held and there was evidence of post-electoral conflict, the coding rule was to make sure that the post-electoral conflict revolved around gubernatorial elections. To do so, more than one state-level newspaper and two major national newspapers (*Reforma* and *El Universal*) were reviewed. When it was not possible to discern whether post-electoral conflicts were driven by the occurrence of fraud in gubernatorial elections, the state was coded with 1.

Table A2. State newspapers used to code clean elections

| State	Newspaper
Aguascalientes	*Hidrocálido*
Baja California	*Semanario Zeta*
	El Mexicano
Baja California Sur	*Sudcaliforniano*
Campeche	*Novedades de Campeche*
Coahuila	*El Sol del Norte*
	El Siglo de Torreón
Colima	*Diario de Colima*
Chiapas	*Cuarto Poder*
Chihuahua	*El Heraldo de Chihuahua*
Distrito Federal	*La Jornada*
Durango	*El Sol de Durango*
Guanajuato	*El Heraldo de León*
	El Sol del Bajío
	El Universal
Guerrero	*El Sol de Chilpancingo*
	El Sol de Acapulco
Hidalgo	*El Sol de Hidalgo*
Jalisco	*El Occidente*
	Ocho Columnas
Estado de México	*El Demócrata*
	El Sol de Toluca
Michoacán	*El Sol de Morelia*
	El Diaro de Michoacán
	El Sol de Michoacán
Morelos	*El Diario de Morelos*
Nayarit	*Meridiano de Nayarit*
	El Heraldo de Nayarit
Nuevo León	*El Norte*
Oaxaca	*El Imparcial*
Puebla	*El Sol de Puebla*
	El Heraldo de Puebla
	Novedades de Puebla
Querétaro	*Diario de Querétaro*
Quintana Roo	*Novedades de Quintana Roo*
San Luis Potosí	*El Sol de San Luis*
Sinaloa	*El Sol de Sinaloa*
Sonora	*Nuevo Día*
	El Independiente
	El Imparcial
Tabasco	*Avance*
	Milenio Tabasco
	El Heraldo
Tamaulipas	*El Sol de Tampico*
Tlaxcala	*El Sol de Tlaxcala*
	ABC Noticias
Veracruz	*El Sol de Veracruz*
	El Liberal del Sur
Yucatán	*Diario de Yucatán*
	Diario del Sureste
	El Mundo al Día
Zacatecas	*Novedades de Zacatecas*
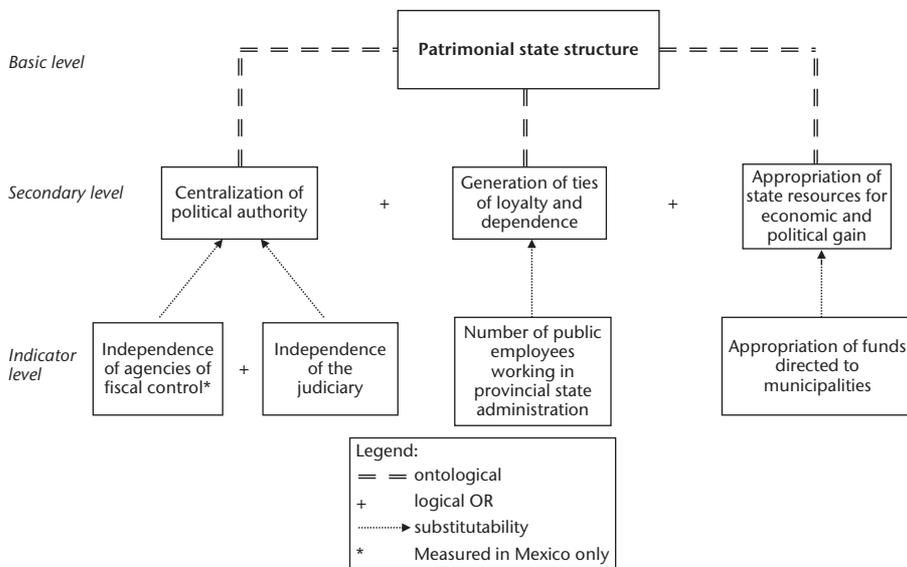
Figure A2. A family resemblance concept structure of patrimonial state structure

than simply being present or absent (Collier and Mahon 1993). Moreover, the family resemblance concept structure allows the absence of any given characteristic to be compensated for by the presence of another characteristic. Accordingly, the secondary dimensions (see Figure A2) are "connected" via the logical OR, and aggregated through addition (rather than multiplication)[4] (Goertz 2006: 39–44).

Description and Aggregation of Indicators
As Figure A2 shows, patrimonial state structures are measured using four indicators: independence of agencies of control, independence of the judiciary, number of public employees working in the provincial state structure, and appropriation of funds directed to municipalities. With the exception of the number of public employees working in provincial state administrations, identical indicators are not used because each country has different rules to appoint justices or to distribute funds across subnational levels of government. In order to ensure measurement equivalence, system-specific indicators were used to operationalize the two remaining secondary-level dimensions of patrimonial state structures. In Argentina, "appropriation of state resources for economic and political gain" is operationalized by assessing the cumulative years of existence (or lack thereof) of a law that regulates the transfer of funds from

[4] This only applies to the indicators that measure the centralization of political authority, which only correspond to the Mexican states. Data to measure the independence of agencies of fiscal control for the Argentine provinces were extremely difficult to obtain.

Table A3. Indicators of patrimonial state structure

Indicator	Description	Calculation* Argentina	Calculation* Mexico	Source Argentina	Source Mexico
Independence of agencies of fiscal control	Measures state-level comptrollers offices†	N/A**	1997–2003: Agreement between the state government and the Auditoría Superior de la Federación (AFS) to supervise budgetary items 28 and 33 (Ramos 28 and 33). Coded as 1 during the years in which the state led the AFS control of the allocation of R28 and R33, and 0 otherwise; 2004–8: Index of comptrollers office's independence	N/A**	1997–2003: Giraudy (2009); 2004–8: Figueroa Neri (2009)
Independence of the judiciary	Measures the autonomy of the judicial institutions vis-à-vis the provincial executive power	Yearly average tenure of provincial Supreme Court justices divided by the number of years of the political regime	Annual state-level judicial sp ending per capita	Base de Tribunales Superiores de Justicia Provinciales (Leiras et al. 2012)	Ingram (2009, 2014)
Number of public employees working in provincial state administration	Measures the number of public employees working in provincial state administration	Number of employees/1,000 inhabitants working in public administration.† Scale reversion was done with the following formula: 1,000 − [# of public employees/1,000 inhabitants]	Number of public sector employees/1,000 inhabitants of the economically active population. Public sector employees = administrative personnel (teachers and doctors are not included)	Base de Datos Provinciales del Centro de Investigaciones en Administración Pública (Base CLAP), Facultad de Ciencias Económicas, UBA	INEGI publication: Sistema de Cuentas Nacionales de México. Gobiernos Estatales. Cuentas Corrientes y de Acumulación, various editions
Appropriation of funds directed to municipalities	Measures the capacity of provincial incumbents to appropriate funds and transfers that should be sent to municipalities, as well as their capacity to distribute these resources in a discretionary manner	Cumulative years of existence of a municipal coparticipation law (i.e. the law regulating the allocation of fiscal resources between the provincial government and the municipalities)	% of Fondo General de Participaciones that governors did not transfer to the municipalities	Fundación CECE (1996, 1997), Ministerio de Economía, and various laws provincial	INEGI publication: Finanzas Públicas Estatales y Municipales de México, Anexo A, various years

* All individual indicators were standardized between 0 and 1 to make their scales comparable.

** No data available.

† Reversed scale.

provincial to municipal levels of government. By contrast, in Mexico, this secondary-level dimension is measured using an indicator that reflects the percentage of fiscal funds that governors did not transfer to the municipalities.[5]

To operationalize the centralization of political authority, an indicator that captures the level of judicial independence (from the executive) was selected. In the case of Argentina, the chosen indicator measures the stability of provincial Supreme Court justices, i.e. the tenure of each sitting justice. This indicator was appropriate because (a) a vast body of literature shows that more stable courts are said to ensure greater judiciary autonomy, thus increasing justices' ability to limit rulers' centralization of authority (Iaryczower et al. 2002; Bill Chavez 2004; Helmke 2005), and (b) the selection, appointment, and number of provincial Supreme Court justices varies considerably across provinces.[6] In Mexico, by contrast, the rules that regulate justices' selection and appointments do not vary across states. Hence, an indicator that captures cross-state variance, such as the per capita judicial spending in each state, seemed more appropriate to measure the independence of Mexican state-level courts, as "punitive cuts" in judicial budgets can result in serious "assaults on judicial independence" (Bermant and Wheeler 1995; Kaufman 1999; Douglas and Hartley 2003; Ingram 2014).

Table A3 presents a description of the indicators that make up each of the three secondary-level dimensions of patrimonial state structures.

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[5] By law, Mexican states are obliged to pass 20% of the transfers that they receive from the Law of Fiscal Coordination (LCF) to the municipalities.

[6] There are some provincial constitutions that establish a fixed number of justices, thus limiting to a great extent the capacity of rulers to engage in court packing. Other provincial constitutions, by contrast, establish a fixed number of justices in the constitution but stipulate that the size of provincial Supreme Courts can be either augmented or diminished by statutory law. These laws, in turn, differ regarding the type of majority (i.e. 1/2 or a 2/3 majority) needed for passage. Finally, there are some other provinces where the number of justices is determined by statutory law (see Leiras et al. 2012).