

# FAMILY TIES, SOCIAL CONTROL, AND AUTHORITARIAN DISTRIBUTION TO ELITES

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## A Data Construction

Our dataset is the result of the merge of two databases: one on the network centrality of Paraguayan local families and a second on the ill-gotten lands they received between 1954 and 2007. This Appendix elaborates on how we constructed each of these databases and their sources.

To construct our family network database, we scraped all the Paraguayan user-generated family tree records from MyHeritage, a paid online genealogical platform.<sup>1</sup> MyHeritage hosts its collection of family trees, but its search engine also retrieves family trees hosted on partner genealogical websites like FamilySearch or Geni. We set up a scraper on ParseHub,<sup>2</sup> a web-scraping freeware that extracts data on a browser-based interface. This interface allowed us to select the relevant fields and monitor the scraping in real time.

Figure A1: Roque Sarubbi's MyHeritage Family Tree Record

**Roque Antonio Ludovico Sarubbi Ciancio**

MyHeritage Family Trees • Familias Paraguayas, managed by Jaime R. Peña E.

Birth	Apr 30 1904 - Caazapá, Paraguay
Parents	Francesco Maria Vincenzo Sarubbi Sarubbi, Maria Sarubbi Sarubbi (born Ciancio Sarubbi)
Siblings	Juan Jose Sarubbi Ciancio, Prospero Miguel De Los Santos Sarubbi Ciancio, Jose Salvador Sarubbi Ciancio, Maria Adela Ciancio Sarubbi (born Sarubbi Ciancio), Aurora Filomena Lepretti (born Sarubbi), Guillermina Sarubbi Ciancio, Maria Luisa Sarubbi Ciancio, Maria Julia Sarubbi Ciancio, Francisco Emiliano Sarubbi Ciancio
Wife	Estelia Sarubbi Ciancio (born Lepretti)
Son	Jose Maria Sarubbi Lepretti

[View record](#)

First, we obtained the raw family data in text form. Our scraper was restricted to cohorts born between 1870, when the War of the Triple Alliance ended, and 1950. To link family names to specific localities where they may have settled, we ran the scraper for each of the current 244 Paraguayan municipalities, treating municipalities as locations where key life events (birth, marriage, and death) occurred.<sup>3</sup> The scraper searched and compiled all family tree records, which are entries of individual persons that users added to their family trees, for each municipality associated with a life event in 1870-1950. Since families may have settled in or have relatives across multiple locations, the scraper generated multiple family tree records if a person's life events occurred in different municipalities. For example, if a person was born in municipality *a* but got married in municipality *b*, the scraper would yield two separate family tree records: one for *a* and another for *b*.

To illustrate family tree records, Figure A1 exhibits Roque Sarubbi's birth family tree record on MyHeritage. The scraper extracted the names of the individual person, the parents, and the wife/husband, but omitted siblings and children to avoid duplicates, as MyHeritage's search

<sup>1</sup>In MyHeritage, it is free to sign up and conduct searches of family trees. However, viewing the content of family trees requires a paid subscription.

<sup>2</sup><https://www.parsehub.com>.

<sup>3</sup><https://www.municipios.gov.py/municipios/> (last accessed on May 31, 2021). We excluded Asunción and the 19 municipalities from the Central department because these are mostly urbanized districts with little or no rural public land.

engine already provided the records for these individuals. The scraper stored the data in spreadsheets per municipality. We scraped 69,416 records including 265,468 people.

Next, we coded scripts in R per department to bind the municipal spreadsheets and build the intermarriage ties. We produced a set of ready-to-use first and second family names from the individual persons, spouses, and parents fields, which we used to produce a matrix of intermarriage ties between two family names. We built the ties across and within fields where appropriate. We could get as many as 11 ties from one family tree record when data were available in all the fields. Single, untied names (e.g., a single mother as parents) were dropped. Entire municipalities not mentioned in the CVJ final report were dropped too, as they would show no variation whatsoever in the distribution of ill-gotten lands within family-municipality. We ended up with 15 matrices, one for each department, with a total of 184,109 intermarriage ties pairing two distinct family names from 5,357 unique family names.

We then coded an R script that loads the departmental matrices and computes the network centrality measures. We used the *igraph* package to compute the three measures (eigenvector, in-degree, and betweenness) for each local family. Our final family network database contained 16,735 unique local families—i.e., unique family-municipality combinations.

To compile the ill-gotten lands database, we digitized the rolls of non-eligible beneficiaries from 1954-2007. The rolls were published on the IV volume of the CVJ final report: *Informe Final Anive haguã oiko, Tierras Mal Habidas, Tomo IV*. We had access to the rolls at BASE-IS,<sup>4</sup> an NGO conducting social science research on rural Paraguay, during a fieldwork trip to Asunción in August 2016. However, they were made available online ever since.<sup>5</sup> The rolls included the full name of the beneficiary, the size of the ill-gotten granted parcel (in hectares), the department and municipality where the IBR granted the parcel, and the year. We kept the first and second family names of the beneficiaries and aggregated the number of grants and hectares by family name, municipality, and year, giving us a matrix of ill-gotten lands at the level of the family-municipality-year. We dropped beneficiary legal entities (e.g., Colorado *seccionales*) and foreigners (e.g., Anastasio Somoza Debayle, Nicaragua’s dictator), as they bear no relationship with Paraguay’s family networks. Our final ill-gotten lands database contained 1,810 local families from 875 unique family names.

Linking the two databases involved accurately merging by family-municipality. This task required a thorough cleaning of the family names in both databases. We stripped out numbers, non-character symbols, and unnecessary terms (e.g., “born” or “widow of”) by using a combination of keyword searches and manual identification. We also standardized spelling by fixing typos and misspelled names, removing accents, replacing non-English letters, and rearranging hyphenated family names with underscores (e.g., “Solano López” to “Solano\_Lopez”) so we do not trim them when deleting first and middles names and unnecessary terms.

Finally, we merged by municipality according to the pre-1954 administrative division: the *Ley de División Territorial de la República* of 1906, Paraguay’s first law organizing the territory, which required joining current municipalities together by their rump or “mother” municipality. Our final dataset covered 56 out of the 87 municipalities or *regiones* stipulated in the 1906 law.

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<sup>4</sup><https://www.baseis.org.py> (accessed on July 14, 2023).

<sup>5</sup><https://repositorio.conacyt.gov.py/xmlui/handle/20.500.14066/2772> (accessed on July 14, 2023).

## B Descriptives

### B.1 Summary Statistics

Table A1: Summary Statistics

	Mean	Std.Dev.	Min	Max	Obs
<b>(a) Family Network Centrality</b>					
Eigenvector Centrality	0.016	0.083	0	1	14,415
Degree Centrality	18.194	38.380	0	1,075	14,415
Betweenness Centrality	676.237	3,196.376	0	150,787	14,415
Largest Eigenvalue	187.834	110.196	49	516	56
Average Degree	15.270	8.261	5	58	56
Average Betweenness	335.403	314.380	17	2,012	56
<b>(b) Ill-Gotten Public Lands</b>					
Hectares of land (log)	0.021	0.383	0	11	778,410
Hectares of land	8.572	298.635	0	60,200	778,410
Number of plots	0.004	0.120	0	34	778,410
Land Grant (binary)	0.003	0.056	0	1	778,410
<b>(c) Ill-Gotten Public Lands (Concepción and San Pedro)</b>					
Hectares of land (log)	0.033	0.442	0	9	114,912
Hectares of land	3.228	75.409	0	9,800	114,912
Number of plots	0.009	0.217	0	34	114,912
Land Grant (binary)	0.006	0.076	0	1	114,912
<b>(d) Legitimate Public Lands (Concepción and San Pedro)</b>					
Hectares of land (log)	0.420	1.095	0	8	114,912
Hectares of land	4.450	25.807	0	3,230	114,912
Number of plots	0.332	1.259	0	52	114,912
Land Grant (binary)	0.143	0.350	0	1	114,912
<b>(e) Colorado Party Affiliations</b>					
Colorado Party Affiliations	721.895	1,834.520	2	19,260	459
Colorado Party Affiliations (log)	5.598	1.311	1	10	459
<b>(f) Rural Collective Action</b>					
Episodes of Land Occupations (log)	0.003	0.060	0	2	3,024
Proportion Land Occupations	0.003	0.054	0	1	3,024
Squatter Peasants (log)	0.015	0.289	0	9	3,024
Occupied Hectares (log)	0.027	0.499	0	12	3,024

*Note:* This table presents the summary statistics of the raw and log-transformed variables used in the regression analyses. See Data Section and Appendix Section A for measurement and sources. Panel (a) shows six family network centrality measures. Eigenvector, degree, and betweenness centrality are measured at the family-municipality level, whereas the largest eigenvector, average degree, and average betweenness are measured at the municipality level. Panels (b), (c), and (d) show the main outcome variables on public land distribution, measured at the family-municipality-year level. Panel (e) shows Colorado Party Affiliations, measured at the municipality-period level. Panel (f) shows our rural collective action variables, measured at the municipality-year level.

## B.2 Correlation Matrix

Table A2: Correlations between Network Centrality Measures

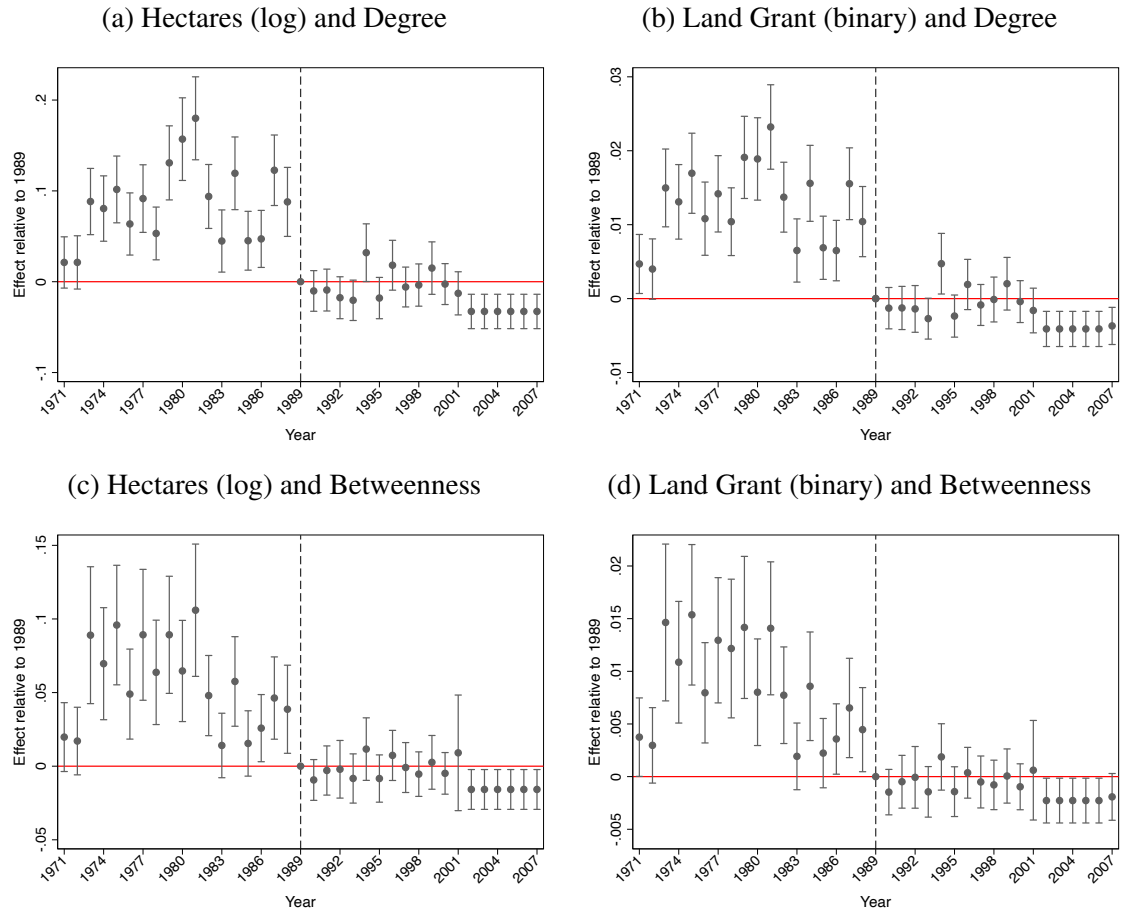
	Eigenvector	Degree	Betweenness
Eigenvector	1.000	0.184	0.582
Betweenness	0.184	1.000	0.448
Degree	0.582	0.448	1.000

Observations: 14,415

*Note:* Sample includes all time-invariant family-municipality centrality measures.

## C Identification Assumption

Figure A2: Evidence of “Future Parallel Trends” for Ill-Gotten Lands and Degree and Betweenness Centrality



*Note:* The results show point estimates and 95% confidence intervals from the specification presented in Equation 2. Full table of the results presented in Appendix Table A10 and Appendix Table A11. The sample covers the period 1954-2007, but only point estimates from 1971-2007 are shown.

## D Robustness Checks

### D.1 Legitimate Public Lands to Landless Peasants

The results in panel (a.1) of Table A3 suggest that, opposite to our main results, degree centrality actually reduces the probability that a local family receives legitimate land during Stroessner's dictatorship. However, the magnitudes are small and not robust across all specifications. In particular, column 1 shows that a one standard deviation increase in degree centrality decreases the hectares of legitimate land received during autocracy by 3.2%, but this effect becomes imprecise and smaller in magnitude when we include department-year, municipality-year, and family-year fixed effects (columns 2-4). Moreover, column 5 indicates that an increase in degree centrality decreases the probability that a local family receives land legitimately during autocracy by 2.8pp. However, the effect is small relative to the mean of 14.76%, and it is not robust to adding family-year fixed effects.

In turn, results in panel (a.2) indicate that a local family's betweenness centrality has a more robust effect on both outcomes. However, again, the sign is the opposite of our main results. Column 1 shows that local families with one standard deviation more of betweenness centrality receive, on average, 4.7% less land during autocracy, and the probability of receiving a land grant decreases by 2.6pp. Altogether, these results dismiss the concern that our main findings reflect clientelistic targeting of locally central families. While lacking robustness across specifications, these results also suggest that such a mechanism might have been activated in Paraguay after the transition to democracy when local central elites could no longer be harnessed for social control.

Table A3: Legitimate and Ill-Gotten Lands and Family Network Centrality (Degree and Betweenness)

	Hectares (log)				Land Grant (binary)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>(a) Legitimate (to Peasants)</b>								
<i>(a.1) Degree Centrality</i>								
Autocracy × Degree	-0.0338** (0.0141)	-0.0235* (0.0128)	-0.0134 (0.0134)	-0.0172 (0.0179)	-0.0281*** (0.0054)	-0.0321*** (0.0052)	-0.0262*** (0.0054)	-0.0035 (0.0060)
$R^2$	0.3570	0.3624	0.3807	0.6608	0.3473	0.3523	0.3696	0.6509
<i>(a.2) Betweenness Centrality</i>								
Autocracy × Betweenness	-0.0473*** (0.0152)	-0.0418*** (0.0146)	-0.0332** (0.0143)	-0.0458** (0.0178)	-0.0263*** (0.0051)	-0.0286*** (0.0051)	-0.0234*** (0.0050)	-0.0088 (0.0057)
$R^2$	0.3571	0.3625	0.3808	0.6609	0.3473	0.3523	0.3696	0.6509
Outcome mean	0.4195	0.4195	0.4195	0.5824	0.1431	0.1431	0.1431	0.1980
<b>(b) Ill-Gotten (to Elites)</b>								
<i>(b.1) Degree Centrality</i>								
Autocracy × Degree	0.0822*** (0.0092)	0.0787*** (0.0093)	0.0808*** (0.0095)	0.0583*** (0.0107)	0.0142*** (0.0016)	0.0136*** (0.0016)	0.0140*** (0.0016)	0.0103*** (0.0018)
$R^2$	0.0449	0.0463	0.0524	0.3971	0.0488	0.0502	0.0565	0.3986
<i>(b.2) Betweenness Centrality</i>								
Autocracy × Betweenness	0.1171*** (0.0154)	0.1120*** (0.0154)	0.1167*** (0.0156)	0.0779*** (0.0207)	0.0205*** (0.0027)	0.0197*** (0.0027)	0.0205*** (0.0027)	0.0142*** (0.0035)
$R^2$	0.0448	0.0463	0.0524	0.3970	0.0488	0.0502	0.0565	0.3985
Outcome mean	0.0329	0.0329	0.0329	0.0435	0.0057	0.0057	0.0057	0.0076
Observations	114,912	114,912	114,912	80,028	114,912	114,912	114,912	80,028
Department-Year FE	No	Yes	No	No	No	Yes	No	No
Municipality-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Family-Year FE	No	No	No	Yes	No	No	No	Yes

*Note:* See Equation 1 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the local family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007 and observations from Concepción and San Pedro, the two departments for which data on legitimate lands were available. All models include family-municipality and year-fixed effects. All centrality measures are standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of the families with the same name out of the population of names. Clustered standard errors at the family-municipality level in parentheses.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

## D.2 Alternate Outcome Measures: Hectares and Land Grants

Table A4: Unlogged Number of Hectares and Number of Land Grants

	Hectares of Land				Number of Plots			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(a) Eigenvector Centrality</i>								
Autocracy $\times$ Eigenvector	16.4485*** (2.8357)	15.4181*** (2.6969)	15.5838*** (2.7263)	10.4639*** (2.4862)	0.0059*** (0.0007)	0.0058*** (0.0007)	0.0058*** (0.0007)	0.0041*** (0.0007)
$R^2$	0.0424	0.0537	0.0538	0.2201	0.0538	0.0580	0.0599	0.1688
<i>(b) Degree Centrality</i>								
Autocracy $\times$ Degree	26.8862*** (3.3043)	22.3847*** (3.3068)	22.8927*** (3.4397)	19.8161*** (3.6888)	0.0137*** (0.0011)	0.0126*** (0.0011)	0.0124*** (0.0011)	0.0099*** (0.0011)
$R^2$	0.0425	0.0538	0.0539	0.2202	0.0542	0.0584	0.0602	0.1690
<i>(c) Betweenness Centrality</i>								
Autocracy $\times$ Betweenness	13.2439*** (2.5553)	11.7665*** (2.6097)	11.7713*** (2.6851)	12.8099*** (3.5638)	0.0098*** (0.0013)	0.0092*** (0.0013)	0.0089*** (0.0013)	0.0095*** (0.0017)
$R^2$	0.0424	0.0537	0.0539	0.2202	0.0544	0.0585	0.0603	0.1693
Observations	778,410	778,410	778,410	623,970	778,410	778,410	778,410	623,970
Outcome mean	8.5724	8.5724	8.5724	10.0888	0.0045	0.0045	0.0045	0.0051
Department-Year FE	No	Yes	No	No	No	Yes	No	No
Municipality-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Family-Year FE	No	No	No	Yes	No	No	No	Yes

*Note:* See Equation 1 for specification. Hectares measures the number of ill-gotten land hectares received by a local family in a given year, and Land Grants measures the number of ill-gotten land grants a local family received in a given year. The sample covers the period 1954-2007. All models include family-municipality and year fixed effects. All centrality measures are standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of families with the same name out of the population of names. Clustered standard errors at the family-municipality level are shown in parentheses. \*, \*\*, \*\*\*, significant at 10%, 5% and 1%.

### D.3 Dropping Outliers of Family Network Centrality

Table A5: Excluding Observations with Family Network Centrality  $> 1|SD|$

	Hectares (log)				Land Grant (binary)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(a) Eigenvector Centrality</i>								
Autocracy $\times$ Eigenvector	0.1072*** (0.0128)	0.1012*** (0.0125)	0.1035*** (0.0129)	0.0752*** (0.0147)	0.0139*** (0.0017)	0.0133*** (0.0017)	0.0135*** (0.0018)	0.0095*** (0.0021)
$R^2$	0.0473	0.0569	0.0591	0.2295	0.0525	0.0596	0.0628	0.2187
Outcome mean	0.0190	0.0190	0.0190	0.0226	0.0029	0.0029	0.0029	0.0034
Observations	753,192	753,192	753,192	598,752	753,192	753,192	753,192	598,752
<i>(b) Degree Centrality</i>								
Autocracy $\times$ Degree	0.0693*** (0.0063)	0.0576*** (0.0065)	0.0543*** (0.0070)	0.0450*** (0.0083)	0.0106*** (0.0009)	0.0091*** (0.0009)	0.0086*** (0.0010)	0.0072*** (0.0012)
$R^2$	0.0441	0.0531	0.0554	0.2357	0.0501	0.0568	0.0600	0.2243
Outcome mean	0.0139	0.0139	0.0139	0.0166	0.0022	0.0022	0.0022	0.0026
Observations	712,800	712,800	712,800	558,576	712,800	712,800	712,800	558,576
<i>(c) Betweenness Centrality</i>								
Autocracy $\times$ Betweenness	0.0773*** (0.0124)	0.0667*** (0.0124)	0.0616*** (0.0127)	0.0704*** (0.0154)	0.0120*** (0.0018)	0.0106*** (0.0018)	0.0097*** (0.0018)	0.0113*** (0.0022)
$R^2$	0.0447	0.0538	0.0561	0.2360	0.0503	0.0571	0.0604	0.2267
Outcome mean	0.0145	0.0145	0.0145	0.0172	0.0022	0.0022	0.0022	0.0026
Observations	749,034	749,034	749,034	595,566	749,034	749,034	749,034	595,566
Department-Year FE	No	Yes	No	No	No	Yes	No	No
Municipality-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Family-Year FE	No	No	No	Yes	No	No	No	Yes

*Note:* See Equation 1 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the local family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007 and excludes observations with network centrality larger than one standard deviation. All centrality measures are standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of families with the same name out of the population of names. Clustered standard errors at the family-municipality level are shown in parentheses. \*, \*\*, \*\*\*, significant at 10%, 5% and 1%.

## D.4 Unweighted Observations

Table A6: Excluding Inverse Probability Weights

	Hectares (log)				Land Grant (binary)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(a) Eigenvector Centrality</i>								
Autocracy $\times$ Eigenvector	0.0073*** (0.0014)	0.0079*** (0.0014)	0.0083*** (0.0014)	0.0039*** (0.0013)	0.0011*** (0.0002)	0.0012*** (0.0002)	0.0012*** (0.0002)	0.0006*** (0.0002)
$R^2$	0.0730	0.0855	0.0886	0.1641	0.0687	0.0776	0.0818	0.1520
<i>(b) Degree Centrality</i>								
Autocracy $\times$ Degree	0.0217*** (0.0025)	0.0219*** (0.0025)	0.0227*** (0.0026)	0.0152*** (0.0023)	0.0033*** (0.0004)	0.0033*** (0.0004)	0.0035*** (0.0004)	0.0023*** (0.0004)
$R^2$	0.0737	0.0863	0.0894	0.1644	0.0695	0.0784	0.0826	0.1523
<i>(c) Betweenness Centrality</i>								
Autocracy $\times$ Betweenness	0.0365*** (0.0042)	0.0354*** (0.0042)	0.0351*** (0.0042)	0.0317*** (0.0046)	0.0057*** (0.0006)	0.0056*** (0.0006)	0.0055*** (0.0006)	0.0050*** (0.0007)
$R^2$	0.0752	0.0875	0.0906	0.1654	0.0713	0.0799	0.0841	0.1535
Observations	903,690	903,690	903,690	701,676	903,690	903,690	903,690	701,676
Outcome mean	0.0186	0.0186	0.0186	0.0228	0.0028	0.0028	0.0028	0.0034
Department-Year FE	No	Yes	No	No	No	Yes	No	No
Municipality-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Family-Year FE	No	No	No	Yes	No	No	No	Yes

*Note:* See Equation 1 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the local family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007. All models include family-municipality and year fixed effects. All centrality measures are standardized. The unit of analysis is the family-municipality-year. Clustered standard errors at the family-municipality level are shown in parentheses. \*, \*\*, \*\*\*, significant at 10%, 5% and 1%.

## D.5 Restricted Sample of Local Beneficiary Families

Table A7: Keeping only Local Families that Received Ill-Gotten Lands

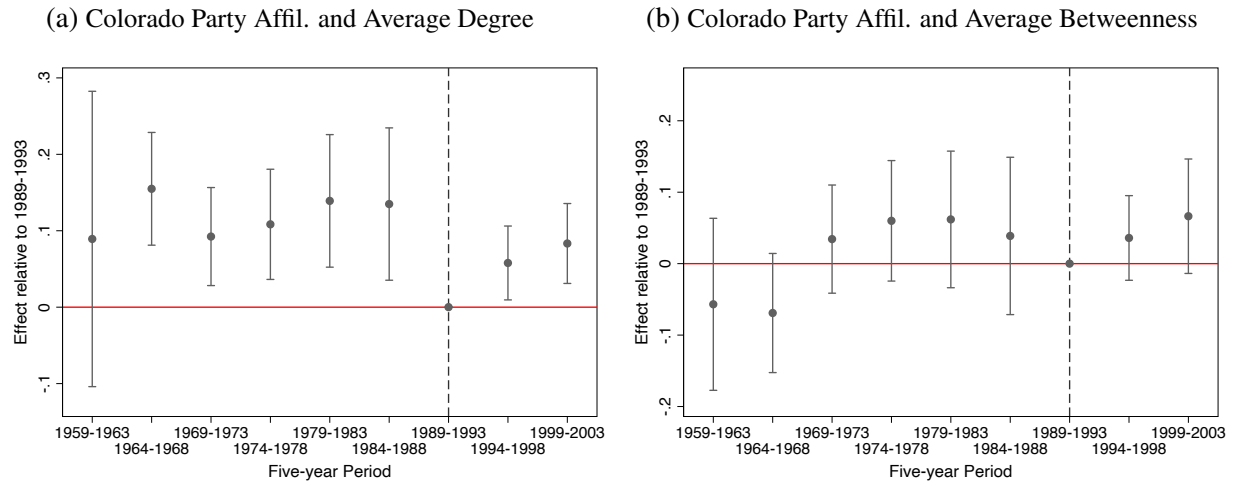
	Hectares (log)				Land Grant (binary)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>(a) Eigenvector Centrality</i>								
Autocracy $\times$ Eigenvector	0.0553*** (0.0134)	0.0583*** (0.0138)	0.0577*** (0.0141)	0.0210* (0.0119)	0.0068*** (0.0018)	0.0076*** (0.0018)	0.0074*** (0.0019)	0.0023 (0.0016)
$R^2$	0.0492	0.0902	0.1153	0.5558	0.0526	0.0932	0.1294	0.5444
<i>(b) Degree Centrality</i>								
Autocracy $\times$ Degree	0.0974*** (0.0144)	0.0936*** (0.0151)	0.0875*** (0.0152)	0.0635*** (0.0148)	0.0141*** (0.0020)	0.0137*** (0.0021)	0.0128*** (0.0020)	0.0083*** (0.0021)
$R^2$	0.0496	0.0905	0.1156	0.5559	0.0530	0.0936	0.1298	0.5445
<i>(c) Betweenness Centrality</i>								
Autocracy $\times$ Betweenness	0.0385*** (0.0074)	0.0340*** (0.0072)	0.0305*** (0.0068)	0.0222*** (0.0067)	0.0064*** (0.0012)	0.0056*** (0.0012)	0.0050*** (0.0011)	0.0033*** (0.0011)
$R^2$	0.0495	0.0903	0.1155	0.5559	0.0531	0.0935	0.1297	0.5445
Observations	67,662	67,662	67,392	54,270	67,662	67,662	67,392	54,270
Outcome mean	0.2377	0.2377	0.2381	0.2490	0.0358	0.0358	0.0359	0.0374
Department-Year FE	No	Yes	No	No	No	Yes	No	No
Municipality-Year FE	No	No	Yes	Yes	No	No	Yes	Yes
Family-Year FE	No	No	No	Yes	No	No	No	Yes

*Note:* See Equation 1 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007 and includes only local families that received at least one grant of ill-gotten land during this period. All models include family-municipality and year-fixed effects. All centrality measures are standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of the families with the same family name out of the population of family names. Clustered standard errors at the family-municipality level in parentheses.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

## E Identification Assumptions: Party Membership

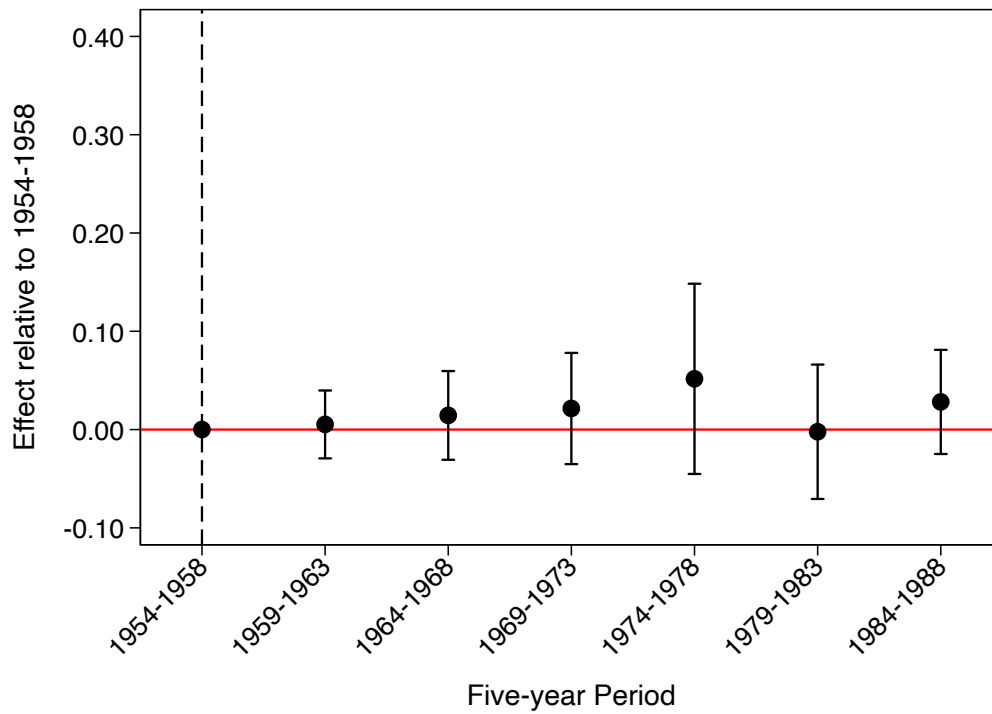
Figure A3: Evidence of “Future Parallel Trends” for Colorado Party Affiliations and Average Degree and Betweenness Centrality



*Note:* The results follow specification of Equation 2 at the municipality level. Full table of the results presented in Appendix Table A13 and Appendix Table A14. The sample covers the period 1959-2003.

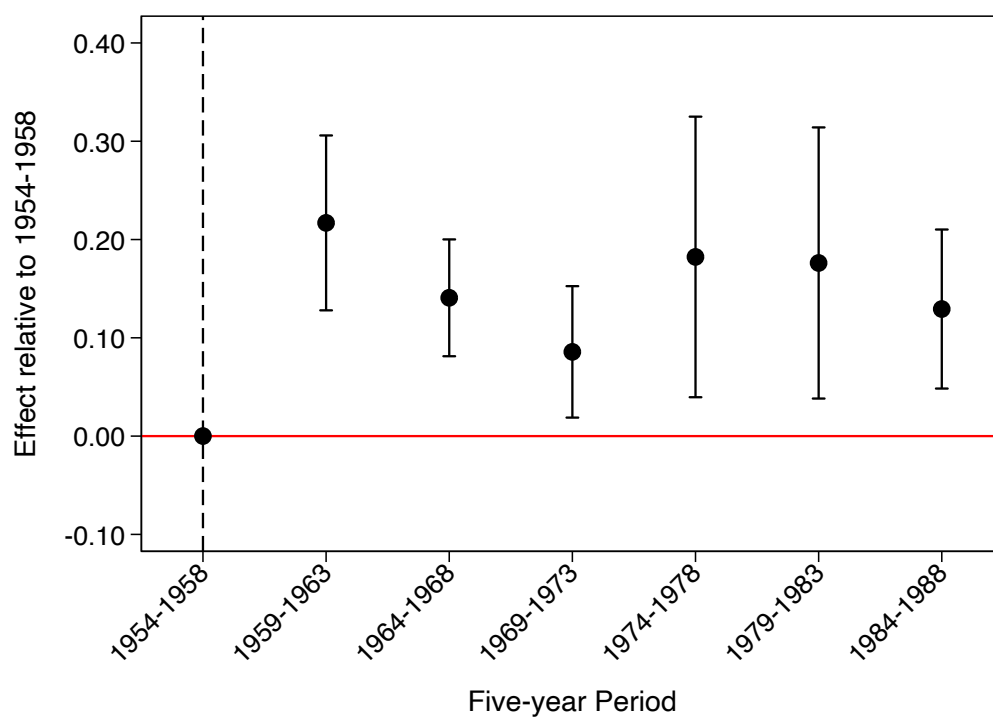
## F Event Plots: Targeted Repression

Figure A4: Human Rights Violations and Average Degree



*Note:* Full table of the results presented in Appendix Table A16. The sample covers the period 1954-1988.

Figure A5: Human Rights Violations and Average Betweenness



*Note:* Full table of the results presented in Appendix Table A17. The sample covers the period 1954-1988.

## G Extensions: Family Networks, Democracy, and Rural Collective Action

What are the implications of our theory on distribution to high-centrality local families during autocracy for rural collective action once a democratic transition occurs? Autocracies enable well-connected local elites to subdue rural populations via paternalism, intimidation, and coercion. However, by granting freedom of association and removing barriers to unionization, democracies disarticulate these traditional patterns of control (Albertus, 2017; Baland & Robinson, 2012; Ziblatt, 2009). Regime openness and political liberalization provide opportunities for the rural poor to voice their grievances and engage in contentious forms of collective action previously suppressed under autocracy, such as farm strikes and land occupations (e.g., Albertus et al., 2018; Brockett, 1991; Houtzager and Kurtz, 2000).

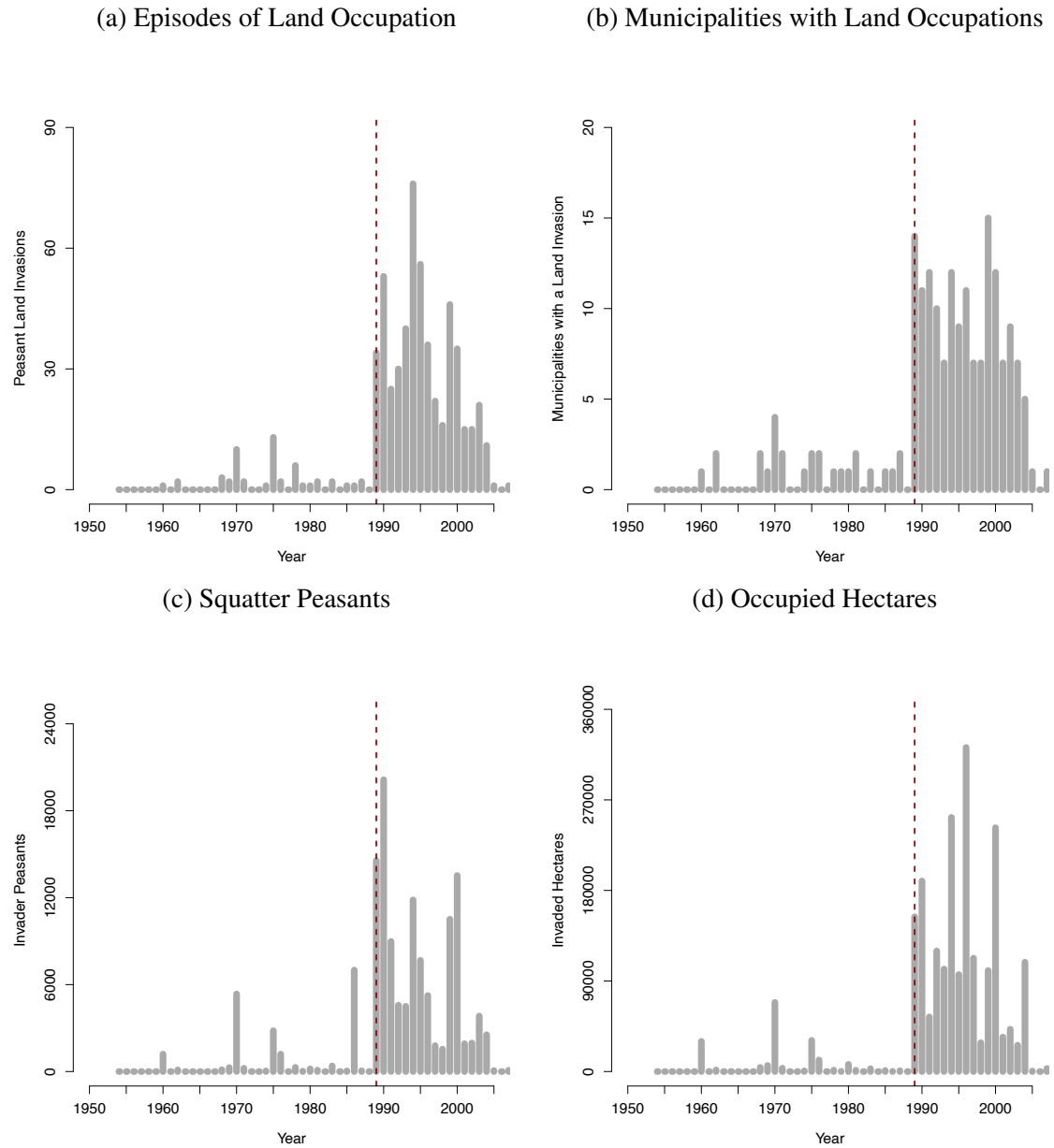
In effect, anecdotal evidence on Paraguay points to increased land occupations after the shift to democratic rule in 1989, particularly in the municipalities where the most influential local Colorado bosses resided. The demise of Stroessner's dictatorship encouraged once-acquiescent landless peasants to rebel against the Colorado coterie, invade their rural estates, and demand the recuperation of the ill-gotten lands (e.g., Ardití (1992). Hetherington (2011), Rojas and Areco (2017)). Therefore, our argument implies that, if rural populations are more repressed and demobilized in areas with well-connected local elites, then localities with higher family network centrality should experience a greater increase in rural collective action in the post-autocratic period once the authoritarian practices to control political participation are overturned.

We test this implication by estimating the effect of democracy across municipalities, which vary in their aggregate family network centrality, on episodes of land occupation by peasants. Similar to our regression analysis of Colorado Party affiliations, we estimate the effect of democracy on land occupations at the municipality-year level. However, instead of a difference-in-differences in reverse, we implement a difference-in-differences approach. Unlike our previous estimations, the treatment variable here is the interaction of our aggregate measures of municipal family network centrality with *democracy*, not *autocracy*. Because we want to examine how democratic rule affects the incentives of landless peasants to engage in contentious collective action in localities previously suppressed by tighter social control, the key treatment is the 1989 transition to democracy.

The outcome variables are the logged number of land occupations and a binary measure for whether an occupation occurred in any given municipality-year. We also use the logged number of squatter peasants participating in land occupations and the logged number of occupied hectares. The data come from the archives of *Informativo Campesino* (Peasant Bulletin), a publication that keeps track of current and past episodes of peasant, land-related conflict in Paraguay. Figure A6 shows the annual values for these four measures of land occupation.

Table A8 reports differential positive effects of family network centrality across the four measures of land occupation under democracy. These estimates are statistically significant only for the largest eigenvalue and average betweenness. Results in columns 1 and 2 of panel (a) indicate that, following the end of Stroessner regime in 1989, a one standard deviation increase in the largest eigenvalue increases the episodes of land occupation by 6%, whereas the occurrence of at least one land occupation increases by 4pp. Results in columns 3 and 4 also show increases in the number of squatter peasants and occupied hectares of 25% and 36%, respectively. These differential effects are even stronger when focusing on betweenness centrality. Figure A7 presents the corresponding event-study coefficients obtained from estimating Equation 2 at the municipality level. All panels show that there are no significant differences in

Figure A6: Land Occupations, 1954-2007



*Note:* The dashed lines are placed on 1989, the year of Stroessner's downfall, and the beginning of the democratic period.

municipalities with a higher largest eigenvalue in the Stroessner years leading to the democratic transition, but that land occupations increase differentially in these municipalities after 1989. Figures A8 and A9 show the trends for our secondary measures of network centrality.

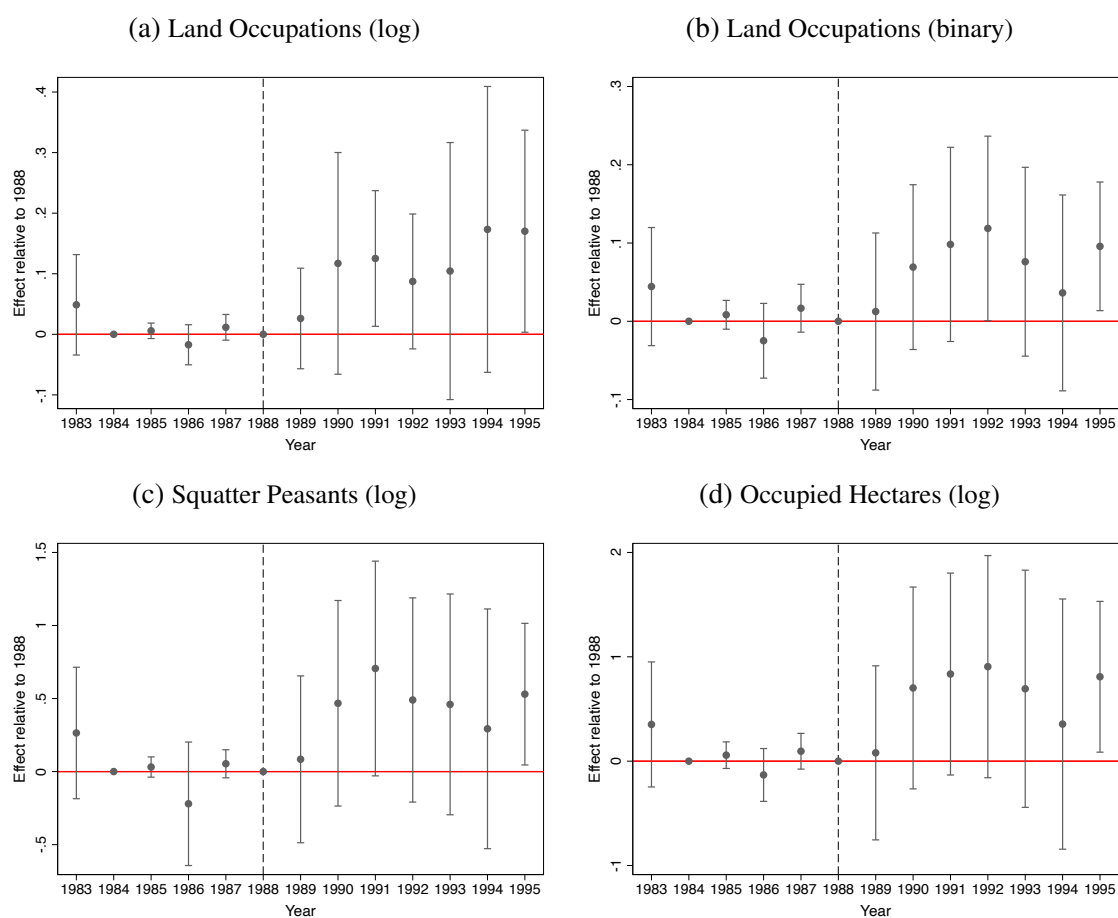
Table A8: Land Occupations and Municipal Family Network Centrality

	Occup. (log) (1)	Occup. (binary) (2)	Peasants (log) (3)	Hectares (log) (4)
<i>(a) Largest Eigenvalue</i>				
Democracy × Eigenvalue	0.0581** (0.0262)	0.0434** (0.0184)	0.2468** (0.1075)	0.3559** (0.1601)
$R^2$	0.4709	0.4522	0.4727	0.4698
<i>(b) Average Degree</i>				
Democracy × Degree	0.0250 (0.0232)	0.0204 (0.0179)	0.1147 (0.1008)	0.1654 (0.1501)
$R^2$	0.4657	0.4471	0.4677	0.4647
<i>(c) Average Betweenness</i>				
Democracy × Betweenness	0.1986*** (0.0442)	0.0817*** (0.0186)	0.6372*** (0.1333)	0.8307*** (0.1895)
$R^2$	0.5211	0.4634	0.4988	0.4903
Outcome mean	0.0719	0.0599	0.3331	0.4818
Observations	2,970	2,970	2,970	2,970

*Note:* Occupations (log) are the logged number of peasant land occupations a municipality experiences in a given year. Occupations (binary) is an indicator equal to 1 if a municipality experienced a peasant land occupation in a given year. Peasants (log) is the number of squatter peasants that occupied land in a municipality in a given year. Hectares (log) is the number of occupied land hectares in a municipality in a given year. The sample covers the period 1954-2007. All models include municipality, year, and department-year fixed effects. All centrality measures are standardized. The unit of analysis is the municipality-year. Clustered standard errors at the municipality level in parentheses.

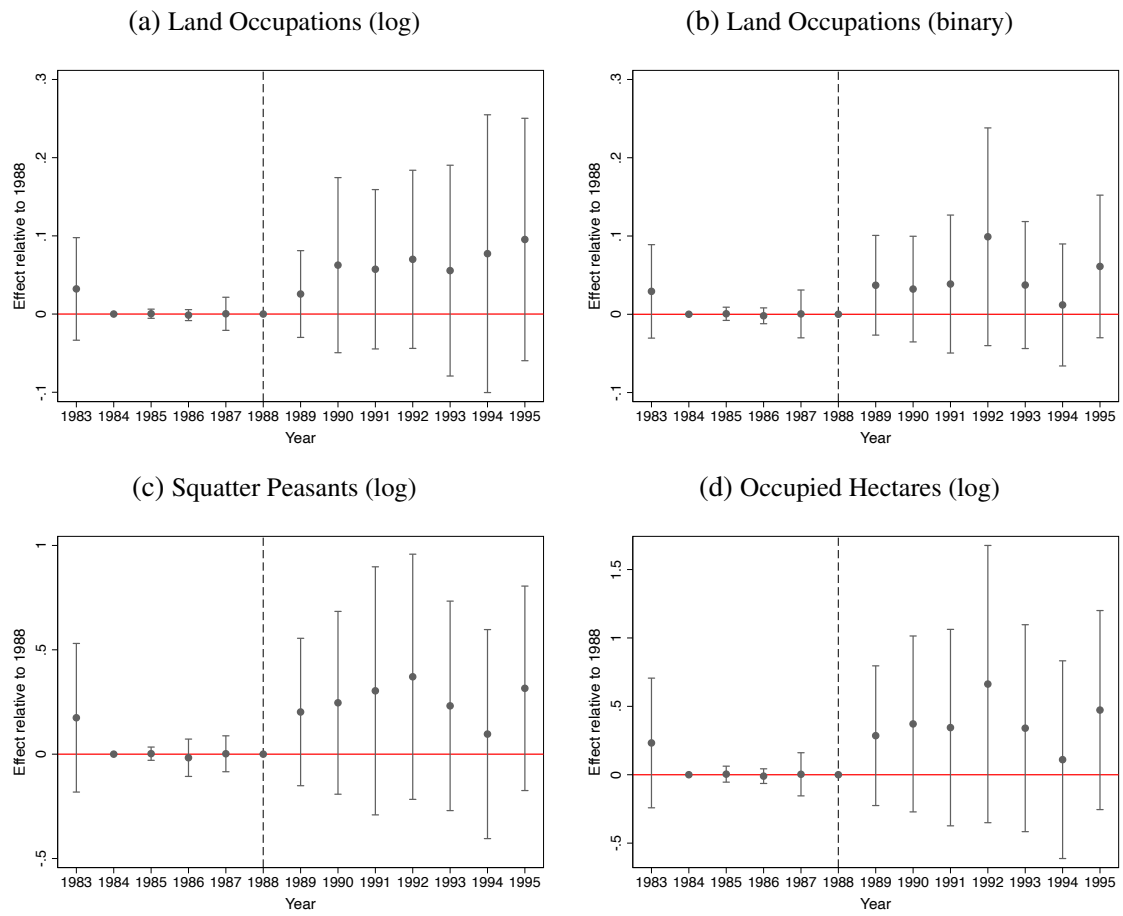
\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Figure A7: Evidence of Parallel Trends for Land Occupations and Largest Eigenvalue



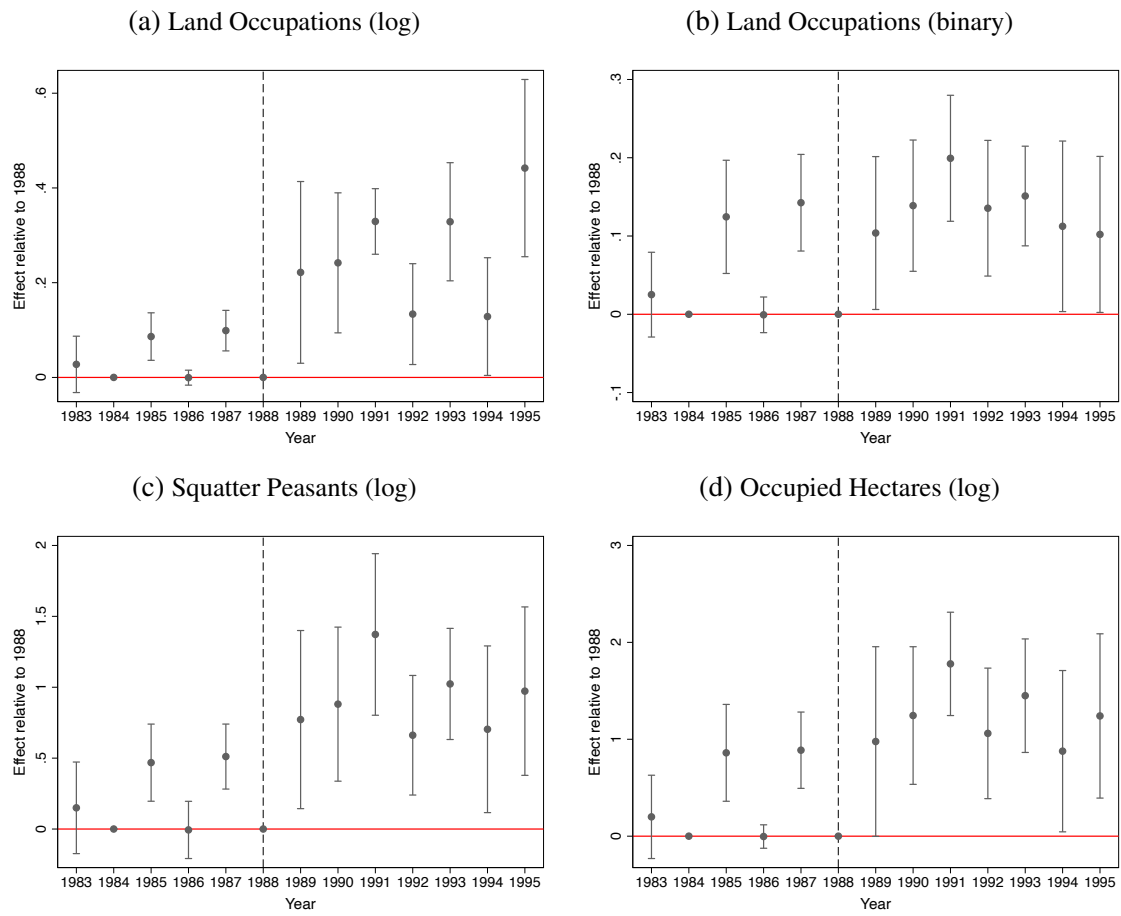
*Note:* The results follow specification of Equation 2 at the municipality level. Full table of the results presented in Appendix Table A18. The sample covers the period 1954-2007, but only point estimates from 1983-1995 are shown.

Figure A8: Evidence of Parallel Trends for Land Occupations and Average Degree



*Note:* The results follow specification of Equation 2 at the municipality level. Full table of the results presented in Appendix Table A19. The sample covers the period 1954-2007, but only point estimates from 1983-1995 are shown.

Figure A9: Evidence of Parallel Trends for Land Occupations and Average Betweenness



*Note:* The results follow specification of Equation 2 at the municipality level. Full table of the results presented in Appendix Table 20. The sample covers the period 1954-2007, but only point estimates from 1983-1995 are shown.

## **H Full Tables for Event Study Plots**

Table A9: Event Study of Ill-Gotten Lands and Eigenvector Centrality

	Hectares (log) (1)	Land grant (binary) (2)
Year 1971 × Eigenvector	0.0232 (0.0171)	0.0039* (0.0023)
Year 1972 × Eigenvector	-0.0036 (0.0118)	0.0005 (0.0016)
Year 1973 × Eigenvector	0.0287* (0.0163)	0.0050** (0.0023)
Year 1974 × Eigenvector	0.0271* (0.0149)	0.0051** (0.0022)
Year 1975 × Eigenvector	0.0370** (0.0177)	0.0061** (0.0025)
Year 1976 × Eigenvector	0.0168 (0.0135)	0.0032* (0.0019)
Year 1977 × Eigenvector	0.0134 (0.0137)	0.0033 (0.0020)
Year 1978 × Eigenvector	0.0299* (0.0179)	0.0047** (0.0023)
Year 1979 × Eigenvector	0.0594** (0.0260)	0.0082** (0.0033)
Year 1980 × Eigenvector	0.1082*** (0.0297)	0.0129*** (0.0035)
Year 1981 × Eigenvector	0.0898*** (0.0205)	0.0114*** (0.0026)
Year 1982 × Eigenvector	0.0637** (0.0258)	0.0084*** (0.0031)
Year 1983 × Eigenvector	0.0211 (0.0185)	0.0025 (0.0022)
Year 1984 × Eigenvector	0.0747*** (0.0198)	0.0092*** (0.0024)
Year 1985 × Eigenvector	0.0101 (0.0143)	0.0022 (0.0020)
Year 1986 × Eigenvector	0.0138 (0.0128)	0.0025 (0.0017)
Year 1987 × Eigenvector	0.0943*** (0.0284)	0.0113*** (0.0033)
Year 1988 × Eigenvector	0.0709** (0.0324)	0.0076** (0.0035)
Year 1990 × Eigenvector	-0.0043 (0.0118)	-0.0003 (0.0015)
Year 1991 × Eigenvector	-0.0027 (0.0137)	-0.0003 (0.0016)
Year 1992 × Eigenvector	-0.0085 (0.0112)	-0.0002 (0.0015)
Year 1993 × Eigenvector	-0.0196* (0.0103)	-0.0022* (0.0013)
Year 1994 × Eigenvector	0.0262 (0.0231)	0.0038 (0.0029)
Year 1995 × Eigenvector	-0.0092 (0.0136)	-0.0012 (0.0016)
Year 1996 × Eigenvector	-0.0038 (0.0113)	-0.0005 (0.0014)
Year 1997 × Eigenvector	0.0058 (0.0211)	0.0007 (0.0025)
Year 1998 × Eigenvector	0.0006 (0.0156)	0.0009 (0.0020)
Year 1999 × Eigenvector	0.0097 (0.0227)	0.0012 (0.0027)
Year 2000 × Eigenvector	-0.0101 (0.0098)	-0.0011 (0.0012)
Year 2001 × Eigenvector	-0.0132 (0.0111)	-0.0015 (0.0014)
Year 2002 × Eigenvector	-0.0226** (0.0100)	-0.0027** (0.0012)
Year 2003 × Eigenvector	-0.0226** (0.0100)	-0.0027** (0.0012)
Year 2004 × Eigenvector	-0.0226** (0.0100)	-0.0027** (0.0012)
Year 2005 × Eigenvector	-0.0226** (0.0100)	-0.0027** (0.0012)
Year 2006 × Eigenvector	-0.0226** (0.0100)	-0.0027** (0.0012)
Year 2007 × Eigenvector	-0.0226** (0.0100)	-0.0026** (0.0012)
Observations	778,410	778,410
R <sup>2</sup>	0.0487	0.0533

*Note:* This table presents the coefficients plotted in Figure 5. See Equation 2 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007, but this table shows only the point estimates presented in Figure 5. All models include family-municipality and year-fixed effects. Eigenvector Centrality is standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of the families with the same family name out of the population of family names. Clustered standard errors at the family-municipality level in parentheses. The excluded year category is 1989.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A10: Event Study of Ill-Gotten Lands and Degree Centrality

	Hectares (log) (1)	Land grant (binary) (2)
Year 1971 × Degree	0.0212 (0.0144)	0.0047** (0.0020)
Year 1972 × Degree	0.0213 (0.0150)	0.0040* (0.0021)
Year 1973 × Degree	0.0883*** (0.0186)	0.0150*** (0.0027)
Year 1974 × Degree	0.0806*** (0.0184)	0.0131*** (0.0026)
Year 1975 × Degree	0.1016*** (0.0188)	0.0170*** (0.0028)
Year 1976 × Degree	0.0636*** (0.0175)	0.0108*** (0.0025)
Year 1977 × Degree	0.0915*** (0.0190)	0.0142*** (0.0026)
Year 1978 × Degree	0.0531*** (0.0148)	0.0104*** (0.0023)
Year 1979 × Degree	0.1308*** (0.0208)	0.0191*** (0.0028)
Year 1980 × Degree	0.1570*** (0.0232)	0.0189*** (0.0028)
Year 1981 × Degree	0.1799*** (0.0233)	0.0232*** (0.0029)
Year 1982 × Degree	0.0939*** (0.0180)	0.0137*** (0.0024)
Year 1983 × Degree	0.0448** (0.0175)	0.0065*** (0.0022)
Year 1984 × Degree	0.1193*** (0.0204)	0.0156*** (0.0026)
Year 1985 × Degree	0.0451*** (0.0165)	0.0069*** (0.0022)
Year 1986 × Degree	0.0471*** (0.0160)	0.0065*** (0.0021)
Year 1987 × Degree	0.1227*** (0.0198)	0.0155*** (0.0025)
Year 1988 × Degree	0.0879*** (0.0194)	0.0104*** (0.0024)
Year 1990 × Degree	-0.0102 (0.0114)	-0.0013 (0.0014)
Year 1991 × Degree	-0.0092 (0.0118)	-0.0013 (0.0015)
Year 1992 × Degree	-0.0176 (0.0118)	-0.0014 (0.0016)
Year 1993 × Degree	-0.0205* (0.0113)	-0.0027* (0.0014)
Year 1994 × Degree	0.0320** (0.0162)	0.0047** (0.0021)
Year 1995 × Degree	-0.0180 (0.0116)	-0.0024 (0.0015)
Year 1996 × Degree	0.0181 (0.0140)	0.0019 (0.0017)
Year 1997 × Degree	-0.0058 (0.0112)	-0.0009 (0.0014)
Year 1998 × Degree	-0.0037 (0.0119)	-0.0001 (0.0015)
Year 1999 × Degree	0.0150 (0.0147)	0.0020 (0.0018)
Year 2000 × Degree	-0.0026 (0.0115)	-0.0004 (0.0014)
Year 2001 × Degree	-0.0128 (0.0121)	-0.0016 (0.0015)
Year 2002 × Degree	-0.0328*** (0.0097)	-0.0041*** (0.0012)
Year 2003 × Degree	-0.0328*** (0.0097)	-0.0041*** (0.0012)
Year 2004 × Degree	-0.0328*** (0.0097)	-0.0041*** (0.0012)
Year 2005 × Degree	-0.0328*** (0.0097)	-0.0041*** (0.0012)
Year 2006 × Degree	-0.0328*** (0.0097)	-0.0041*** (0.0012)
Year 2007 × Degree	-0.0328*** (0.0097)	-0.0037*** (0.0013)
Observations	778,410	778,410
R <sup>2</sup>	0.0506	0.0551

*Note:* This table presents the coefficients plotted in Appendix Figure A2, panels (a) and (b). See Equation 2 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the family received an ill-gotten land grant in a given year. The sample covers the period 1954-2007, but this table shows only the point estimates presented in Figure A2. All models include family-municipality and year-fixed effects. Degree Centrality is standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of the families with the same family name out of the population of family names. Clustered standard errors at the family-municipality level in parentheses. The excluded year category is 1989.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A11: Event Study of Ill-Gotten Lands and Betweenness Centrality

	Hectares (log) (1)	Land grant (binary) (2)
Year 1971 × Betweenness	0.0198* (0.0119)	0.0037** (0.0019)
Year 1972 × Betweenness	0.0171 (0.0117)	0.0030 (0.0018)
Year 1973 × Betweenness	0.0890*** (0.0237)	0.0146*** (0.0038)
Year 1974 × Betweenness	0.0696*** (0.0194)	0.0109*** (0.0029)
Year 1975 × Betweenness	0.0959*** (0.0207)	0.0154*** (0.0034)
Year 1976 × Betweenness	0.0490*** (0.0156)	0.0080*** (0.0024)
Year 1977 × Betweenness	0.0892*** (0.0227)	0.0129*** (0.0030)
Year 1978 × Betweenness	0.0637*** (0.0181)	0.0122*** (0.0034)
Year 1979 × Betweenness	0.0892*** (0.0203)	0.0142*** (0.0034)
Year 1980 × Betweenness	0.0647*** (0.0175)	0.0080*** (0.0026)
Year 1981 × Betweenness	0.1059*** (0.0229)	0.0141*** (0.0032)
Year 1982 × Betweenness	0.0480*** (0.0139)	0.0077*** (0.0023)
Year 1983 × Betweenness	0.0141 (0.0112)	0.0019 (0.0016)
Year 1984 × Betweenness	0.0575*** (0.0155)	0.0086*** (0.0026)
Year 1985 × Betweenness	0.0154 (0.0113)	0.0022 (0.0017)
Year 1986 × Betweenness	0.0258** (0.0116)	0.0036** (0.0017)
Year 1987 × Betweenness	0.0463*** (0.0143)	0.0065*** (0.0024)
Year 1988 × Betweenness	0.0387** (0.0153)	0.0045** (0.0020)
Year 1990 × Betweenness	-0.0094 (0.0071)	-0.0015 (0.0011)
Year 1991 × Betweenness	-0.0029 (0.0085)	-0.0005 (0.0013)
Year 1992 × Betweenness	-0.0021 (0.0100)	-0.0001 (0.0015)
Year 1993 × Betweenness	-0.0083 (0.0085)	-0.0014 (0.0012)
Year 1994 × Betweenness	0.0116 (0.0108)	0.0019 (0.0016)
Year 1995 × Betweenness	-0.0084 (0.0082)	-0.0014 (0.0012)
Year 1996 × Betweenness	0.0073 (0.0087)	0.0004 (0.0012)
Year 1997 × Betweenness	-0.0009 (0.0086)	-0.0005 (0.0013)
Year 1998 × Betweenness	-0.0054 (0.0077)	-0.0008 (0.0012)
Year 1999 × Betweenness	0.0026 (0.0093)	0.0001 (0.0013)
Year 2000 × Betweenness	-0.0049 (0.0072)	-0.0010 (0.0011)
Year 2001 × Betweenness	0.0091 (0.0200)	0.0006 (0.0024)
Year 2002 × Betweenness	-0.0158** (0.0069)	-0.0023** (0.0011)
Year 2003 × Betweenness	-0.0158** (0.0069)	-0.0023** (0.0011)
Year 2004 × Betweenness	-0.0158** (0.0069)	-0.0023** (0.0011)
Year 2005 × Betweenness	-0.0158** (0.0069)	-0.0023** (0.0011)
Year 2006 × Betweenness	-0.0158** (0.0069)	-0.0023** (0.0011)
Year 2007 × Betweenness	-0.0158** (0.0069)	-0.0019* (0.0011)
Observations	778,410	778,410
R <sup>2</sup>	0.0506	0.0557

*Note:* This table presents the coefficients plotted in Appendix Figure A2, panels (c) and (d). See Equation 2 for specification. Hectares (log) measures the logged number of ill-gotten land hectares received by a local family in a given year, and Land Grant (binary) is an indicator equal to 1 if the family received an ill-gotten land grant in a given year. The sample covers the period 1954–2007, but this table shows only the point estimates presented in Figure A2. All models include family-municipality and year-fixed effects. Betweenness Centrality is standardized. The unit of analysis is the family-municipality-year. Observations are weighted by the inverse of the share of the families with the same family name out of the population of family names. Clustered standard errors at the family-municipality level in parentheses. The excluded year category is 1989.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A12: Event Study of Colorado Party Affiliations and Largest Eigenvalue

	Colorado Party Affiliations (log) (1)
1959-1963 $\times$ Largest Eigenvalue	0.0477 (0.0537)
1964-1968 $\times$ Largest Eigenvalue	0.1036* (0.0550)
1969-1973 $\times$ Largest Eigenvalue	-0.0040 (0.0445)
1974-1978 $\times$ Largest Eigenvalue	0.0835** (0.0371)
1979-1983 $\times$ Largest Eigenvalue	0.0911** (0.0443)
1984-1988 $\times$ Largest Eigenvalue	0.0463 (0.0654)
1994-1998 $\times$ Largest Eigenvalue	0.0128 (0.0360)
1999-2003 $\times$ Largest Eigenvalue	0.0469 (0.0373)
Observations	459
$R^2$	0.9676

*Note:* This table presents the coefficients plotted in Figure 6. The results follow specification of Equation 2 at the municipality level. Colorado Party Affiliations (log) measures the logged number of new Colorado affiliates in a given pre-electoral period. The model includes municipality, period, and department-period fixed effects. Eigenvector Centrality is standardized. The sample covers the period 1959-2003. The unit of analysis is the municipality-period. Clustered standard errors at the municipality level in parentheses. The excluded period category is 1989-1993.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A13: Event Study of Colorado Party Affiliations and Average Degree

	Colorado Party Affiliations (log) (1)
1959-1963 $\times$ Avg. Degree	0.0892 (0.0962)
1964-1968 $\times$ Avg. Degree	0.1549*** (0.0367)
1969-1973 $\times$ Avg. Degree	0.0924*** (0.0319)
1974-1978 $\times$ Avg. Degree	0.1084*** (0.0359)
1979-1983 $\times$ Avg. Degree	0.1391*** (0.0432)
1984-1988 $\times$ Avg. Degree	0.1349*** (0.0496)
1994-1998 $\times$ Avg. Degree	0.0578** (0.0241)
1999-2003 $\times$ Avg. Degree	0.0833*** (0.0260)
Observations	459
$R^2$	0.9678

*Note:* This table presents the coefficients plotted in Appendix Figure A3, panel (a). The results follow specification of Equation 2 at the municipality level. Colorado Party Affiliations (log) measures the logged number of new Colorado affiliates in a given pre-electoral period. The model includes municipality, period, and department-period fixed effects. Eigenvector Centrality is standardized. The sample covers the period 1959-2003. The unit of analysis is the municipality-period. Clustered standard errors at the municipality level in parentheses. The excluded period category is 1989-1993.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A14: Event Study of Colorado Party Affiliations and Average Betweenness

	Colorado Party Affiliations (log) (1)
1959-1963 $\times$ Avg. Betweenness	-0.0569 (0.0599)
1964-1968 $\times$ Avg. Betweenness	-0.0691 (0.0415)
1969-1973 $\times$ Avg. Betweenness	0.0343 (0.0377)
1974-1978 $\times$ Avg. Betweenness	0.0599 (0.0420)
1979-1983 $\times$ Avg. Betweenness	0.0619 (0.0476)
1984-1988 $\times$ Avg. Betweenness	0.0388 (0.0548)
1994-1998 $\times$ Avg. Betweenness	0.0359 (0.0295)
1999-2003 $\times$ Avg. Betweenness	0.0664 (0.0399)
Observations	459
$R^2$	0.9678

*Note:* This table presents the coefficients plotted in Appendix Figure A3, panel (b). The results follow specification of Equation 2 at the municipality level. Colorado Party Affiliations (log) measures the logged number of new Colorado affiliates in a given pre-electoral period. The model includes municipality, period, and department-period fixed effects. Eigenvector Centrality is standardized. The sample covers the period 1959-2003. The unit of analysis is the municipality-period. Clustered standard errors at the municipality level in parentheses. The excluded period category is 1989-1993.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A15: Event Study of Human Rights Violations and Largest Eigenvalue

	Colorado Party Affiliations (log) (1)
1959-1963 $\times$ Largest Eigenvalue	0.0605 (0.0445)
1964-1968 $\times$ Largest Eigenvalue	0.0540* (0.0316)
1969-1973 $\times$ Largest Eigenvalue	0.0797*** (0.0297)
1974-19678 $\times$ Largest Eigenvalue	0.1334** (0.0523)
1979-1983 $\times$ Largest Eigenvalue	0.0249 (0.0502)
1984-1988 $\times$ Largest Eigenvalue	0.1110** (0.0485)
Observations	1,870
$R^2$	0.3170

*Note:* This table presents the coefficients plotted in Figure 7. Clustered standard errors at the municipality level in parentheses. The model includes department-year fixed effects. The sample covers the period 1954-1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A16: Event Study of Human Rights Violations and Average Degree

	Colorado Party Affiliations (log)
	(1)
1959-1963 $\times$ Avg. Degree	0.0052 (0.0172)
1964-1968 $\times$ Avg. Degree	0.0144 (0.0225)
1969-1972 $\times$ Avg. Degree	0.0214 (0.0282)
1974-1978 $\times$ Avg. Degree	0.0516 (0.0483)
1979-1983 $\times$ Avg. Degree	-0.0022 (0.0341)
1984-1988 $\times$ Avg. Degree	0.0281 (0.0264)
Observations	1,870
$R^2$	0.2795

*Note:* This table presents the coefficients plotted in Figure A4. Clustered standard errors at the municipality level in parentheses. The model includes department-year fixed effects. The sample covers the period 1954-1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A17: Event Study of Human Rights Violations and Average Betweenness

	Colorado Party Affiliations (log)
	(1)
1959-1963 $\times$ Avg. Betweenness	0.2169*** (0.0444)
1964-1968 $\times$ Avg. Betweenness	0.1407*** (0.0296)
1969-1973 $\times$ Avg. Betweenness	0.0857** (0.0333)
1974-1978 $\times$ Avg. Betweenness	0.1823** (0.0712)
1979-1983 $\times$ Avg. Betweenness	0.1761** (0.0688)
1984-1988 $\times$ Avg. Betweenness	0.1293*** (0.0404)
Observations	1,870
$R^2$	0.3881

*Note:* This table presents the coefficients plotted in Figure A5. Clustered standard errors at the municipality level in parentheses. The model includes department-year fixed effects. The sample covers the period 1954-1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A18: Event Study of Land Occupations and Largest Eigenvalue

	Land Occupations (log) (1)	Land Occupations (binary) (2)	Squatter Peasants (log) (3)	Occupied Hectares (log) (4)
Year 1983 $\times$ Largest Eigenvalue	0.0487 (0.0414)	0.0443 (0.0377)	0.2644 (0.2245)	0.3520 (0.2989)
Year 1984 $\times$ Largest Eigenvalue	-0.0000 (0.0000)	-0.0000 (.)	-0.0000 (0.0000)	-0.0000 (.)
Year 1985 $\times$ Largest Eigenvalue	0.0058 (0.0064)	0.0083 (0.0092)	0.0313 (0.0345)	0.0574 (0.0635)
Year 1986 $\times$ Largest Eigenvalue	-0.0172 (0.0165)	-0.0249 (0.0238)	-0.2203 (0.2109)	-0.1320 (0.1263)
Year 1987 $\times$ Largest Eigenvalue	0.0116 (0.0106)	0.0167 (0.0153)	0.0535 (0.0479)	0.0951 (0.0855)
Year 1989 $\times$ Largest Eigenvalue	0.0262 (0.0414)	0.0124 (0.0501)	0.0841 (0.2849)	0.0797 (0.4161)
Year 1990 $\times$ Largest Eigenvalue	0.1171 (0.0913)	0.0692 (0.0525)	0.4676 (0.3510)	0.7015 (0.4825)
Year 1991 $\times$ Largest Eigenvalue	0.1252** (0.0559)	0.0982 (0.0619)	0.7058* (0.3667)	0.8348* (0.4827)
Year 1992 $\times$ Largest Eigenvalue	0.0873 (0.0556)	0.1186** (0.0588)	0.4902 (0.3487)	0.9056* (0.5311)
Year 1993 $\times$ Largest Eigenvalue	0.1044 (0.1059)	0.0761 (0.0602)	0.4600 (0.3771)	0.6937 (0.5670)
Year 1994 $\times$ Largest Eigenvalue	0.1732 (0.1177)	0.0363 (0.0624)	0.2929 (0.4094)	0.3553 (0.5983)
Year 1995 $\times$ Largest Eigenvalue	0.1702** (0.0832)	0.0958** (0.0410)	0.5301** (0.2418)	0.8087** (0.3605)
Observations (1983-1995)	728	728	728	728
$R^2$	0.4934	0.4836	0.5018	0.5073

*Note:* This table presents the coefficients plotted in Appendix Figure A7. The results follow specification of Equation 2 at the municipality level. Occupations (log) are the logged number of peasant land occupations a municipality experiences in a given year. Occupations (binary) is an indicator equal to 1 if a municipality experienced a peasant land occupation in a given year. Peasants (log) is the number of squatter peasants that occupied land in a municipality in a given year. Hectares (log) is the number of occupied land hectares in a municipality in a given year. The sample covers the period 1954-2007. The model includes municipality, year, and department-year fixed effects. Largest Eigenvalue is standardized. The unit of analysis is the municipality-year. Clustered standard errors at the municipality level in parentheses. The excluded year category is 1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A19: Event Study of Land Occupations and Average Degree

	Land Occupations (log) (1)	Land Occupations (binary) (2)	Squatter Peasants (log) (3)	Occupied Hectares (log) (4)
Year 1983 $\times$ Average Degree	0.0321 (0.0327)	0.0293 (0.0298)	0.1745 (0.1777)	0.2322 (0.2365)
Year 1984 $\times$ Average Degree	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (.)
Year 1985 $\times$ Average Degree	0.0004 (0.0029)	0.0006 (0.0042)	0.0023 (0.0159)	0.0042 (0.0291)
Year 1986 $\times$ Average Degree	-0.0013 (0.0035)	-0.0019 (0.0050)	-0.0172 (0.0446)	-0.0103 (0.0267)
Year 1987 $\times$ Average Degree	0.0003 (0.0106)	0.0005 (0.0152)	0.0019 (0.0429)	0.0032 (0.0787)
Year 1989 $\times$ Average Degree	0.0256 (0.0277)	0.0371 (0.0318)	0.2020 (0.1762)	0.2854 (0.2548)
Year 1990 $\times$ Average Degree	0.0625 (0.0559)	0.0322 (0.0337)	0.2461 (0.2185)	0.3714 (0.3209)
Year 1991 $\times$ Average Degree	0.0573 (0.0508)	0.0386 (0.0440)	0.3034 (0.2965)	0.3446 (0.3583)
Year 1992 $\times$ Average Degree	0.0700 (0.0568)	0.0990 (0.0694)	0.3708 (0.2931)	0.6628 (0.5057)
Year 1993 $\times$ Average Degree	0.0555 (0.0673)	0.0374 (0.0405)	0.2314 (0.2504)	0.3403 (0.3774)
Year 1994 $\times$ Average Degree	0.0772 (0.0886)	0.0119 (0.0389)	0.0962 (0.2498)	0.1101 (0.3606)
Year 1995 $\times$ Average Degree	0.0954 (0.0774)	0.0611 (0.0455)	0.3155 (0.2444)	0.4727 (0.3630)
Observations (1983-1995)	728	728	728	728
$R^2$	0.4796	0.4706	0.4875	0.4929

*Note:* This table presents the coefficients plotted in Appendix Figure A8. The results follow specification of Equation 2 at the municipality level. Occupations (log) are the logged number of peasant land occupations a municipality experiences in a given year. Occupations (binary) is an indicator equal to 1 if a municipality experienced a peasant land occupation in a given year. Peasants (log) is the number of squatter peasants that occupied land in a municipality in a given year. Hectares (log) is the number of occupied land hectares in a municipality in a given year. The sample covers the period 1954-2007. The model includes municipality, year, and department-year fixed effects. Average Degree is standardized. The unit of analysis is the municipality-year. Clustered standard errors at the municipality level in parentheses. The excluded year category is 1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

Table A20: Event Study of Land Occupations and Average Betweenness

	Land Occupations (log)	Land Occupations (binary)	Squatter Peasants (log)	Occupied Hectares (log)
	(1)	(2)	(3)	(4)
Year 1983 $\times$ Average Betweenness	0.0276 (0.0297)	0.0251 (0.0270)	0.1496 (0.1611)	0.1992 (0.2145)
Year 1984 $\times$ Average Betweenness	-0.0000 (.)	-0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (.)
Year 1985 $\times$ Average Betweenness	0.0863*** (0.0250)	0.1245*** (0.0361)	0.4682*** (0.1357)	0.8599*** (0.2493)
Year 1986 $\times$ Average Betweenness	-0.0005 (0.0079)	-0.0007 (0.0114)	-0.0062 (0.1007)	-0.0037 (0.0603)
Year 1987 $\times$ Average Betweenness	0.0988*** (0.0214)	0.1425*** (0.0308)	0.5111*** (0.1143)	0.8871*** (0.1964)
Year 1989 $\times$ Average Betweenness	0.2217** (0.0957)	0.1038** (0.0487)	0.7719** (0.3134)	0.9764* (0.4884)
Year 1990 $\times$ Average Betweenness	0.2419*** (0.0737)	0.1388*** (0.0418)	0.8808*** (0.2711)	1.2448*** (0.3543)
Year 1991 $\times$ Average Betweenness	0.3292*** (0.0345)	0.1993*** (0.0402)	1.3723*** (0.2843)	1.7780*** (0.2660)
Year 1992 $\times$ Average Betweenness	0.1337** (0.0531)	0.1355*** (0.0432)	0.6615*** (0.2104)	1.0606*** (0.3361)
Year 1993 $\times$ Average Betweenness	0.3286*** (0.0622)	0.1511*** (0.0318)	1.0232*** (0.1955)	1.4497*** (0.2923)
Year 1994 $\times$ Average Betweenness	0.1285** (0.0620)	0.1124** (0.0544)	0.7036** (0.2933)	0.8771** (0.4153)
Year 1995 $\times$ Average Betweenness	0.4419*** (0.0933)	0.1020** (0.0497)	0.9726*** (0.2964)	1.2406*** (0.4230)
Observations (1983-1995)	728	728	728	728
$R^2$	0.5765	0.5118	0.5415	0.5410

*Note:* This table presents the coefficients plotted in Appendix Figure A9. The results follow specification of Equation 2 at the municipality level. Occupations (log) are the logged number of peasant land occupations a municipality experiences in a given year. Occupations (binary) is an indicator equal to 1 if a municipality experienced a peasant land occupation in a given year. Peasants (log) is the number of squatter peasants that occupied land in a municipality in a given year. Hectares (log) is the number of occupied land hectares in a municipality in a given year. The sample covers the period 1954-2007. The model includes municipality, year, and department-year fixed effects. Average Betweenness is standardized. The unit of analysis is the municipality-year. Clustered standard errors at the municipality level in parentheses. The excluded year category is 1988.

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ .

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