Elite Family Networks and the 1891 Civil War in Chile.

by

Juan Pablo Couyoumdjian
Esceula de
Gobierno
Universidad de Desarrollo

Eugenio Guzmán
Esceula de
Gobierno
Universidad de Desarrollo

John Londregan
School of Public and
International Affairs
Princeton University

Yamil Tala
Esceula de
Gobierno
Universidad de Desarrollo

Version 0.2 – May 1, 2023

Abstract

We study the elite family networks in the Chilean Congress and Cabinet during the five Congresses that bracketed the 1891 Civil war. We include both relations by birth and by marriage in tracing family links to the sixth degree. Analyzing the 452 individuals who served during this interval we find the network consists of a giant central component encompassing almost 80% of office holders, with the remainder isolated as singletons or members of very small cliques. The expected number of offices held by an individual increases with his network centrality.

Introduction

In this paper we use data on family ties to measure the degree of cliquishness that prevailed among the Chilean elite during the period overlapping that country's 1891 Civil War. We measure ties as direct family relations, including both relations by birth and by marriage, linking pairs of individuals serving in the both chambers of Congress and the cabinet. This provides us with a picture not only of the set of family groups that composed the governing elite, but also of their degree of interconnectedness.

We take five cross sectional profiles of the elite during this troubled period, including the two Congresses, the twenty-first (1885-1888) and twenty-second (1885-1888), that served before the outbreak of the civil war, and the twenty-third (1891-1894) and twenty-fourth (1894-1897), that took place after the civil war had ended. We also include data on Balmaceda's Constituent Congress that sat during the civil war.

1 Family Networks in Politics

The importance of networks for politics in general, and for armed conflict in particular has been an active locus of study for over a decade, notable work on conflict at social networks includes the important work by Desmarais and Cranmer (2013) who uses network structure to construct an accurate forecasting model for international terrorism, as well as work by Metternich et al. (2013) that identifies fragmented networks as a risk factor for conflict, and applies the model to Thailand.

The importance of families in the rough and tumble of legislative politics has been the focus of Bó, Bó and Snyder (2009) who chart the importance of family brand names in US Congressional politics. The role of family names in politics is by no means restricted to the US. Ferraz, Finan and Martinez-Bravo. (2020) present evidence from Brazil that members of entrenched dynasties use their family ties to appeal to the electorate and to remain in office despite subpar performance. Suresh Naidu (2021) posit that network centrality enables individuals at the hub of a network to capture the rents they create by overthrowing the government. They present evidence from Haiti to support their claim. A less negative view of dynasties is provided by Cirone and Velasco. (2017) who show that members of political dynasties were more likely to resist joining a coalition for absolute submission to the occupying Germans at the beginning of the Vichy period in France.

van Coppenolle (2017) show that political families are more characteristic of less modern political systems, with their importance fading, but not disappearing, as society develops.

Closest to our project is Bro (2022) who focuses mostly on the role of networks in earlier events in Chilean politics–his section on the 1891 Civil war looks at genealogical links among cabinet members and on a subset of governors, but it leaves out Congress.

2 Background on the Chilean Civil War

Chile's 1891 Civil War was the bloodiest conflict in modern Chilean history. The episode culminated in the defeat of President José Manuel Balmaceda and his allies, and is seen as influencing the subsequent political development of the county. As such, this is an episode that has been studied extensively in the literature, and from different angles. In Chilean historiography the war has been analyzed as:

–A "restoration" of the oligarchy, in the face of its displacement by a government that appeared to be reformist Vial (1982)
–A growing tension in the face of renewed presidential patronage in national politics, this in a context where in the 1886 election Balmaceda had been elected with the help of unseemly electoral interventionism (Collier and Sater, 1996; Salas Edwards, 1914; Valenzuela, 1985)
–A conflict between congressional and presidential groups over the interpretation of current constitutional norms (Bañados Espinosa, 1894; Heise González, 1982; Valenzuela, 1985)
–A struggle between President Balmaceda and different economic and social interests, apprehensive about the revolutionary nature of his government (Ramírez Necochea, 1958)
–A result of president's flawed interpersonal skills, which translated into a lack of support from political coalitions (Salas Edwards, 1914)

In this way, this conflict has been seen as the beginning of an oligarchic-parliamentary period in Chile, although in the context of the existing Constitution (the Constitution of 1833, which had been reformed in 1874, 1876). However, as Heise González (1982) and Blakemore and Ortega (1991) have argued, some of the explanations we have just outlined are not consistent with other historical precedents. For one thing, Congress long since assumed a supervisory role over the Executive, even before the 1874 reforms. In this regard, two developments became points of sharp conflict, first a series of appointment to the cabinet of ministers without the consent of Congress nor of its supporters, and second Balmaceda's announcement of a constitutional reform to replace the "parliamentary" system" with a presidential regime. Both developments intensified anti-authoritarian and anti-presidentialist sentiment in Congress, and so increased opposition to Balmaceda.

3 The Data

We have used multiple genealogical sources, government rosters, and the Chilean Congressional Hansard to assemble data on the inter-relatedness of the 452 individuals who served in either chamber of Congress plus the cabinet during the period 1885-1897. We include data on the family an individual was born into, and we include links out to the sixth degree, second cousins[1]. We also include in-laws out to first cousins once removed, see the accompanying table:

We treat any of these relationships as creating an undirected link between the two individuals concerned. We then build up a map of connections among the all 452 individuals who served in at least one of our five Congresses.

Relationship	Degree	Relationship	Degree
		Spouse	0
Father/Son	1	Father/Son in Law	1
		Son's Father in Law	1
Brother	2	Brother in Law	2
		Brother's Brother in Law	2
Grandfather	2	Grandson	2
Grandson	2	Grandson	2
Uncle/Nephew	3	Uncle/Nephew in Law	3
First Cousin	4	First Cousin in Law	27
First Cousin once Removed[2]	6	First Cousin Once Removed in Law	6
Second Cousin	6	Second Cousin in Law	6

Most of the relationships are among coevals, while the bulk of the remainder consists of men separated by but a single generation. There seems to be an age at which people serve in Congress, and it does not span two generations. The slightly greater frequency of uncles and nephews seems to be due to the overlap of generations, as the younger children of one's parents and the older children of one's elder siblings tend to be closer in age than are fathers and sons.

After charting the network, we calculate the connectedness of our nodes in several different ways. First, we compute the number of network members an individual is directly connected to by way of some sort of direct family relationship (Jackson, 2008). We recalculate this measure weighing each of these connections by the reciprocal of the degree of each relationship, *e.g.* the link with a brother in law (distance 2) has weight $\frac{1}{2}$, while a direct connection with one's second cousin (distance 6) gets a weight of $\frac{1}{6}$.

We also calculate the Eigenvalue Centrality of each member (Bonacich, 1972). This gauges how centrally situated in the network of family connections an individual is. More central people can forge links and call in favors from a larger range of people, and act as intermediaries connecting larger numbers of other legislators than do their less well connected counterparts. The Eigenvector loadings of individuals who are not connected with the central clique for our network are all zero, so the Eigenvalue centrality measure tells us about how central individuals are to the main clique, of which there is one for this period. We recalculate each person's Eigenvalue centrality using the weighted version of our connectivity matrix, with each connection weighted by the closeness of the connection.

These and similar measures were used by Padgett and Ansell (1993) to identify the relative centrality of medieval Florentine families in the ruthless politics of that era.

4 The Network

The structure of the elite network consisting of all 452 members of the Balmaceda Congress, plus Congresses 21, 22, 23, and 24, consists of a central component, which we label C_{356}, comprised of 358 individuals, plus a stand-alone triple[3], three isolated pairs[4], and 85 singletons with no close relatives or in-laws among the other members of Congress and the Cabinet. The following table summarizes some salient features of the network.

Component	Size	Diameter	Average Degree	Average Prestige	Gini(Prestige)
C_{356}	358	9	6.698	0.01789	0.824
C_3	3	1	1.33	0	0
C_{2a}	2	1	1	0	0
C_{2b}	2	1	1	0	0
C_{2c}	2	1	1	0	0

The diameter of the 358 person omphalos[5] is 9. As is common with large components, the diameter of the epicenter of the Congressional network is much less than proportional to its size. The remaining components, including 85 singletons, are extremely small, but they constitute a non-trivial 20% of the whole sample.

By definition the components partition the network matrix into orthogonal blocks, so that each eigenvector takes on non-zero values only for elements of a single component. Eigen-value centrality, which corresponds with the first Eigen-vector, only yields non-zero values for members of the mega-component[6] For the network as a whole the average prestige[7] (Katz, 1953) is -0.0150, but the Gini coefficient is a remarkable 0.824–everyone in the central component may be related, but some are more related than others!

We repeat our analysis weighting the links by the inverse of the degree of the relationship, as we discussed in the preceding section. Now we find:

Component	Average Degree	Eigen-Value Centrality (EVC)	Gini(EVC)
C_{356}	2.370	0.01789	0.848
C_3	0.133	0.01342	0
C_{2a}	0.500	0	0
C_{2b}	1.000	0	0
C_{2c}	0.333	0	0

The overall picture that emerges is similar, though some of the smaller components now partially "catch up" with the C_{356}. The average weighted degree for the $C_{all,2b}$ component is now over 40% as large as for the main component, while even the $C_{all,3}$ component has maintained its relative standing. This is because some of the small components contain immediate family, whereas with almost seven ties *per* person the larger component will need to make contact beyond the set of first order relatives.

While our network centrality measures are different, they are positively correlated with one another. The following table displays the Pearson correlations along with bootstrapped convidence intervals and estimated bias[8]:"

variables	$\widehat{\rho}$	$\rho_{0.025}$	$\rho_{0.975}$	bias
$links, evc$	0.695	0.653	0.673	0.000
$links, Links$	0.888	0.892	0.896	−0.000
$links, EVC$	0.355	0.356	0.343	−0.008
$evc, Links$	0.529	0.513	0.525	−0.000
evc, EVC	0.194	0.194	0.197	−0.009
$Links, evc$	0.519	0.517	0.508	−0.005

We denote the average degree for the unweighted links by "links", while for the weighted links average degree is indicated by "Links". The Eigen Vector Centrality measure for the unweighted links is shown as *evc*, while for the weighted links it is EVC. Interestingly the highest correlation is between the two average degree measures, while the lowest is observed for the two Eigen Vector Centrality measures–yet all pairings of our four centrality measures are statistically significantly positively correlated[9].

5 The Balmaceda and the Elite

We now turn to the question of whether Balmaceda's administration was a departure from Chile's *de facto* oligarchy. To do this we examine the connection between the centrality measures and service in different legislative periods. We generate indicator variables for each session of Congress, coding 1 if a network member served in that session, and 0 otherwise. We calculate similar measures for cabinet members whose service coincides with the time periods Congress was in session. During normal times Congress's end on June 30 of every third year, with the new Congress beginning the next day. Balmaceda's Constituyent Congress began and ended outside the regular schedule, starting on April 5, 1891, and coming to an abrupt end in late August of the same year as the Congressional faction emerged victoriously from the conflict. We assign cabinet members to the Congressional period with which the coincided. While 380 individuals served in Congress but never in the cabinet, there were only 20 individuals in our data set who did not serve in the Congress, while 52 spent some time both in the Congress and in the cabinet.

For each of our measures we use an individual's service in both the Congress and the cabinet as explanatory variables in a regression with that person's network centrality as the dependent variable. If Balmaceda's cadre were less oligarchic than the members of the preceding and following cabinets and Congresses we would expect our indicator variables for service either with Balmaceda's cabinet or with his Congress to earn negative coefficients in our centrality regressions. The average number of Congressional terms served by an individual in our data set is

1.498, while the average number of cabinet posts for a person in our network was only 0.237. To cope with potential collinearity issues we employ the LASSO, with cross-validation to find the minimum value for λ, to choose which among our Congressional and cabinet service indicators to include in our specification for each of our centrality measures.

Results appear in the table below:

	Average Degree		Weighted Av. Deg.		Weighted EVC	
	$\hat{\beta}$	$Se(\hat{\beta})$	$\hat{\beta}$	$Se(\hat{\beta})$	$\hat{\beta}$	$Se(\hat{\beta})$
Cong21	0.6366	0.5661	0.3717	0.2050	0.0087	0.0049
Cong22	1.1008	0.5332	0.4307	0.1914	0.0117	0.0045
CongB	0.8365	0.6294	0.2837	0.2263	0.0125	0.0051
Cong23	1.9897	0.6466	0.6314	0.2322		
Cong24	1.2286	0.5969	0.4843	0.2142	0.0142	0.0050
Cab21			0.2041	0.4401	0.0061	0.0103
Cab22	3.6438	0.9767	1.3295	0.3383		
CabB	1.1586	0.9050				
Cab23			0.1873	0.5724		
Cab24	4.7769	1.3421	1.4884	0.4781	0.0128	0.0111
	$\hat{\sigma}$	$df = 443$	$\hat{\sigma}$	$df = 442$	$\hat{\sigma}$	$df = 445$

The LASSO rejected all ten of our candidate explanators for the Eigen Vector Centrality measure calculated on the unweighted network, so we omit that from the preceding table.

Turning to the results for an individual's average degree, we see that those who served in the cabinet during the twenty-second Congress, on the eave of the Civil War, were especially central to the network, as were members of the cabinet during the post-Civil War twenty-fourth Congress. Yet the LASSO rejected including indicators for the cabinets associated with either the twenty-first Congress or for the immediate post-Civil War the twenty-third Congress, while being in Balmaceda's cabinet earns one an insignificant but *positive* coefficient–these results provide no evidence that the members of Balmaceda's cabinet were less oligarchic than those who participated in the cabinet that served in the wake of his defeat. That said, the two cabinets most central to the network came before and after Balmaceda, and they were significantly more central than the omitted cabinets. As for the sessions of Congress, the post-Balmaceda twenty-third Congress was significantly more central, as measured by the average degree of its members, while like the Balmaceda Cabinet, the Congress during the Civil War earned an insignificant positive coefficient, not precisely overwhelming support for the hypothesis that Balmaceda was an anti-oligarch.

Working with the weighted version of the average degree measure the same qualitative results emerge–the twenty-third Congress, and the cabinets corresponding with the twenty-second and twenty-fourth Congresses were statistically significantly more central, while the Balmaceda

Congress earned a positive but insignificant coefficient. With this version of the average degree measure the LASSO rejected the Balmaceda cabinet at the variable selection stage using the cross-validated value for λ.

If we instead use the Eigen-Value Centrality measure for the weighted proximity matrix the cabinets fade to insignificance, indeed, the LASSO preselects the Balmaceda cabinet out of the specification entirely. In this case the twenty-fourth Congress comes out as the most oligarchic, as measured by centrality.

In contrast with the other specifications, the Balmaceda Congress does register as statistically significant with this centrality measure, but it is significantly *positive*, meaning that it was more oligarchic than, for example, the twenty-third Congress, which is omitted from this specification by the LASSO.

6 Conclusions

Overall, there is little in the preceding analysis to support the view that Balmaceda's Congress or cabinet were less oligarchic, or less tied in by descent or by marriage to the Chilean elite, to the extent that the evidence differentiates Balmaceda's support group during the Civil War it is in the direction of being more tied in to the core of the elite. We plan to augment our analysis by including other covariates, such as political party affiliation, further to probe the linkages between networks and association with Balmaceda's conflict with Congress, however, we are increasingly inclined to view the tragedy Chile's Civil War as an inter-elite conflict, a sort of nineteenth century version of England's War of the Roses fought out with carbines and steamships, rather than a class-based conflict.

A secondary finding of our research is that a remarkable 80% of Chile's officially non-hereditary republican government during the last two decades of the Nineteenth Century were tied together in a single component of a gigantic kinship network. This suggests that, at that juncture, Chile was indeed in the hands of a hereditary oligarchy. Given the evident prevalence of a sort of giant kinship cartel at the heart of late Nineteenth Century Chilean politics, an ongoing object of our research is to examine wether marriages celebrated by family members of the elite once they are in power tend to increase of to reduce elite members' centrality measures.

We think that even these preliminary results put the potential for network analysis to convey insights about politics into sharp relief. That we can use readily available genealogical evidence to learn lessons about the nature of a major civil conflict about which there is still substantial disagreement shows the potential of networks as a research tool in political science.

Notes

[1]No women served in any capacity in either chamber of Congress, nor in the cabinet during this period.

[2]Spanish is adapted to "cousin removal", and distinguishes between my father's first cousin, "Tío Abuelo 2", and my first cousin's son "Sobrino Nieto 2". We count the degree of both of these relationships as 6.

[3]The triple, C_3, consists of Miguel Elizalde Jiménez, Federico Varela Cortés de Monroy, and Wenceslao Varela Aguirre.

[4]These are C_{2a}, Carlos Rogers Gutiérrez de la Fuente and Waldo Silva Algue, C_{2b}, Miguel Antonio Varas Herrera, Antonio Varas de la Barra, and C_{2c}, Manuel Zavala Meléndez, Marcial Pinto Agüero.

[5]`https://www.merriam-webster.com/dictionary/omphalos`

[6]We note in passing that the correspondence between components and eigenvectors allows for a streamlined identification of the components of any network matrix.

[7]Eigenvector centrality.

[8]We used $1,000$ repliqué's.

[9]The bias measures are all trivial relative to the estimated magnitudes of the estimated correlations.

References

Bañados Espinosa, Julio. 1894. Balmaceda: su gobierno y la Revolución de 1891. Garnier hermanos.

Blakemore, Harold and Luis Ortega. 1991. Dos estudios sobre salitre y politica en Chile:(1870-1895). Departmento de Historia, Universidad de Santiago de Chile.

Bó, Ernesto Dal, Pedro Dal Bó and Jason Snyder. 2009. "Political Dynasties." The Review of Economic Studies 76:115–42.

Bonacich, P. 1972. "Factoring and Weighting Approaches to Status Scores and Clique Identification." Journal of Mathematical Sociology 2:113–20.

Bro, Naim. 2022. "The structure of political conflict. The oligarchs and the bourgeoisie in the Chilean Congress, 1834–1894." Theory and Society.

Cirone, Alexandra and Carlos Velasco. 2017. "Electoral Reform and Dynastic Politics: Evidence from the French Third Republic." working paper.

Collier, Simon and William F Sater. 1996. A history of Chile, 1808-1994. Cambridge University Press.

Desmarais, Bruce and Skyler Cranmer. 2013. "Forecasting the locational dynamics of transnational terrorism: a network analytic approach." Security Informatics 2:1–13.

Ferraz, Claudio, Frederico Finan and Monica Martinez-Bravo. 2020. "Political Power, Elite Control, and Long-Run Development: Evidence from Brazil." NBER Working Paper 27456.

Heise González, Julio. 1982. Historia de Chile: el período parlamentario, 1861-1925. Vol. 2 Editorial Andrés Bello.

Jackson, Matthew O. 2008. Social and Economic Networks. Princeton Univeristy Press.

Katz, Leo. 1953. "A New Status Index Derived from Sociometric Analysis." Psychometrika 18:39–43.

Metternich, Nils, Cassy Dorff, Max Gallop, Simon Weschle and Michael Ward. 2013. "Antigovernment Networks in Civil Conflicts: How Network Structures Affect Conflictual Behavior." American Journal of Political Science 57:892–911.

Padgett, John F. and Christopher K. Ansell. 1993. "Robust Action and the Rise of the Medici, 1400-1434." American Journal of Sociology 98:1259–1319.

Ramírez Necochea, Hernán. 1958. "Balmaceda y la contrarrevolución de 1891." Santiago: Editorial Universitaria.

Salas Edwards, Ricardo. 1914. Balmaceda y el parlamentarismo en Chile: un estudio de psicología política chilena. Vol. 1 Sociedad" Imprenta y Litografía Universo".

Suresh Naidu, James A. Robinson, Lauren E. Young. 2021. "Social Origins of Dictatorships: Elite Networks and Political Transitions in Haiti." American Political Science Review 115:900–916–331.

Valenzuela, Julio Samuel. 1985. Democratización vía reforma: la expansión del sufragio en Chile. Vol. 6 Ediciones del IDES.

van Coppenolle, Brenda. 2017. "Political Dynasties in the UK House of Commons: The Null Effect of Narrow Electoral Selection." Legislative Studies Quarterly 42:449–75.

Vial, Gonzalo. 1982. "Historia de Chile (1891-1973)." Triunfo y decadencia de la oligarquía (1891-1920) 2.