Supplementary Materials for '*Coalitions and conflict: A longitudinal analysis of men's politics*'

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Additional information on analytical strategy

Covariate Descriptives

Table 1 shows the descriptive statistics for the covariates—social status and physical formidability—included in our longitudinal and cross-sectional analyses. Social status was normalized, such that it was bounded between 0 and 1. Physical formidability was mean-centered.

Table 1: Covariate descriptive statistics for Villages 1 and 2

Variable	n	Mean	SD	Median	Range
Village 1 Status 2009	113	0.42	0.23	0.39	0-1
Village 1 Status 2014	113	0.44	0.23	0.43	0-1
Village 2 Status	89	0.42	0.2	0.38	0-1
Village 1 Formidability 2009	113	0	12.46	0.45	-32.39-42.89
Village 1 Formidability 2014	113	0	13.75	0.3	-38.83-48.83
Village 2 Formidability	89	0	12.34	-0.28	-20.82-37.45

Details on Network Overlap Measures

To assess initial support for our predictions about the direct associations between coalition, food sharing and kinship networks, we assessed their overlap using a Jaccard Index (Jaccard, 1908; Real and Vargas, 1996). The Jaccard Index is defined as:

$$J(X,Y) = \frac{|X \cap Y|}{|X \cup Y|}$$

Where the similarity of two finite sets, X and Y, is calculated as the size of the intersection of the sets, divided by their union. For example, in the current research, the numerator is the nominations

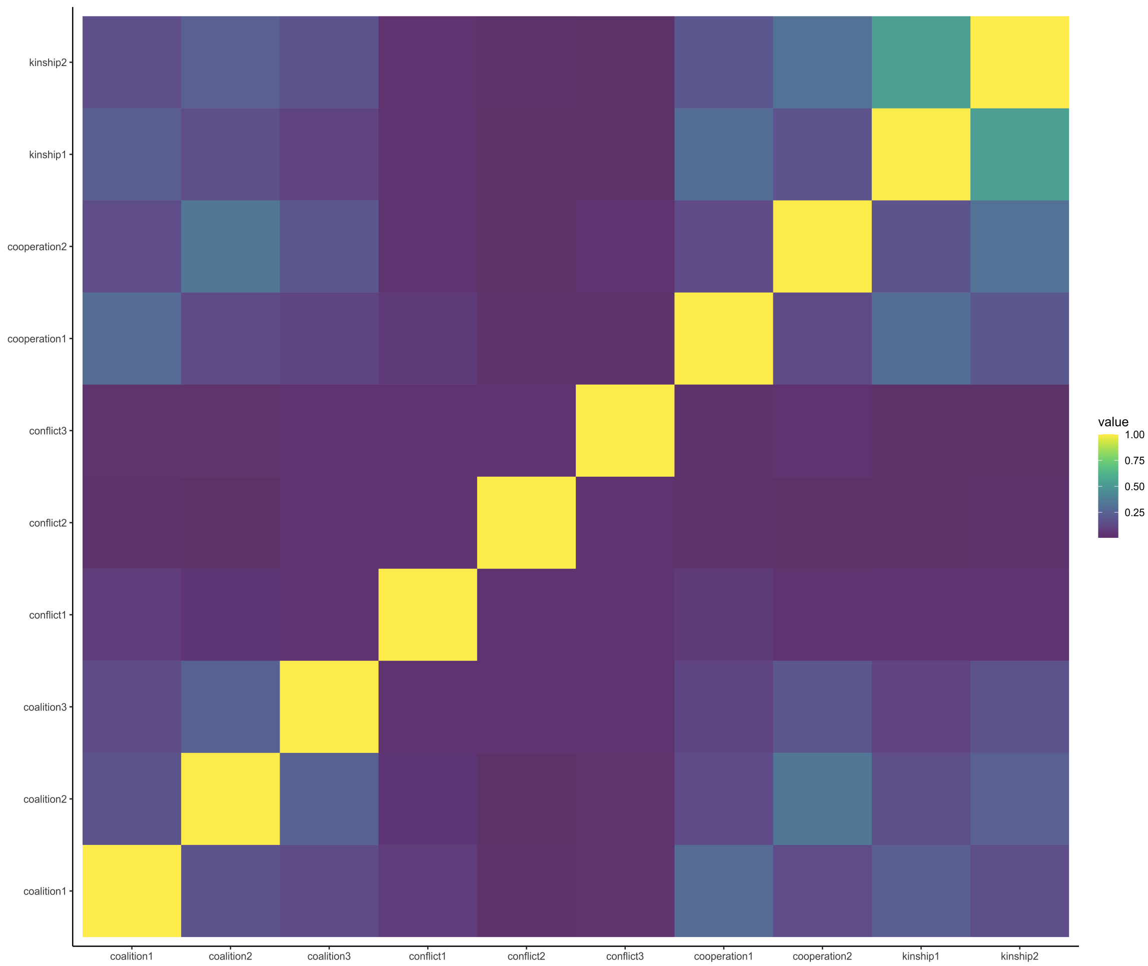

Figure 1: Heatmap of Network Overlap

present in both coalition and food sharing networks, and the denominator is the number of nominations present in either network.

As shown in Figure 1, there is low overlap between conflict networks and each of the other networks: food- and labor-sharing, kinship, and coalition networks. There is moderate overlap between coalition, food- and labor-sharing partners, and kinship—suggesting that there may there may be important direct associations between these networks, which should be incorporated into our longitudinal analyses. It is important to interpret Figure 1 with caution, as our network composition changes relatively substantially across observation points, which may produce a much lower index of tie stability between observations.

Correlation analyses

We were not able to include conflict as a dependent network in our main analyses as we observed a very small number of nominations, and Jaccard similarity in nominations over time was incredibly low (i.e., individuals rarely reported having conflicts with the same other individuals over time). Taken together, this may indicate that our conflict nominations were more closely capturing *relational events*, rather than relatively *stable relationships*. Given this, and our concerns with statistical power for making any inferences about the conflict data with confidence, we present only descriptive, bivariate correlations between status and conflict indegree and outdegree.

Our correlational analyses indicate that status at all points of observation has a moderate association with receiving conflict nominations ($r = 0.37 - 0.57$), while the descriptive association it has with sending conflict ties is much smaller ($r = 0.05 - 0.32$). See Figure 2 for a visualisation of the correlation matrix.

Cross-sectional Village 2 analyses

In village 2 the community detection algorithm (i.e., the MAP equation: Rosvall et al., 2009) assigned nearly all participants into one large community of 84 individuals, with 5 individuals constituting their own, separate isolated communities. As shown in Table 2, there were 233 coalition nominations, with individuals sending or receiving, on average, $2.62[0 - 24]$ nominations.

Table 2: Network descriptive statistics for Village 2

Variable	n ties	Density^a	Recip.^{b}	Trans.^{c}	Cent.^{d}	Mean Deg.	Range In	Range Out
coalition	233	0.03	0.137	0.185	0.148	2.618	0 - 24	0 - 9
conflict	96	0.012	0.062	0.099	0.062	1.079	0 - 10	0 - 5
Sharing	542	0.069	0.461	0.343	0.085	6.09	1 - 18	1 - 20
kinship	578	0.074	1	0.586	0.121	6.494	0 - 17	0 - 17

Note. ^{a}Density depicts proportion of nominations at each time point, divided by the number of possible ties. ^{b}Reciprocity is shows the number of ties are reciprocated between dyads. ^{c}Transitivity is the proportion of triads observed (e.g., individuals i, j and h are all connected in a triangle, regardless of the direction of the connecting ties. ^{d}Degree centralization refers to how structurally-centered the network is, base on individual heterogeneity in degree (i.e., counts of nominations).

For our second village we implemented a stationary stochastic actor-oriented model. For an outline of the approach see (Snijders and Steglich, 2015). The results of our stationary SAOM were largely consistent with our longitudinal results from village 1 (see Table 2 for descriptive statistics and Table 3 for results).

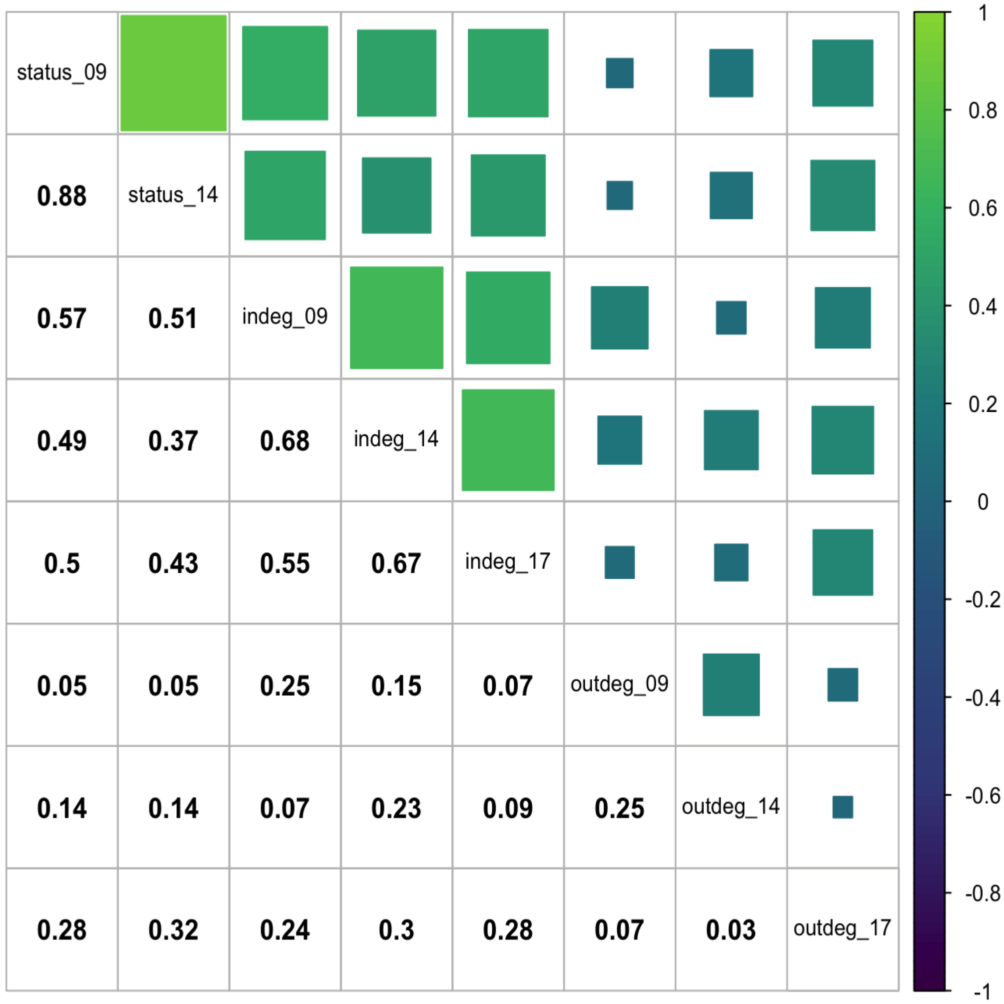

Figure 2: Bivariate correlations between status, conflict indegree, and conflict outdegree

Table 3: Estimates of the cross-sectional SAOM for village 2

Parameter	$\hat{\beta}$	SE	p	OR	CI
Rate: Period 1 (Fixed)	50.00	-	-	-	-
Outdegree	-3.40	0.27	<0.001	0.03	0.02-0.06
Reciprocity	0.64	0.21	0.003	1.89	1.25-2.87
Transitive group formation (GWESP)[a]	0.79	0.29	0.007	2.21	1.24-3.91
Shared Popularity	-0.01	0.02	0.445	0.99	0.95-1.02
Indegree popularity (sqrt)	0.11	0.09	0.204	1.12	0.94-1.32
Outdegree activity (sqrt)	0.22	0.06	0.001	1.24	1.10-1.40
Mixed closure with conflict	0.37	0.16	0.023	1.45	1.05-1.99
Main effect of kinship	1.11	0.11	<0.001	3.04	2.47-3.74
Main effect of sharing	0.40	0.11	<0.001	1.49	1.19-1.86
Status indegree	2.21	0.40	<0.001	9.16	4.21-19.92
Status outdegree	-0.66	0.29	0.025	0.52	0.29-0.92
Status similarity	0.93	0.36	0.011	2.53	1.24-5.17
Physical formidability indegree	0.01	<0.01	<0.001	1.01	1.01-1.02
Physical formidability outdegree	<0.01	<0.01	0.632	1	0.99-1.00
Physical formidability similarity	0.52	0.25	0.036	1.69	1.03-2.75

Note. Our indegree parameters denote the tendency for an individual to be named by others as providing coalitional support, while outdegree denotes the likelihood an individual names others as providing coalitional support. Similarity denotes the tendency for individuals to name others as providing coalitional support who score similarly on that covariate. [a] Geometrically weighted edgewise shared partners, with $\alpha = 0.69$.

Our cross-sectional results indicate that individuals tended to be selective about whom they nominated as coalitional partners (Outdegree: $OR = 0.03, CI = [0.02 - 0.06]$), and nominations were often reciprocal ($OR = 1.89, CI = [1.25 - 2.87]$). Individuals also formed transitive groups of coalitional partners ($OR = 2.21, CI = [1.24 - 3.91]$). Alongside this, there was no substantial variance in being nominated as a coalitional partner ($OR = 1.12, CI = [0.94 - 1.32]$) or shared popularity ($OR = 0.99, CI = [0.95 - 1.02]$. However, there were substantial differences in the number of nominations that individuals made ($OR = 1.24, CI = [1.10 - 1.40]$.

As with our longitudinal results, we observe direct associations between coalition ties and kinship ($OR = 3.04, CI = [2.47 - 3.74]$), and food sharing and labour partners ($OR = 1.49, CI = [1.19 - 1.86]$). That is, individuals were more likely to nominate kin and food sharing- and labour partners as coalitional partners. Our cross-sectional results also provide evidence of mixed transitive closure between coalitions and conflicts ($OR = 1.45, CI = [1.05 - 1.99]$), such that individuals who have conflicts with the same alter are also likely to be coalitional partners.

Those high in status were more likely to receive coalitional support ties ($OR = 9.16, CI = [4.21 - 19.92]$, but were less likely to send ties ($OR = 0.52, CI = [0.29 - 0.92]$). Individuals similar in status were also more likely likely to form coalitions ($OR = 2.53, CI = [1.24 - 5.17]$). Our results for physical formidability were similarly patterned, with physically formidable men receiving more nominations ($OR = 1.01, CI = [1.01 - 1.02]$), but not making more nominations ($OR = 1.00, CI = [0.99 - 1.00]$), and preferentially forming coalitions with those similar to themselves in physical formidability ($OR = 1.69, CI = [1.03 - 2.75]$). It is important to note that, given the nature of cross-sectional analyses, the similarity terms within our model cannot speak to the mechanisms driving any observed similarity.

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