Regime homophily in the diplomatic exchange network, 1995-2005

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Basic concepts

1. **Interstate networks**
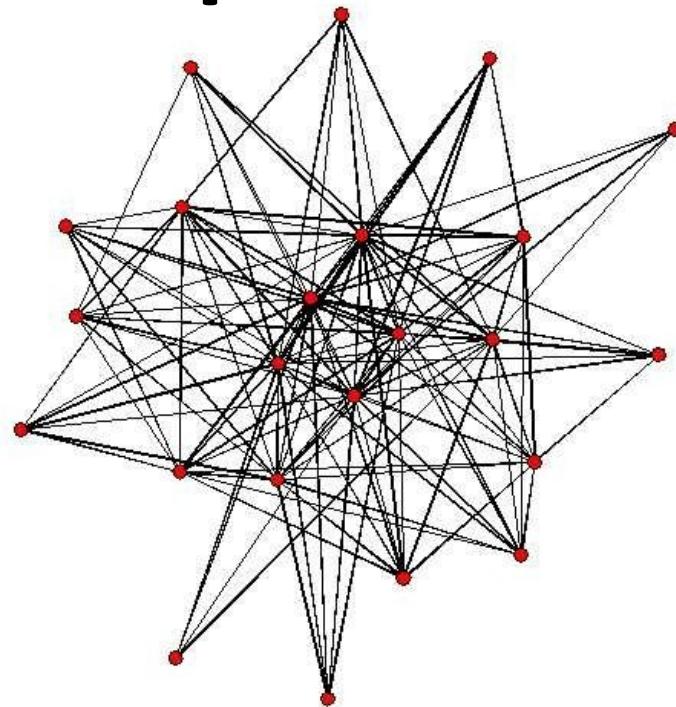
2. Regime level

Example:

Bilateral diplomatic relations of souvereign states, 1817

Basic concepts

1. Interstate networks

2. Regime level
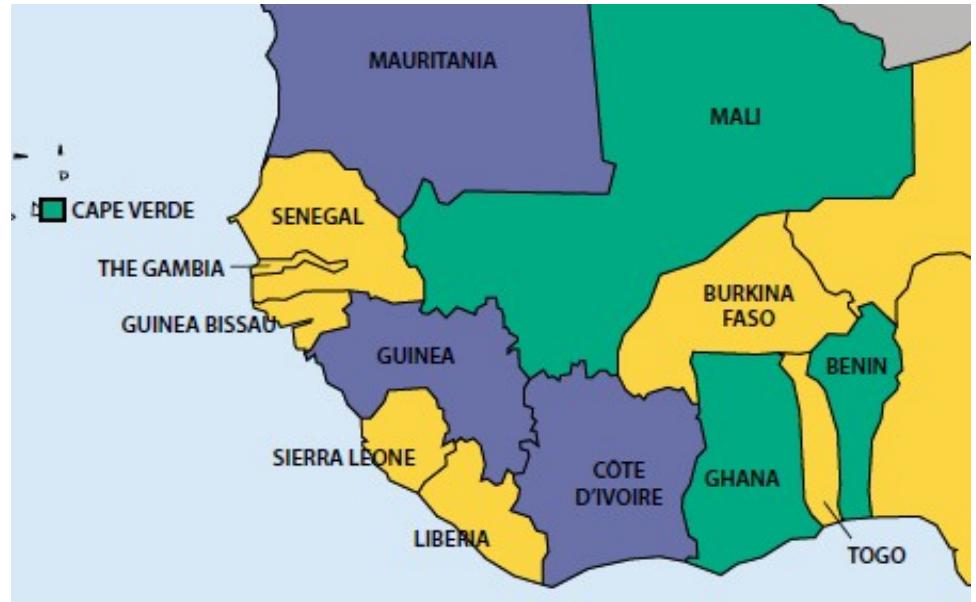
Example:

Map of Freedom, Freedom House 2010

Research Questions

1) Does regime-homophily affect the evolution of bilateral diplomatic ties?

2) Which structural forces affect the change in the network?

    1) Tendency towards transitivity?

    2) Tendency towards brokerage?

3) Influence of the traditional control variables „geographic proximity" and „importance"?

Data: the network

waves	1995	2000	2005
# nodes	192	192	192
# inactive actors	5	1	0
density	0.21	0.23	0.25
av. degree	41.7	43.1	46.8
% missing ties	0.6%	0.6%	0.4%

Degree distbution for all three waves
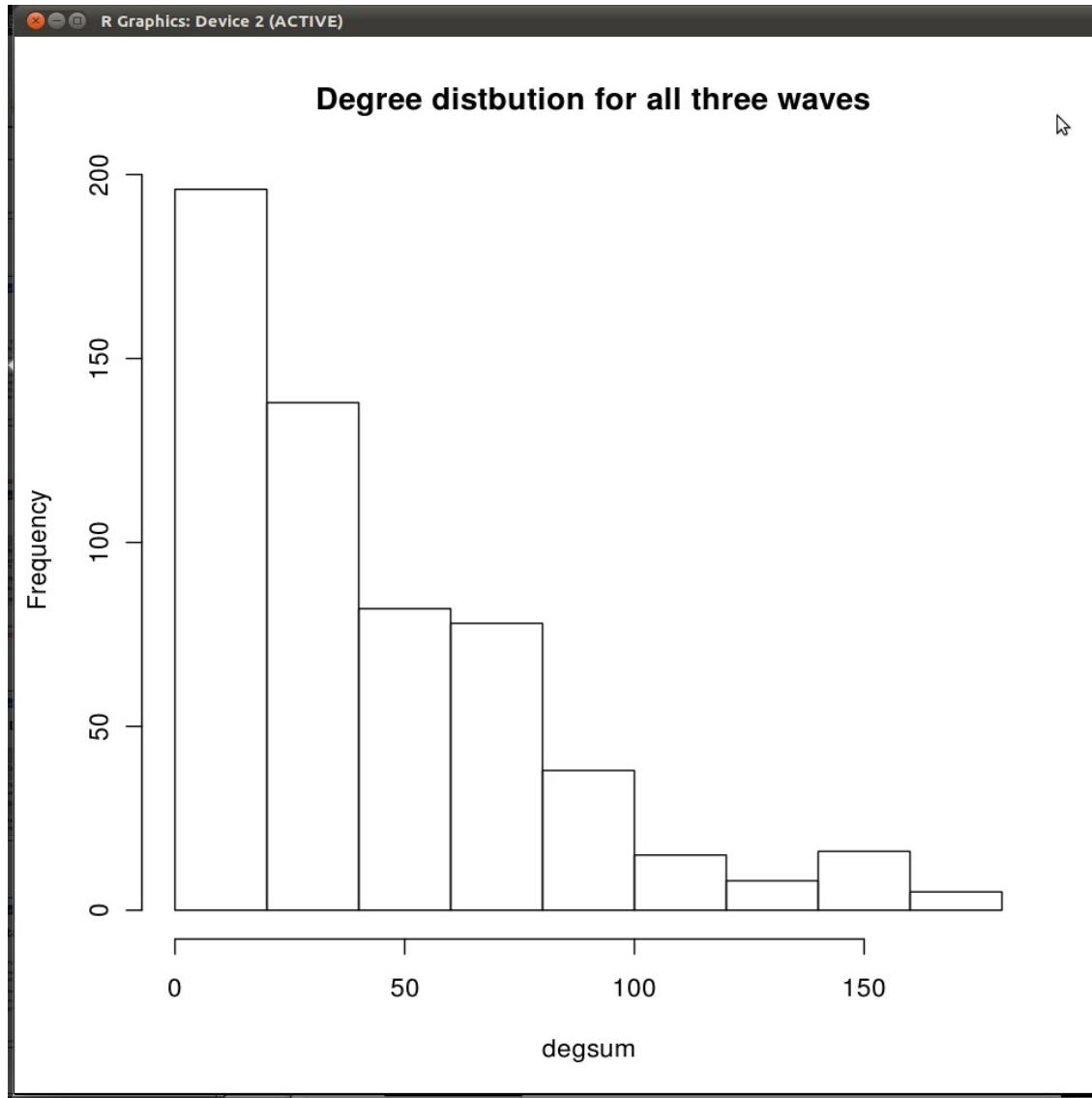
Data: network change

	1995 - 2000	2000 - 2005
Ties created	320	532
Ties terminated	204	205
Distance	1028	1452
Jaccard Index	0.88	0.84

Data: network change

Let's have a look at the changing dyads ...

Network change | ties created
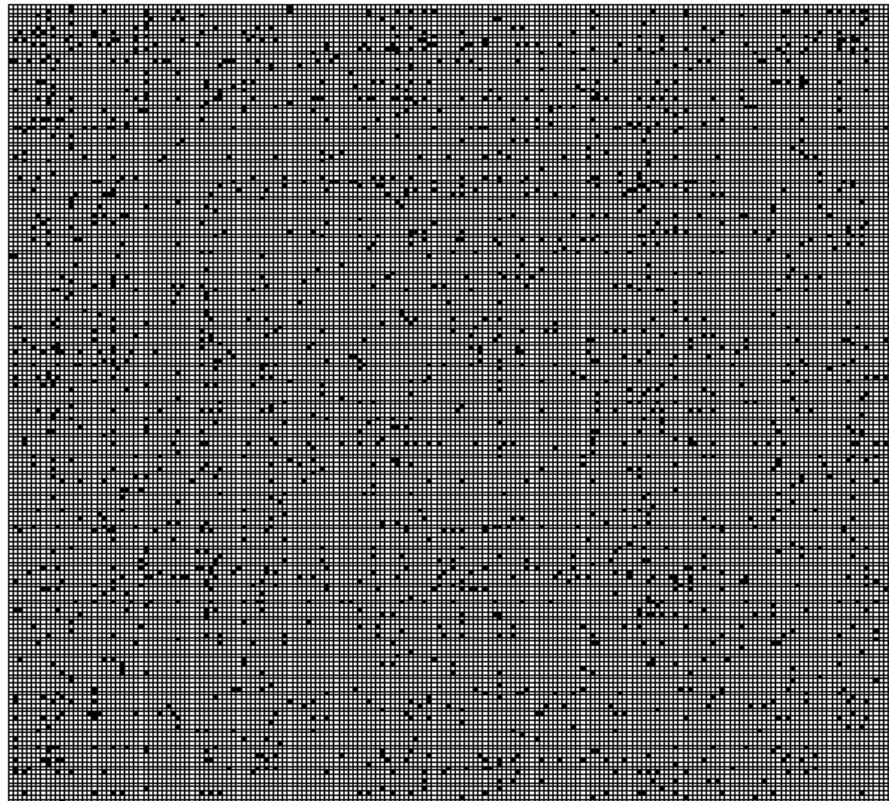
Black cells = ties created

Network change | ties terminated
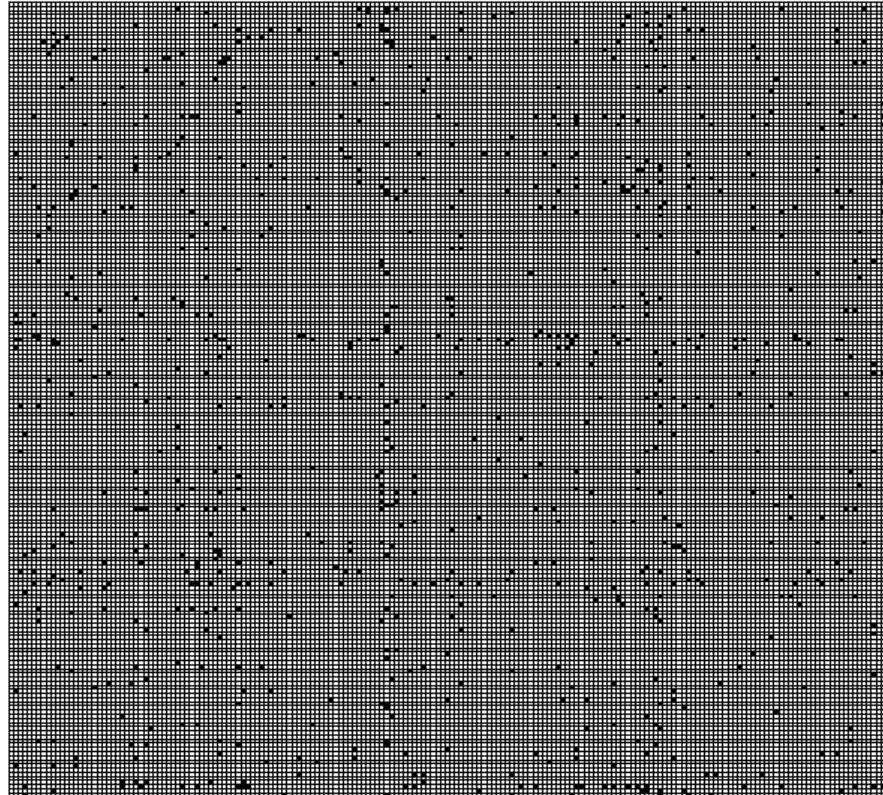
Black cells = ties terminated

Data: network change

Let's have a look at the changing dyads

1) No obvious pattern in the creation of ties

2) The terminated ties seem to involve certain actors with a higher probability

Data: Freedom House rating

· Varying actor covariate

· Measures the amount of political rights and civil liberties in countries per year

· Based on expert judgments

· Range: 1 to 7, the higher the more rights and liberties people can exercise
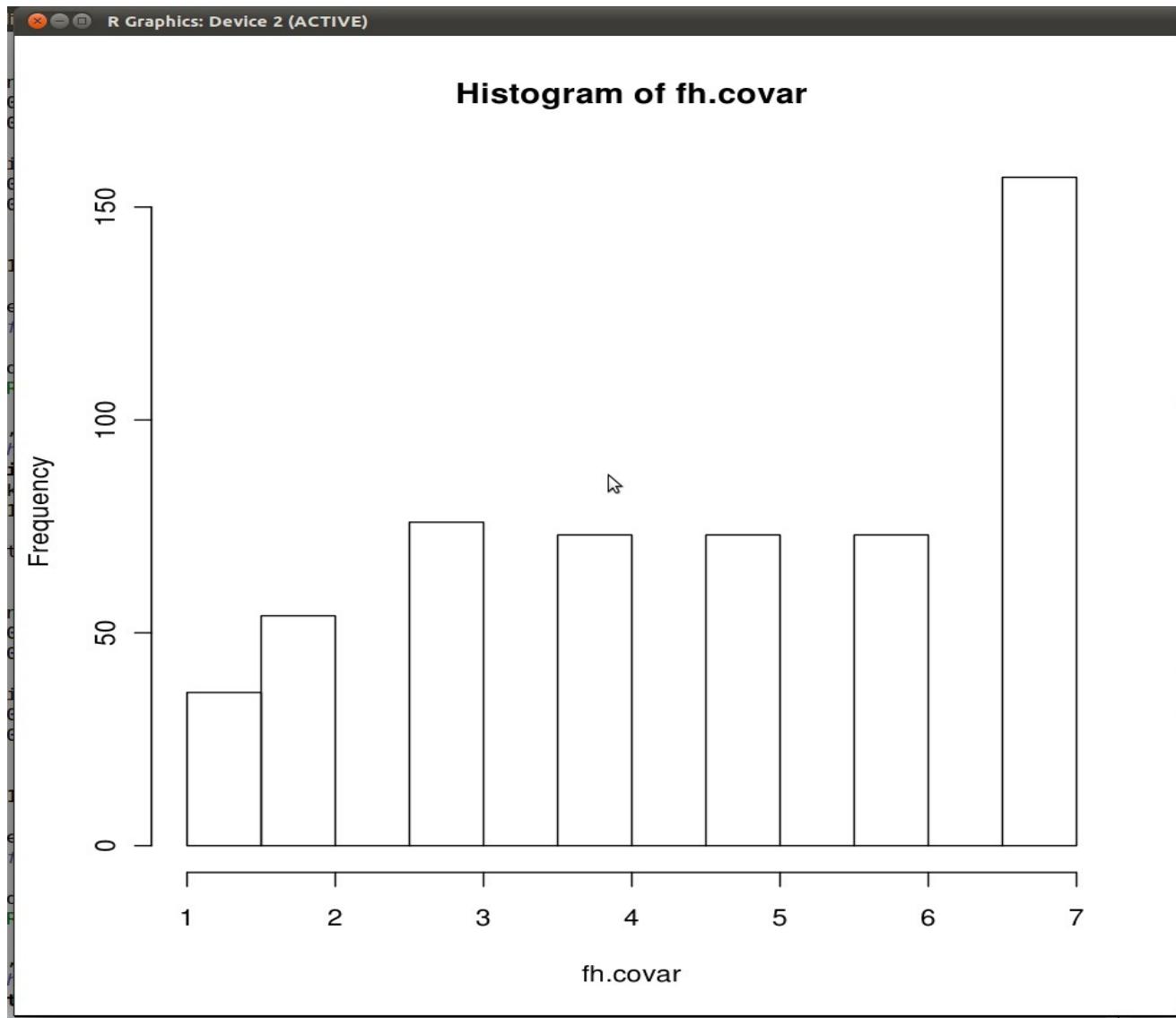
Data: Contiguity

- Constant dyadic covariate

- Dummy Variable

- 1: the two countries are divided by a common land border or a river or less then 400 miles of water

- 0.02% of all pairs are contiguous and have the value 1

Data: Importance

- Varying actor covariate

- = square root of an acotor's in-degree

- Calculated with the original, non-symmetrized data

- The more foreign embassies one country hosts, the more importance is attributed to this country by the international system

- Assumption 1: Proxy for several variables (material capabilities, major power status, „prestige", reliability …)

- Assumption 2: Declining marginal effects of having a higher in-degree
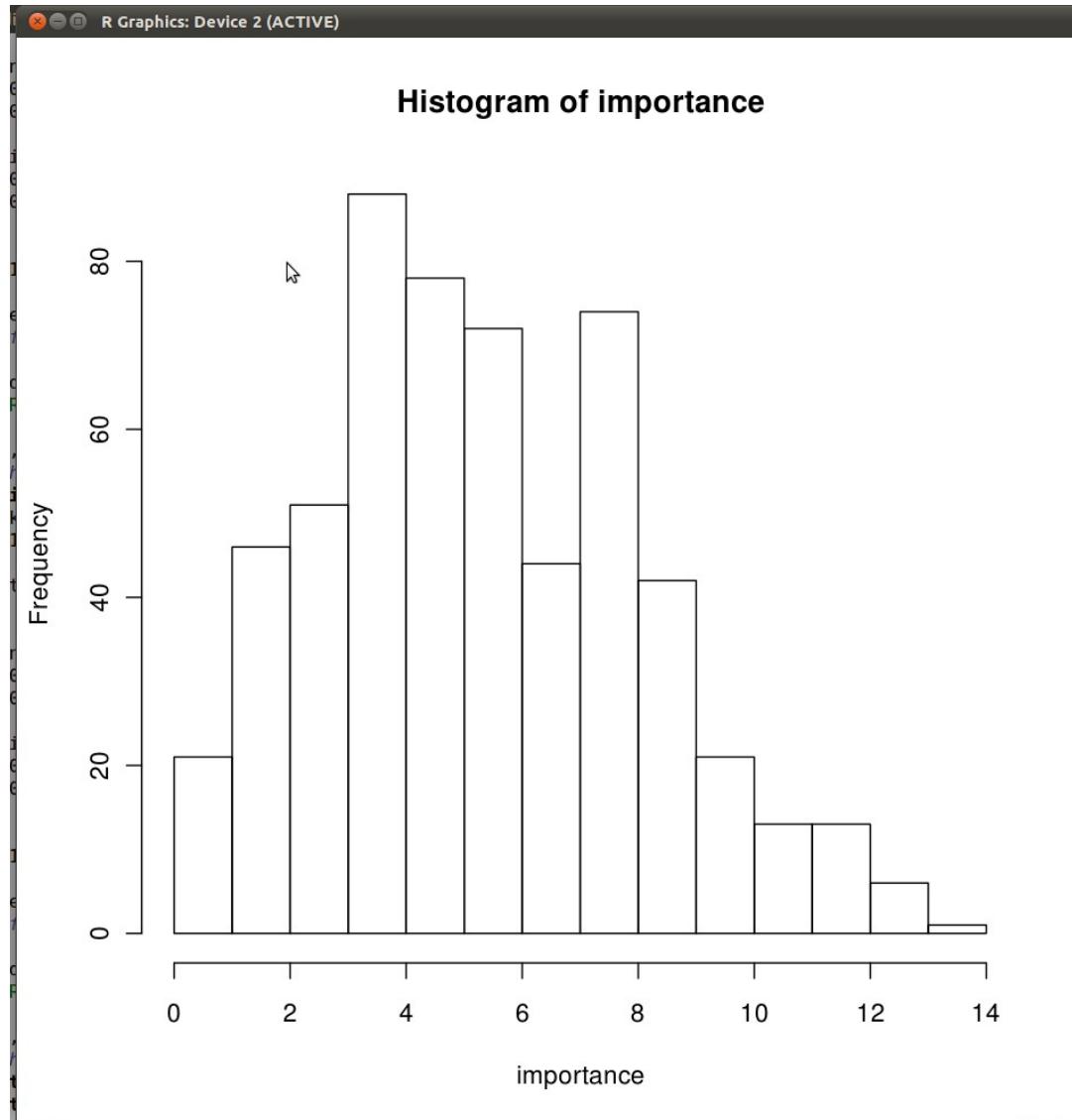
	Estimate	*s.e.*
1. eval degree (density)	0.6341	(0.7266)
2. eval betweenness	**-0.0478**	(0.0050)
3. eval sqrt degree of alter	**0.3078**	(0.0813)
4. eval contiguity	**1.7689**	(0.1772)
5. eval fh.covar	**0.0556**	(0.0184)
6. eval fh.covar similarity	**-0.6878**	(0.2252)
7. eval fh.covar ego x fh.covar alter	**0.0735**	(0.0142)
8. eval importance	**0.2841**	(0.0895)
9. eval importance similarity	**-8.2084**	(0.7826)
10. eval importance ego x importance alter	0.0020	(0.0091)

All t-statistics for convergence < 0.1

Freedom House Rating
ego alter selection table

	1	2	3	4	5	6	7
1	**0.55**	0.45	0.34	0.24	0.14	0.03	**-0.07**
2	**0.39**	0.13	0.10	0.07	0.04	0.01	**-0.02**
3	**0.23**	0.05	**-0.14**	-0.09	-0.05	-0.01	0.04
4	**0.07**	-0.04	-0.15	*-0.26*	-0.14	-0.03	**0.09**
5	-0.09	-0.12	-0.16	-0.20	**-0.24**	-0.05	**0.14**
6	**-0.24**	-0.21	-0.17	-0.14	-0.10	-0.07	**0.20**
7	**-0.40**	-0.29	-0.18	-0.08	0.03	0.14	**0.25**

Red = negative values | **bolt** = min. and max. value

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Diplomatic exchange network

Importance

	1	2	3	4	5	6	7	8	9	10	11	12
[1,]	**-3.2**	-2.2	-1.3	-0.4	0.5	1.5	2.4	3.3	4.3	5.2	6.1	**7.0**
[2,]	-2.5	**-2.9**	-2.0	-1.0	-0.1	0.8	1.7	2.7	3.6	4.5	5.5	**6.4**
[3,]	-1.9	-2.3	**-2.6**	-1.7	-0.8	0.2	1.1	2.0	3.0	3.9	4.8	**5.8**
[4,]	-1.2	-1.6	-2.0	**-2.3**	-1.4	-0.5	0.5	1.4	2.3	3.3	4.2	**5.1**
[5,]	-0.6	-1.0	-1.3	-1.7	**-2.1**	-1.1	-0.2	0.7	1.7	2.6	3.5	**4.5**
[6,]	0.0	-0.3	-0.7	-1.0	-1.4	**-1.8**	-0.8	0.1	1.0	2.0	2.9	**3.8**
[7,]	0.7	0.3	0.0	-0.4	-0.8	-1.1	**-1.5**	-0.6	0.4	1.3	2.3	**3.2**
[8,]	1.3	1.0	0.6	0.2	-0.1	-0.5	-0.8	**-1.2**	-0.3	0.7	1.6	**2.6**
[9,]	**2.0**	1.6	1.3	0.9	0.5	0.2	-0.2	-0.5	***-0.9***	0.0	1.0	**1.9**
[10,]	**2.6**	2.3	1.9	1.5	1.2	0.8	0.5	0.1	-0.2	**-0.6**	0.3	1.3
[11,]	*3.3*	2.9	2.6	2.2	1.8	1.5	1.1	0.8	0.4	0.1	**-0.3**	0.7
[12,]	**3.9**	3.6	3.2	2.8	2.5	2.1	1.8	1.4	1.1	0.7	0.4	**0.0**

Freedom House Rating
ego alter selection table

	1	*3*	*5*	*7*
1	**0.55**	0.34	0.14	**-0.07**
3	**0.23**	**-0.14**	-0.05	0.04
5	-0.09	-0.16	**-0.24**	**0.14**
7	**-0.40**	-0.18	0.03	**0.25**

FH: 1 – 7
1 = minimum freedom, 7 = most free

Red = negative values | **bolt** = highest value

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Importance
ego alter selection table

	1	*4*	*8*	*12*
1	**-3.16**	-0.38	3.32	**7.03**
4	-1.24	**-2.35**	1.39	**5.12**
8	1.34	0.25	**-1.20**	**2.57**
12	**3.91**	2.84	1.43	**0.01**

Importance: 1 – 12,6
1= not important; 12.6 = most important

Red = negative values | **bolt** = highest value

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First Conclusions

- Regime homophily seems to be present

- Control variable contiguity works as expected

- Control for Influence-homophily points to a center-periphery structure

  - Similar to degree assortativity?

  - What about the negative betweenness effect?

  - All other closure effects caused problems

 - Fitting the purely structural effects is thorny and unsatisfactory