

Perceived Influence in Climate Change  
Policy Networks: The Effect of Social  
Network Position in the Canadian Case.

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# Outline

1. Introduction.
2. Canada as a Case.
3. Background: The COMPON Project.
4. Methods.
5. Literature and Central Hypothesis.
6. Results: 6a. Descriptive Stats. 6b. Multiple regressions explaining perceptions about climate change policy, and influence on R's organization.
7. Discussion.









Dear Premier  
Clark,  
please stand  
for our  
**QUIT**  
OUR  
the  
CARBON  
PIPELINE

HEY GIRL LISTEN WE SAY ENVIRONMENT DOES NOT PAY FOR YOUR PROBLEMS STOP THE U.S. CARBON PIPELINE  
**DEFEND**  
**OUR**  
**CLIMATE**

WE ARE OUR BROCCOLI NOW YOU FIX THE CLIMATE

SALE CARBON EXPORTS CAUSE CLIMATE CHANGE!











We **STILL** Say **NO KINDER MORGAN**

For clean jobs. For climate solutions. For the coast.

CLEAN  
WATER  
RIGHTS

IS LIFE







**WATER IS LIFE**

**STOP KINDER MORGAN PIPE LINE**





# Introduction

This study is part of a larger project on climate change policy networks in Canada, which is comprised of:

- a discourse network analysis of media coverage of climate change in Canada,
  - an interview study with climate change policy network actors, and
  - a social network analysis of climate change policy actors based on a questionnaire.
- 
- Today's talk is based on this latter set of data.



# Introduction

- Our set of studies, in turn, is part of a larger international comparative study made up of about 20 country case studies called COMPON – for Comparing Climate Change Policy Networks.



# Canada's contributions to GHGs.

- One of the highest per capita emissions. (Though a relatively small amount of total world emissions in absolute terms.)
- In terms of a recent analysis of climate change performance, Canada ranked 55th of 58 (and last amongst the G7, and second to last amongst the G20).



# The Case: Canada and Climate Change.

- The Kyoto Agreement.
- Chretien/Martin/Dion Liberals.
- Eye to what US does.

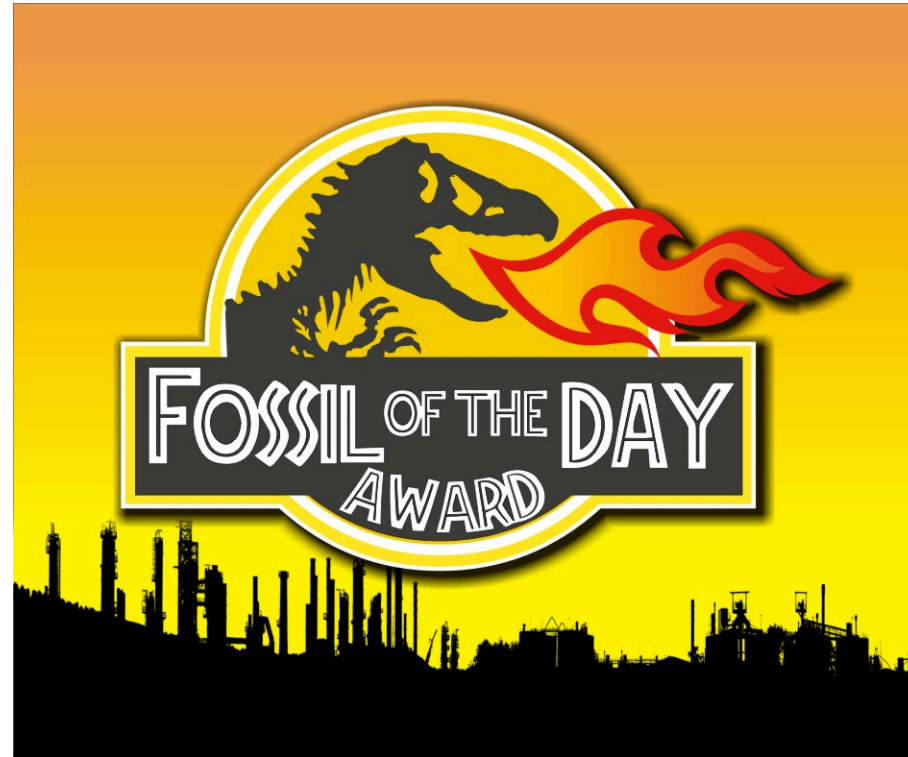
## **Harper (Conservative) Government.**

- Withdrawal from Kyoto.
- Do nothing.

## **Trudeau (Liberal) Government.**

- Enthusiastic Support for the Paris Accord.
- National carbon pricing scheme.
- Largely symbolic.









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**Nations Unies**  
*Conférence sur les Changements Climatiques 2015*

COP21/CMP11

**Bourget**

venue

15



idicker  
AA

Carbon

Mitigation

Adaptation

Clean Tech/Innovation







# The COMPON Project

- Our Canada case study is part of a larger international comparative study involving about 20 different country cases as part of a larger project known as COMPON.
- The theoretical framework underpinning this research, is that climate change policy differences are shaped by the network linkages amongst policy actors and the types of frames used to interpret climate change problems.
- Information about the larger project can be found at: [www.compon.org](http://www.compon.org)



# Methods.

- Media Content Analysis.
- Sampling Strategy.
- Interview Data Collection.
- Thematic Coding Strategy.
- Network Questionnaire Data Collection.

# Sampling

- Organizational actors were included into the sample based on four criteria:
  1. Participation in COP.
  2. Participation in Testimony about Climate Bills.
  3. Participation in the National Roundtable on the Environment and the Economy.
  4. Appearance in national newspaper coverage (Globe and Mail, and National Post).



# Participation in COP.

- Criterion included to capture influence and participation in international climate policy development. Organisations are included if they were part of official Canadian delegation (COP Parties) or were registered NGO observers (COP Observers).

# Participation in Testimony about Climate Bills.

- Criterion included to capture influence and participation in domestic climate policy development.
- Organisations are included if they gave testimony to the Standing Committee on the Environment and Sustainable Development (SCESD) or the Senate Committee on Energy, the Environment, and Natural Resources (SCEENR) on one of 3 comprehensive climate bills considered during the time period (C-288; C-311; C-377), OR if they were a member of the committee (in order to account for participation of political actors).



# Participation in the National Roundtable on the Environment and the Economy.

- This criteria was included to capture the provision of expert advice on climate issues to the Government.
- Organisations are included if they were included as witnesses in any climate change related reports produced by the National Roundtable on the Environment and Economy during the time period, OR if they were a member of NRTEE when the reports were produced.

# Appearance in national newspaper coverage (Globe and Mail, and National Post).

- Criterion included to capture influence of climate policy through mass media discourse.
- Organisations were included if they are mentioned in climate change articles in the Globe and Mail or National Post.



# Inclusion in the Sample:

- Organisations which appear in any forum more than two times are included final sample (e.g. if an organisation appeared in the media 3x; OR if an organisation appeared in the media once, and went to two COPs).

# Interviews and Questionnaires

- Interviews were conducted with 77 actors (representatives of organizations, and individual actors).
- 44 actors completed the online survey.



# Interviewees

- The sample was designed to be representative.
- Interviewees generally covered the range of organizations in the sampling frame, including politicians, government bureaucrats, environmental activists, scientists, representatives from think tanks, business leaders, scientists, NGO leaders, and others.

# The Questionnaire

- Interviewees were then asked to complete an online questionnaire, which included questions on a variety of different topics pertaining to climate change, and climate change policy.
- In this presentation we will focus on the questions that dealt with social networks.



# Social Network Questionnaire

Respondents were asked about five relational questions regarding a list of policy actors (organizations and individuals) involved in climate change policy making:

1. Frequency of **communication** with different policy actors.
2. Perceptions about policy actor's **influence in domestic climate change policies**.
3. Indicate which policy actors **provide expert scientific advice**.
4. Indicate which policy actors have a strong **influence on R's org.**
5. Indicate which policy does R's org **collaborate** with regularly.

Administrator Toolbar This survey is invite only, respondents will require a valid invite code to view this survey.

31%

**Section 4 - Continued. How frequently [do you] does your organization communicate with each of the following organizations or individuals?**

The column choices are as follows:

1. **Never.** (You may either click on 'Never' or leave the row blank.)
2. **Occasionally** (A few times a year.)
3. **Regularly** (More than a few times a year, but less than once a month.)
4. **Often** (Once a month or more often.)

**4.06 Business Groups/Trade Associations/Unions:**

	1. Never	2. Occasionally (A few times a year)	3. Regularly (More than a few times a year)	4. Often (Monthly or more often)
BC Chamber of Commerce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canadian Bar Association	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canadian Council of Chief Executives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canadian Institute of Chartered Accountants	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Canadian Taxpayers Federation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other Business groups (Please specify by typing below):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**4.07 Businesses:**



Administrator Toolbar This survey is invite only, respondents will require a valid invite code to view this survey.

27%

**Section 4 - Continued. How frequently [do you] does your organization communicate with each of the following organizations or individuals?**

The column choices are as follows:

1. **Never.** (You may either click on 'Never' or leave the row blank.)
2. **Occasionally** (A few times a year.)
3. **Regularly** (More than a few times a year, but less than once a month.)
4. **Often** (Once a month or more often.)

**4.05 NGOs:**

	1. Never	2. Occasionally (A few times a year)	3. Regularly (More than a few times a year)	4. Often (Monthly or more often)
CARE (Cooperative for Assistance and Relief Everywhere)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate Action Network Canada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate Reality Canada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
David Suzuki Foundation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ecojustice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Energy Probe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Environmental Defence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	1. Never	2. Occasionally (A few times a year)	3. Regularly (More than a few times a year)	4. Often (Monthly or more often)
--	----------	---	--	-------------------------------------

37%

**Section 4 - Continued. How frequently [do you] does your organization communicate with each of the following organizations or individuals?**

The column choices are as follows:

1. **Never.** (You may either click on 'Never' or leave the row blank.)
2. **Occasionally** (A few times a year.)
3. **Regularly** (More than a few times a year, but less than once a month.)
4. **Often** (Once a month or more often.)

**4.10 Individuals:**

	1. Never	2. Occasionally (A few times a year)	3. Regularly (More than a few times a year)	4. Often (Monthly or more often)
Andrew Coyne	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gordon Campbell	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
John Baird	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
John Bennett	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leona Aglukkaq	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Michael Byers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mike De Souza	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nathan Cullen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Roger Gibbins	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rona Ambrose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stephane Dion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Administrator Toolbar This survey is invite only, respondents will require a valid invite code to view this survey.

**Government of Manitoba**

**1. Influential in domestic climate change politics**      **2. Gives expert scientific info**      **3. Influences my org's policy positions**      **4. Collaborate with regularly**

**Government of Nova Scotia**

**Government of Nunavut**

**Government of Ontario**

**Government of Quebec**

**Government of Saskatchewan**

**Government of the Northwest Territories**

**Government of Yukon**

**ICLEI Canada - Local Governments for Sustainabilit**

**International Development Research Centre**

**1. Influential in domestic climate change politics**      **2. Gives expert scientific info**      **3. Influences my org's policy positions**      **4. Collaborate with regularly**

**National Research Council**

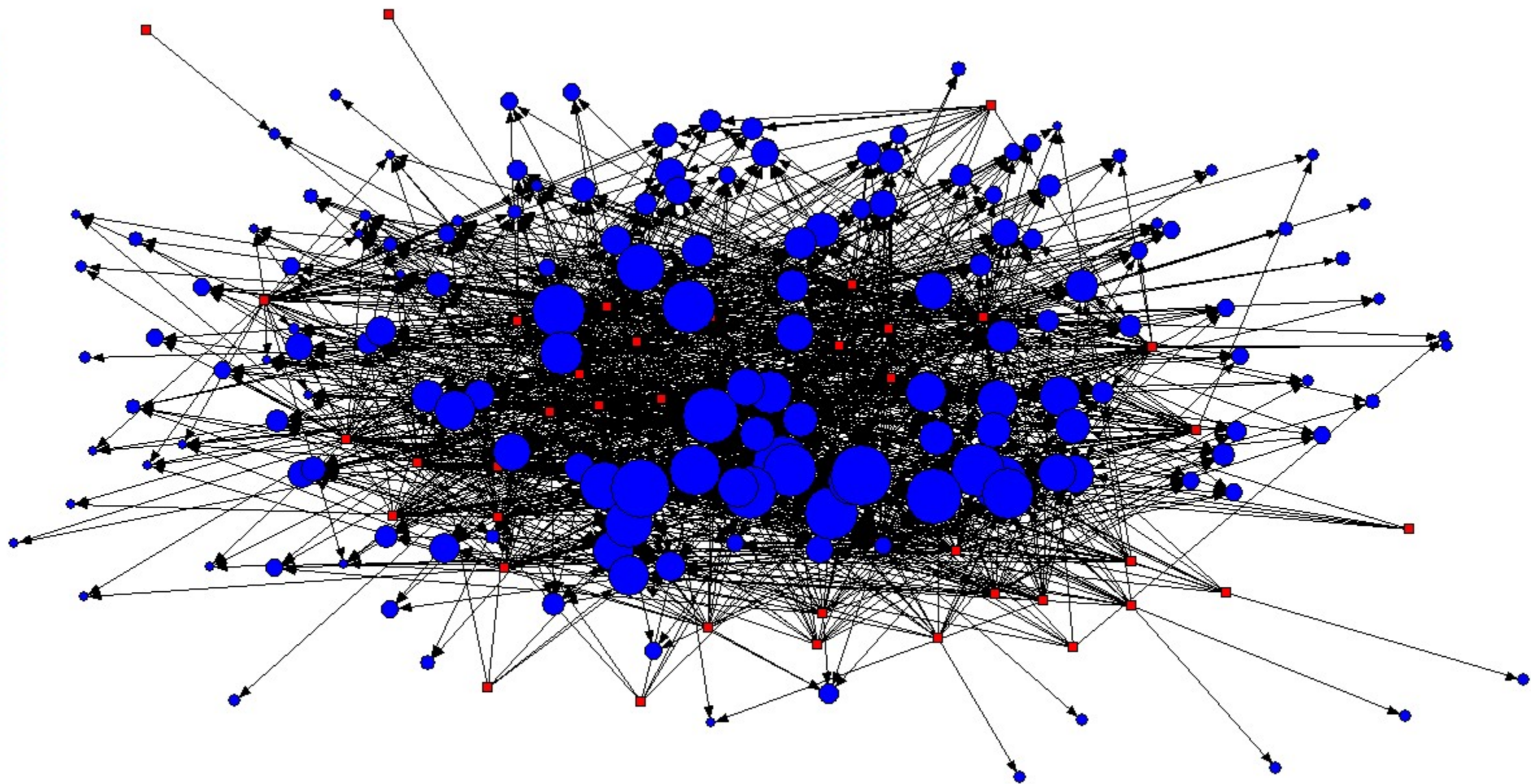
**Natural Resources Canada**

**Royal BC Museum**

**Saskatchewan Research Council**

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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>1. Influential in domestic climate change politics</b>	<b>2. Gives expert scientific info</b>	<b>3. Influences my org's policy positions</b>	<b>4. Collaborate with regularly</b>
<b>Stephen Harper</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Kathryn Harrison</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Thomas Homer-Dixon</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Matt Horne</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Will Horter</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mike Hudema</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Mark Jaccard</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Peter Kent</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Naomi Klein</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Andrew Leach</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Marc Lee</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Ezra Levant</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Preston Manning</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Ian Mauro</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Elizabeth May</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>





# Target actors

- In the network sections of the questionnaire, we included 171 target policy actors representing the policy actors in the sample, and supplemented with some additional actors who play various roles in the policy network that the researchers were familiar with from their prior work.

# Two-Mode Data

- The questionnaire yielded 5 two-mode matrices of 44 respondents by 171 targets.
- We calculated a variety of two-mode centrality measures – but here we will focus on degree centrality, and eigenvector centrality.
- We then treat the 171 target actors as the cases for our analyses. So  $N = 171$  for the analyses.

# Degree vs Eigenvector Centrality

- **Degree** measures of centrality are based on the number of direct ties one has.
- **Eigenvector** centrality is a measure that describes centrality as a function of the extent to which a node is tied to more central nodes.





# Social Network Questionnaire

## **Dependent Variable:**

- We will utilize perceptions about influence on domestic climate change policies as our main dependent variable (measured by degree centrality).

## **Independent Variable:**

- We will examine a variety of independent variables, but we will focus mainly on eigenvector centrality in the communication network. (Other network variables utilize degree centrality).

# Literature and Central Hypothesis.

# Central Hypothesis

- The central hypothesis for this component of the study is:

*Social network centrality (Eigenvector) is positively associated with perceived influence on climate change policy.*



# Theory/Literature.

- This hypothesis is motivated by much work in the social network literature, including work on networks, communication, and social influence.
- This study is also influenced by the policy network literature. From this literature we would expect that the views of actors about policy would be related to their position in the policy network.

# RESULTS

# Results Part 1. Descriptive Stats.

<b>Positions on Various Climate Change Policy Issues by Organizational Respondents (N = 59)</b>					
	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Partly Agree/Disagree</b>	<b>Mostly Agree</b>	<b>Mostly Disagree</b>
1. Canada should aim for more ambitious domestic action to increase emissions reductions	7.4	1.9	5.6	27.8	57.4
2. Canada should take global leadership by boldly reducing its greenhouse gas emissions	7.4	7.4	14.8	24.1	46.3
3. The best way to cut greenhouse gas emissions is through voluntary action by Canadian industries	40.7	33.3	13.0	9.3	3.7
4. Emissions trading (cap and trade) could make a significant contribution to reducing greenhouse gas emissions in Canada	3.7	11.1	22.2	42.6	20.4
5. A federal carbon tax could make a significant contribution to reducing greenhouse gas emissions in Canada	3.7	3.7	16.7	46.3	29.6
6. Canada should expand nuclear power to cut greenhouse gas emissions	18.5	22.2	37.0	20.4	1.9
7. Canada should expand its use of natural gas to cut greenhouse gas emissions	11.1	33.3	27.8	25.9	1.9
8. Canada should restrict mining and export of oil sands to cut greenhouse gas emissions	18.5	11.1	27.8	16.7	25.9
9. Canada should enact and follow a low-carbon economy plan	9.3	3.7	18.5	27.8	40.7
10. A strong, binding international agreement is necessary for effective global reductions in greenhouse gas emissions	5.6	11.1	18.5	37.0	27.8
11. Without strong commitments from the US, it makes little sense for Canada to reduce its own GHG emissions	22.2	40.7	14.8	16.7	5.6
12. Carbon capture & storage for coal-fired power plants is necessary to meet both energy and carbon reduction goals	23.1	17.3	30.8	25.0	3.8



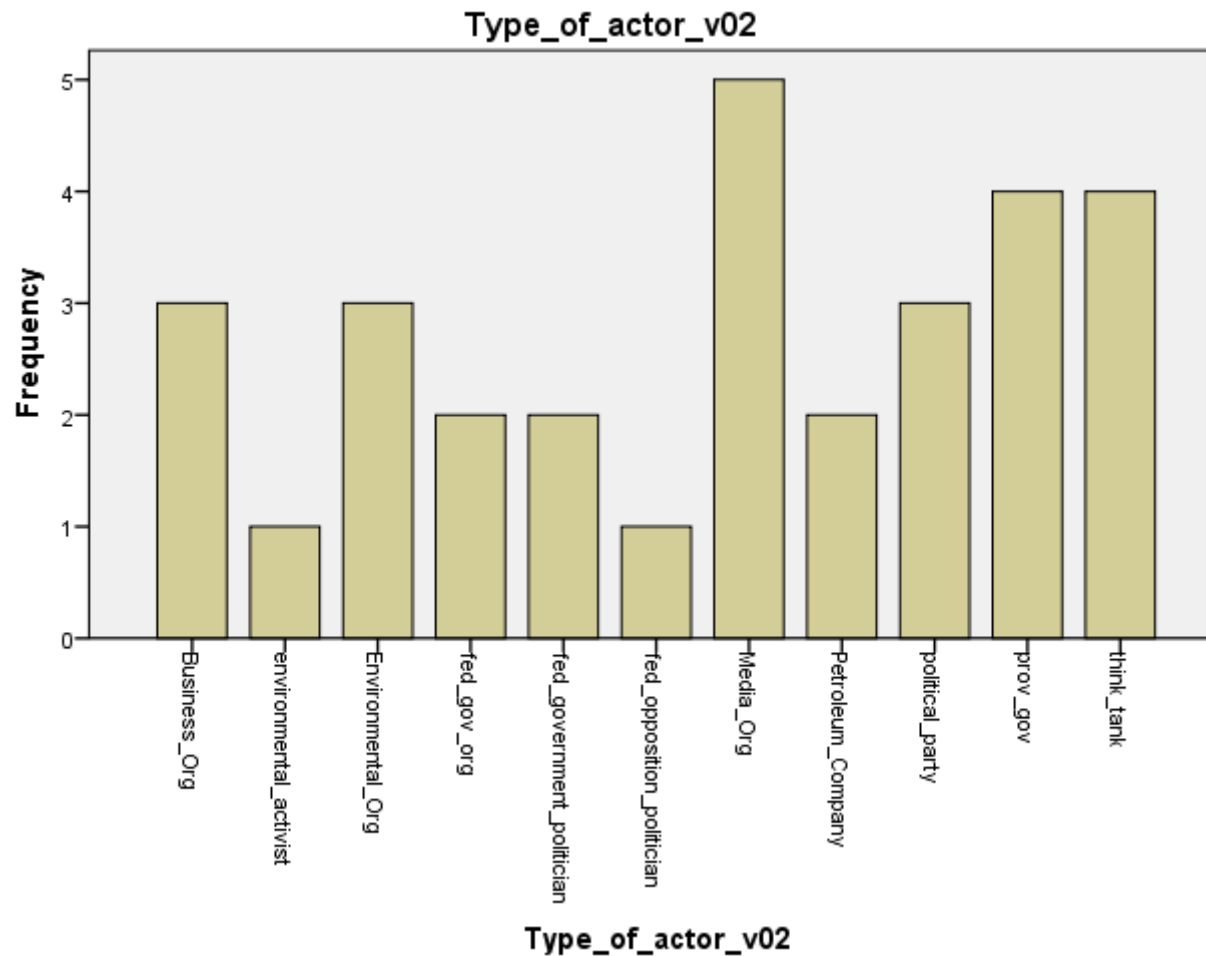
**Table 1. Top 30 Actors Ranked by Perceived Influence on Climate Change Policy: Raw Data**

Rank	CC_Infl_Degree	Type_of_actor_v02	Sector
1	0.522727251052856	fed_opposition_politician	government
2	0.500000000000000	prov_gov	government
3	0.500000000000000	fed_government_politician	government
4	0.477272719144821	Business_Org	business
5	0.477272719144821	Media_Org	media
6	0.477272719144821	environmental_activist	civil_society
7	0.454545468091965	fed_gov_org	government
8	0.454545468091965	prov_gov	government
9	0.454545468091965	political_party	government
10	0.454545468091965	think_tank	think_tank
11	0.454545468091965	Media_Org	media
12	0.431818187236786	prov_gov	government
13	0.409090906381607	fed_gov_org	government
14	0.409090906381607	Media_Org	media
15	0.386363625526428	prov_gov	government
16	0.386363625526428	Environmental_Org	civil_society
17	0.386363625526428	Business_Org	business
18	0.386363625526428	fed_government_politician	government
19	0.340909093618393	Environmental_Org	civil_society
20	0.340909093618393	Petroleum_Company	business
21	0.340909093618393	Petroleum_Company	business
22	0.318181812763214	political_party	government
23	0.318181812763214	political_party	government
24	0.318181812763214	think_tank	think_tank
25	0.318181812763214	think_tank	think_tank
26	0.318181812763214	Environmental_Org	civil_society
27	0.318181812763214	Business_Org	business
28	0.318181812763214	Media_Org	media
29	0.295454531908035	think_tank	think_tank
30	0.295454531908035	Media_Org	media

**Table 2: Top 30 Actors Ranked by Perceived Influence on Climate Change Policy: Frequencies for Type of Actor.**

		Type_of_actor_v02			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business_Org	3	10.0	10.0	10.0
	environmental_activist	1	3.3	3.3	13.3
	Environmental_Org	3	10.0	10.0	23.3
	fed_gov_org	2	6.7	6.7	30.0
	fed_government_politician	2	6.7	6.7	36.7
	fed_opposition_politician	1	3.3	3.3	40.0
	Media_Org	5	16.7	16.7	56.7
	Petroleum_Company	2	6.7	6.7	63.3
	political_party	3	10.0	10.0	73.3
	prov_gov	4	13.3	13.3	86.7
	think_tank	4	13.3	13.3	100.0
	Total	30	100.0	100.0	

**Table 3. Top 30 Actors Ranked by Perceived Influence on Climate Change Policy: Bar Chart for Type of Actor.**

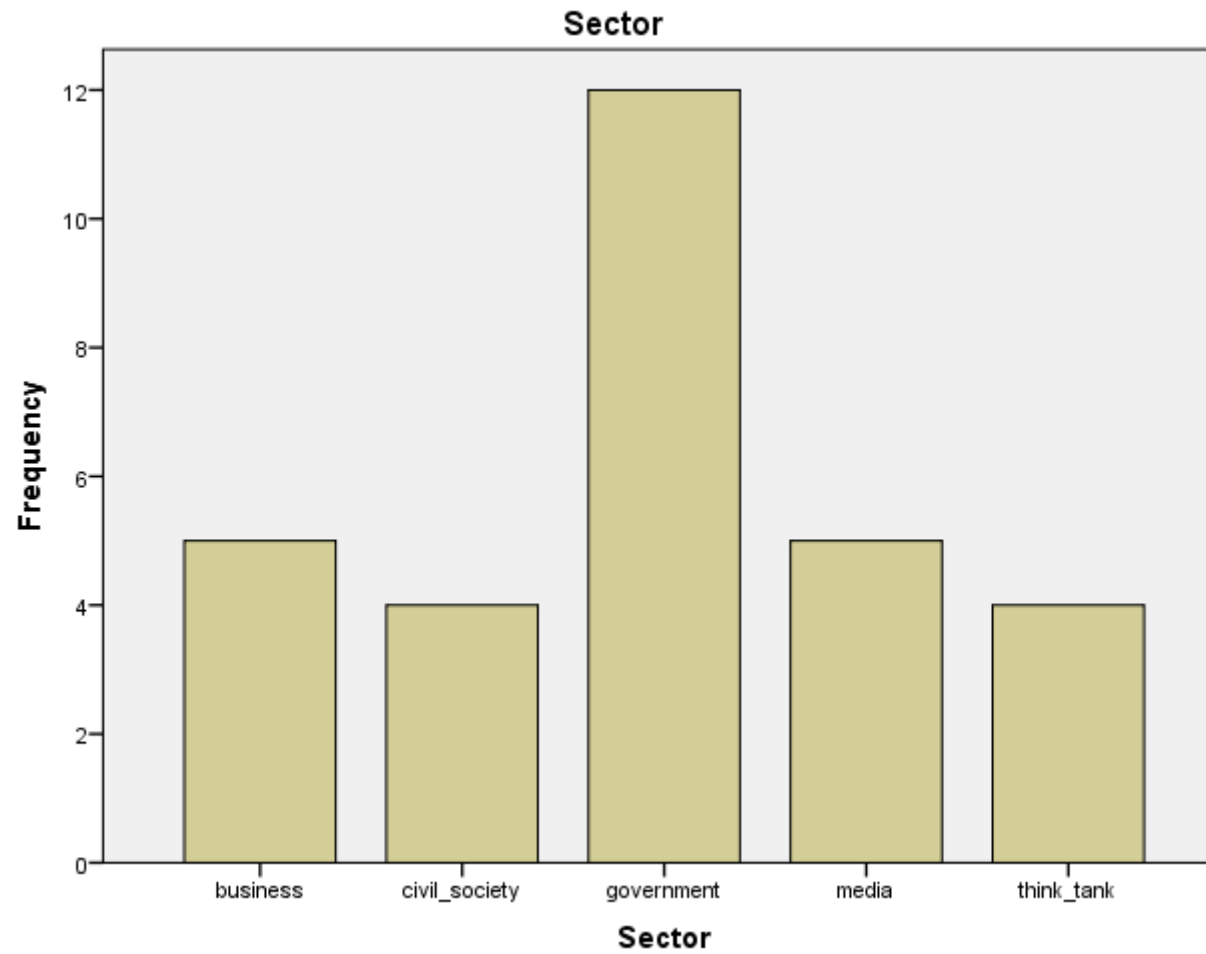


**Table 4: Top 30 Actors Ranked by Perceived Influence on Climate Change Policy: Frequencies for Sector.**

		<b>Sector</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	business	5	16.7	16.7	16.7
	civil_society	4	13.3	13.3	30.0
	government	12	40.0	40.0	70.0
	media	5	16.7	16.7	86.7
	think_tank	4	13.3	13.3	100.0
	Total	30	100.0	100.0	



**Table 5: Top 30 Actors Ranked by Perceived Influence on Climate Change Policy: Bar Chart for Sector.**



# CC Influence

- Not surprisingly, government actors seen as having the most influence.
- No other single sector seems dominant. Though we would note that media actors show up here, but are generally ignored in similar other work on this topic.

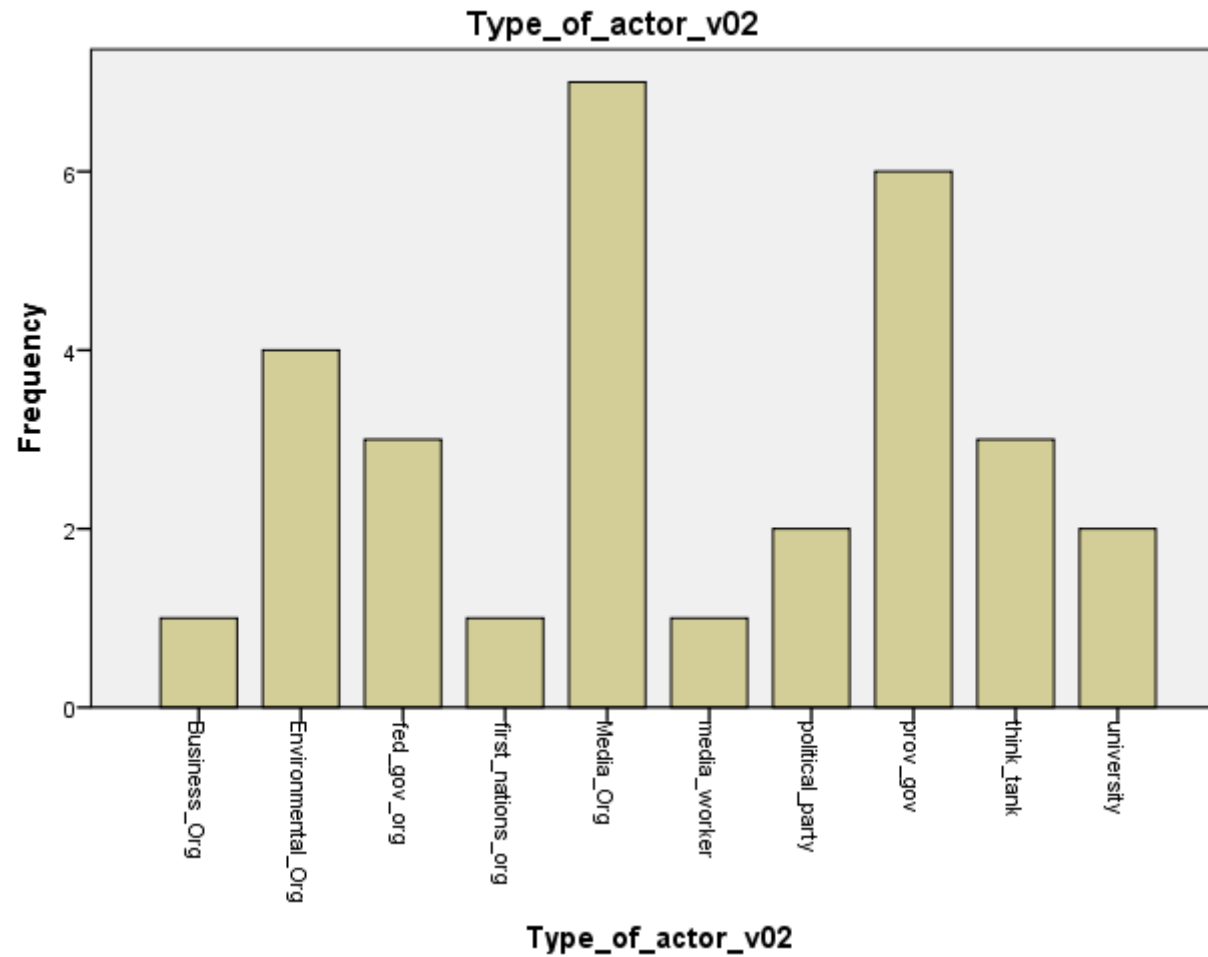
**Table 6: Top 30 Actors Ranked by Communication Network Degree: Raw Data.**

Rank	Comm_TH2_Degree	Type_of_actor_v02	Sector
1	0.795454561710358	fed_gov_org	government
2	0.772727251052856	Media_Org	media
3	0.704545438289642	fed_gov_org	government
4	0.704545438289642	Media_Org	media
5	0.613636374473572	think_tank	think_tank
6	0.590909063816071	prov_gov	government
7	0.590909063816071	prov_gov	government
8	0.545454561710358	Media_Org	media
9	0.545454561710358	Media_Org	media
10	0.522727251052856	prov_gov	government
11	0.522727251052856	Environmental_Org	civil_society
12	0.522727251052856	Media_Org	media
13	0.500000000000000	prov_gov	government
14	0.477272719144821	prov_gov	government
15	0.477272719144821	think_tank	think_tank
16	0.454545468091965	fed_gov_org	government
17	0.454545468091965	Business_Org	business
18	0.454545468091965	Media_Org	media
19	0.454545468091965	media_worker	media
20	0.431818187236786	first_nations_org	government
21	0.431818187236786	prov_gov	government
22	0.431818187236786	political_party	government
23	0.431818187236786	think_tank	think_tank
24	0.431818187236786	university	research
25	0.431818187236786	Environmental_Org	civil_society
26	0.409090906381607	political_party	government
27	0.409090906381607	university	research
28	0.409090906381607	Environmental_Org	civil_society
29	0.409090906381607	Environmental_Org	civil_society
30	0.409090906381607	Media_Org	media

**Table 7. Top 30 Actors Ranked by Communication Network Degree: Frequencies for Type of Actor.**

		<b>Type_of_actor_v02</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business_Org	1	3.3	3.3	3.3
	Environmental_Org	4	13.3	13.3	16.7
	fed_gov_org	3	10.0	10.0	26.7
	first_nations_org	1	3.3	3.3	30.0
	Media_Org	7	23.3	23.3	53.3
	media_worker	1	3.3	3.3	56.7
	political_party	2	6.7	6.7	63.3
	prov_gov	6	20.0	20.0	83.3
	think_tank	3	10.0	10.0	93.3
	university	2	6.7	6.7	100.0
	Total	30	100.0	100.0	

**Table 8. Top 30 Actors Ranked by Communication Network Degree: Bar Chart for Type of Actor.**

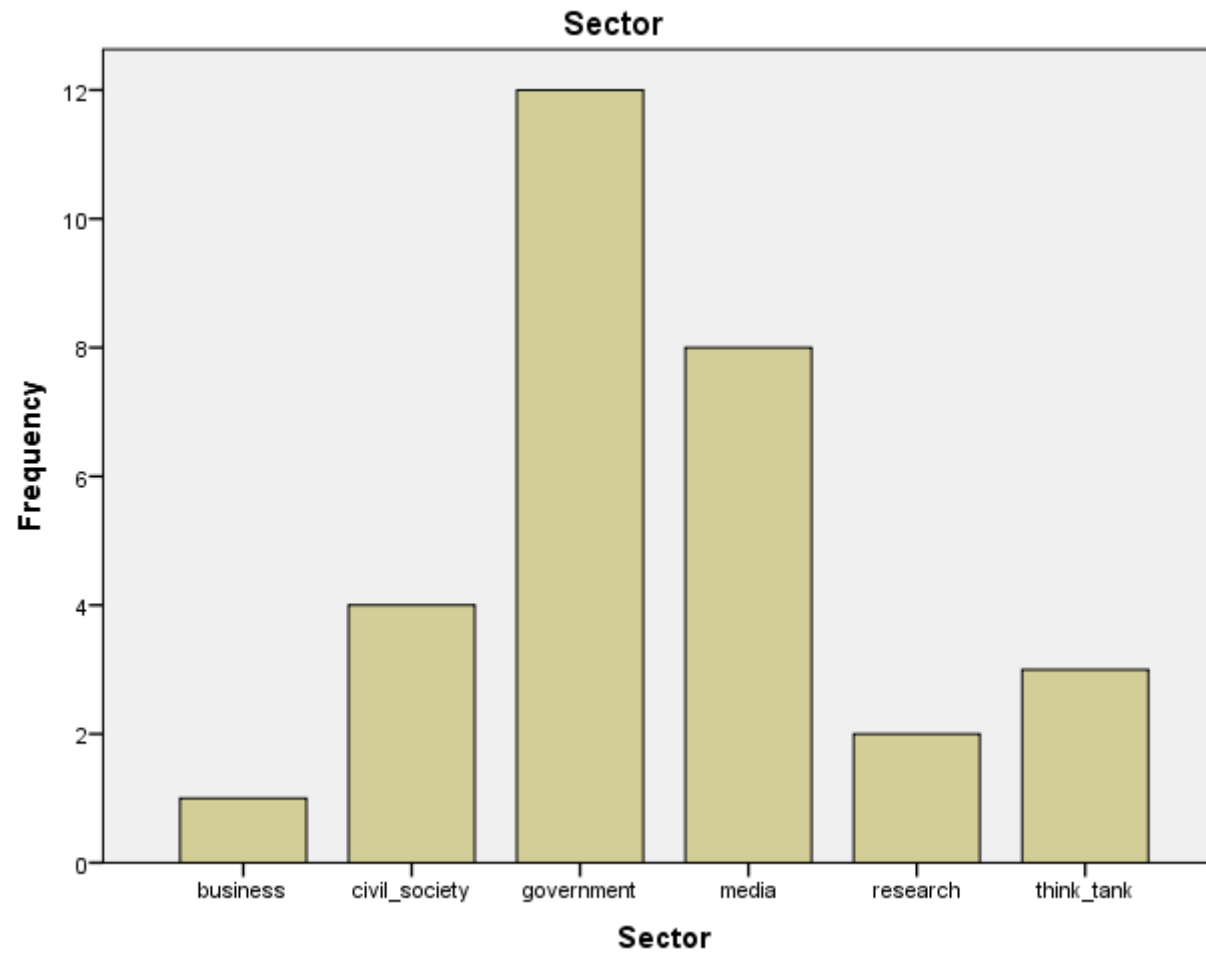




**Table 9: Top 30 Actors Ranked by Communication Network Degree: for Sector.**

		<b>Sector</b>			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	business	1	3.3	3.3	3.3
	civil_society	4	13.3	13.3	16.7
	government	12	40.0	40.0	56.7
	media	8	26.7	26.7	83.3
	research	2	6.7	6.7	90.0
	think_tank	3	10.0	10.0	100.0
	Total	30	100.0	100.0	

**Table 10: Top 30 Actors Ranked by Communication Network Degree: for Sector.**



# Communication

- For communication, government is the key actor, followed by media.

**Table 11. Intercorrelations of Social Network Variables.**

	<b>Climate Change Influence</b>	<b>Organizational Influence</b>	<b>Source of Expert Info.</b>	<b>Collaboration</b>	<b>Communication</b>
<b>Climate Change Influence</b>	-----	.73****	.28****	.54****	.70****
<b>Organizational Influence</b>	.73****	-----	.48****	.77****	.68****
<b>Source of Expert Information</b>	.28****	.49****	-----	.66****	.53****
<b>Collaboration</b>	.54****	.77****	.66****	-----	.68****
<b>Communication</b>	.70****	.68****	.53****	.68****	-----

\* p. ≤.05, \*\* p. ≤.01, \*\*\* p. ≤.005, \*\*\*\* p. ≤.001

# Intercorrelations

- All network variables are positively and significantly intercorrelated.
- (Similar results are found using QAP correlation.)



# Results Part 2: Multiple Regression Analyses.

<b>Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	-----	-----	.53****	.24**
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				

<b>Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	-----	-----	.53****	.24**
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				

<b>Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	-----	-----	.53****	.24**
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				

<b>Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	-----	-----	.53****	.24
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				



<b>Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	-----	-----	.53****	.24**
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171

\* p. ≤.05, \*\* p. ≤.01, \*\*\* p. ≤.005, \*\*\*\* p. ≤.001

**Table 12. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy. Standardized Regression Coefficients.**

	Model 1	Model 2	Model 3	Model 4
<b>Control Variables</b>				
Business Sector	-.24***	-.11	-.11	-.05
Civil Society Sector	-.19*	-.18*	-.16*	-.11
Media Sector	-.01	.06	.07	-.06
Other Sector (Govt is ref.)	-.06	-.05	-.03	-.02
Research Individuals	.05	-.07	-.01	-.02
Research Organization	-.37****	-.51****	-.37****	-.37****
Think Tank	.08	-.00	-.01	.00
Individual (vs Org.)	-.22***	-.10	-.06	.02
Federal/National (Scope)	.27****	.22***	.26****	..15*
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	----	.46****	.06	.05
Actor Collaborates with R's Organization (Degree)	----	----	.53****	.24
Actor Communicates with R's Organization (EVC)	----	----	----	.47****
<b>R<sup>2</sup></b>	.26****	.40****	.54****	.63****
<b>Adjusted R<sup>2</sup></b>	.22****	.36****	.51****	.60****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				

# MR Results: Perceived Influence on CC

Multiple regression results controlling for sector, individual versus organization, and geographic scope (federal or not):

- Communication is the key independent variable; it is strongly positive and significantly correlated with perceived influence on climate change policy.
- In the final model, collaboration relationships also have a small effect.
- Being a source of expert information did not have an effect.
- In terms of the controls, research organizations had a negative effect on perceived influence.
- Federal scope had a positive influence.

<b>Table 13. Multiple Regression Model Explaining Perceived Influence on Climate Change Policy (Communication Only). Standardized Regression Coefficients.</b>		
	<b>Model 1</b>	<b>Model 2</b>
<b>Control Variables</b>		
Business Sector	-.24***	-.06
Civil Society Sector	-.19*	-.10
Media Sector	-.01	-.13*
Other Sector (Govt is ref.)	-.06	-.03
Research Individuals	.05	-.01
Research Organization	-.37****	<b>-.36****</b>
Think Tank	.08	.02
Individual (vs Org.)	-.22***	.02
Federal/National (Scope)	.27****	.11
<b>Social Network Variables</b>		
Actor is Source of Expert Information (Degree)	----	----
Actor Collaborates with R's Organization (Degree)	----	----
Actor Communicates with R's Organization (EVC)	----	<b>.66***</b>
<b>R<sup>2</sup></b>	.26****	.39****
<b>Adjusted R<sup>2</sup></b>	.22****	.57****
<b>N</b>	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001		

# Communication Only

- We ran a regression with Communication included as the only network independent variable, just to guard against possible problem of multicollinearity.
- We observe the same results for communication.

<b>Table 14. Multiple Regression Model Explaining Perceived Organizational Influence. Standardized Regression Coefficients.</b>				
	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Dummy Variables</b>				
Business Sector	-.40****	-.22***	-.23****	-.20****
Civil Society Sector	-.25***	-.24***	-.22****	-.20****
Media Sector	-.26***	-.16*	-.16***	-.22****
Other Sector (Govt is ref.)	-.08	-.06	-.03	-.03
Research Individuals	-.01	-.17*	-.09	-.10*
Research Organization	-.39****	-.58****	-.40****	-.40****
Think Tank	.05	-.07	-.08	-.07
Individual (vs Org.)	-.31****	-.15*	-.10	-.06
Federal/National (Scope)	.13	.06	.11*	.06
<b>Social Network Variables</b>				
Actor is Source of Expert Information (Degree)	-----	.62****	.11	.12
Actor Collaborates with R's Organization (Degree)	-----	-----	.67****	.54****
Actor Communicates with R's Organization (EVC)	-----	-----	-----	.21***
<b>R<sup>2</sup></b>	.25****	.51****	.73****	.75****
<b>Adjusted R<sup>2</sup></b>	.21****	.47****	.71****	.73****
<b>N</b>	171	171	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001				



# MR: Influence on R's Organization

- We also ran a multiple regression for perceived influence on R's organization.
- Here collaboration had the largest effect, but communication also had an effect.
- Again, being a source of expert information did not have an effect.

<b>Table 15. Multiple Regression Model Explaining Perceived Organizational Influence.(Communication Only.) Standardized Regression Coefficients.</b>		
	<b>Model 1</b>	<b>Model 2</b>
<b>Control Variables</b>		
Business Sector	-.40***	-.22****
Civil Society Sector	-.25***	-.16*
Media Sector	-.26***	-.38****
Other Sector (Govt is ref.)	-.08	-.05
Research Individuals	-.01	-.06
Research Organization	-.39****	-.38****
Think Tank	.04	-.01
Individual (vs Org.)	-.31****	-.08
Federal/National (Scope)	.13	-.03
<b>Social Network Variables</b>		
Actor is Source of Expert Information (Degree)	-----	-----
Actor Collaborates with R's Organization (Degree)	-----	-----
Actor Communicates with R's Organization (EVC)	-----	.66***
<b>R<sup>2</sup></b>	.25****	.58****
<b>Adjusted R</b>	.21****	.55****
<b>N</b>	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001		

<b>Table 15. Multiple Regression Model Explaining Perceived Organizational Influence.(Communication Only.) Standardized Regression Coefficients.</b>		
	<b>Model 1</b>	<b>Model 2</b>
<b>Control Variables</b>		
Business Sector	-.40***	-.22****
Civil Society Sector	-.25***	-.16*
Media Sector	-.26***	-.38****
Other Sector (Govt is ref.)	-.08	-.05
Research Individuals	-.01	-.06
Research Organization	-.39****	<b>-.38****</b>
Think Tank	.04	.01
Individual (vs Org.)	-.31****	-.08
Federal/National (Scope)	.13	-.03
<b>Social Network Variables</b>		
Actor is Source of Expert Information (Degree)	----	----
Actor Collaborates with R's Organization (Degree)	----	----
Actor Communicates with R's Organization (EVC)	----	<b>.66***</b>
<b>R<sup>2</sup></b>	.25****	.59****
<b>Adjusted R</b>	.21****	.55****
<b>N</b>	171	171
* p. ≤.05, ** p. ≤.01, *** p. ≤.005, **** p. ≤.001		

# MR: Influence on R's Organization

- When communication is included as the only network variable, it has a large, significant effect.

# Discussion

Lots of future plans:

- We will move from looking at level of influence, to looking at the relationship between structure and content of policy positions.
- We will also look at other aspects of structure, including membership in particular structural positions in the network. (We have already done some preliminary analyses of core/periphery structures, and factions.)

# Discussion

Our future work will:

- Add information on the Twitter activity of the nodes.
- Pay special attention to ENGO actors.
- Pay special attention to Media actors.



The End!

