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Network ties, institutional roles and advocacy tactics:Exploring explanations for perceptions of influence in climate change policy networks

Paul M. Wagner[a,*], Petr Ocelík[b,c], Antti Gronow[d], Tuomas Ylä-Anttila[e], Luisa Schmidt[f], Ana Delicado[g]

[a] Newcastle Business School, Northumbria University, Newcastle NE1 8ST, UK
[b] Department of International Relations and European Studies, Faculty Social Studies, Masaryk University, Joštova 218/10, 602 00 Brno, Czech Republic
[c] International Institute of Political Science, Faculty Social Studies, Masaryk University, Joštova 218/10, 602 00 Brno, Czech Republic
[d] Department of Social Research, University of Helsinki, Unioninkatu 35, 00100, Finland
[e] Department of Political and Economic Studies, University of Helsinki, Yliopistonkatu 4, 00100 Helsinki, Finland
[f] Institute of Social Sciences - University of Lisbon, Av. Prof. Aníbal de Bettencourt, 9, 1600-189 Lisbon, Portugal
[g] Instituto de Ciências Sociais da Universidade de Lisboa, Av. Prof. Aníbal de Bettencourt, 9, 1600-189 Lisbon, Portugal

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ABSTRACT

The extent to which a policy actor is perceived as being influential by others can shape their role in a policy process. The interest group literature has examined how the use of advocacy tactics, such as lobbying or media campaigns, contributes to an actor's perceived influence. The policy networks literature, in turn, has found that network ties and occupying certain institutional roles can explain why actors are perceived as influential. When investigating what explains perceptions of influence, interest groups scholars have not accounted for network interdependencies and network scholars have so far not examined the advocacy tactics used by interest groups. This paper addresses the gap at the intersection of these two literatures by investigating the relationship between network ties, institutional roles, advocacy tactics and the presence of influence attribution ties in climate change policy networks. Exponential random graph models are applied to network data collected from the organisations participating in the national climate change policymaking processes in six EU countries that vary by the extent to which they are majoritarian or consensual democracies: Czechia, Finland, Germany, Ireland, Portugal, and Sweden. The results show that network ties and institutional roles are better predictors of influence attribution ties than advocacy tactics and that there is no pattern in the relationship between advocacy tactics and influence attribution ties across different institutional contexts. These findings suggest that because influence is primarily associated with structural factors (network ties and institutional roles) that more established policy actors are likely to have more influence, which may inhibit the need for a significant step change in climate policies.

Introduction

In recent years, international agreements have been made and ever stronger norms have emerged that work in tandem to compel, obligate or incentivize nation states to reduce their carbon emissions. The most notable of these is the 2015 Paris Climate Accord, which obliges signatories to set out how they intend to meet their own nationally determined emissions reduction targets. National policies and domestic political actors are therefore now front and centre in how the world addresses climate change. Consequently, understanding how political actors come to be seen as influential in national climate policymaking processes is of critical importance.

Long-term economic, political, cultural and social forces determine and shape which actors participate in a country's national climate change policymaking process. Those involved are likely to represent a broad range of interests and hold a variety of different and sometimes incompatible views about how their national government ought to respond to the problems arising from climate change. Policy processes take place within meso-level policy network structures where various policy actors compete to influence policy decisions. But what explains which actors are perceived as influential and which are not? Researchers working in the field of policy network analysis have investigated

* Corresponding author.
E-mail addresses: paul.wagner@northumbria.ac.uk (P.M. Wagner), ocelik@fss.muni.cz (P. Ocelík), antti.gronow@helsinki.fi (A. Gronow), tuomas.yla-anttila@helsinki.fi (T. Ylä-Anttila), schmidt@ics.ul.pt (L. Schmidt), ana.delicado@ics.ulisboa.pt (A. Delicado).

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whether network ties and institutional roles can explain why actors are perceived as influential or powerful (Fischer and Sciarini, 2015; Heaney, 2014; Ingold and Leifeld, 2016). In contrast, interest groups scholars have sought to explain actors' influence by analysing the insider (lobbying, providing technical expertise, etc.) and outsider (media and publicity, petitions, etc.) advocacy tactics that they use to communicate their preferences to decision-makers (Gais and Walker, 1991; Grant, 1978; Binderkrantz, 2005, 2008; Dür and Mateo, 2013; Hanegraaff et al., 2016; Hojnacki et al., 2012; Weiler and Brändli, 2015).

Policy actors are unable to change their institutional roles and the network structures in which they are embedded are not easily manipulated. Many actors can, however, be quite flexible in their use of advocacy tactics, although the options open to them may be limited by the political institutional context (Tresch and Fischer, 2015). To date, neither the policy networks literature nor the interest groups literature has looked to the other strand of research for an explanation for why policy actors are perceived as influential. This paper addresses this gap by investigating how factors identified by the policy networks and interest groups literatures explain perceived influence in policymaking processes when they are considered together. We apply exponential random graph models to survey data collected in six EU countries that vary by the extent to which executives (majoritarian) or political parties (consensual) control the policy process (Lijphart, 2012): Czechia, Finland, Germany, Ireland, Portugal, and Sweden. The dependent variable is a network of influence attribution ties (i.e. perceived influence).

Results show that network ties and institutional roles are better predictors of perceptions of influence in climate change policy networks than advocacy tactics. In addition, the tactics used by those perceived to be influential are unrelated to the institutional context; we find no systematic differences in the results on tactics between majoritarian and consensual countries. The factors associated with influence are more consistently related to the resources (decision-making authority and network ties) that policy actors have at their disposal than to their choice of tactics. These findings indicate that policy actors ought to pay particular attention to their network ties and to the structure of the policy network within which they operate if they want to convince others that they are influential. As influence is primarily associated with structural factors (network ties and institutional roles), well-established policy actors are likely to have an advantage over new entrants to policy debates, which may inhibit a government's ability to introduce more ambitious climate policies.

The next section presents our theoretical framework: the first part covers the interest groups literature on advocacy tactics; the second part describes how the policy network analysis literature has sought to explain influence attribution ties. We then describe the data, methods and the models that we use to address our research question: what explains influence attribution ties in national climate change policy networks? Following this, we present our results and discuss our findings. We conclude with some reflections on the study and suggestions for future research.

Theoretical framework

Interest groups and advocacy tactics

Policy actors can be perceived as influential when they have access to or having some degree of control over a policy process. They can exert their influence by putting an issue on the agenda, by shaping how policies are designed, or by having a say over which policy ideas are acceptable. Scholars of interests groups' attempts to influence government policy distinguish between two sets of advocacy tactics: insider and outsider tactics (Gais and Walker, 1991; Grant, 1978) - also referred to as access and voice (Beyers, 2004) or as direct and indirect tactics (Binderkrantz, 2005, 2008). Insider tactics involve the transfer of information directly to those with decision-making power, while outsider tactics are used to influence public opinion, mobilise the public, or to show decision-makers that there is public support or opposition to a policy proposal or idea (Binderkrantz, 2005; Dür and Mateo, 2013; Hanegraaff et al., 2016; Weiler and Brändli, 2015). Insider tactics are thus not completely open and visible to the public, while outsider tactics are used by organisations with the objective of being as public as possible to attain visibility or increase it so as to further their cause. This distinction has also been used to classify organisations as being either insiders or outsiders (Grant, 1978). More specifically, insiders were defined as interest groups that use insider tactics *and* are also accepted by decision-makers as legitimate and regular participants of the policymaking process, whereas outsiders lack such a status and need to rely on outsider tactics (Maloney et al., 1994). In other words, while tactics are chosen by the groups themselves, the status of a group as an insider or an outsider largely depends on recognition or lack of it from decision-makers (Binderkrantz, 2005). The classification of organisations as insiders and outsiders has been criticised with regard to a common use of mixed strategies (Binderkrantz, 2005), fluctuation in the use of preferred tactics (Walker, 1991), issue-defined choice of tactics (Page, 1999) and the too simplistic dichotomy-based construction of the two categories (Maloney et al., 1994).

The rationale behind the *use* of insider tactics is, however, widely recognised (Beyers, 2004; Binderkrantz, 2008; Dür and Mateo, 2013) - to form a relationship with those with decision-making power to ensure that one's views are heard and understood prior to decisions being taken. Policy actors can increase their attractiveness among decision-makers by, for example, transferring the information that they have to decision-makers. Insider tactics therefore involve creating an exchange relationship, where those with decision-making power give organisations access to the policymaking processes in return for the technical expertise or whatever other valuable resources the organisations have (Maloney et al., 1994). A common assumption made in the literature is that those that largely rely on insider tactics are better connected to decision-makers, and as a result, are more likely to be influential (Binderkrantz, 2008; Mahoney, 2007). Bureaucrats working in government departments or in the agencies responsible for developing government policy often enable and support the formation and maintenance of insider relationships because they rely on the expertise and information that such organisations provide. They also need these organisations to support, or at least to consider legitimate, the policies that they develop and implement. Government can therefore reduce policy implementation costs by facilitating the use of cooperative insider tactics by policy actors (Grant, 2000).

Organisation that use insider tactics can maintain their relevance and their chances of survival by putting effort into developing and maintaining their political and technical capabilities (Dür and Mateo, 2013). Social movement organisations and other groups that rely on outsider tactics are also concerned with survival, but they go about achieving this by keeping their membership base engaged and motivated and by trying to grow their organisation to obtain additional resources (Binderkrantz, 2008; Gais and Walker, 1991).

Much of the literature on interest groups and advocacy tactics has sought to analyse the relationship between group type and the different types of tactics (Beyers, 2004; Binderkrantz, 2005; Chalmers, 2013; Gais and Walker, 1991). Organisations involved in policymaking are usually categorised as either representing some economic interest or of being a social movement that seeks to represent citizens' views on an issue. Insider tactics are typically used by business groups, while outsider tactics are regularly employed by NGOs and citizens' groups (Binderkrantz et al., 2015). NGOs often rely on outsider tactics because they have less resources at their disposal, although this is not always the case (Tresch and Fischer, 2015; Petrova and Tarrow, 2007).

Equating the insider-outsider distinction with different actor types is, however, problematic. The tactics used by an actor can change over time (Walker, 2016), depend on the openness of the political opportunity structures in which they operate, and differ or evolve as a result of changes in an organisation's structure (Petrova and Tarrow, 2007).

Media campaigns, for example, have traditionally been classified as an outsider tactic, but have increasingly been employed by those seen as insiders, in line with the argument that there is an increasing mediatisation of politics (Esser and Strömbäck, 2014). The mediatisation of politics thesis argues that politics increasingly takes place in and through the media, with political actors communicating with each other and with their constituents via the media. It is also the case that policy actors don't necessarily exclusively stick to one set of tactics over another. Indeed, insider and outsider tactics can be complementary (Chalmers, 2013) and using a broader repertoire of tactics can improve an organisation's effectiveness, especially for social movement organisations (Baumgartner and Leech, 1998).

An actor can only use insider tactics when the necessary institutional opportunity structures are open to them. In general, how open an actor finds these structures to be depends on both their own role and their ability to operate in the political institutions that exist in their country. In closed majoritarian systems (Lijphart, 2012), actors that lack access are more likely to use outsider tactics (Tresch and Fischer, 2015). These are considered to be weapons of the weak (Dearlove, 1973; Gais and Walker, 1991), that is, of those that are less likely to be perceived as being influential. Conversely, the actors that use insider tactics in majoritarian systems are likely to be seen as influential. This is because when organisations have access it can be interpreted as a sign that they are viewed by decision-makers as politically important, and therefore influential (Eising, 2007). In consensual countries (Lijphart, 2012), political opportunity structures are open to a wider variety of actors, thereby allowing and enabling actors that are traditionally considered as outsiders to also use insider tactics. As a result, the relationship between tactical choices and influence is likely to be weaker or non-existent.

Considering the above, we arrive at two conjectures. First, empirical heterogeneity, both at the actor and at the institutional-context levels, makes it difficult to categorise actors as influential insiders and less influential outsiders based on the actor types and/or preferred tactics. We do, however, agree with more recent literature that the distinction between insider and outsider *tactics* is useful (Binderkrantz et al., 2015; Dür and Mateo, 2013) as this distinction allows us to capture how interest groups try to attain influence. Second, we argue that the theoretical discussion on advocacy tactics extensively relies on a relational vocabulary. This is most visible in the case of the insider tactics, defined as "access" to decision-makers, which requires the presence of a relationship (Maloney et al., 1994). Relational ideas are also present in the assumptions regarding the exchange of resources among policy actors – both interest groups and their "targets" (Grant, 2000). Following the pioneering work of Marsh et al. (2009), we recognise that interest groups, and policy actors in general, form networks through a variety of interdependencies and argue that such dependencies need to be explicitly modelled to examine their effects on actors' perceived influence.

Policy network analysis

Researchers taking a policy network analysis approach use network methods to measure, model and analyse the actions and the interactions of the actors engaged in a policy process (Laumann and Knoke, 1987). These methods allow researchers to gain insights into the role that different actors play, examine how subsets of actors within the network interact with one another in different ways as well as determine how actors are organised or integrated into the network and how power is distributed among them (Ingold, 2011; Leifeld and Schneider, 2012; Metz et al., 2019). Analysis of the distribution of power is of a key importance in the study of policy networks (Brockhaus and Di Gregorio, 2014; Fischer and Sciarini, 2015; Henry, 2011; Kriesi et al., 2006). Power as the capacity to influence a policy process refers to the ability for policy actors to affect the behaviours and the beliefs of others through the efficient control of resources (Weible, 2005), such as formal decision-making authority, financial resources, or network position (Nohrstedt, 2011). With this in mind, researchers have sought to use network methods to quantify and measure authority, power, influence and reputation in policymaking processes (Bustos, 2021; Gortiz et al., 2020; Gortiz et al., 2021; Jörgens, 2016; Kolleck et al., 2017; Saerbeck et al., 2020; Wagner et al., 2021)

Heaney's (2014) study of the United States health policy domain shows that interest groups perceive others to be influential when they communicate with them, when they work on the same issues and when they are members of the same coalition. Fischer and Sciarini (2015) find evidence that actors are perceived as being powerful when they are central in a policy network, when they participate in the same parallel decision-making processes, when they have formal authority or when they share policy preferences. Ingold and Leifeld (2016) investigate structural and institutional determinants of influence reputation in their study of five national and local policy networks,. They posit that actors holding formal decision-making authority and those that participate in a greater number of policy committees or other institutional venues will be perceived to be influential. On structural positions, they posit that actors will be perceived to be influential when they are embedded in a collaboration or contact network or when they have relational visibility. Their results show that being a member of a greater number of policy committees, having collaboration ties with other actors, and having a higher betweenness centrality score are all associated with perceived influence.

When discussing the interest groups and advocacy tactics literature above, we argued that the area of research could be fruitfully integrated with the network approach, which places interest groups, and more generally policy actors, within a broader relational context. As noted above, policy network research has documented how network relations matter for policy actors' perceived influence, but it has not previously investigated the connection between advocacy tactics and influence. Thus, we argue that the concept of advocacy tactics importantly complements the structuralist emphasis of network research as it allows us to examine how the *combination* of different modes of engagement and network positions affects policy actors' perceptions of influence. Moreover, to account for the role that the broader institutional context can play in shaping these relationships, we test whether the different kinds of opportunity structures presented by relatively closed majoritarian and more open consensual polities play a role in explaining the factors associated with perceptions of influence.

Data and methods

We investigate which factors are associated with perceived influence in climate change policy networks using data collected through a survey of the organisations involved in national climate politics in six EU countries: Czechia, Finland, Germany, Ireland, Portugal and Sweden. These countries were selected based on a diverse case strategy which intends to maximise variance across a dimension of interest to increase sample representativeness (Gerring, 2009). Here, the institutional context is the majoritarian-consensus dimension of the political system reflecting the degree to which executives or political parties control the policy process (Lijphart, 2012). The majoritarian-consensus dimension also captures whether organised interests are represented prevailingly by a plurality of separate interest groups or through a limited number of major peak bodies (see Taagepera and Nemčok, 2019). The institutional context thus importantly affects opportunities and ways to participate in policy processes (see Fischer, 2014). To account for various institutional settings, the studied countries range from majoritarian (Czechia) to mixed (Ireland, Portugal) and consensual (Finland, Germany, Sweden) political systems.

The national climate change policy network in each of the six countries includes the actors that we identified as participants in the making or the influencing of national climate policies. The networks include political parties, government departments, state organisations, scientific organisations, and all relevant economic, social, and other

political non-state actors as well as any other actors that are known to be influential by experts with a knowledge of the climate policy system (Laumann et al., 1983). Network actors were identified by analysing the coverage of climate change in national newspapers, by reviewing submissions to public consultations, and by interviewing national experts in each country with different areas of knowledge about their country's climate policy debate. We collected data from each of our respondents about (i) their use of different tactics to influence national climate politics (more details below), (ii) their opinions on twelve policy ideas (Supplementary Materials), (iii) their collaboration ties, and (iv) their opinion of which organisations they believe to be especially influential in domestic climate change politics. Information about each of the networks is presented in Table 1. We exclude non-respondents from our analysis.

Exponential Random Graph Models

We develop Exponential Random Graph Models (ERGMs) to investigate what explains influence attribution ties in national climate change policy networks (Goodreau et al., 2008). ERGMs are used to model network structure and the ties that are observed therein, as well as to determine if the observed network structure is less likely to have occurred than what would have occurred by chance, given the effects in a model (Robins et al., 2007). ERGMs are theory driven in that they require the researcher to develop theoretically based hypotheses to include in their models that seek to explain the underlying dynamics and stochastic processes that interact to create the structure of a network. Using this class of models enables us to investigate multiple hypotheses about network dynamics simultaneously and to investigate how they interact to produce the influence attribution network observed in each case country's national climate change policy process. Their usefulness for understanding the dynamics that structure policy networks is well established (Fischer and Sciarini, 2016; Heaney, 2014; Ingold and Leifeld, 2016; Wagner et al., 2021 ; Kammerer et al., 2020).

Dependent variable

Our dependent variable and measure for influence is drawn from Hunter's (1953) method for calculating an actor's reputational power. The rationale for measuring political influence using this approach is that the actors involved in the policy process are those that are best placed to evaluate which actors are influential. The measure is often used in its aggregated form as a continuous attribute variable - where each actor has an influence score that is calculated by summing the number of times that other actors cited them as being influential. Because actors are embedded in networks that shape their perceptions of others' influence, we follow earlier research by using the dyadic measure of influence (Fischer and Sciarini, 2015; Heaney, 2014; Ingold and Leifeld, 2016). This means that the dependent variable in each of our models is an influence attribution network. These networks are constructed using data collected from survey respondents by presenting them with a list of all the actors identified as being part of their country's national climate change policy network and by asking:

Which organisations are especially influential in domestic climate change politics?

We construct $n \times n$ adjacency influence matrices with the responses, where the rows and columns are the actors in the network and each cell i,j contains the value 1 if actor i cited actor j as being especially influential and a 0 if not.

Network ties & institutional roles

We collected data from each of our respondents about their collaboration ties to investigate the relationship between collaboration ties and influence attribution ties. Using this data, we constructed $n \times n$ adjacency matrices for each country that map the collaboration ties between each actor, coding a value of 1 for the presence of a collaboration tie and a value of 0 for the absence of a tie. We include these collaboration networks in our models to investigate if actors perceive their collaboration partners as influential (Fischer and Sciarini, 2015; Ingold and Leifeld, 2016). We also calculate each actors' betweenness centrality score in their national collaboration network and use the statistics to investigate if more central actors in the collaboration networks (actors with higher scores) are more likely to be perceived as influential. To make the results interpretable and comparable across countries, we rescaled the betweenness scores for each country's collaboration network so that they sum to 100% (Ingold and Leifeld, 2016).

We include two variables in our models to investigate if actors that occupy specific institutional roles are perceived to be influential (Fischer and Sciarini, 2015; Ingold and Leifeld, 2016). The first of these is an attribute variable that enables us to investigate if government departments are perceived as being influential; the second enables us to investigate if political parties are perceived as influential. Finally, we include an actor type homophily term to investigate if actors perceive those that are of the same actor type as themselves as influential.

Insider and outsider tactics

Our questionnaire listed and defined seven different advocacy tactics (below). We asked the respondent organisations in each country to indicate which of these tactics they have used with respect to climate change: (1) Often, (2) Sometimes, or (3) Never. In line with our reasoning above, we use the terms "insider" and "outsider" to describe the choice of certain tactics, instead of categorising actors as being insiders or outsiders in the policy process. This approach allows us to capture the potential use of mixed tactics (i.e. the possibility that an actor uses a combination of insider and outsider tactics). Our models investigate if those that answered that they *Often* used a tactic are more likely to be named as being influential by the other actors in the network.

Table 1
Data.

Country	Czech	Finland	Germany	Ireland	Portugal	Sweden
Year of Data Collection	2016	2014	2012	2013/14	2016	2015
Influence Network Density	0.12	0.35	0.43	0.25	0.17	0.28
No. of Responses	91/132	82/96	50/92[a]	52/57	57/82	69/99
Response Rate	69%	85%	54%	91%	70%	70%
Businesses	9/23 (39%)	32/38 (84%)	21/31 (68%)	16/18 (89%)	10/20 (50%)	22/30 (73%)
Civil Society	31/43 (72%)	16/20 (80%)	10/11 (91%)	13/13 (100%)	11/12 (92%)	17/23 (74%)
GOV (*Public Authorities*)	22/31 (71%)	7/7 (100%)	3/5 (60%)	6/8 (75%)	5/9 (56%)	15/19 (79%)
GOV (*Government Departments*)	4/6 (67%)	6/6 (100%)	2/7 (29%)	7/7 (100%)	9/17 (53%)	3/6 (50%)
GOV (*Political Parties*)	6/7 (86%)	7/8 (88%)	5/6 (83%)	5/5 (100%)	5/6 (83%)	3/8 (38%)
Scientific Organisations	19/22 (86%)	14/17 (82%)	9/10 (90%)	5/5 (100%)	17/22 (77%)	9/13 (69%)

[a] The response rate of 54% in Germany makes the findings less robust for this particular case.

Insider tactics

- *Lobbying* - Informal contacts with political parties, government officials to advocate for your position.
- *Policymaking* - Formal testimony at hearings, participation on government advisory committee, draft legislation proposals or text.
- *Technical analysis* - Distribution of data analysis, policy analysis, research documents.
- *Discussion forums* - Exchange ideas and preferences with other interested groups.

Outsider tactics

- *Media and publicity* - Press releases, press conferences, advertising to publicise your position.
- *Activation* **-** Collect signatures on petitions, call or send letters or emails to politicians or officials.
- *Mobilisation* - Street demonstrations, mass meetings, non-violent direct action to bring attention to the issue.

Beliefs

Following Fischer and Sciarini (2015), we include a variable in our models to investigate if actors with similar policy beliefs are likely to name one another as influential. We use data that were collected from respondents by presenting them with a list of twelve climate policy ideas and by asking them to indicate on a five-point Likert scale (Strongly disagree = 1, Neutral = 3, Strongly Agree = 5) their opinions of these ideas. We operationalise the variable using a method described by Leifeld and Schneider (2012). This first step involves creating a dissimilarity matrix for each country by calculating the Manhattan distance between the responses of each pair of actors to the policy beliefs questions. The second step involves subtracting the values in each of the cells of the dissimilarity matrices from the maximum similarity value of the same matrices. The result of this is the creation of a distance matrix where the similarity in the beliefs between each pair of actors is represented by a numeric value, with higher values indicating more similar policy beliefs.

Endogenous terms and controls

We include four endogenous terms and a control variable to model network dynamics (Fischer and Sciarini, 2015). First, the edge statistic is included to capture the baseline propensity for influence attribution ties to be formed. Second, the reciprocity term captures the tendency for pairs of actors to name one another as influential. Third, we include two terms to model transitive triangular structures that occur in many social networks: the GWDSP (geometrically weighted dyadwise shared partner) term to model configurations where an actor i names an actor j as influential and where that same actor j names an actor k as influential; the GWESP (geometrically weighted edgewise shared partner) to model instances where the actor i also names the actor k as influential. Finally, we include a variable that captures a count of the number of other actors that each actor named as influential (influence network outdegree; ergm term: nodeocov). This variable allows us to control for the fact that every respondent does not share the same understanding of how influence is distributed (Fischer and Sciarini, 2015; Ingold and Leifeld, 2016).

Results

Before discussing the results of the ERGMs, we first present descriptive information about the type of advocacy tactics used by the different actor types in the six countries and descriptive statistics showing the relative extent to which different actor types are perceived as being influential. Fig. 1 shows that the types of advocacy tactics used in the national climate change policy networks are largely in line with what the interest groups literature would expect. Civil society organisations (CIV) tend to use outsider tactics, whereas scientific organisations (SCI), business actors (BUS), government departments, administrative agencies, and political parties (GOV) tend to use insider tactics. However, in all countries there are some actors that would *traditionally* be classified as insiders that reported using outsider tactics and vice versa.

This is most visible in the case of the media and publicity tactic which is used by the SCI, BUS, and GOV actors in all countries, except for the BUS actors in Czechia. Moreover, there are several other such instances. In Czechia, the GOV actor *Energy Agency of the Zlín Region* uses activation, and the SCI actor *CzechGlobe* uses both activation and mobilisation. The former promotes energy efficiency and adaptation measures through engagement with local municipalities and politicians, the latter is a member of the climate movement. *Strana zelených* (Green Party) uses both activation and mobilisation. In Portugal and Sweden, the GOV actors that use activation and/or mobilisation are small political parties: *Vänsterpartiet* (The Left Party) in Sweden and *Partido Ecologista Os Verdes* (The Ecologist Party "The Greens") in Portugal. In Finland, *Suomen Ruotsalainen Kansanpuolue* (Swedish People's Party of Finland) reported using both activation and mobilisation. In Germany, three political parties reported using mobilisation.[1] Likewise, the data also shows that actors that would traditionally be classified as outsiders reported using insider tactics. All the insider tactics are used by at least one CIV actor in each country. Finally, we find that there are GOV actors in each country that reported using lobbying (as defined in the methods section above). These include political parties (in all six countries), government departments (Finland, Germany, Portugal, Sweden), government bodies or advisory agencies (Czechia, Finland, Germany, Ireland), and local and municipal government groups or organisations (Portugal, Sweden). Overall, these findings show the widespread used of mixed tactics. Thus, they suggest that distinguishing insiders and outsiders based on actor types is less useful than classifying certain tactics as insider tactics and others as outsider tactics.

Fig. 2 presents the perceived influence scores by actor type for the six countries. It shows that a GOV actor is perceived to be the most influential actor in all countries. In Finland and Germany, the median influence score is highest for the GOV actors, in Ireland and Sweden it is highest for the scientific organisations, whereas in Czechia it is highest for BUS actors. In Portugal, GOV actors and SCI actors have the shared highest median influence score. In Portugal as well as Germany, the median influence score is lowest for the BUS actors, in Czechia it is lowest for the scientific organisations, while in Finland and Sweden it is lowest for CIV actors (civil society organisations). In Ireland, the median influence scores for the BUS, CIV and GOV actors are the same.

The ERGMs' results in Table 2 show that in all six countries actors perceive their collaboration partners as influential and that those with higher betweenness centrality scores in the collaboration network are more likely to be perceived as influential. By exponentiating the coefficients for the betweenness centrality variables we can calculate how the odds of an influence attribution tie forming would change if all the other variables are fixed (Ingold and Leifeld, 2016). In Portugal, where the coefficient is the lowest, the odds of an actor i naming an actor j as influential increases by 11% when the betweenness centrality of j increases by 1%. In Czechia, where the coefficient is highest, the odds of establishing an influence attribution tie between actor i and actor j increases by 19% when the betweenness centrality of alter is increased by 1%. These results indicate that there is a strong relationship between an actor's betweenness centrality and by how likely they are to be perceived as influential by other actors.

Government departments are likely to be perceived to be influential in all six countries, whereas only in Finland, Germany and Sweden are political parties likely to be perceived as influential. Finland and

[1] German respondents were promised anonymity

Fig. 1. Advocacy tactics by actor type (SCI = Scientific organisation; NGO = Non-governmental organisation; GOV = government departments, administrative agencies, and political parties; CIV = civil society organisations; BUS = Businesse.

Germany are the only two countries where actors with dissimilar beliefs are likely to perceive one another as influential. In no country do actors with similar beliefs perceive one another as influential. The results for the homophily variable vary across countries. In Czechia, GOV actors perceive one another as influential, as do SCI actors. In Finland, CIV actors and GOV actors perceive actors of the same type as themselves as influential. In Germany and Ireland, BUS actors perceive one another as influential, whereas in Portugal and Sweden SCI actors perceive one another as influential.

The results for the insider advocacy tactics' variables show that the actors that use the *Lobbying* tactic are more likely to be perceived as influential than would occur by chance in Czechia, Germany and Portugal. Those that use the *Policymaking* tactic in Ireland are likely to be perceived as influential, whereas in Czechia the opposite is the case. It is not significant in any of the four other countries. *Scientific analysis* is a positive and significant predictor of perceived influence in Germany, Ireland and Sweden. In Czechia, actors that engage in *Scientific analysis* are perceived to be less influential than would occur by chance. Those that participate in *Discussion forums* in Czechia and Germany are likely to be perceived as influential, whereas those that use the tactic in Portugal and Sweden are not.

Media & Publicity is the only outsider tactic that is associated with perceived influence in more than one country - Finland, Portugal and Sweden. Those that use the tactic in Czechia and Germany are perceived to be less influential than would occur by chance. *Activation* is only positive and significant in Germany. In Czechia and Ireland, those that use the tactic are perceived to less influential than would occur by chance. Only in Ireland are actors that use the *Mobilisation* tactic

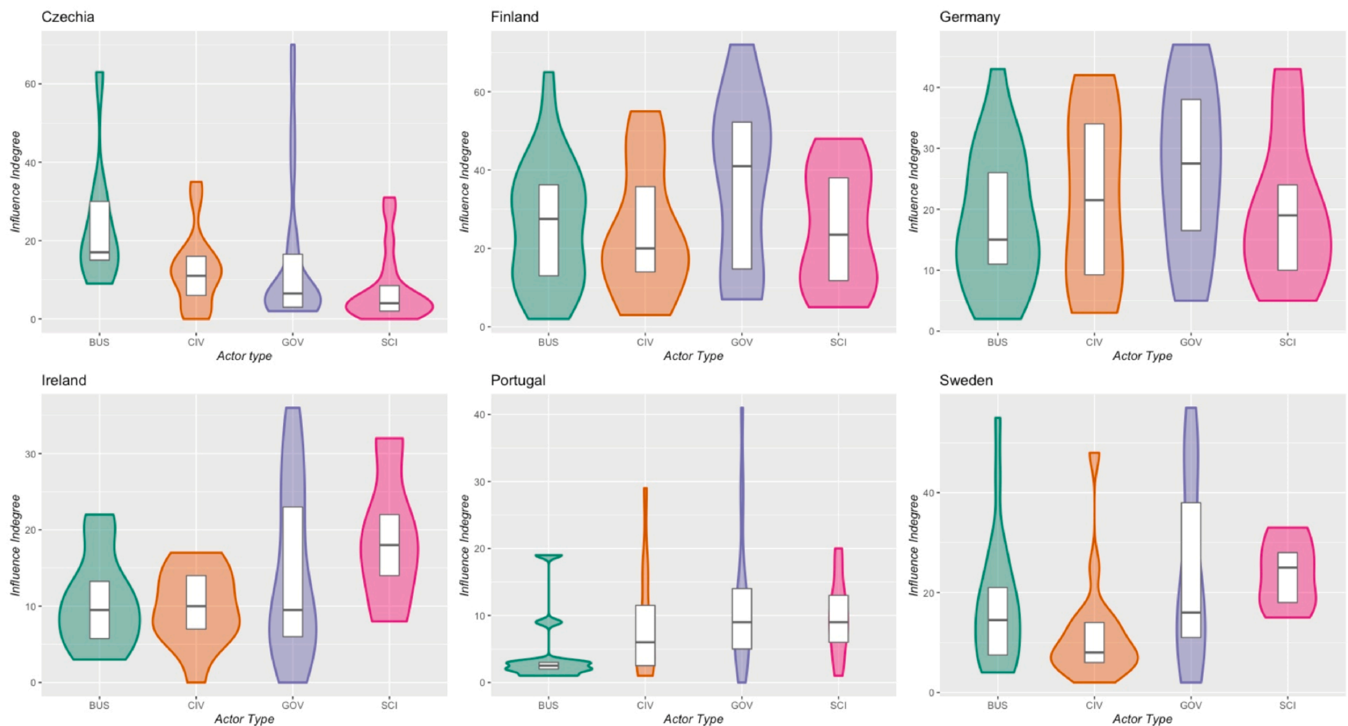

Fig. 2. Boxplots wrapped in Violin plots that show the perceived influence indegree scores by actor type (SCI = Scientific organisation; NGO = Non-governmental organisation; GOV = government departments, administrative agencies, and political parties; CIV = civil society organisations; BUS = Businesses.

Table 2
EGM results.

Statistical models						
	Czechia	Finland	Germany	Ireland	Portugal	Sweden
Edges	-4.77 (0.23)***	-2.36 (0.27)***	-2.61 (0.44)***	-5.34 (0.42)***	-4.36 (0.30)***	-3.30 (0.26)***
Structural Determinants						
Collaboration Network	0.70 (0.09)***	0.90 (0.07)***	1.38 (0.15)***	1.59 (0.14)***	1.53 (0.17)***	1.74 (0.13)***
Collaboration Betweenness	0.17 (0.02)***	0.16 (0.02)***	0.12 (0.02)***	0.11 (0.02)***	0.10 (0.02)***	0.11 (0.02)***
Institutional Determinants						
Government Departments	1.46 (0.14)***	1.21 (0.14)***	0.57 (0.28)*	0.91 (0.19)***	0.55 (0.16)***	2.41 (0.21)***
Political Parties	0.10 (0.12)	0.43 (0.12)***	0.99 (0.24)***	-0.37 (0.23)	-0.09 (0.30)	0.95 (0.21)***
Beliefs						
Beliefs	0.01 (0.01)	-0.03 (0.01)***	-0.03 (0.01)**	0.01 (0.01)	0.03 (0.02)	-0.00 (0.00)
Insider Tactics						
Lobbying	0.96 (0.11)***	0.01 (0.07)	0.69 (0.11)***	-0.29 (0.19)	0.45 (0.18)*	-0.09 (0.09)
Policymaking	-0.21 (0.09)*	0.10 (0.07)	-0.09 (0.10)	0.51 (0.13)***	0.28 (0.20)	0.05 (0.11)
Scientific Analysis	-0.27 (0.08)***	0.12 (0.06)*	0.24 (0.10)*	0.45 (0.13)***	0.24 (0.15)	0.26 (0.08)***
Discussion Forums	0.25 (0.08)**	0.06 (0.06)	0.30 (0.12)*	0.11 (0.14)	-0.51 (0.13)***	-0.40 (0.07)***
Outsider Tactics						
Media & Publicity	-0.38 (0.09)***	0.46 (0.07)***	-0.51 (0.13)***	0.17 (0.17)	0.93 (0.15)***	0.33 (0.09)***
Activation	-0.34 (0.14)*	0.03 (0.16)	1.14 (0.22)***	-0.64 (0.23)**	-0.43 (0.37)	-0.12 (0.17)
Mobilisation	-0.00 (0.26)	-0.65 (0.19)***	-0.08 (0.25)	0.66 (0.28)*		-0.41 (0.21)*
Homophily Terms						
Business Homophily	0.16 (0.33)	-0.34 (0.14)*	0.46 (0.22)*	0.72 (0.28)**		-0.12 (0.20)
Civ. Soc. Homophily	0.12 (0.17)	0.72 (0.19)***	0.64 (0.35)	-0.38 (0.34)		0.29 (0.22)
Gov. Homophily	0.50 (0.15)**	0.38 (0.17)*	-0.13 (0.32)	-0.87 (0.29)**	-0.79 (0.27)**	-0.50 (0.19)**
Sci. Org Homophily	0.64 (0.23)**	-0.35 (0.23)	-0.44 (0.34)		1.01 (0.26)***	1.27 (0.33)***
Nodefactor Business	0.45 (0.11)***			-0.25 (0.16)		
Nodefactor Civ. Soc.		-0.38 (0.09)***	-0.11 (0.16)	-0.04 (0.17)		-0.16 (0.09)
Nodefactor Gov.	-0.18 (0.11)	-0.25 (0.09)**	0.24 (0.17)	0.17 (0.18)	0.31 (0.15)*	0.17 (0.11)
Nodefactor Sci Org.	-0.14 (0.10)	-0.22 (0.09)*	0.51 (0.15)***		-0.39 (0.12)**	-0.25 (0.11)*
Endogenous Terms & Controls						
Mutual	-0.22 (0.13)	-0.18 (0.09)*	0.13 (0.13)	-0.37 (0.20)	-0.63 (0.26)*	0.13 (0.12)
Inf. Outdegree (*control*)	0.05 (0.00)***	0.05 (0.00)***	0.08 (0.01)***	0.10 (0.01)***	0.09 (0.01)***	0.06 (0.00)***
GWESP (1.0)	0.64 (0.04)***	0.31 (0.07)***	0.00 (0.12)	0.63 (0.09)***	0.46 (0.06)***	0.46 (0.05)***
GWDSP (1.0)	-0.04 (0.01)***	-0.10 (0.01)***	-0.14 (0.01)***	-0.05 (0.01)***	-0.06 (0.01)***	-0.12 (0.01)***
AIC	4999.57	6614.91	2507.39	1836.81	2036.97	3951.15
BIC	5167.82	6778.13	2646.68	1972.12	2158.34	4106.03
Log Likelihood	-2475.78	-3283.45	-1229.69	-895.40	-998.49	-1951.57

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$.

perceived to be influential. In Finland and Sweden, it is a tactic used by those perceived to be less influential than would occur by chance. We omit the variable from the Portuguese model because too few actors reported using the tactic for the model to converge on a reliable estimate.

Turning now to the results for the endogenous terms. The edge terms are similar to the constant term in other statistical models and indicate the baseline likelihood of any pair of actors in the network to have a tie. The reciprocity term is negative and significant in Finland and Portugal, indicating that when an actor *i* perceives an actor *j* as influential, actor *j* is unlikely to perceive actor *i* as influential. In Germany, the opposite is the case - the actor *j* is also likely to perceive the actor *i* as influential. In Germany, the GWESP term is not significant and the GWDSP term is negative and significant - a sign of a hierarchy in the attribution of influence in the German network (Fischer and Sciarini, 2015). In the other five countries, the estimates for the GWESP terms are positive and significant and the estimates for the GWDSP terms are negative and significant. The GWESP results indicate that actors that are connected, because at least one of them named the other as influential, are more likely than chance to have multiple shared partners, where these partners are those that either named or were named as being influential. The GWDSP results indicate that influence attribution ties that would create open triangles are unlikely to occur. This means that in instances where neither actor in a pair perceived the other as influential, they are also unlikely to perceive the same third actor as influential (or for either of the two to be perceived as influential by the same third actor). Taken together, these findings indicate that actors are more likely to perceive those actors with which they form closed triads as influential than they are to perceive other actors in the network as influential. The influence outdegree term is positive and significant in all cases, implying that the more influence attribution ties that an actor sends, the more likely they are to perceive an alter as influential (Fischer and Sciarini, 2015; Ingold and Leifeld, 2016).

Discussion

In national climate change policy processes, actors with different beliefs, interests, resources and roles participate, cooperate, and compete to shape policy designs, decisions and outcomes. Understanding how these actors engage in the policy process and come to be perceived as influential by others is crucial if we are to understand what factors are shaping national governments' climate policy decisions. The policy networks literature has found that network ties and actors' institutional roles can explain power or influence attribution ties in policymaking processes (Fischer and Sciarini, 2015; Heaney, 2014; Ingold and Leifeld, 2016). The interest groups literature has posited that there is a relationship between the use of advocacy tactics and political influence (Binderkrantz, 2005, 2008; Dür and Mateo, 2013; Hojnacki et al., 2012). This paper investigates which of the above factors can explain influence attribution ties in national climate change policy networks processes in six EU countries with varying political institutions. Results show that network ties and occupying certain institutional roles are more consistent predictors of influence attribution ties than an actor's choice of advocacy tactics. Political institutions only seem to be systematically associated with perceptions of influence in the countries with more consensual political institutions, where political parties, in line with expectations (Lijphart, 2012), are seen as influential.

Actors in all six countries are likely to name their own collaboration partners as influential, regardless of the institutional context. The relationship between influence and collaboration is at the core of resource dependence theory (Salancik and Pfeffer, 1978), which assumes that actors strategically select collaboration partners that are influential due to their control over (or access to) critical resources (Henry, 2011; Weible, 2005). Fischer and Sciarini (2015) have offered two alternative explanations for why actors name their collaboration partners as influential, arguing that it could be due to either indirect self-promotion or perception bias. In the first case, they suggest that actors may cite their own collaboration partners as powerful so as to indirectly increase their own power. In the second case, actors misattribute influence, but that this has the unintended effect of empowering the actors that they cite. Regardless of whether these interpretations are correct, our results provide further evidence that actors tend to cite their own collaboration partners as influential.

Actors with higher betweenness centrality scores in the collaboration networks are more likely to be perceived as influential in all countries, again, regardless of the institutional context. Those with higher betweenness centrality scores occupy network positions that enable them to act as an intermediary between otherwise unconnected actors and to attain influence by controlling the flow of resources and information (Knoke, 1990). Previous research has shown how the occupants of brokerage positions are able to manage conflict, facilitate knowledge sharing and enable the diffusion of innovations and the coproduction of policy (Crona and Parker, 2011; Levy and Lubell, 2018; Hamilton et al., 2020; Sabatier and Jenkins-Smith, 1993). In the Swiss climate policy network, brokers have been shown to play a crucial role in negotiations between different coalitions and in influencing policy choices (Ingold, 2011). Our results provide further evidence that there is a relationship between occupying structurally important network positions and influence in national climate change policy networks.

Government departments are heavily involved in designing and producing policy proposals and documents, and our results show that these actors are perceived as influential in all countries and institutional contexts. They are particularly important in Czechia, Ireland and Portugal, where political parties are not widely considered to be influential. In Finland, Germany and Sweden, on the other hand, political parties are perceived to be influential. The importance of political parties in these three countries is consistent with the distinction between consensual democracies, where parties dominate, and majoritarian democracies, where executives tend to have more control over the policy process (Lijphart, 2012).

There is limited evidence that insider tactics are associated with influence, with only lobbying and scientific analysis showing a positive relationship in multiple countries. We also find little evidence for the related claim that outsider tactics are the weapons of the weak, that is, of those less likely to be considered influential. In fact, in some instances we find the opposite to be true. The most interesting of these is that the *media and publicity* tactic is positively associated with influence in three countries, namely, Finland, Portugal and Sweden. In Finland and Sweden, government actors use media tactics more frequently than other actor types. In Germany and Czechia, media tactics are negatively associated with influence. In the former, the media is used mainly by civil society organisations, whereas in the latter most actors use the tactic, including most of the business actors. Taken together, these results suggest that the media is not only a tool for those that lack other means for influencing policy. In Finland, Sweden and Portugal the findings lend support to the opposing claim, found in the media studies literature, that there is a general trend of mediatisation of politics, which leads all actors, including those traditionally labelled as insiders, to use media tactics (Esser and Strömbäck, 2014).

The variance between countries in how tactics are associated with perceived influence suggests that the institutional context in which actors use these tactics has little or no effect. Instead, the factors associated with influence are related to actors' resources (decision-making authority and network ties). These findings resonate with the results of Tresch and Fischer (2015, pp. 358–359), who found that the tactics that actors use depends on their resources.

Our point of departure was that the literatures on interest groups and policy networks can potentially complement each other in explaining why policy actors are perceived as influential. Based on our results, we argue that the primacy of network ties for influence attribution is a likely reflection of the implicitly relational nature of advocacy tactics. For one, it is not possible to lobby an actor without having a relationship to it.

Moreover, policy actors often need to collaborate with others to exert their influence and these efforts are facilitated or constrained by their position in a broader network structure. These basic insights of the policy networks approach are of a direct relevance to the study of interests groups and advocacy tactics, as Marsh et al. (2009) rightly point out. Thus, estimating actors' influence based exclusively on individual or bilateral measures is not methodologically sound. The theoretical conceptual implication of this reasoning is that advocacy tactics should not be reduced to policy actors' individual attributes and that they should explicitly account for the relational dimension. The success of a particular tactic is therefore likely to be conditioned by the network position of the actor using the tactic.

Lastly, our findings have policy implications. The primacy of network ties gives an advantage to well-established policy actors within a climate policy subsystem – among them importantly industry incumbents – which may prevent or slow down the policy changes that are necessary to keep global warming from reaching dangerously high levels (Geels, 2014). However, such relational path-dependencies can be challenged at both at the individual and institutional levels. The former refers to the deliberate use of networking strategies such as targeting decision-makers and coalition-building to improve actors' influence and advocacy capacities (see Petrova and Tarrow, 2007). The latter refers to the establishment of permanent government-coordinated policy venues (see Fischer and Leifeld, 2015) to engage a wide variety of actors, including those that otherwise lack access to relational resources and decision-makers.

Conclusion

This paper has added to both the policy networks and the interest groups literatures by examining how ideas from both strands of research can be brought together to investigate the relationship between network ties, institutional roles, advocacy tactics and the perception of influence in policy networks. Our analysis has found that hypotheses from the network literature better explain perceptions of influence than those from the interest groups literature and thus our integration of the two approaches bears fruit.

Two limitations of our study should be kept in mind when interpreting the results. First, the results describe the aggregate effects of the advocacy tactics in each of the policy networks. We therefore can't rule out the possibility that any individual actor could use any one of the tactics in a way that leads others to perceive them as influential." A finer grained and in-depth analysis of each case that includes interviews with policy actors could bring to light an understanding of the effectiveness of the tactics that are used by the actors that are most often perceived as influential. Second, the response rates for some of the actor types in four of the countries are considerably lower than the overall response rate for the country (Table 1). As such, it is possible that the results may be suffer from non-response bias. However, the overall response rates are in line with or well above those that are found elsewhere in the policy network literature.

Although we identified network positions as the most consistent predictors of influence, we suggest that future research should also investigate how influence is associated with specific combinations of relational patterns and advocacy tactics. Future research could also use longitudinal data to investigate the direction of causality in the associations between network positions and perceived influence that we have found. That is, such research could assess whether perceived influence is explained by network positions or whether being influential makes it more likely that actors also attain central network positions. Our preliminary hypothesis is that they are likely to work in tandem, where influence and network centrality mutually affect each other. Thus, central actors are likely to be seen as being influential which, in turn, tends to make them even more central. A similar relationship may also exist between the use of specific tactics and actors' network positions. For instance, well-connected actors might tend to use insider tactics, which then leads them to be even better connected.

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Declaration of Interest

We have no conflicts of interest to disclose.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.socnet.2021.11.008.

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