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Short communication

Community attachment and municipal economy: Public attitudes towards wind power in a local context

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ABSTRACT

This study examines public attitudes towards wind power through two hypotheses. *The community attachment hypothesis* states that people living in small municipalities are more likely to display NIMBYism (Not-In-My-BackYard) or have a more negative attitude. According to the *economic trouble hypothesis* people living in municipalities with weak economy are less likely to display NIMBYism or have a more positive attitude. Using a combination of survey data from Finland ($n = 3459$) and municipality-level statistics we find some support for both hypotheses. Compared to females, males display less NIMBYism and have more negative general attitude towards wind power. While older respondents also display less NIMBYism, they have a more positive general attitude towards wind power. Our results suggest two things. First, it seems that the average attitude and NIMBYism are both valuable aspects of public opinion, providing separate information, and potentially supporting different hypotheses. Whenever possible, they should be investigated in parallel. Secondly, future research should place more emphasis on community-level indicators in order to capture the impact of local context on attitudes towards environmental issues.

1. Introduction

Local people's opinions are of crucial importance when implementing new land use plans, such as building new roads or establishment of nature reserves (e.g. de Groot, 2006; Margules and Pressey, 2000). Apart from the general opinion and attitude, even people who are supportive of some particular plans at a general level tend to be less eager when those plans concern areas close to their homes. This is called the proximity hypothesis, and is also commonly known with a more negatively loaded term—the NIMBY-effect (Not-In-My-BackYard). While this phenomenon has been viewed as a problem associated with specific tactics of opposition (Dear, 1992), it makes perfect sense: people have better knowledge about their own, intimate surroundings and consequently may not wish to see their habitat changed in an abrupt and fundamental way. In this study, we strictly refer to NIMBYism as the effect of proximity on attitude. We take no standpoint in whether NIMBYism is good or bad, but view it as another informative dimension to consider when measuring and mapping people's opinions about land use.

This study has two aims. First, we present an approach for quantitatively measuring NIMBYism and using that variable as an informative measure of public opinion, which is complementary to the measure of general attitude. Secondly, we test two specific hypotheses about how municipality economics and crowding affects the public opinion—including the level of NIMBYism—when establishing more wind power in Finland.

In the empirical analyses we examine the degree of support for wind power in terms of both general attitudes and NIMBYism. We rely on a combination of data from a 2012 survey in Finland ($n = 3459$) and corresponding official community-level statistics of Finnish municipalities.

2. Hypotheses

In today's climate debate renewable and efficient energy sources are typically presented as something desirable. One such energy source is wind power, which lacks major emissions or harmful wastes and therefore does not contribute to global

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warming, at least when compared to other conventional energy production methods (e.g. Denny and O'Malley, 2006; Keith et al., 2004). In addition to environmental benefits, communities can benefit from the establishment of wind farms. For example, Munday et al. (2011) suggested five types of benefits for the local communities including: conventional economic benefits (rental income, taxes, contractors, etc.); flows of financial benefits to local communities (local community ownership, community funds, reduced electricity price, etc.); contribution in kind to local assets and facilities (landscape and ecological enhancement, tourism/visitor facilities); provision of other local services (educational visits and/or programme); and investment in the development process.

Thus, establishing wind farms might improve the local economy, and could therefore be regarded as beneficial for a small community. Despite potential environmental and financial benefits, new and proposed wind farms often face strong resistance. The resistance to wind farms is diverse including e.g. health and safety concerns (Knopper and Ollson, 2001). In addition, community residents also raise concerns regarding economic and environmental impacts from established wind farms. For example, economic concern is often related to reduced property value in areas located close to the wind farms, because wind farms may harm the landscape scenery and increase noise levels (Heintzelman and Tuttle, 2012). Environmental concerns are often focused on bird and bat mortality (Saidur et al., 2011).

Previous research has focused on individual-level determinants (age, education, etc.) of attitudes towards wind power (e.g. Firestone and Kempton, 2007) and on the impact of the planning process on public acceptance of wind farms (e.g. Haggett, 2010). There has, however, been much less focus on community-level variables as an explanation for public support of wind power. Using municipality-level data, we examine two possible community-level explanations: size and economy. To our knowledge, neither has been previously addressed, although both are potentially quite relevant explanatory variables of public attitudes. Municipality size and economy may also be significant from a public policy perspective. Communities differ in terms of their size and financial situation, both of which have consequences for the inhabitants' living conditions. Subsequently, they may also affect popular sentiment towards large-scale projects—such as the building of a wind farm.

We used data from an online questionnaire, which assessed the Finnish respondents' perception and attitudes towards wind power: their general opinion about building more wind power (1) in Finland, (2) in their own municipality and (3) at a visible distance from their home (Blomqvist and Frände, 2013). We apply two similar analyses to study variation in NIMBYism and the general level of support for wind power to get a more holistic view of wind power attitudes. Specifically, we hypothesize the following mutually non-exclusive predictions:

(1) *The community attachment hypothesis*. People living in small municipalities are more likely to display NIMBYism (or have a more negative attitude). This hypothesis builds on the idea that people might be more sentimentally attached to their living environment, also in terms of a nature conservation aspect, in small rural settings compared to urban settings.
(2) *Economic trouble hypothesis*. People living in municipalities with weak economy are less likely to display NIMBYism (or have a more positive attitude), as the municipalities are likely to benefit from building wind farms.

The concept of NIMBY is the centre of a long-standing academic debate. It concerns whether NIMBY should be disregarded as a conceptualization of public opinion, because it puts such a negative label on certain types of opinions (see especially Kempton et al., 2005, 124–125, also Wolsink, 2007). We neither wish to enter this normative debate nor pass judgement on any type of attitudes. With this analysis we only seek to use NIMBY as a way of understanding public opinion and therefore use it for purely pragmatic reasons; the term is well-known and despite many definitions, its core conceptualization as an interaction between proximity and opinion-holding is rather uniformly understood.

Our approach to NIMBYism to some extent combines the two explanatory pathways defined by Devine-Wright (2012). One focuses more on e.g. perceived local economic or social impacts, while the other emphasizes place attachment. The latter approach is present in our *community attachment hypothesis*, while the *economic trouble hypothesis* lends its rationale from the first approach. Our approach also suggests an added element to the fundamental version of the NIMBY-theory, which essentially focuses on *proximity* to some object, such as an industrial facility. Instead of considering proximity as such, our hypotheses suggest also distinguishing between communities, which are characterized by different degrees of community attachment. Small communities, as we have argued, are different in terms of community attachment than large communities. In our approach community attachment can therefore be seen as a factor that potentially mediates the link between proximity and attitude.

3. Methods

In order to gain an understanding of people's attitudes and perception towards wind power in Finland an online survey was conducted. The survey was available in both official languages in Finland, Finnish and Swedish. The survey was accessible through the webpage of a research and development project concerning the use of wind power in Finland (www.vindkraft.fi) at the Novia University of Applied Sciences. The questionnaire included questions about the demographic profile of the respondents, including gender, age and permanent residence postal code, and a set of both multiple choice and open-ended questions concerning attitudes towards wind power and other energy sources. The online survey was available from August 22nd 2011 until March 31st 2012. During this time a total of 3958 individual responses were recorded. After reviewing the responses and excluding incomplete responses and duplicates 3459 responses remained.

Because the survey was conducted by faculty members at the Novia University, it was likely to be detected by students or anyone interested in wind power. The data are therefore likely to better represent the attitudes of people who are familiar with wind power. The data is, however, also representative of the Finnish adult population in terms of gender, but not in terms of age. However, the partial effects of gender and age are controlled for in the analysis. The individuals in our data typically hold a genuine, well-constructed opinion about wind power. This arguably enhances the quality of the data, because they are not very strongly plagued by what Converse (1970) has famously called the non-attitude problem; the respondents in this particular survey are not likely to offer opinions simply because they are asked to do so, but because they feel they hold sophisticated opinions about the subject.

3.1. Measuring NIMBYism and attitude

The respondents were requested to assess their attitude for or against building more wind power in Finland (A), in their home municipality (B), and at a visible range from their home (C). For each of these they gave a score from 1 to 5 (1 = strongly oppose, 2 = weakly oppose, 3 = neutral, 4 = weakly support, 5 = strongly