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The role of NIMBY in opposing the siting of wind farms: evidence from Greece

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This paper aims to assess the relative importance of a NIMBY ('Not-In-My-Back-Yard') stance on an individual's opposition to the siting of a wind farm *vis-à-vis* other predictors, such as perceived effects (costs, risks and benefits associated with the project), perceived fairness of the siting decision and societal trust. Data originate from two case studies, a small wind farm of just two wind turbines in southern Greece and a mega-project of 153 turbines on the Greek island of Lesvos (aggregate N = 334). We use structural equation modelling (SEM) for testing the theoretically-suggested relations between the various constructs. We find that NIMBY is not the most important predictor of opposition while it is strongly correlated with other predictors, such as the perceived unfairness of the siting decision as well as the risks and costs associated with the wind farm. These latter findings undermine the common-sense idea that wishing a wind farm out of one's vicinity ('Not-In-My-Back-Yard') is an example of mere 'free-riding'. Since the fit of the SEM models was found to be moderate, we discuss the limitations of our study and the implications of our findings as well as suggesting pathways for future research.

Keywords: NIMBY; wind farms; unfairness; Greece; structural equation modelling

1. Introduction

The development of a wind farm initiated from outside a community is usually met with strong local opposition. Such reactions have long been labelled as a NIMBY (Not-In-My-Back-Yard) stance, that is "the protectionist attitudes of and oppositional tactics adopted by community groups facing an unwelcome development in their neighborhood ... Residents usually concede that these 'noxious' facilities are necessary, but not near their homes, hence the term 'not in my back yard'" (Dear 1992, 288). Such an understanding of grassroots opposition is still common amongst the promoters of wind farms. Thus, the rhetorical analysis of a number of key texts concerning the development of off-shore wind energy in the UK found that in the promoters' discourse any objections are "presented as not based on evidence and clear thinking, but rather ... based on ideological and personal, local, selfish and NIMBY grounds; or on 'subjective' grounds around which consensus and agreement is impossible using 'fact-based' arguments" (Barry, Ellis, and Robinson 2008, 85).

Yet, such a common-sense understanding of local opposition to wind farms (WFs) is surely unproductive because it can all too easily become a self-fulfilling prophecy. How

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one perceives the public to be has implications on how one engages with it (Barnett *et al.* 2012); thus, if developers and planning authorities assume *a priori* that all and any opposition is a case of NIMBY then they will move to deal with it as such (Ellis *et al.* 2009, 526–527). Accordingly, since NIMBYies are perceived as 'ignorant', 'misinformed', 'irrational' and/or reacting due to a selfish, economic rationale (Freudenburg and Pastor 1992; Barry, Ellis and Robinson 2008, 87; Wolsink and Devilee 2009, 218–219; Aitken 2010, 1837–1838), therefore when 'fighting the NIMBY war' (Rajgor 2005) the right tactics are to 'educate/inform' or to 'compensate' those reacting (Dear 1992; Wolsink and Devilee 2009, 218–219). However, most international research suggests that "more in-depth knowledge does not necessarily mean more positive attitudes to wind schemes" (Wolsink 2009, 540). Furthermore, the perception of compensation or other community benefits vary greatly across publics while such benefits can be viewed as some type of bribing (Cass, Walker, and Devine-Wright 2010), thus increasing public opposition (Frey, Benz, and Stutzer 2004); if monetary incentives are promoted or perceived as 'risk compensation' they could end up "contribut[ing] to the distrust that often plagues facility-siting processes" (Schively 2007, 260). Thus, the net outcome of such an approach is the creation of a "self-fulfilling (NIMBYism) cycle" (Devine-Wright 2011, 22 –23).

Furthermore, it is wrong to assume that all local opposition to outside-initiated WFs is based on egoistical, NIMBY reasons. As Ellis *et al.* (2009, 528) argued, conflicts over the siting of wind farms relates both to disagreements over empirical facts and to "values, world views and the way localities are related to the wider global environment." Hence, Barry, Ellis, and Robinson (2008, 82) found that the objectors espouse a "'Cultural rationality' [which] is oriented around the importance of personal, emotional and value-based experiences and modes of judgment rather than objective, impartial, technical and quantifiable calculations". This is in line with an impressive body of research testifying how landscape characteristics, community identity, perceptions of trust and equity and place attachment influence public opposition towards wind farms (e.g. Wolsink 2007a, 2007b; Devine-Wright and Howes 2010). Yet, these parameters are rarely taken into consideration by the promoters' side, who continue to label all opposition as 'irrational' or 'sentimental', arguably in a strategic attempt to downgrade and disqualify the opposing camp's arguments (Cass and Walker 2009, 68).

While the blanket use of NIMBY is clearly wrong (cf. Freudenburg and Pastor 1992; Burningham 2000; Wolsink 2006), this is not the same as arguing that NIMBY considerations play *no* role in explaining local reactions (e.g. Warren *et al.* 2005). Yet, apart from some recent contributions (cf. Wolsink 2000, 2007b; Wolsink and Devilee 2009), most available research has not tested NIMBY's possible influence on an individual's opposition *vis-à-vis* other predictors. Thus our research tries to offer some further evidence on this, still under-researched, question. Accordingly, this paper's aim is threefold. First, and taking its cue from research on the siting of waste facilities (Wolsink and Devilee 2009), to test through structural equation modelling (SEM) (Byrne 2001) the relative impact of 'NIMBY' on an individual's opposition to the siting of a wind farm, *vis-à-vis* that of perceived 'effects' (i.e. costs, benefits and risks). Second, to complement the previous model with the predictors of 'societal trust' and the 'perceived fairness of the siting' in order to examine how they affect an individual's NIMBY stance as well as his/her opposition to the project; these two predictors have been highlighted as important in the relevant bibliography (see next section) yet have not been empirically tested in tandem with other predictors. Third, and more relevant to students of the Greek wind energy sector, to gain some insights concerning the determinants of the local acceptability of WFs in Greece. Although an increasing amount of research is dealing with wind energy, few studies have focused on that specific issue and none of them, apart from some fleeting mentions and/or the inappropriate 'blanket use' of the term, have taken the possible role of NIMBY into account (cf. Kaldellis 2005; Dimitropoulos and Kontoleon 2009; Koundouri, Kountouris, and Remoundou 2009; Tsoutsos *et al*. 2009; Zografakis *et al*. 2010).

The paper proceeds as follows. In the next section we review the available research on how NIMBY and the other predictors interact with one another and influence an individual's stance towards a wind farm, and we present the hypotheses which we aim to test with our data. The literature review is followed by the 'Data and methods' section, where we present our data as well as the measurement techniques used, and the 'Results' section. Our data come from two Greek areas, in southern Lakonia and on the island of Lesvos, where we interviewed the locals concerning the privately-owned WFs to be built in their areas (aggregate N = 334). We find that NIMBY is not the most influential determinant of opposition while it is strongly correlated with other predictors, such as the perceived unfairness of the siting decision as well as the risks and costs associated with the WF. Nevertheless, the fit of the proposed models is suboptimal which means further research is needed to fully understand the causal paths from values and impacts predictors to NIMBY and opposition. We suggest directions for such further research in the concluding section, together with a discussion of our findings.

2. Literature review and hypotheses

Commenting on the use of 'NIMBY' around wind farm disputes, Kempton *et al*. (2005, 124) argued against its use for "three reasons: ... First, it is generally used as a pejorative implying selfishness as an underlying cause; second, it appears to incorrectly describe much local opposition to wind projects; and third, the actual causes of opposition are obscured, not explained, by the label." In this paper we are particularly interested in the two latter criticisms: the inappropriateness of using 'NIMBY' as a shorthand description for *any* opposition, and the confusion its use may entail when studying the causes of opposition.

Thus, traditionally, and especially amongst developers, local opposition to a development and NIMBY have been used interchangeably; the mere fact that some communities reject a proposed development has been considered as evidence to the existence of a NIMBY syndrome (e.g. for Greece, Kaldellis 2005, 600). Yet, it can well be the case that citizens are *locally* opposing a facility not because they do not want it in 'their' neighbourhood but because they do not want it built *anywhere* (a case of NIABY, 'Not-In-Anybody's-Back-Yard'). For example, Lober and Green (1994, 46) found that approximately 30% of local respondents opposing the siting of waste-to-energy plant were against siting the facility anywhere, while Warren *et al*. (2005, 866) noted similar evidence for the development of wind farms. Thus, Wolsink (2000, 57), when discussing the siting of wind farms, rightly argued that a NIMBY standpoint should not be confused with objections due either to opposition to wind farms in general, because of aesthetic or risk concerns, or to shortcomings of the particular project.

In fact, while juxtaposing NIMBY to other possible predictors, available research has demonstrated that it is *not* the main reason for opposing a development. Wolsink (2000, 2007b) showed that a NIMBY inclination explains very little of the variance in oppositional behaviour towards a wind farm; visual impacts, perceived annoyances, the potential benefits of clean energy as well as the feeling that one can influence the

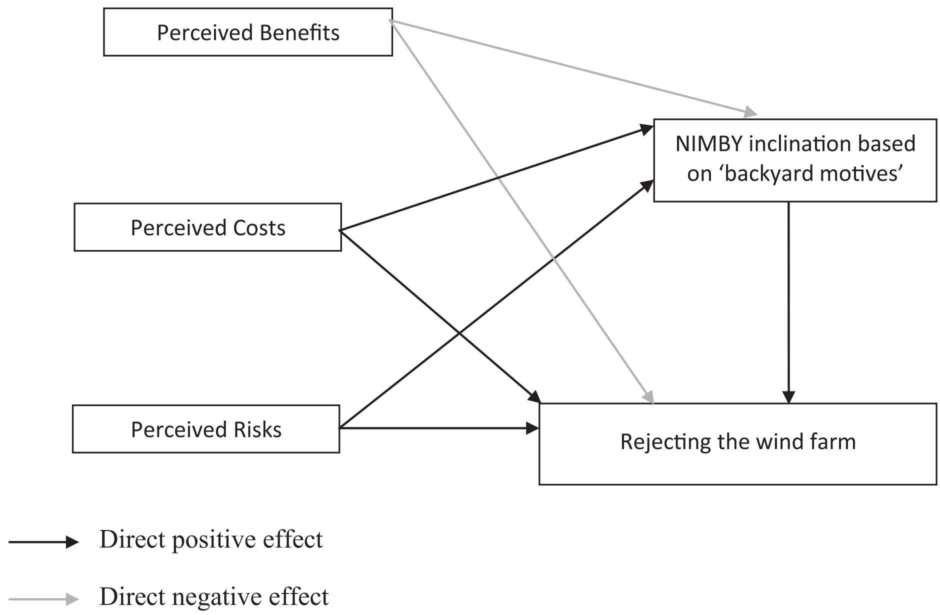


Figure 1. Conceptual Model A, based on Wolsink and Devilee (2009, 222).

decision-making process were all found to have a *greater* impact on the willingness to resist a wind farm. These findings were re-confirmed in another study which focused on a number of disputes concerning waste facilities in the Netherlands (Wolsink and Devilee 2009). The authors found that an individual's opposition also depended on his/her perceptions of the risks, costs and benefits associated with the proposed development than solely on his/hers NIMBY-inclination.

Accordingly, the first structural equation model which will be tested in our study is the one suggested for waste facilities by Wolsink and Devilee (2009), and is presented in Figure 1. Since NIMBY is just one of many possible reasons for opposing a facility, it is important to distinguish between 'opposing a WF' (the dependent variable), the 'NIMBY' predictor concept (based squarely on backyard motives) and all other predictors (such as 'costs', 'risks' and so on). It is logical to expect that perceived 'costs', 'risks' and 'benefits' concerning the siting will be correlated with a NIMBY attitude. Nevertheless, if NIMBY is to provide additional explanatory power for the intention to oppose, it needs to be conceptually distinct from them (Wolsink and Devilee 2009, 221–222). Thus, similar to their their study (221) we expect that:

> *Hypothesis 1 (H1):* A 'NIMBY' stance is correlated with negative attributes and it provides additional explanatory power for opposing the wind farm.

However, a "persistent finding in public opinion research is that individuals' policy options do not tend to be correlated with their own narrowly-defined personal interests" (Lober and Green 1994, 35). Opposition to WFs, particularly to those projects which do not originate from inside the community, appears to stem from a feeling that they were designed by, and will benefit, some outsiders (Pasqualetti 2011, 914). Thus, there have been calls to move beyond analysis of mere self-interests while studying the "community acceptance . . . [i.e.] the specific acceptance of siting decisions and renewable energy projects by local stakeholders, particularly residents and local authorities" (Wustenhagen, Wolsink, and Burer 2007, 2685). A host of available research suggests that acceptance of any wind-farm project may be influenced by "a multiplicity of . . . interacting factors, which are context-sensitive and time-dependent" (Warren and McFadyen 2010, 205): attitudes towards wind power in general; the political environment; private vs. public ownership; being an initiative-from-inside the community vs. one initiated from outside; and the local residents' socially constructed/symbolic 'identity of place' or 'place attachment' are amongst the factors likely to affect the local acceptability of a wind farm development *alongside* the (perceived) risks/benefits/costs to the local community/environment, which are related to the projects' actual, physical characteristics, and any NIMBY considerations (cf. Wolsink 2012).

Two further factors exist which have been singled out as important with regard to local acceptance of WFs: 'fairness' and 'trust'. Researchers have usually distinguished between four types of 'fairness' (or 'justice') regarding the siting process (cf. Besley 2012; Huijts, Molin, and Steg 2012). 'Procedural fairness' refers to the extent that an individual considers that the decision-making process had been properly conducted and that he/she had had a meaningful voice in it. A related, yet rarely analysed, type is 'informational fairness', the belief that decision makers have provided appropriate and meaningful information over the decision-making process. 'Distributive' or 'outcome' fairness refers to whether distribution of perceived benefits, costs and (especially) risks associated with a particular decision is considered fair. Finally, 'interpersonal fairness' relates to whether individuals think that decision makers are respectful of their views and trustworthy, and this is why this type of fairness is usually subsumed under the concept of 'trust'. A growing body of evidence supports the claim that fairness and trust play an important role with regard to WFs' acceptance. Thus, Gross (2007, 2736) found that "the procedural justice principles of appropriate participation, the ability of voice to be heard, adequate information, being treated with respect, and unbiased decision-making were considered important" by locals in WF siting, since their existence helps "to confer greater legitimacy on the outcome." Furthermore, these points relate to the locals' trust in planning authorities (Höppner 2009), a crucial parameter for accepting (or not) a WF (Ellis, Barry, and Robinson 2007, 538). Thus, Jones and Eiser (2009, 4609) found that believing that local government will 'act with due fairness and transparency when furthering their plans for wind development' increased the respondents' positive attitudes towards the development, although Cass, Walker, and Devine-Wright's (2010, 267) study of renewable energy projects (including wind farms) found that "trust in the developer or beliefs about the fairness of planning procedures" were less important in explaining support for a project than the perception of personal impacts/benefits. Breukers and Wolsink (2007, 108) argued that discontentment with the decision-making process could add to negative attitudes, while Devine-Wright (2005, 133) noted that "local involvement, in either economic or political terms, tends to have positive affects upon public perceptions of wind farms."

With regard to the possible interactions between these predictor variables, we know from research regarding other types of facilities that distrust is related with increased perceived risks (Baxter, Eyles, and Elliott 1999, 503–504; Johnson and Scicchitano 2012; Visschers, Keller, and Siegrist 2011), while there is an ongoing theoretical debate concerning the correlation/causality between procedural fairness and trust (cf. Baxter, Eyles, and Elliott 1999; Earle and Siegrist 2008; Huijts, Molin, and Steg 2012, 528–529). Most available research suggests that trust influences people's perception of the planning process as fair and (thus) fosters public participation and co-operation (cf. Höppner 2009, 1047–1048) while, through a feedback mechanism, collaborative decision making is likely to reduce the likelihood of opposition since it will create more local trust (e.g. Wolsink 2007a; Toke, Breukers, Wolsink 2008). Although some are more sceptical of the nexus between public participation and the creation of trust (e.g. Petts 2008; Aitken 2010), few would nevertheless disagree that "Trust may, indeed, be a key concern within the planning and development of wind power" (Aitken 2010, 1840).

Only a handful of studies have quantitatively investigated the role of fairness and trust in an energy policy context; virtually all of them deal with nuclear energy, and they have returned varied results concerning which 'fairness' type impacts more strongly on acceptance. Thus, Krütli *et al*. (2012) found 'procedural fairness' to be more influential than 'distributive fairness' in choosing between different nuclear waste disposal scenarios, *contra* Visschers and Siegrist (2012) who found the exact opposite concerning agreement-with/acceptance-of a hypothetical referendum decision to rebuild nuclear plants once decommissioned. Besley (2012) found that all three of 'distributive', 'interpersonal' and (to a lesser extent) 'procedural' fairness types impacted on satisfaction-with/legitimacy-of the *decision process* concerning the expansion of nuclear plants, yet, in an earlier study of the same development and sample (Besley 2010, 269) he reported that only 'distributive' fairness was positively correlated with *accepting the expansion* itself.

In this paper we do not examine the impact of all four fairness types. 'Interpersonal fairness' considerations will be addressed through the 'trust' predictors (as it is common practice) and we employ a 'distributive/outcome fairness' construct, but we do not consider the 'procedural' and 'informational fairness' types. These latter two types seem of little relevance to the specific research since our dependent variable is the stance towards the *outcome* of a decision process (i.e. the siting of a WF) and not towards the *decision process* leading to this outcome – a fact which contrariwise necessitates the use of the 'distributive/outcome fairness' type. Furthermore, Besley's (2010, 2012) findings suggested that only 'distributive fairness' has a noticeable impact on accepting a decision. Last, but not least, 'distributive' (and neither 'procedural' nor 'informational') fairness relates to the particular focus of our research: to what extent do selfish 'NIMBY' considerations impact on opposing a WF? The basic idea behind the 'NIMBY syndrome' has been that it is a manifestation of free-riding in a social dilemma; locals recognise the social benefits of the proposed development yet they refuse to bear the personal costs associated with it (Wolsink 2007a, 2009). Nevertheless, another possible explanation exists: people may wish to 'pass-the-burden' *not* because they are free-riders but rather because they feel that they get an unfair/excessive (share of the) burden. This latter explanation relates to what Kerr (1995, 39) described as 'the equity norm' in social dilemmas, which "applies to the allocation of resources among group members. It prescribes that payoffs are distributed in proportion to contributions, inputs, or costs." It is because of the equity norm's importance in social dilemmas and of its obvious correspondence with the distributive fairness concept that we opt for the latter as a predictor in our analyses. If it is demonstrated that NIMBY is indeed correlated with *distributive* unfairness then its justification as mere 'free-riding' will be severely weakened.

Hence, and in accordance with previous research (Wolsink 2007b; Wolsink and Devilee 2009), the second structural equation model we will test includes a latent variable tapping on the perceptions of fairness and equity (distributive/outcome fairness) concerning the siting. Similar to Wolsink and Devilee (2009, 221),[1] we expect that:

> *H2:* The explaining power of the backyard motives for opposition to the wind farm will be largely reduced if its siting is perceived as fair.

More particularly, and since if a respondent considers that he/she is treated inequitably, then "the most tempting option may simply be to cease cooperating" (Kerr 1995, 40), we anticipate that:

> *H2a:* Perceiving the siting as unfair will be positively correlated with wishing the WF out of one's backyard (NIMBY).
> *H2b:* Perceiving the siting as unfair will be positively correlated with opposition to the WF.

The final predictor concept in our second structural model is 'societal trust', and we take our cues from the 'social capital' literature. Social capital stills lacks an all-agreed upon definition, perhaps because "social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman 1990, 302). With regard to its latter characteristic:

> as it lowers the costs of working together, social capital facilitates co-operation. People have the confidence to invest in collective activities, knowing that others will also do so. They are also less likely to engage in unfettered private actions that result in negative impacts, such as resource degradation. (Pretty and Ward 2001, 211)

A crucial component of social capital is 'societal trust', which has been shown to play an important role on environmental behaviour (cf. Jones, Malesios, and Botetzagias 2009). When studying the influence of trust, most researchers distinguish between sub-categories of 'social' and 'institutional trust' (cf. Jones *et al*. 2009). 'Social trust' is defined as the perceived level of trust and trustworthiness amongst fellow citizens; it helps to counterbalance any free-riding thoughts and makes it easier for individuals to act in the interest of the common good, since it is expected that one's behaviour will be reciprocated by the others. 'Institutional trust' taps into the institutions' legitimacy, credibility and/or overall acceptance by the citizens and, thus, it is related to the concept of 'interpersonal fairness'; when individuals have low levels of 'institutional trust' then it is more likely that they will oppose some decisions/policies.

Accordingly, we formulate the general hypothesis that:

> *H3:* The explaining power of the backyard motives for opposition to the wind farm will be further reduced if the respondents have high institutional and social trust.

We anticipate that institutional and social trust impact differently on the other predictor concepts. Thus, in accordance with available research (e.g. Baxter, Eyles, and Elliott 1999; Visschers, Keller, and Siegrist 2011; Johnson and Scicchitano 2012, and for a review, Huijts, Molin, and Steg 2012, 528), we hypothesise that:

> *H3a:* Institutional trust will be negatively correlated with perceived risks.

Furthermore, people who do not trust the authorities/developers, i.e. they have low institutional trust, will arguably be more likely to consider the siting decision as 'unfair' to their area and their interests. It should also reinforce the locals' inclination to pass the burden to someone else (i.e. their NIMBY inclination) as well as increasing their opposition to a development which they consider to be promoted by ‘untrustworthy’ agents. Thus, we hypothesise that:

> *H3b:* Institutional trust will be negatively correlated with the perceived unfairness concerning the siting.
> *H3c:* It will be negatively correlated with NIMBY.
> *H3d:* It will be negatively correlated with opposing the WF.

On the other hand, since social trust increases the “expectations of reciprocal cooperation and moral intentions by others” (De Cremer, Snyder, and Dewitte 2001, 94), it is logical to expect that it will act as a counter-balance to the free-riding logic inherent in the NIMBY standpoint; individuals with high social trust would be more likely to accept bearing a personal cost, both because they value the common good and because they expect their action to be reciprocated in the future by their fellow citizens. Thus:

> *H3e:* Social trust will be negatively correlated with NIMBY.

Figure 2 depicts the second structural equation model we are going to check.

With regard to the causal relations assumed in Model B, two clarifications are in order. First, while Huijts, Molin, and Steg’s review (2012, 529) suggested no relation, we propose a direct path from institutional trust to distributive/outcome fairness. This is because we use a more generic ‘trust’ concept. In most other research, respondents were asked to indicate whether they ‘trusted’ the developers/decision makers regarding the decision-making *process* and/or the *particular* issue (e.g. Besley 2010, 266; Besley 2012, 30; Bronfman *et al*. 2012, 248); accordingly, it has been argued that this, issue-specific, ‘trust’ concept shares a reciprocal causation with ‘procedural fairness’ (cf. Earle and Siegrist 2008; Huijts, Molin, and Steg 2012). On the contrary, our concept of

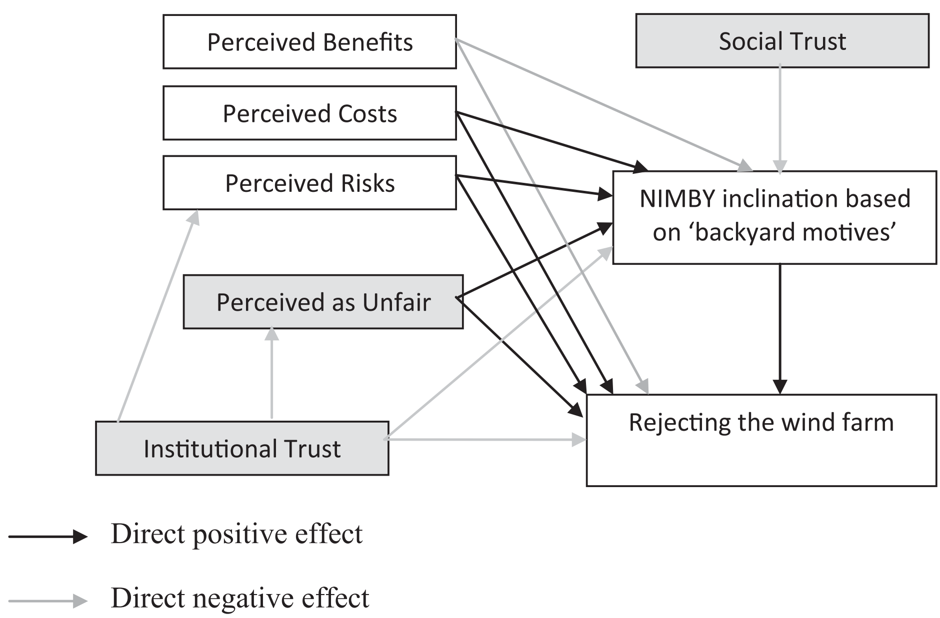


Figure 2. Conceptual Model B (the shaded boxes represent the latent variables added to Model A).

'*institutional* trust' refers to a generic, pre-existing and not context-specific assessment of the developers' trustworthiness and thus it should operate as a prior predictor variable of any fairness' judgements. The second point relates to the direct path from 'institutional trust' to 'opposing the wind farm'. In a study employing a *generic* 'trust' concept, Visschers, Keller, and Siegrist (2011) did not test for a direct trust-effect on the acceptance of a nuclear station. On the contrary, research employing *issue-specific* 'trust' concepts allowed for direct effects and has returned varied results; thus, Siegrist *et al.* (2007) hypothesised and found a statistically significant and positive direct effect of trust on willingness to buy nanotechnology foods – but *not* packaging, while Bronfman *et al.* (2012) found a same effect on accepting the risks related to electricity generation from fossil fuels/renewable energy sources – but *not* from hydroelectricity or nuclear energy. Obviously the issue is far from settled, thus in this paper we also test for the theoretically plausible, yet still unexamined, direct effect of institutional trust on accepting a WF.

3. Data and methods

3.1. Case study areas and samples

Under Greek law, permission to build a WF rests with the Greek Regulatory Authority for Energy (RAE) and the Ministry for the Environment. Local communities and government have the right to opine on an application yet they have no means for rejecting the development as long as it meets the legal requirements (i.e. successful completion of environmental impact studies etc.). Similar to other countries, wind energy electricity production enjoys feed-in tariffs, currently standing at €87.85/MWh for on-shore WFs and €99.45/MWh for the islands (guaranteed for 20 years). Areas nearby the WFs are entitled to 'reciprocate benefits', standing at 3% of the electricity's price (before taxes), payable to the local government.

Our first case study area is the Municipality of Voion, situated at the south-most edge of Lakonia region, southern Greece (see Figure 3). Despite having a high wind-energy production capacity, Lakonia has had no wind farms until recently, when the Greek National Plan for Renewable Energy Sources prioritised it as one of the areas suitable for WFs development. As a result, approximately 40 applications for WFs have been filed for the region (422 wind turbines in total with an envisaged installed capacity of over 220MW). Nevertheless, for the specific case study area (the Municipality of Voion) only one WF application had been filed and approved, despite the fact the local government opined against it; it involves a very small project with just two wind turbines (total installed capacity: 1.5MW), at the 'Dikladi' site. The second case study is very different and concerns the western part of Lesvos island, in the northern Aegean sea. The area hosted some of the first (state-owned) WFs in Greece almost 20 years ago. The current (privately-owned) application involves a single mega-project which will establish 10 WFs with 153 wind turbines (envisaged installed capacity 306MW). At the time of our research, the application was still under consideration by the local government authorities (which nevertheless held a favourable view and in fact opined in favour of the project a few weeks after we concluded our research in the area).

During the years 2011–2012 we visited a number of villages surrounding the areas of the sites of both wind farms and conducted face-to-face interviews with local inhabitants. The sampling technique selected was simple random sampling while, based on the population of the areas surrounding villages and for a predetermined margin of error ($e = 1\%$), the required sample size was 200 individuals for Lakonia and 134 for Lesvos,

Figure 3. Map of Greece showing the case-study areas of Lakonia and Lesvos island.

respectively (see Appendix Table A1 for details of the samples). In the following analyses and discussions we refer to and use the aggregate data.

3.2. Variables used

3.2.1. Dependent (manifest) variable

The dependent variable in our analysis is the respondent's stance towards the proposed WF. In particular, the interviewee was asked to denote whether he/she was 'Strongly against' or 'Strongly in favour' (5-point Likert scale) of the proposed WF.

3.2.2. Predictor (latent) variables

'NIMBY inclination': A truly distinctive 'backyard motives' predictor should tap into what has been the basic idea behind the 'NIMBY syndrome', that it is a manifestation of 'free-riding' in a social dilemma – locals recognise the social benefits of the proposed

development yet they refuse to bear the personal costs associated with it (Wolsink 2007a, 2699). Thus, in order to construct a NIMBY scale, we take our cue from Wolsink and Devilee's (2009) study. We asked our respondents the following question: '*Here follow some statements concerning the wind farm to be constructed at* [name of the area]. *To what extent do you agree or disagree with each one of those statements?*'. We presented the respondents with all 17 statements Wolsink and Devilee (2009) identified as relevant for measuring a local person's "assumed tendency to frame the issue in terms of (economic) rationality and utility maximisation, which can be summarised as 'citizens demand the completion of such projects, but refuse to have them located in their vicinity'" (225). Each statement was measured on a 5-point Likert scale ranging from '1' (Strongly Agree) to '5' (Strongly Disagree). The initial factor analysis of these 17 statements (using a rotated varimax transformation) indicated the existence of four factors as the best solution for explaining the variability in the data (Eigenvalue > 1). Similar to Wolsink and Devilee (2009, 224–227), following the examination of these factors and the statements' loadings, we chose eight of the initial 17 statements to establish the 'NIMBY' scale. All these statements loaded strongly on the first factor returned by the factor analysis (28.2% of the total variance explained), and they related to an individualistic and free-rider attitude, typical of a presumed 'NIMBY mentality': the respondent opposed the *specific* wind farm because he/she did not want to bear a share of the collective problem while he/she wished the WF would move to another location – in which case his/her opposition would cease.[2] These statements, which form a very reliable scale (Cronbach's $\alpha = 0.892$), are the following:

(1) 'It's quite stupid to accept the WF in your own neighbourhood';
(2) 'Because I don't think it's very necessary to bear a part of the collective burden, I don't accept the WF in my neighbourhood';
(3) 'It's completely logical for me that the WF should be sited in someone else's neighbourhood';
(4) 'I don't accept the WF in my neighbourhood, because I think that somebody else would not accept it in his or her own neighbourhood';
(5) 'Accepting the WF in your own neighbourhood means that you don't represent your own interests strongly enough';
(6) 'I don't feel like shouldering the burden of a problem that is also caused by others, by accepting the WF in my neighbourhood';
(7) 'As far as I'm concerned, the WF should be sited in somebody else's neighbourhood'; and,
(8) 'As long as the WF is not built in my neighbourhood, I don't object to it'.

Perceived attributes of the facility and of the siting decision: Most of the statements used in the construction of the following latent variables originate from Wolsink (2007b), Wolsink and Devilee (2009) and Jones and Eiser (2010) and, following these authors' original formulation, are measured on a 5-point Likert scale ranging from '1' (Strongly Agree) to '5' (Strongly Disagree).

- *'Perceived risks'*: 3-item scale (Cronbach's $\alpha = 0.711$); (blade movement would distract drivers and cause car accidents; WF will cause health problems to the locals; there are no risks related to the WF (reversed)).
- *'Perceived costs':* 10-item scale ($\alpha = 0.902$); (WF operation will cause disturbing noise; will spoil our landscape; will cause problems with TV reception; will be

ugly; will harm local husbandry/agriculture; will harm wild animals; will devaluate local land/property; will take up too much space; wild birds will be killed on it; will spoil the view from our village).

- *'Perceived benefits':* 8-item scale (α = 0.904); (WF will improve local environment; will help our area to develop; will offer jobs to the locals; will give extra revenue to our municipality; will impact positively on tourism; will bring about positive changes in our community; will benefit the local economy; will make local electricity bills cheaper).
- *Perceived unfairness:* 2-item scale (α = 0.768); (Siting the WF here is in conflict with my ideas about equity; I don't consider it fair).

Trust: The statements used in the construction of the following latent variables originate mainly from Jones (2010) and, following this author's original formulation, are measured on a 11-point Likert scale ranging from '0' (most suspicious/least trusting of others or of the authorities/most disagreeing with the statement) to '10' (least suspicious/most trusting of others or of the authorities/most agreeing with the statement).

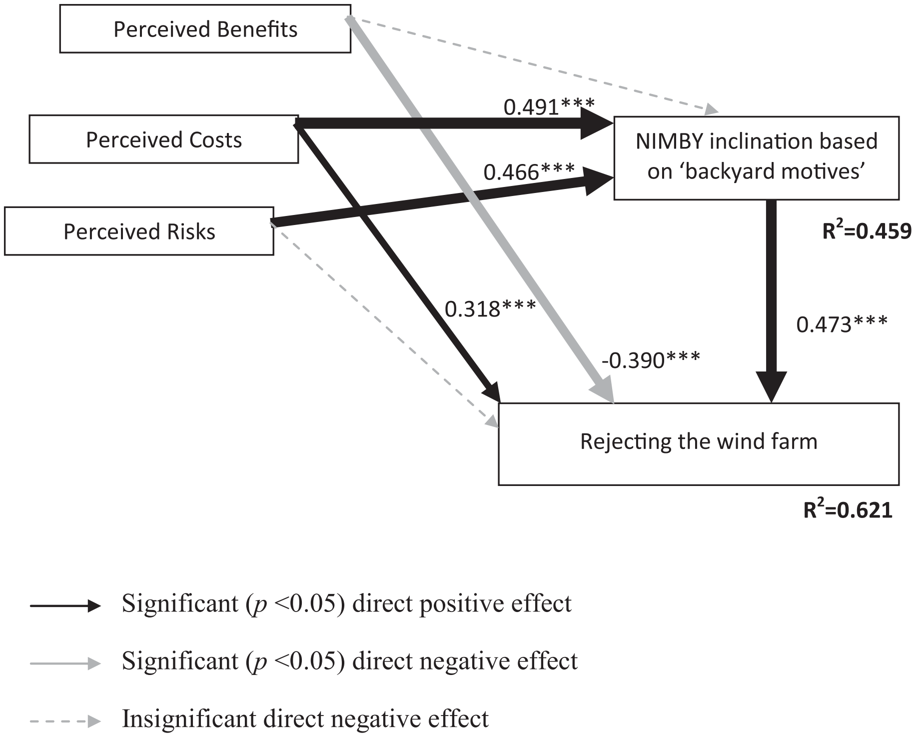
- *'Social trust':* 4-item scale (α = 0.783); ([ranging from] 'most people can be trusted' [to] 'you cannot be too careful'; [ranging from] 'most people are fair' [to] 'they try to take advantage of you'; I trust the people living in my area; I trust the people living in my village/town)
- *'Institutional trust':* 5-item scale (α = 0.893); (I trust: … the government; the Ministry for Environment; the local government in my area; the company which constructs the WF; the Public Power Corporation [i.e. the areas' only electricity provider]).

The descriptive statistics (mean and standard deviation) of the eight constructs included in the models are shown in Table A2 in the Appendix.

4. Results

In order to test the influence of the various latent variables on an individual's stance towards the WF, we fitted two structural equation models, respectively testing the conceptual models presented in Figures 1 and 2. The SEM models were estimated through the AMOS software (Arbuckle 2006). The path diagrams obtained by the fit of our models are shown in Figures 4 and 5. For clarity reasons, only the latent predictors and not their respective manifest variables are shown in these Figures. The single-headed arrows are used to imply the direction of assumed causal influence while the numerical values next to each arrow are the standardised 'path coefficients' (i.e. regression coefficients). Figures 4 and 5 also show the squared multiple correlations R^2 for NIMBY and the stance against the WF. Finally, in the final lines of Tables 1 and 2 we show the results of the goodness-of-fit indices for the models alongside the accepted boundaries for close fit (Hu and Bentler 1999).

Model A includes the perceived benefits, costs, risks and NIMBY latent predictors. As shown in Figure 4, the suggested model explains 45.9% of NIMBY's variance (R^2, squared multiple correlation) and 62.1% of the variance of an individual's stance towards the WF. Table 1 reports the various predictors' effects on rejecting the WF. In the first three columns we report the effects if perceived costs, risks and benefits were the sole predictors (i.e. there would be only direct paths to the dependent variable); in the

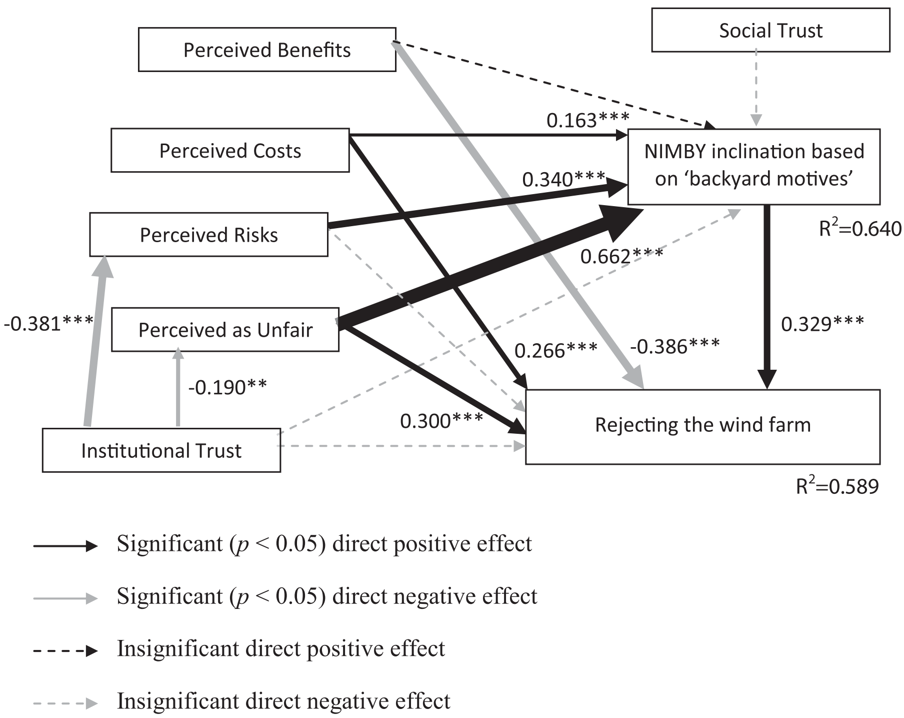


***$p < 0.001$; R^2: squared multiple correlation; chi-square = 1632.3 (df = 399, *p*-value < 0.001)

Figure 4. Explaining the opposition towards the WF, Model A.

remaining three columns we report the results for the ‘full’ Model A (i.e. NIMBY predictor added). As indicated by the various fit indices reported in Table 1, the proposed Model A has a moderate fit.

Our first hypothesis (H1) is confirmed: the NIMBY concept is correlated with negative aspects of the project (see Figure 4) and it provides additional explanatory power for rejecting the WF. As shown in Table 1, the inclusion of NIMBY significantly enhances the explained variance of the opposition (R^2 increasing from 0.499 to 0.621) as well as resulting in a better fitted model (as follows from the goodness-of-fit indices). What does Model A tell us about an individual’s inclination to reject a WF development? First, that the most important factor is the perceived costs, which has a total effect of 0.551 (Table 1). Almost 60% of this effect is direct ($\gamma_{\text{costs}\rightarrow\text{reject WF}} = 0.318$), i.e. clear of any NIMBY considerations. The intention to reject the WF is further reinforced by the perceived lack of benefits which is almost totally direct ($\gamma_{\text{benefits}\rightarrow\text{reject WF}} = -0.390$) (thus also independent of ‘Not-In-My-Back-Yard’ thoughts). This is not to say that NIMBY plays *no* role: the relation between NIMBY and rejecting the WF is significant ($\beta = 0.473$). Yet, its influence is conditioned by the perceived risks ($\gamma_{\text{risks}\rightarrow\text{NIMBY}} = 0.466$) and costs ($\gamma_{\text{costs}\rightarrow\text{NIMBY}} = 0.491$), the later impacting on willingness to reject the wind farm also indirectly, through NIMBY (see Table 1).



***$p < 0.001$; **$p < 0.01$; R^2: squared multiple correlation; chi-square = 2778.6 (df = 766, p-value < 0.001)

Figure 5. Explaining the opposition towards the WF, Model B.

In the second Model B, 'perceived unfairness', 'social trust' and 'institutional trust' are added as predictors. As Figure 5 shows, Model B explains 64% of NIMBY's variance and 58.9% of the variance in an individual's stance towards the WF. Table 2 reports the predictor variables' effects on opposition; again, the first three columns report the results if we only add 'perceived unfairness' to the predictors already present in Model A while, in the remaining three columns, the results for the 'full' Model B ('institutional' and 'social trust' latent variables added) are presented. Similar to Model A, the fit of Model B is suboptimal (see the goodness-of-fit indices in Table 2).

The most important predictor in Model B is the perceived unfairness of the siting decision, with a total effect of 0.518 of which almost 60% is direct ($\beta_{\text{unfair}\rightarrow\text{rejecting WF}} = 0.300$). Both benefits and costs have substantial, and almost totally direct, effects on rejecting the WF. Institutional trust and risks contribute to the rejection of the WF indirectly (see Table 2), the former mainly through risks ($\gamma_{\text{inst. trust}\rightarrow\text{risks}} = -0.381$), the latter through NIMBY ($\beta_{\text{risks}\rightarrow\text{NIMBY}} = 0.340$). Turning our attention to NIMBY, we see that its total effect on rejecting the WF has decreased (to 0.329 in Model B from 0.473 in Model A). Clearly NIMBY is still an important predictor yet its effect on rejecting the WF is conditioned by the perceived unfairness of the decision ($\beta_{\text{unfair}\rightarrow\text{NIMBY}} = 0.662$), risks ($\beta_{\text{risks}\rightarrow\text{NIMBY}} = 0.340$) and even costs ($\gamma_{\text{costs}\rightarrow\text{NIMBY}} = 0.163$).

With regard to the hypotheses we wished to check with Model B, the majority have been confirmed. Introducing perceived unfairness reduced the total effect of NIMBY on

Table 1. Effects analysis on an individual's opposition to the WF for Model A's components (based on the standardised path coefficients).

	Predictors: costs, benefits and risks			Model A		
Latent variables/ effects	Direct effect (DE)	Indirect effect (INDE)	Total effect (=DE+INDE)	DE	INDE	Total effect (=DE+INDE)
Perceived costs	0.548	–	0.548	0.318	0.232	0.551
Perceived benefits	−0.394	–	−0.394	−0.390	−0.007	−0.397
Perceived risks	0.210	–	0.210	−0.023	0.220	0.198
NIMBY inclination				0.473	–	0.473
Squared multiple correlation (R^2)		0.499			0.621	
Goodness-of-fit indices (*in italics the accepted boundaries for close fit of the model*)						
RMSEA (*0.0-0.1*)		0.142			0.065	
GFI (*≥0.85)*		0.657			0.809	
AGFI (*≥0.80)*		0.580			0.777	
PGFI (≥0.50)		0.537			0.694	
Chi-square - χ^2		1037.93 ($p < 0.001$)			1632.3 ($p < 0.001$)	

opposing the WF to 0.342 (4th column of Table 2) from 0.473 in Model A. Nevertheless, the confidence intervals for the regression path from 'NIMBY' to 'opposing the WF' reveal that this reduction is not statistically significant (Model A: 95% C.I. = (0.334, 0.612) Model A plus 'unfairness': 95% C.I. = (0.277, 0.641)), thus Hypothesis 2 can only tentatively be accepted. This is also the case with regard to the introduction of the two societal trust latent variables. While the explaining power of the backyard motives for opposition to the wind farm is further reduced (NIMBY's total effect is now $\beta =$ 0.329), the difference of NIMBY's regression path to opposition is not statistically significant (Model A plus 'unfairness': 95% C.I. = 0.277, 0.641; Full Model B: 95% C.I. = 0.145, 0.513) and Hypothesis 3 is only tentatively accepted.

On the other hand, as shown in Figure 5, perceiving the siting as unfair is positively correlated both with NIMBY ($\beta = 0.662$) and with rejecting the WF ($\beta = 0.300$) (Hypotheses 2a and 2b confirmed). Institutional trust was found to be negatively correlated with risks ($\gamma = -0.381$) and unfairness ($\gamma = -0.190$) (Hypotheses 3a and 3b confirmed). Yet, the correlations between institutional trust and NIMBY and rejecting the WF as well as between social trust and NIMBY, albeit having a negative sign as hypothesised, turned out to be not statistically significant (Hypotheses 3c, 3d and 3e rejected).

As follows from the goodness-of-fit results in Tables 1 and 2, both Models' A and B fit is moderate, since some of the indices fail to meet the thresholds for close fit. Model B explains less variance of the opposition to the WF than Model A ($R^2_{ModelB} = 0.589$ vs. $R^2_{ModelA} = 0.621$) while it also fits slightly worse (as exemplified by the smaller χ^2 value of Model A and the significance of the χ^2 difference between the two models ($\Delta\chi^2$ 1146.3, p-value < 0.05)). Nevertheless, the low significance of the chi-square index in both models should be approached with caution since chi-square is well known to be affected by model and sample size, and the test nearly always rejects the model with large samples (Bentler and Bonnet 1980). This also applies for some of the goodness-of-fit indices (such as GFI and AGFI reported here) since they are transformations of the

Table 2. Effects analysis on an individual's opposition to the WF for Model B (based on the standardised path coefficients).

	Model A predictors plus 'unfairness'			>Model B		
Latent variables/effects	Direct effect (DE)	Indirect effect (INDE)	Total effect (=DE+INDE)	DE	INDE	Total effect (=DE+INDE)
Perceived costs	0.283	0.064	0.346	0.266	0.054	0.320
Perceived benefits	−0.395	0.017	−0.378	−0.386	0.019	−0.367
Perceived risks	−0.003	0.127	0.125	−0.003	0.112	0.109
NIMBY inclination	0.342	–	0.342	0.329	–	0.329
Perceived as unfair	0.280	0.227	0.507	0.300	0.218	0.518
Institutional trust				−0.057	−0.153	−0.210
Social trust				–	−0.012	−0.012
Squared multiple correlation (R^2)		0.580			0.589	
Goodness-of-fit indices (*in italics the accepted boundaries for close fit of the model*)						
RMSEA (*0.0-0.1*)		0.125			0.100	
GFI (*≥0.85)*		0.596			0.717	
AGFI (*≥0.80)*		0.532			0.683	
PGFI (≥0.50)		0.515			0.639	
Chi-square - χ^2		1,875.018 ($p < 0.001$)			2,778.6 ($p < 0.001$)	

chi-square statistic. We will return to the reasons for these results and the implications they have for our research question in the next section.

5. Conclusions and discussion

This paper aimed to analyse NIMBY's influence *vis-à-vis* other predictors on an individual's opposition towards a wind farm. Past research has suggested that 'Not-In-My-Back-Yard' considerations are neither the sole nor the most important predictor of opposition, while NIMBY seemed to be correlated with other explanatory variables, such as risk perceptions, trust or concerns about equity. Nevertheless, few studies have put these claims to the test as far as the siting of wind farms is concerned. Thus, our analysis helps to offer further clues to an ongoing theoretical debate.

In order to study and decompose the effects of the various latent variables on an individual's opposition to the WF, we tested two structural models.

In Model A the predictors were perceived risks, costs and benefits as well as the NIMBY/'Not-In-My-Neighbourhood' stance. This model's overall findings seem to suggest that rejecting the WF is mainly motivated by own-interest calculations; on the one hand, the locals do not see benefits but only costs for themselves from this development (the direct paths to opposition); on the other hand, the perceived costs and risks prompt them to refuse to share the social burden and, ultimately, to reject the WF (the indirect paths from costs/risks to opposition via NIMBY).

However, past research has noted that costs-benefits calculations and selfish considerations are not the only parameters conditioning the locals' opposition: equity/fairness and trust perceptions are also supposed to be influencing both NIMBY and opposition. We tested these claims with our second model.

The effects analyses' results for Model B undermine Model A's provisional conclusion that opposing a WF is solely rooted in self-interest calculation and free-riding, 'Not-In-My-Neighbourhood' stance. The most important (in terms of total effects) predictor in Model B is the perceived unfairness of the siting decision followed while perceived benefits, perceived risks and NIMBY all tie for second place. Crucially, the substantial correlation between perceived unfairness and NIMBY suggests that locals reject the WF 'In-Their-Neighbourhood' not so much because they wish to shift the burden (as is the case for the costs' and risks' correlations with NIMBY), but rather because they consider the decision as unfair. Furthermore, the fact that institutional trust also impacts (indirectly and predominantly through perceived risks) on NIMBY offers evidence that wishing to shift the burden is further influenced by the locals' perception of the pro-development camp as 'untrustworthy'. Overall, Model B suggests that, slightly paraphrasing Wolsink and Devilee (2009, 231–232), "the crucial factor is clearly not that residents have strong intentions to shift the burden to others, but that they consider it unfair that others, the decision makers [and the outsider promoters, who the locals do not trust,] are placing the burden on them."

Most of our hypotheses were confirmed by the data, with the notable exception of the direct influence of the two societal trust variables on NIMBY and on rejecting the wind farm, which turned out not statistically significant. One could argue that this is the case because *generic* trust is too sweeping a feeling to have a noticeable, direct influence on the acceptance of a *specific* project. However, research using *case-specific* trust variables showed that even they do not exhibit a direct influence in *all* cases (cf. Siegrist *et al.* 2007; Bronfman *et al.* 2012); these findings led researchers to argue that the existence of such a direct path should not be taken for granted but that it is rather dependent on the issue's context/characteristics (cf. Bronfman *et al*. 2012, 250–251). Thus, although our research failed to establish the existence of a direct influence of generic trust on accepting a wind farm in particular, this does not mean that such an influence does not exist. Further research is needed to clarify this point, employing both generic and project-specific trust variables as predictors.

As mentioned in the Results section, the fit of the final Model B is suboptimal, meaning that a sizeable number of the associations observed in our data cannot be accounted for. A number of possible reasons exist for this result: the inclusion of paths which turned out to be not statistically significant (e.g. from 'institutional trust' to NIMBY and opposition); technical SEM assumptions which are not necessarily valid for the real world (i.e. for our analysis we assumed that the errors associated with the observed variables are *un*correlated); the omission of plausible paths (e.g. if institutional trust impacts on risk perceptions then one could argue that it may also impact on benefits' perceptions (cf. Siegrist *et al*. 2007 and Visschers, Keller, and Siegrist 2011, for such evidence). All these may reduce a model's fit. However, most importantly, the suboptimal fit may be due to the non-inclusion in our analyses of other, relevant, variables (Norman and Streiner 2003). Thus, on the one hand, using project-specific trust variables, as already discussed, may have resulted in a better fitted model while, given the importance of the 'fairness' concept in the relevant literature, a better fit might be obtained if 'procedural' and 'informational fairness' were modelled in, alongside the 'distributional fairness' construct. Due to our research design, we do not have the necessary data for testing these propositions and we acknowledge this as a limitation of our study. Future research should examine whether the omission of these variables does indeed impact on the models' fit. Arguably, we could improve our models' fit through their *post hoc* re-specification, following the modification indexes provided by the software program. Nevertheless, such an approach runs the risk of obtaining data-driven models and, in any case, this research's goal is not to explore the performance of different, re-fitted models but rather to test a number of hypotheses pertaining to theoretically specified ones.

Therefore, and notwithstanding the aforementioned limitations, we consider it important to focus on the insights Models A and B provide us with concerning the centrepiece of this research, the role of NIMBY in opposing a wind farm. The inclusion of the unfairness and trust variables in Model B did decrease the impact of 'NIMBY' considerations – albeit marginally. In the final Model B, NIMBY is no longer the most important predictor in Model B, and its effect is strongly influenced by the perceived unfairness of the decision (which has a direct effect on it, $\beta_{\text{unfair}\rightarrow\text{NIMBY}} = 0.662$) as well as, yet to a much lesser degree, by the level of institutional trust (indirectly through unfairness and risks). Furthermore, the inclusion of these variables led to a substantial increase of the explained variance for NIMBY (45.9% vs. 64.0% or Models A and B, respectively, see Figures 4 and 5), which is arguably due to the strong correlation between distributional unfairness and NIMBY.

These findings, which are largely stable if we analyse the two case studies separately,[3] suggest that the conceptual model proposed and successfully tested on waste facilities by Wolsink and Devilee (2009) largely holds for the siting of wind farms as well. Similar to these authors, we found that NIMBY/'free-riding' considerations are not the crucial parameter influencing the acceptance of a development while other predictors significantly correlate with NIMBY, a finding which undermines the idea that a 'Not-In-My-Back-Yard' stance is motivated solely by shifting the burden/free-riding ideas. Nevertheless, the suboptimal fit of our final Model B necessitates caution in generalising our results; further research is needed, employing further/other theoretically relevant variables, before we are able to understand to which extent pure 'NIMBY' considerations impact on the willingness to accept a wind farm in one's vicinity. We consider our findings a modest yet important step towards this goal. Our results also suggest that students of the Greek wind energy sector should pay more attention to the role of attitudes and perceptions on the locals' acceptability of WFs. Finally, they offer evidence that if the promoters of wind farms wish to minimise local opposition, they should rather focus on enhancing the perceived fairness of the siting process, offering local communities meaningful benefits (cf. Bell, Gray, and Haggett 2005: 473–474) and creating a climate of trust with local inhabitants instead of repeating the updated, and empirically falsified, 'all-opposition-is-NIMBY' mantra. Such a change of course could well signal a change of wind in the siting of WFs.

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Notes

1. With regard to the remaining factors, five items load on the second one (20.9% of variance explained) which taps into the importance of balancing costs vs. benefits as well as private vs. public concerns before taking a position: *'If good arguments can be found to site the WF in my neighbourhood instead of in someone else's, I will accept such a facility'; 'Because the WF has to be built somewhere, I don't object in advance to it being sited in my neighbourhood'; 'The costs resulting from WFs should be borne by all of us'*; and, *'It's only common sense not to object in advance to the WF being built in your own neighbourhood'*.

   A single statement loads on the third factor (8.8% of variance explained) which seems to denote a 'Not-In-Anybody's-Back-Yard' stance: '*As a matter of fact, I don't think it's fair to saddle another municipality with the WF'*.

   Finally, the fourth factor (6.4% of variance explained) also consists of a single statement, indicating a willingness to pay one's way out of the social dilemma: *'I'm willing in some way to pay extra in order to contribute to the costs of building the WF in another municipality'*.
2. As we demonstrate in the Data and Methods section, we use two manifest variables for constructing one latent variable of 'fairness', whereas Wolsink and Devilee (2009) incorporated those same manifest variables into their NIMBY latent variable (227–228). This slightly different approach has no theoretical consequences, because it is evident from Hypothesis H2a, and it is employed solely for allowing us to study in greater detail the theorised relations between fairness, trust, NIMBY and opposing the WF.
3. The results of individual cases are not presented in detail herein due to space limitations, but they are available upon request. Analysing the two case studies separately returns, overall, very similar results. Qualitatively, the patterns of interdependencies between the various latent variables are highly similar between the aggregate data and either of the two case-study areas. The only differences, with reference to Model B, relates to (a) the correlations between institutional trust and unfairness for either case area, and (b) the correlation between unfairness and rejecting the WF for Lesvos, which were found to be not statistically significant, unlike the aggregate data. Yet in either case the NIMBY predictor was found strongly correlated with unfairness, risks and costs (in diminishing order). The second disparity is quantitative, i.e. the predictor variables' total effects vary between the two cases. In particular, for Lakonia the largest total effects are due to unfairness followed by benefits and then by NIMBY and institutional trust. For Lesvos, costs have the largest effect followed by NIMBY and finally benefits and unfairness perceptions. Nevertheless, these differences in size should not obscure the fact that NIMBY is *not* the strongest predictor in either case study, while they are probably due to the particularities of the two projects' characteristics and areas' socio-political

frameworks; other comparative research (e.g. Khan 2003; Warren *et al*. 2005; Wolsink 2007a; Toke, Breukers, and Wolsink 2008; Dimitropoulos and Kontoleon 2009; Pasqualetti 2011) has demonstrated that differences in the planning framework, perceived impacts, personal experiences, specific characteristics of individual landscapes, institutional factors etc. condition (and differentiate) locals' stance towards a particular WF. Thus, one could plausibly argue that the costs predictor is much more influential for the Lesvos WF since this is a very much bigger project. On the other hand, the importance of the unfairness predictor for the Lakonian case may be due to the fact that the WF is to be built in spite of the local government's opposition. Clearly, these are tentative arguments and further research is needed to understand the reasons for these differences.

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Appendix

Table A1. Places surveyed and number of interviews.

Village/town	Population (2001 census)[a]	No. of interviews
Lakonia region		
Velanidia	431	32
Ano Kastania	97	16
Kato Kastanea	112	17
Faraklo	97	5
Paradeisi	24	2
Agios Nikolaos	836	46
Lachio	423	23
Neapoli Voion	2727	59
Totals	*4747*	*200*
Lesvos island		
Agra	990	32
Eressos	1768	37
Antissa	1156	24
Sigri	400	13
Mesotopos	712	28
Totals	*4242*	*134*

Note: [a]We use the older, 2001 census results because at the time of research/writing the latest 2011 results were not yet available.

Table A2. Descriptive statistics for the (latent) variables.

Variable	Mean	S.D.
Stance towards the WF *(dependent variable)*	3.45	1.24
Perceived costs	3.42	0.82
Perceived benefits	2.81	0.81
Perceived risks	3.02	0.84
NIMBY inclination	2.97	0.89
Perceived as unfair	3.17	1.01
Institutional trust	1.66	1.88
Social trust	4.55	1.74