

Why Citizens (Sometimes) Dispute Public Facility Sitings in Their Neighborhood

– An Experimental Account of the NIMBY-syndrome

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Abstract

The preferred outcome of facility siting processes is the informed consent of those immediately affected by them. Acknowledging the special character of land use politics in democracies, the paper examines empirical support for the idea of NIMBYism. Specifically, it asks to what extent protest is the typical automatic first response when individuals learn about plans to site a public facility in their neighborhood. To answer this question, an experiment was designed in which stake and ambiguity of a planned facility siting was manipulated in a setting which approaches the real world. Results from the experiment, and from a supporting large N-survey of planned facility sitings in the Swedish city Gothenburg, provides evidence against a strong version of NIMBYism. However, while speaking against a simplistic understanding of NIMBYism, results show that self-interested and local concerns do play an important role for individuals' automatic responses to planned facility sitings. It is concluded that that basic idea of NIMBYism should be part of our understanding of the complexities of public facility sitings.

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The siting of public facilities constitutes a dilemma for democracies. On one hand, government must maintain societal infrastructure by replacing aging technology and institutions with infrastructure that is more viable in the long term. On other hand, when public facilities are sited, small groups of citizens disproportionately feel the direct and indirect effects through changes in the local environment and economy, and the presence of new risks. Democratic governments acknowledge the special character of siting decisions by applying particular procedures for decision-making. Relative to most other authoritative decisions, citizens are provided better opportunities for pre-decision involvement and post-decision appeal. The preferred outcome of facility siting decisions is, of course, the informed consent of those affected by them.

Given that stakes are high for affected individuals, it seems inevitable that NIMBYism (Not In My Back Yard) will somehow enter discussions on how to achieve the preferred outcome. The idea of NIMBYism, which gained currency in the 1980s, reflects a belief that affected citizens will oppose most if not all attempts to locate facilities in their neighborhood (e.g. Hall 1989). It implies not only that locals will protest planned facilities, but that they will do so for parochial and self-interested reasons. If the NIMBY syndrome is strong, as argued by many developers whose plans are hindered by citizen protests, government authorities face insurmountable difficulties in their effort to gain acceptance from local residents.

For decades, scholars specializing on facility siting processes have argued against this way of understanding citizens' reaction (for an early example, see Lake 1993). As popularized by the alternative acronym NIABY (Not In Anyone's Backyard), it is

maintained that protest movements against large-scale and/or hazardous facilities are driven by ideological values concerning social justice and ecological sustainability (e.g. McAvoy 1994; Wolsink 1998). Other arguments are that protests are the result of failed planning processes, and that planning authorities frequently break the line of trust between themselves and affected citizens (e.g. Kraft and Clary 1991; Groothuis and Miller 2005). Along these lines of reasoning, a growing literature emphasizes the social character of protest movements; rather than being a simple reflexive response of individuals who are concerned about the well-being of themselves and their home place, NIMBY-reactions are socially constructed (Kraft 1996; Klandermans 1992; Benford and Snow 2000). Even the literature that target community rejection of human service facilities such as homeless shelters – a type of resistance which is hard to reconcile with principles of social and environmental justice – seek alternative ways to understand protest behavior (e.g. Takahashi 1997; Colon and Marston 1999). For one or several of these reasons, the idea of NIMBYism is written off as too simplistic for analytical purposes.¹

While facility siting scholars are largely dismissive, other lines of empirical research are more supportive of the idea that narrow self-interest plays a role for facility siting protests. From a social psychological perspective, protest is an expected outcome of situations with the potential for negative consequences in which a person has a strong personal stake (Thornton and Knox 2002; and, more generally, Crano 1995). Within the political domain, the literature on self-interest and public opinion makes a similar

¹ Theorists in the field question the very notion that individuals are morally obliged to accept the disproportional burdens associated with public facilities (e.g. Hermansson 2007).

argument. In this research, self-interest is ascribed a subordinated role for public opinion – except when stakes are clear and substantial, and/or threats are ambiguous (Green 1988; Sears and Citrin 1982). Indeed, for individuals who learn that the government is planning to site a noxious facility in their neighborhood much is at stake, and threats are ambiguous.

This paper sets out to investigate whether the basic ideas of NIMBYism should, after all, be part of our understanding of the complexities of public facility siting processes (for a similar effort which focuses renewable energy installations, see van der Horst 2007). Within an experimental setting that approaches the real world, the paper will look at individuals' automatic first responses when they learn about government plans to site various types of public facilities in their neighborhood. Specifically, it evaluates whether individuals will oppose the siting of harmless facilities, and whether they will adjust their motivation for resistance to appear more public minded.

This approach differs from the ones usually taken in the siting literature. First, scholars in the field focus more often on collective social movements than on individual citizens. Second, the typical approach of individual level attitudinal studies is to let geographical proximity to an existing premise indicate NIMBYism (see Devine-Wright 2005 for a review of literature with regard to wind power installations). While valuable, such studies are vulnerable for post-hoc rationalizations. Third, and even more important, most studies focuses on resistance towards large scale facilities with clear risks for both the local community and ecological sustainability in general. While motivated from a substantial point of view,

such designs run the risk of confounding parochial concerns and the value-based motives to resistance advanced by researchers.

The analysis proceeds in two steps. I first use findings from an original large N-survey of public facility sitings in the Swedish city Gothenburg to identify relevant controversial and uncontroversial types of facilities. On the basis of this study, which also helps to contextualize facility sitings as they evolve in every-day politics, I have designed an experiment in which participants (a convenience sample of adults) are notified through a fake official letter that government authorities plan to locate a certain type of facility in their neighborhood. Following exposure to the fake letter, in which I manipulate both type and ambiguity of facilities, participants are surveyed about propensity to protest and motives for their reaction.

Overall, findings do not support a strong version of NIMBYism; contrary to the expectation of frustrated planners, participants differentiate between types of facilities. Nevertheless, as deviations are substantially minor, it is concluded that the basic idea of NIMBYism should be part of our understanding of the complexities of facility siting processes.

On the complexity of public facility siting

Maintenance and renewal of societal infrastructure is a major undertaking for democratic governments. The siting literature focuses primarily on the building of large-scale and permanent constructions for transportation such as bridges, railways, and airports (e.g. Burningham 2000); for energy supply such as windmill farms and offshore drilling for oil; for the handling of waste products such as landfills and

incinerators; for water management; and for new technologies for telecommunication such as 3G mobile telephones network. A smaller but still substantial strand of the literature targets controversial human service facilities such as homeless shelters (e.g. Takahashi & Dear 1997; Oakley 2002; Cameron & Crewe 2006). However, there is also a more mundane dimension of public facility siting which is smaller in scale and less controversial for the public at large. For example, the fulfillment of societal functions such as housing, education, health care, and care for the elderly requires physical locations.

A quantitative survey of planned sitings of public facilities in Gothenburg, the second city of Sweden, indicates the magnitude of the phenomenon (study details to be presented below). Over a ten year period in this relatively small city with 500,000 inhabitants, government agencies, and actors with delegated authority from the government, applied to the local housing committee for nearly 3,000 building permits. The majority of these applications dealt with minor improvement of existing facilities, but each generated a political process in which affected citizens were invited to voice concern.

Whether the underlying theoretical framework is one of psychological risk analysis or economic cost-benefit analysis, the siting literature identifies several different negatives associated with public facilities: Personal health concerns; environmental concerns with regard to ecological sustainability, landscape values and subtle values of one's place of living; and material concerns such as property values (e.g. Mansfield, Houtven & Huber 2001; Boholm 2004; Wester-Herber 2004; Farber 1998). With regard to one or several of these negatives, almost all public facility

sitings have negative consequences for affected individuals. This is obviously so for the large-scale and permanent constructions frequently targeted in the siting literature. But also sitings of smaller scale is a nuisance for the few who are affected by them. For instance, an enlarged school building will likely generate more traffic as well as increase the level of noise during day time. The bottom line of NIMBYism is that individuals would be better off personally if the particular facility was sited elsewhere, if only at the block next by.

Democratic governments frequently make controversial decisions that run against the preferences of citizens. However, a principled difference between land use politics and most other policy domains is that the decision making process ascribes affected individuals a relatively stronger formal position. Precise arrangements vary between political systems (e.g. Alterman 2001), but in general government authorities are required, pre-decision, to inform affected individuals and provide formal arenas for voice, and, post-decision, to allow for the appeal to higher instances for decision-making.

From a government point of view, facility siting is one of few policy domains in which individual citizens may act as veto-player with the formal power to delay, or even put to a stop, authoritative decision-making. Because of this it is analytically important to pursue individual level studies. Individuals may well change their minds upon receiving further information about the issue at hand, and about the reactions of other affected individuals (e.g. Benford and Snow 2000), but their automatic response when they first learn about a planned facility siting is an indicator of future actions.

Expected Outcomes

Within the political domain, the idea of NIMBYism can be theoretically and empirically anchored in the literature on self-interest, symbolic politics and opinion formation (Sears et al. 1980; Sears and Funk 1990, 1991). A key insight from this line of research is that the role of self-interest (defined as short-term personal material gain) for citizens' political choices is situational. In many politically relevant situations, including voting in elections to representative bodies, and responses to survey stimuli, people rely primarily on emotionally charged symbolic orientations in the form of party identification and ideological values. However, when people face choices in which stakes are clear and substantial, and in which threats are ambiguous, self-interested concerns weighs more heavily (Sears and Citrin 1982; Green 1988).

This symbolic politics theory falls in line with the core claim of NIMBYism that protesting citizens are moved by their narrowly defined self-interest: When learning about a planned facility siting, affected individuals are to decide whether or not they shall protest plans to locate in their neighborhood a facility that will be of nuisance to them. This presents them with a clear choice over a matter that will have a negative short-term impact on their personal life, and in which risks are often ambiguous.

Symbolic politics theory does not present precise criteria for clarity, substance and ambiguity of choices. Given strong support for the norm of public spiritedness (e.g. Elster 1986), it seems reasonable to use generous criterion. I will assume that a strong version NIMBYism predicts that affected individuals, when informed about the plan, will oppose the siting of almost any type of facility in their neighborhood. In relation

to the symbolic politics theory, this implies that clarity of choice is more important for individuals than the actual substance matter.

It should be made clear that symbolic politics theory also allows for alternative outcomes. To the extent that stake of choice matters more than clarity of choice, we can expect affected citizens to differentiate between types of facilities. Although the theory predicts that self-interested motives are part of the reason for resisting sitings of high-impact installations, individuals might be perfectly willing to accept some nuisances in their neighborhood. Indeed, since proponents of the symbolic politics theory typically use their insights to play down the role of self-interest for public opinion (e.g. Lau and Heldman 2009), this outcome would fit better with the spirit of the literature.

In what follows I will evaluate support for, and deviations from, three indicators of strong NIMBYism.

First, NIMBYism is an idea about political action. It claims that affected citizen will protest actively; purely attitudinal expressions of dislike are not sufficient. Therefore, tests of its relevance must deal with behavior or behavioral intention. The empirical analysis will test support for the proposition that the automatic first response of affected individuals is to protest the siting of relatively harmless types of public facilities.

Second, motives for resistance play a crucial role for critics of the idea of NIMBYism. According to the facility siting literature, people protest because they are critical

towards the function of the facility (rather than its location in their own neighborhood), because of flaws in the decision-making processes that precedes the siting decision, and/or because political decision-makers have proven unworthy of the power entrusted them. In contrast, NIMBYism expects parochial and self-interested motives to be of prime importance. In what follows I will test empirical support for the propositions that initial resistance to the siting of a particular type of facility is directly related to self-interested and parochial motivations.

Third, expressed motivations are only indicators of the real motives for peoples' actions (Hadenius 1984). Since the norm of public spiritedness in politics is widely supported (e.g. Elster 1986), individuals will likely conceal the real motives for their resistance (van der Horst 2007). To uncover a more sophisticated version of NIMBYism, I will test support for the proposition that affected citizens adjust how they motivate their decision across different types of facilities to appear less parochial and self-interested.

Design and Indicators

Participants in the experiment were exposed to a randomly distributed fake letter informing them about plans to site a certain type of facility in their neighborhood. To manipulate the stake of the decision, the letter informed about one of three different types of public facility: a mast for 3G mobile phone technology, a transformer station, and a recycling station. (The reason for choosing these types of facilities will be explicated in the result section.) To manipulate level of ambiguity, an example photo of the facility was inserted for one half of the treatment groups. The experiment is thus of a 3 (mobile telephone mast, transformer station, or recycling station) x 2 (text

only or example picture) full factorial design. Since the fake letter is explicit about the plans of a facility siting, clarity of the decision making situation is held constant at a high level.

The fake letter was copied from the local planning authorities of Gothenburg city (except that example photos are never inserted). It uses a formal text to inform recipients that the local housing committee has received a request for a building permit for the facility type in question (see Table 1 below). Recipients learn where documents are on display, and that they may leave their written comments within three weeks. Although not a formal appeal (the process is in the pre-decision phase), a written comment signals resistance to the planned facility siting. According to Swedish laws and regulations, this type of letter is sent to a narrow group of individuals who are immediately affected by the planned siting.

To capture their automatic first response upon receiving such letter, participants were asked how likely they are to file a written comment protesting the planned facility, to engage in other forms of public protests, and to sign a protest petition in case a neighborhood initiative was taken. These items were designed to capture various thresholds for action.²

² Response alternatives varied from 1 to 7, with designated endpoints “very unlikely” and “very likely”. With adaption to the substance matter, and unless otherwise indicated, this format was used for all survey items in the study.

Table 1. Fake letter and pictures of respective type of facility

Hemköpings
kommun
Stadsbyggnad

Till Byggnadsnämnden har inkommit följande ansökning om bygglov som innebär avvikelser från gällande detaljplan.

Karlslund 706:41

Uppsättning av en 10 meter hög flaggstängsmast för mobiltelefoni. I detaljplanen är området avsatt som allmän platsmark.

Handlingarna finns utställda under tiden 8 mars - 29 mars 2007 på: Stadsbyggnadskontoret Köpmansgatan 20 (vid Karlslundstorget) Öppet måndag-fredag kl 8-16. De som anser sig berörda kan senast den 29 mars 2007 framföra skriftliga synpunkter till: Byggnadsnämnden Box 2554 403 17 Hemköping E-post: sbk@sbk.hemkoping.se



While the stake and ambiguity of a decision-making situation can be manipulated experimentally, motives are subjective constructs. To capture the relative importance of self-interested and parochial motivations for responses, participants were asked about two positives and two negatives associated with the facility siting. The positives concerned how much s/he would benefit personally from the facility, and how much society at large benefits from facilities of this type. The negatives concerned perceived risks for one's personal health and for deterioration of one's living environment. To further capture distinctly local concerns, participants were asked about their affinity with their place of living (e.g. Wester-Herber 2004; Di Pasquale & Glaeser 1999; Deng 2003).

Although the siting literature demonstrates how difficult it is to separate between parochial and more general concerns (e.g. McAvoy 1994), the relative importance of these motivations, and how they vary between types of facility, provides relevant information. For instance, a strong version of NIMBYism would expect participants to be unmoved by perceived benefit for society at large. Moreover, if affinity with one's place of living determines protest intention against harmless facility types, this suggests that parochialism is part of the complexities of facility siting processes.

Participants and Procedure

A total of 297 participants were recruited among travelers by bus and train at the Central Station of Gothenburg. The sample is skewed towards females (52 percent women), the younger (mean age is 43 as compared to 47 for the population at large), the highly educated (60 percent report post high-school education as compared to 45

percent for the population at large) and tenants (47 percent home owners as compared to 70 percent among the population at large.) However, by and large, this convenience sample bears a reasonably resemblance to the population at large.

At the stage of recruitment, potential participants were invited to a study on the siting of public facilities with no further specifications made.³ Those who accepted the invitation were given a randomly distributed printed handout. The handout informed participants that they would be exposed to a letter from a made-up local authority concerning a planned facility siting. They were asked to imagine themselves receiving a corresponding letter regarding their own neighborhood, and to reflect over their likely reaction to such letter. After reading the manipulated fake letter, participants responded to a series of survey items regarding their interest and general evaluation of the planned siting, the likelihood that they would protest the siting, and their perceptions of the consequences of the planned facility siting. The final part of the questionnaire probed for information on various background factors, and invited participants to write down their thought about the study.

While no specific manipulation check was designed, the structure of the data indicates that participants interpreted the stimuli as intended. For instance, perceived health-impact was significantly lower for the treatment “recycling station”, in which citizens are expected to dispose recyclables such as tinned cans and glass bottles, than for “mast for 3G mobile phone technology”, which, according to critics, deliver harmful radiation ($p < .001$, as yielded by a one-way ANOVA).

³ Apart from a symbolic candy, which served as a conversational “ice breaker”, participants were offered no material reward.

A series of one-way ANOVAs detected no statistically significant differences between treatment groups ($p < .10$) in terms of demographic and personal characteristics (education, age, house ownership, affinity with place of living; left-right self-placement, and political interest), indicating that the randomization process worked satisfactorily.

Results

The Setting

To identify relevant types of facilities, I rely on an original large-N survey of planned public facility sitings in Gothenburg, Sweden. This type of comprehensive study is rare within the siting literature, and it will help to contextualize results.

According to the Swedish Plan and Building Act of 1987, Government agencies (and actors with delegated authority from the Government) who intend to site a public facility are required to apply for a building permit to the local housing committee. Following an application, directly affected citizens, organizations and business firms have the right to file comments on the planned building, and, in case a building permit is issued, they can appeal to the County Administrative Board, and further on to administrative courts.⁴

⁴ Technically speaking any individual, organization or business firm can file a written statement or appeal to a court, but decision-making institutions will only consider the views of those who are deemed to be directly affected by the facility. The decision on

For this research, the archive of the local Planning and Building Agency was searched for all applications submitted during the period January 1997 to June 2007. After excluding 995 applications which dealt with “cosmetic” matters, we identified a sample of 1,898 planned public facility sitings of notable consequences for those affected by them. For each case we registered the presence of formal protests (written comments pre-decision, and appeals post-decision), and the decisions of authorities with delegated power to make them. In accordance with common distinctions within the siting literature (e.g. Fischel 2001; Hunter & Leyden 1995; Deng 2003; Schively 2007), the analysis below identifies four general types of facilities: New technologies of potential health impact (represented by 3G mobile telephone technology); Transportation; Human Services; and Other facilities. Table 2 reports the frequency distribution of key variables.

which interests that is directly affected is made by the decision-making institution in question.

Table 2. Planned Public Facility Sitings in Gothenburg City, 1997- 2007

Type of facility	Number of planned facilities	Percent protested	Percent Denied Building Permit	
			Protested cases	All cases
Facilities for New Technologies of Potential Health Impact	488	23.2	30.9	14.5
Masts for 3G Mobile Phones	203	46.8	34.8	32.0
Other Equipment for 3G Mobile Phones	205	6.3	11.1	2.1
Transportation Facilities	120	10.0	25.0	2.5
Public transport	22	13.9	0.0	0.0
Parking	47	8.5	25.0	2.1
Road Improvements	51	9.8	40.0	3.9
Human Service Facilities	462	9.7	8.9	1.5
School and Pre-School Units	283	6.4	11.1	0.7
Health Service Units	52	3.8	0.0	1.9
Eldercare Units	68	5.9	0.0	1.5
Homeless Shelters	27	55.6	13.3	11.1
Mental Health Units	25	24.0	0.0	0.0
Correctional Treatment Units	7	0.0	0.0	0.0
Other Facilities	828	5.4	17.8	1.9
Recycling Stations	211	6.6	21.4	1.9
Transformer Stations	272	1.8	20.0	0.7
Other	337	7.7	15.4	3.0
All	1898	11.3	23.1	5.1
n		1898	214	1898

Initially, there are two general observations to make. First, it appears as if protest matters. In one fourth of the cases (23.1 percent) which generated formal protests decision-making authorities denied requests for a building permit. The corresponding figure for applications that did not generate formal protests was 3 percent (not reported). Second, formal citizen protests are quite infrequent; only one in ten planned facility siting (11.3 percent) was protested against.

Overall, only 5.1 percent of applications were denied a building permit. This means that, once plans had advanced to the stage of application for a building permit, Government authorities were able to follow through on most plans for renewal of societal infrastructure. In this respect, complaints from developers that local resistance hinders development has little bearing on facility sitings in the Gothenburg area.

However, the siting literature often highlights the importance of decision-making procedures (e.g. Oakley 2002; Grimes 2006). While citizens are allowed a more direct say over land-use politics than other policy areas, there are crucial differences between political systems, and between types of facilities (e.g. Alterman 2001). The introduction of wind power technology in Denmark and Sweden is a case in point. Denmark allows affected citizens to have a say at the regional level only, and has seen a much quicker development than Sweden, who allows affected individuals to voice concerns on each individual siting (Söderholm et al. 2007).

The Gothenburg-case illustrates further the subtleties of facility siting procedures. Upon receiving an application for a building permit, the local housing committee decides whether the facility is in accordance with the zoning scheme for the geographical area in question, whether it constitutes a minor deviation from the zoning scheme, or whether it requires a rewrite of the zoning scheme. If any of the latter two, local planning authorities are obliged to furnish affected individuals and organizations with advance information; a rewrite of the zoning scheme even starts a multi-step process in which broad arrays of interests have opportunities to voice concern. An examination of my sample shows that most applications for building permits (64 percent) required the least ambitious level of information dispersion (the

application was thus deemed to be in accordance with the zoning scheme), and that such plans were much less frequently protested than others (5 percent protest versus 20 percent for minor deviations from the zoning scheme, and 40 percent for complete rewrites).⁵ Thus, easily accessible information appears to increase protest propensity substantially.

Although open for alternative interpretations, findings like these are in accordance with the idea of NIMBYism. Its proponents gain further support by looking at protests against human service facilities. The single most frequently protested type of public facility is homeless shelters (55.6 percent protests), and also mental health units often generate citizen protests (24.0 percent protests).

However, while instructive for real-world situations, results from the large N-study speak only indirectly about automatic responses of citizens. Critics of the idea of NIMBYism might point out that most human service facilities were accepted without protest, and that protest propensity varies between types of facilities in a predictable way. For example, protests against new technologies with potential health impacts are frequent (46.8 of masts for 3G mobile phones were protested against), whereas plans for more harmless types of public facilities (transformer stations, recycling stations, health service units, eldercare units) were almost unanimously accepted. Even more

⁵ Even under the least ambitious condition, the part applying for a building permit are sometimes asked to inform those who are immediately affected by the facility after they have received a building permit. Moreover, as all acts are public and accessible from day one of the process it is possible for anyone to inform him- or herself about ongoing projects.

important, the level of analysis is planned facility siting, and not the individual citizen. As a protest is registered whenever a single individual voices concern, the data is not indicative of generic protest propensity among citizens at large.

Key to the design of the experiment that follows is to contrast controversial sitings of masts for 3G mobile phone technology with seemingly uncontroversial sitings of transformer stations and recycling stations. Transformer stations for electricity supply are a relevant point of comparison because they radiate low doses of similar electromagnetic waves as masts for 3G mobile phone technology, but belong to a mainstream technology opposed by few. Recycling stations are relevant because they represent a concern for ecologically sustainable societies but will be of personal nuisance for affected individuals (they will generate noise when people dispose of their glass bottles; their esthetical value is low; and if poorly managed they will become garbage heaps). In the Gothenburg sample, transformer stations and recycling stations were seldom protested (1.8 percent and 6.6 percent, respectively), but since they rarely required changes in the local zoning scheme, affected individuals were not systematically informed in advance. The experiment will tell us whether people, when equally well informed about all three types of facilities, will continue to differentiate between them.

Automatic First Responses

I focus initially on the three separate forms of protest: to file a written comment, to sign a petition organized by someone in the neighborhood, and to engage in public protest. The two former actions represent formal ways to dispute the planned facility but with varying degree of personal effort, and the latter represent a strong commitment to action.

Results reported in Table 3 show that participants differentiate between types of facilities when equally informed. For all three forms of protest, intention to act was stronger for masts for 3G mobile phone technology than for recycling stations, with transformer stations falling in between. Differences between the two former types of facilities are consistently significant at the .05-level, whereas response to the siting of transformer stations only differs significantly from other facilities with regard to petition signing.

Table 3. Behavioral Intention by Type of Facility (means with SD in parenthesis)

Likelihood to (1-7)	Masts for 3G Technology	Transformer Station	Recycling Station
File a written comment	3.4 _a (2.180)	2.9 _{ab} (1.932)	2.4 _b (1.780)
Protest publicly	3.0 _a (1.968)	2.6 _{ab} (1.812)	2.2 _b (1.569)
Sign a petition	4.8 _a (2.176)	4.1 _b (2.089)	3.3 _c (2.095)
n	98-99	98-99	97-98

Note: Means with no subscript in common differ significantly at the .05-level (row wise)

Results also indicate that threshold for action matters for level of protest. For each type of facility, intention to protest is highest for the little demanding action to sign a

petition organized by others, and lowest for public protests (all three forms of protest differs significantly at the .05-level).

When analyzing the importance of stake and ambiguity of the decision-making situation (type of facility; and picture versus text only information), the three forms of protests have been collapsed into an additive index and rescaled to vary from 1 to 7 (Crombachs' alpha for scalability is .86). Table 4 presents the mean and standard deviation of this protest index for respective experimental condition.

Table 4. Protest Intention by Type of Facility and Presence of Picture (means with SD in parenthesis)

	Masts for 3G Technology	Transformer Station	Recycling Station
Text only	4.0 _a (1.811)	3.5 _{ab} (1.754)	2.8 _b (1.561)
Picture inserted	3.5 _{ab} (1.780)	3.0 _{ab} (1.647)	2.5 _b (1.707)
n	48-50	48-50	48-49

Note: Dependent variable is a protest index (1-7). Means with no subscript in common differ significantly at the .05-level.

A two-way ANOVA yields statistically significant main effects of both manipulations. With an effect size of .07 (partial η^2), stake of the decision exerts the strongest influence on protest intention ($F(2,287) = 10.798, p = .00$). The corresponding figure for ambiguity of the decision is .02 ($F(1,287) = 5.034, p = .03$). Thus, contrary to the idea of strong NIMBYism, affected individuals react differently towards the three types of public facility, and, in accordance with symbolic politics theory, stake and ambiguity of the decision increases protest propensity.⁶

When read like this, results do not support strong NIMBYism. There is no evidence that resistance is the generic first response of individuals who learn about plans to site a public facility in their neighborhood.

However, it should be noted that the differential effect is substantially weak.

Participants are more likely to resist 3G masts than recycling stations with transformer stations falling in between, but differences are minor. Generalizing from these results to facility siting in the Gothenburg-area, protests towards relatively harmless facilities like transformer stations and recycling stations would likely increase should affected citizens receive more advance information than they currently do.

Motives for protest

Turning to motives and motivations for automatic first responses, results presented in Table 5 shows how participants in the experiment attribute negatives and positives to

⁶ There was no significant interaction between the two manipulations ($F(2, 287) = .170, p = .84$).

respective type of facility. Once more results show that participants differentiate between facilities. This indicates a process in which individuals assess the specific qualities of a planned facility siting and do not automatically reject any type of siting. However, while statistically significant, differences are substantially small, in particular with regard to perceived benefits for society at large and deterioration of living environment (effect size .04 and .03, respectively). It can furthermore be noted that all three types of facilities are perceived as relatively beneficial for society at large (as evidenced by a mean above the natural mid-point for all three facilities). This is not the expected attribution if 3G technology is viewed as a technological system unsuitable for anyone's backyard (the NIABY syndrome).

**Table 5. Risks and Benefits Attributed to Respective Type of Facility
(means, 1-7)**

	3G- techn.	Transf. station	Recyc. station	F-statistics	Effect size η^2
Benefits society	4.4 _a	4.4 _a	5.1 _b	F(2/292) = 6.61 p=.00	.04
Benefits oneself	2.9 _a	2.8 _a	4.2 _b	F(2/289) = 16.220 p=.00	.10
Health risks	4.0 _a	3.5 _a	2.7 _a	F(2/291) = 13.09 p=.00	.08
Deterioration of living environment	3.9 _a	3.6 _{ab}	3.1 _b	F(2/291) = 4.324 p=.01	.03

Note: Means with no subscript in common differ significantly at the .05-level.

A more direct test of NIMBYism is to estimate the extent to which positives and negatives motivates protest intention. Specifically, I will look for two expressions of strong NIMBYism: First, that perceived benefits of the facility are unrelated to protest intention. Second, that individuals shift motivations for resistance between types of facilities in a direction that allow them to appear public minded (van der Horst 2007). Specifically, I will compare motivations for resistance towards masts for 3G-

technology and transformer stations. The siting of the former facility can credibly be disputed by referring to health risks of an untested large-scale technology, but sitings of transformer stations cannot. From the analyses above we know that protest intention among participants in the experiment is about equally high for both types of facility, but opposition towards 3G-technology might appear more principled and less parochial if motivated by perceived health risks.

Furthermore, I will search for evidence that protests are primarily driven by parochial concerns. Here the harmless character of transformer stations and recycling stations is useful. Specifically, the extent to which protest intention towards these facilities is motivated by perceived deterioration of ones' living environment will suggest NIMBYism. As a further indicator of distinctly local determinants, the analysis will consider individuals' self-reported affinity with place.

Table 6 reports results from a series of OLS-regressions in which the index of protest intention has been regressed on the designated determinants item by item and jointly. Once again a core finding runs against strong NIMBYism. As evidenced by statistically significant coefficients, a belief that the facility is beneficial for society at large motivates a reduced intention to protest against 3G technology and recycling stations (but not transformer stations). This signals that affected individuals are principally willing to carry a burden for the benefit of the many. Interestingly, perceived benefit for the individual him- or herself does not seem to influence protest intention in a systematic way.

Table 6. Determinants of Protest Intention by Type of Facility (OLS-regressions)

Determinants	Bivariate			Full model		
	3G- techn.	Transf. station	Recyc. station	3G- techn.	Transf. station	Recyc. station
<i>Motivational factors</i>						
Benefits society	-.27** (.119)	-.07 (.110)	-.32*** (.096)	-.21* (.098)	-.02 (.080)	-.29*** (.085)
Benefits oneself	-.14 (.106)	-.11 (.110)	-.16** (.079)	.05 (.083)	-.03 (.079)	.13 (.069)
Health risks	.65*** (.076)	.50*** (.074)	.55*** (.084)	.29** (.102)	-.02 (.078)	.21* (.090)
Deterioration of living environment	.70*** (.070)	.70*** (.054)	.63*** (.064)	.46*** (.105)	.66*** (.080)	.49*** (.083)
<i>Affinity with place</i>	.28** (.104)	.40*** (.095)	.00 (.098)	.16* (.073)	.17* (.067)	-.05 (.068)
Adjusted R ²				.58	.64.	.55

n= 95-97 *** p <.001; ** p <.01; * p <.05 two-tailed

The second indicator, however, is supportive of strong NIMBYism. Controlling for other motivations, perceived health risks motivate protests against masts for 3G technology, but not against transformer stations. Protests against the latter installations are primarily motivated by perceived deterioration of living environment. Given that both facilities are equally protested against, this suggests that affected individuals, when facing a choice that allows them to, adjust motivation to appear less parochial and more public spirited.

Furthermore, belief that the siting will deteriorate one's living environment is a strong motivation for protest not only against transformer stations but also against the other types of facility. Moreover, affinity with place determines protest intention against both masts for 3G mobile phone technology, and transformer stations. While not

decisive, all of this suggests that distinctly local factors play an important role for peoples' automatic responses

Conclusion

Facility siting is one of the major challenges that face democratic government. By necessity, some citizens are asked to carry a burden for the benefit of the larger collective. To justify this demand, authoritative decisions are taken by procedures that allow those immediately affected better opportunities to voice concern than in most other policy decisions. Given the personal stake of individuals in the outcome of the decision, NIMBYism – resistance towards a planned facility sitings for selfish and/or parochial reasons – is generally believed to restrict possibilities for authorities to achieve the informed consent of affected individuals. However, scholars that specialize in facility siting processes dismiss the idea of NIMBYism as too simplistic for analytical purposes. With reference to theories on the role of self-interest for human behavior, this paper has asked whether, after all, NIMBYism can help us to a better understanding of the complexities of public facility siting processes.

The strategy for empirical analyses has been to focus on affected individuals' automatic first responses, and to compare protest intention towards controversial and uncontroversial, harmless, types of facilities. This approach has yielded the following main findings.

First, there is experimental evidence that individuals differentiate between types of facilities when first learning about a siting plan. More generally, both stake and ambiguity of the decision affects protest intention, with the former being the most

consequential. Moreover, the belief that a facility is beneficial for society at large reduces protest intention. This indicates a readiness to sacrifice personally in matters of facility sitings. Because of these findings it can be concluded that a strong version of NIMBYism does not gain support.

However, other findings points to the relevance of a more complex form of NIMBYism. First, the differential effect is substantially small; protest intention is only slightly higher against a controversial facility than a harmless type of facility. Second, there is evidence that individuals, when facing a choice that allows them to, adjust their motives for resistance to appear more public spirited. Third, the belief that it will deteriorate one's living environment is the strongest motivational factor for protest intention towards harmless types of facilities. The tendency towards narrow localism is amplified among individuals who feel affinity with their place of living. Furthermore, experimental results, along with findings from the supporting large N-study of real-life siting processes, demonstrate that accessibility of information increases protest propensity.

When introduced in the 1980s, the idea of NIMBYism quickly gained currency among frustrated politicians and developers. According to them, narrow-minded citizens were a hindrance for societal development (Hall 1989). At the time, scholars in the field had good reason to argue that simplistic versions of NIMBYism fail to represent the character of local protests (Lake 1993; McAvoy 1994). However, if the ambition to remain critical of those in power is taken to the extreme that self-interest and parochial considerations among citizens are believed to be irrelevant for the

outcome of facility siting processes, if thus the idea of NIMBYism is outright rejected, results here demonstrates that relevant driving forces will be overlooked.

The findings of this study imply that planning authorities will likely run into local resistance whenever affected citizens learn about their plans. In fact, the probably most effective way to site harmless facilities is to keep citizens uninformed until after the fact. Indeed, given the stakes at play, it seems clear that facility siting will remain a difficult task for democratic minded planning authorities.

At a higher level of abstraction, facility sitings are important objects for the study of democratic government. They are so because lurking in the shadows is the coercive power of the democratic state. Without the informed consent of affected individuals, the decision to site a public facility is an expression of contestedly legitimate power (Mansbridge 1997). Moreover, considering the personal stakes for those involved, the outcome of facility siting processes might well be more consequential for citizens' future relation to the Government than traditional input side politics like elections to representative bodies. For reasons like these, facility sitings deserves a centre place in the study of politics.

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